

Data on Early Child Education and Care Learning Environments in Germany

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Early child education and care (ECEC) learning environments play an important role in children's developmental status and educational outcomes as international research has shown. However, the data basis for analyzing the effects of learning environments on children's competencies and educational trajectories has been rather sparse in Germany. The National Educational Panel Study (NEPS) has been set up in order to contribute to filling this gap. The main task of the NEPS is to prepare Scientific Use Files that are disseminated to the scientific community. Because all NEPS data and documentation are translated and available to the international scientific community, the aim of this paper is threefold: After giving an introduction to the field of research and discussing the objectives and legislative characteristics of the German ECEC system, we present an overview on the sections of the NEPS that survey children 2 years before regular school enrollment and the ECEC characteristics they experience. On the basis of first-wave data, we deliver some first results on how children in Germany are cared for within the German ECEC system. The paper ends with a discussion on further possible contributions, especially when longitudinal data are being made available by the NEPS for quantitative educational research and evidence-based political decision making.

Key words: research data, learning environments, ECEC, Germany

Introduction

Childhood is a period of extensive development in various cognitive and non-cognitive domains. Despite sustained debates on the relative importance of either nature or nurture, there is

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abundant evidence for the influence of not only individual characteristics and preconditions but also of environmental characteristics on children's developmental progress and outcomes (e.g., Brooks-Gunn & Markman, 2005; Silbereisen & Noak, 2006). Ecological theories of development stress how development is influenced by the different environments in which children live and participate (e.g., Bronfenbrenner & Ceci, 1994; Marjoribanks, 2002). One major issue in educational research and in current politics is to determine effects on the

development of children alongside the quantity and quality of early non-parental care and education from this perspective (e.g., Rossbach, 2005; Rossbach, Kluczniok, & Kuger, 2008; Rossbach, Kluczniok, & Isenmann, 2008). In Germany as well as in other countries, public expectations are high: Non-familial care and education settings are supposed to contribute to both, raising the level of educational attainment for all children, and facilitating greater equality of opportunities by reducing educational inequalities that are associated with their parents' socioeconomic background and ethnic origin.

Research on the effects of preschool education on children's development has found that the duration of attending early child education and care (ECEC) is associated with the cognitive level (Sammons et al., 2008), early school entry (Kratzmann & Schneider, 2009) and the future educational career within the school tracking system (Büchner & Spiess, 2007; Seyda, 2009); in general, all children seem to benefit equally from ECEC (Green & Mostafa, 2011). Considering the *quality* of ECEC, there is an association between high quality and better social as well as cognitive skills. Some studies have found that a high process quality is especially related to better linguistic skills (Peisner-Feinberg et al., 2001; Rossbach, 2005; Sammons et al., 2008; Tietze, Rossbach, & Grenner, 2005), which are of particular significance for future

educational careers (Weinert, 2007; Weinert & Frevert, 2008). The current state of international research on the question of whether, and to what extent, the quality of ECEC can contribute to compensating for social disparities at the level of competence, however, is less clear. At least, all children seem to benefit from high quality in their ECEC classes. Moreover, family characteristics have a substantial impact on children's developmental and competence level. Comparing family effects and institutional impact, family effects account for more variance concerning children's developmental state (e.g., Melhuish et al., 2008; Sammons et al., 2008; Tietze et al., 2005; Sylva, Melhuish, Sammons, & Taggart, 2004). Thus—in addition to child characteristics—both the family and institutions, such as ECEC and school, influence the child's development. Current research questions are addressing the relative importance of these environments and the mediating mechanisms that exert these effects. Answering these and similar questions could tell us, for instance, whether, and to what extent, ECEC may serve as “great equalizers” —an issue carrying important policy implications. However, to gain more insight into the mechanisms generating differences in achievement, it will be necessary to apply theoretical explanations to longitudinal empirical data, thus allowing for corresponding subgroup-specific analyses.

Whereas Anglo-American countries can look back on a longer tradition of

large-scale educational research in the field of ECEC, in Germany scientific inquiry of this kind has been rather sparse. Although a special interest in educational research grew during the Sixties (as one of the consequences of the so-called Sputnik crisis) with some delay in Germany as well, those studies were often developed in a rush and sometimes had considerable methodological shortcomings. When German political interest dropped in the second half of the Seventies, public funding of associated research projects also declined. Unfortunately, the research infrastructure that had been built up during that time was too weak to establish a sufficient, systematic, and consistent stock of empirical research (Schmidt, Rossbach, & Sechtig, 2009).

Nonetheless, even though a considerable amount of research has been carried out in some fields of ECEC, nationwide scientific data as a basis for researching and monitoring the field and the effects of ECEC in children's development and educational outcomes are still rare. Administrative data provided by the Federal Statistical Office (Statistisches Bundesamt) are most commonly used, comprising information on ECEC types, sizes of institutions, child-care ratios, educator's formal qualifications, and similar, as well as social science research data, such as, for example, provided by the Socioeconomic Panel Study (Sozio-oekonomisches Panel – SOEP). One recent SOEP-related study focuses on families with young children, providing data on child-care usage and

children's skills (rated by the parents) in order to strengthen the analytical power of evaluating policies with regard to families (Schroeder, Siegers, & Spiess, 2013).

Whereas existing data mainly focus on different dimensions of ECEC and families separately, the studies of the National Educational Panel Study (NEPS) aim to contribute to educational research in the field of ECEC by providing nationwide longitudinal data to the national and international scientific community, including the direct measurement of competencies in different domains (and their development over time) as well as characteristics on the children's familial and institutional learning environments. Hence, data collected by NEPS studies also consider detailed sociodemographic information on the families. Before describing the NEPS in more detail, we will present some information on the legislative framework and objectives of ECEC in Germany, into which the work of the NEPS research team is embedded.

Legislative Framework and Objectives of ECEC in Germany

In Germany ECEC is part of the Kinder- und Jugendhilfegesetz (Child and Youth Welfare Act) and covers care and education services before and alongside school for children from age 0 to 14. As a general rule, children enter school when they have completed the age of 6 years. However, some Federal

States have pulled forward the date of school enrollment by a few months (e.g., Berlin). Prior to August 2013, children between the age of 3 to 6 years old have had a legal right to a place in ECEC. As of August 2013, this legal right has now been extended, covering ages 1 to 6. Institutions caring for children from age 0 to 3 are called *Kinderkrippen* or just *Krippen* (crèches); institutions for children from age 3 to age 6 are called Kindergarten. The latter term is closely linked to the person of Friedrich Wilhelm August Fröbel, who founded the first Kindergarten in 1840. However, especially Kindergartens have expanded their services over the past years by increasingly opening up their institutions to younger children. That is, the classic formal distinction between Kindergarten and Kinderkrippe has vanished more and more and, in this process, various mixed types of child-care institutions have been created, offering child care and education in mainly age-mixed groups. Thus, the German Kindergarten differs from the U.S. kindergarten. In the following, we will use the term ECEC when referring to these different learning environments.

The rates of provision for children younger than 3 years have changed in recent years. Whereas in 2007, about 15.5% of the children were placed in ECEC services, this number continuously increased up to 27.6% in 2012 (Statistisches Bundesamt, 2012a). However, using ECEC services still is most common for children from age 3 until school enrollment¹. In 2010, 89% of 3-

year-olds and 96% of the 4- and 5-year-olds were attending ECEC, and these rates are well above the mean value of Organization for Economic Cooperation and Development (OECD) countries (Statistisches Bundesamt, 2012b). The rates of provision vary between the Federal States as well as between natives and immigrants. Non-German children enter Kindergarten in smaller numbers and also later than German children.

German legislation has set the overall objectives for the ECEC. According to the Child and Youth Welfare Act (Kinder- und Jugendhilfegesetz – § 22 Abs. 2 SGB VIII) of 1990, all ECEC are called upon to

1. Encourage the development of the child's personality to become a responsible and autonomous member of the community.
2. Support and supplement the child's upbringing in the family.
3. Assist parents in better reconciling employment and child rearing.

That is, the ECEC services should be based on the needs of the children and their families in terms of pedagogy and organization. This also becomes clear when looking at the Joint Framework of the German Laender (Federal States) for ECEC (Gemeinsamer Rahmen der Laender fuer die fruehe Bildung in Kindertageseinrichtungen). Here, the formulated educational objectives focus on transferring basic skills, developing and fostering personal resources that motivate and promote children's abilities to take up and cope with future

challenges in learning and in life so that they will be able to become responsible members of society and be open to lifelong learning (Kultusministerkonferenz [KMK], 2004). With the triad of “Erziehung, Bildung und Betreuung” that is well-known in German-speaking countries and is best translated as “education and care (educare)”, a holistically oriented mandate for the promotion of the child is pursued. This mandate is affected by the traditions of early education research and practice. Education is not understood in terms of curriculum-driven school education, but rather as an active appropriation of the world, the culture, etc. that should be stimulated, accompanied, and supported within ECEC education, and which thus becomes the responsibility of the caregivers.

In legal terms, ECEC is part of the public welfare system that shares its responsibilities between Federal Government, the 16 Federal-States Governments, and the communities. The responsibilities that arise from Federal Laws on child and youth welfare are specified in the laws implemented by the Federal States (§ 26 SGB VIII). All 16 Federal States have drawn up their own legislation regarding the regulation of ECEC. That is, each Federal State may set its own standards for services provided in its own geographical area, and these standards are monitored by the State’s Youth and Welfare Office (Landesjugendamt). Standards usually cover the number of places, opening hours, parent fees, building requirements, and child-care

ratios. However, these standards do vary between the States. The local communities are responsible for the planning, execution, and for most part of the funding of the ECEC services. These shared responsibilities are based on the principle of subsidiarity that allows for decision making on the lowest organizational level possible in order to reduce the extent of paternalism from higher governmental decision making. That is, with federalism and subsidiarity there are two basic political principles that underlie the organization, funding, and execution of the ECEC services in Germany.

Research also has to account for the principles of federalism and subsidiarity. Therefore, nationally representative data on ECEC in Germany that go beyond attendance rates are not yet available. The OECD (2006) clearly states this demand:

National monitoring and reporting at population level is managed by the *Federal Statistical Office* which compiles data on the basis of surveys to Länder. Structural characteristics of services (type of facility by age groups, and type of place by age-group) are primarily the focus of data collection. These data have limited application[and]... there is limited research on ECEC in Germany, particularly as universities are removed from the training and supervision of

ECEC staff. Only five university chairs exist in the discipline for the whole of Germany. A large number of project evaluations and small investigations are funded by the Federal government and by individual *Länder*, but access to reports is said to be difficult. (p. 339)

If nothing else, the need for a nationwide reporting and monitoring of ECEC and other educational institutions has led to the foundation of the NEPS. We will describe this scientific infrastructure facility in the next section.

The NEPS as Data Source for Educational Research

Collecting longitudinal data on the development of competencies and educational processes throughout the life span, the National Educational Panel Study aims to provide comprehensive data in the form of Scientific Use Files that are relevant for researchers of various disciplines who are concerned with educational and training processes. By providing all data and documentation in the English language, the NEPS is prepared to meet the interests of German and international researchers alike. The NEPS is funded by the German Federal Ministry of Education and Research and is supported by the Federal States. In order to ensure a successful outcome,

the NEPS project is bound by its academic and scientific responsibility and obligated to meet the high standards and rules for best practice in research, established by the Deutsche Forschungsgemeinschaft (German Research Foundation). It has to be stressed that the NEPS is funded as a research infrastructure. Thus, main task of scientific staff is to develop and provide theoretical sound constructs, test items and survey questions that will lead to a comprehensive data base on education for the scientific community. Therefore, the conduction of statistical analyses of the NEPS data by the NEPS researchers themselves is limited.

The Framework of the National Educational Panel Study (NEPS) at a Glance

The design and structure of the NEPS follows two basic principles. On the one hand, the aim is to provide relevant data and information on educational development to the national and international scientific community as quickly as possible. Therefore, the educational life course is divided into eight stages to provide a closer look at different transitions in the life course. Aside from that, another aim is to provide a wide range of possibilities for describing and analyzing long-term developments in educational pathways within theoretically coordinated dimensions, the so-called pillars of the NEPS. That is, in each stage longitudinal data on the development of competencies, educational processes, educational decisions,

and returns to education in formal, nonformal, and informal contexts is collected, thus allowing us especially to determine a variety of contextual effects on the development of competencies and educational decisions throughout the life span (see Figure 1). The multicohort sequence design of the NEPS covers six starting cohort samples: 6 to 8-month-old children, 4-year-old children in (German) Kindergartens, school children in Grade 5, school children in Grade 9, first-year students at universities, and adults born between 1944 and 1986. These samples will be followed up throughout their

educational career with yearly measurement points. In ECEC and schools, children are sampled by selecting institutions and classes. When leaving the class context (e.g., due to grade retention or changing the school), children will be retracked individually.

Hence, the NEPS was set up to follow individuals' educational biographies and trajectories across the entire lifespan "from the cradle to the grave". Right from the beginning it had been proposed that education neither started with schooling nor ended when leaving school. Therefore, preschool age and ECEC are a major concern of the NEPS.

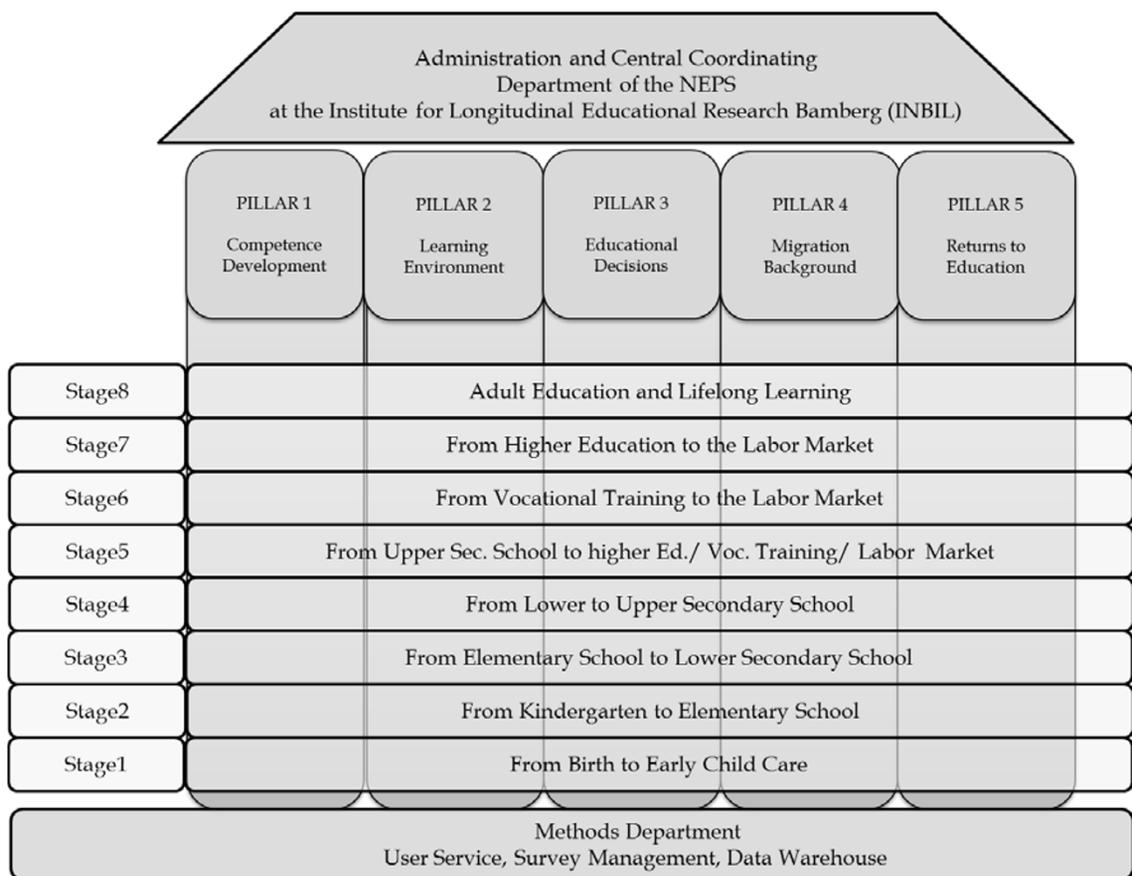


Figure 1. The educational stages of NEPS and their theoretical integration within the pillars.

Within the NEPS one stage (Stage 2-Kindergarten) and one pillar (Pillar 2-Learning Environments) in particular are explicitly concerned with the matter of ECEC. Therefore, we will now give a short description of these NEPS working groups.

NEPS Stage 2-Kindergarten

The major aim of NEPS Stage 2-Kindergarten (i.e., German Kindergarten) is to establish a longitudinal cohort starting with children attending German ECEC about two years before their school enrollment. Since 2011, theory-guided assessments have been carried out with the children, their parents have been interviewed (via CATI), the ECEC teachers and heads have been asked to fill in questionnaires (via PAPI), and the data of the first wave has been made available in October 2012. Data of the second wave is proposed to be published in fall/winter 2013. The overall research questions of this stage refer to (a) the development of competencies and education careers in this age group, (b) ECEC and family as learning environments and the opportunities for learning in non-formal/informal settings, (c) the transition from ECEC to elementary school and the accompanying decisions on education, (d) the extent and the significance of social and ethnic disparities in ECEC and elementary school, and (e) early returns to education. Whereas information on the home learning environment, on families' socioeconomic background, and so forth were being surveyed via

computer-assisted telephone interviews (CATI), characteristics on institutional learning environments were collected via self-administered questionnaires (PAPI).

Especially language skills and language support are given special attention within the first two waves of this cohort. More precisely, this means that, besides vocabulary and grammar comprehension, also phonological awareness and the capacity of the phonological working memory are being surveyed within the first two waves. Concerning language support and training in ECEC, the heads of the participating institutions give information on whether or not training is provided and about general conditions, such as duration, intensity, group size, and type of implementation. The questionnaires for principals also collect further information on educational orientation, programs and networks with external services, size and composition of the ECEC, and the number and qualifications of the personnel. The class teachers of the participating children are asked to complete a questionnaire as well. This questionnaire collects data on the composition of the class, about the frequency of various activities within and outside the class, and about the availability of educational equipment. It also inquires about the qualifications, continuing education and training, and about other characteristics of the ECEC class teachers. These teachers are also asked to provide information and give their opinion on those target children

for whom they are responsible on a daily basis.

NEPS Pillar 2-Learning Environments

The concerns of NEPS Pillar 2-Learning Environments are twofold: (a) capturing the diversity and cumulation of learning opportunities in different formal, nonformal, and informal as well as familial learning environments and (b) complementing this quantification with assessments of quality features of the learning environments whenever possible (cf. Baeumer, Preis, Rossbach, Stecher, & Klieme, 2011). Quantifying the diversity of learning environments in cross-sectional as well as longitudinal modes is in itself an innovative procedure because educational research usually covers single learning opportunities only (e.g., math instruction) are covered. But the assessment of the educational quality of diverse learning environments, drawing on a general framework model, is one of the most promising offers that NEPS is providing to the scientific community. Within the framework, we differentiate between three quality domains: *structural quality* (framing conditions of an educational setting—e.g., the iron triangle), *orientational quality* (beliefs and opinions concerning the education of actors within an educational setting) and *process quality* (particularly interactions between actors within an educational setting). Process quality is at the center of interest as it mediates between the structural and orientational input conditions and outcomes. Over the last

years a basic dimensioning of process quality has evolved in empirical educational research (cf. Klieme & Rakoczy, 2008; Seidel & Shavelson, 2007). Three basic dimensions are considered: *structuring* relates to the arrangement of educational processes within a learning environment, *support* is defined by positive emotional relations between the actors of an educational setting and *challenge* refers to the cognitive examination of an issue. In the assessment of process quality it is not always possible to separate the three dimensions, thus referring to a more global estimate. However, as the dimensions can be conceptualized as interdependent, also a global identification of process quality is valuable.

The framework model of educational quality is fully utilized for mainly formal learning environments, such as ECEC. Actors within these settings can easily be asked about the structural characteristics of the environments as well as about their own orientations. Concerning process quality a multi-actor perspective is preferable in most cases, because it relates to interactions between actors. It has been argued that the silver bullet for the assessment of educational process quality is observation by an external person. Beside some limitations of this approach that are yet existing (cf. Clausen, 2002), in a panel design like the NEPS observations can hardly be implemented, due to their demand on financial, technical and personal resources. It has to be noted that for nonformal and informal

learning environments quantification of learning opportunities is focused and (process) quality is only surveyed for selected aspects and from the perspective of the target person only, because multi-actor perspective is not available in these cases. Another limitation applies notably to ECEC. Because children are too young to give reliable accounts on process quality, we have to rely on teachers' reports. It can be shown that teacher reports can give information on process quality in ECEC classes even though they are no assessments of quality per se (cf. Baeumer & Rossbach, submitted).

First Results on Characteristics of the German ECEC

The sample consists of children attending German ECEC about two years before their school enrollment. To be able to accompany these children later on in their elementary schools, an indirect sampling method was used. This indirect sampling method is based on a nationally representative sample of elementary schools. In order to make it possible for these elementary schools to function as a link between the early childhood and school surveys in the NEPS, all ECEC from which children are being transferred to schools in this sample have been identified. Then, a random sample was drawn from these ECEC. The survey and individual tests of the first wave started in 2011, comprising 279 ECEC with 2,996

children that were cared for in 720 groups. Panel stability cannot yet be specified as data of the second wave will be available not until end of 2013.

The results reported are based on self-administered questionnaires that were filled in by the heads of institutions and the teachers of the participating ECEC. Whereas the questionnaire for heads focuses on gathering information on characteristics of the respective institutions (e.g., size and composition of the ECEC, staffing, pedagogical orientations, etc.), the questionnaire for teachers focuses on gathering information on class characteristics (e.g., size and composition of the class, activities, materials, etc.).

Results

There are different ECEC providers in Germany. A distinction can be made between public and nonpublic (but nonprofit) providers, with public institutions being managed by local communities. Nonpublic providers often belong to the church or to welfare organizations. Whereas 34.8% of the participating institutions are run by public providers, the majority is controlled by nonpublic organizations. Most prominent among the nonpublic sponsors are church-based organizations: 25.5% are run by Diakonisches Werk and other sponsors affiliated with the Protestant Church, and 18.1% are managed by the Caritas and other sponsors associated with the Catholic Church. Interestingly, the share of children with immigrant background is

not significantly higher in public institutions than in institutions run by church-related providers. Looking at the fees for ECEC services, we find that about 18.8% of the parents report paying nothing. The mean value of fees is about €96 with a big standard deviation of 89, mostly due to some outliers paying up to €1,060 per month. However, 90% of all participating parents are within the range of 0 to €200, and the amount of fees parents have to pay does not vary between public and nonpublic providers.

The overall size of institutions measured by the sum of children that are registered varies substantially: Whereas most institutions have about 67 registered children, the mean value amounts to about 75 children with a standard deviation of 37.4 due to some very large institutions that record up to 245 registered children. However, the overall size of the institution does not seem to be associated with the children's competencies, and there is no significant difference between public and nonpublic providers with regard to the number of registered children.

Opening hours range between 25 hours and almost 78 hours per week in our sample, but the middle 50% of the distribution lies within the range of 30 to 65 hours and clearly concentrates on 45 hours: More than 25% of the institutions report that they provide their services on 45 hours per week. Again, there is no significant difference between public and nonpublic providers, but the size of institutions positively

correlates with the number of opening hours.

In order to structure the work of looking after the children in these institutions, almost all ECEC form core groups. Only about 5% of the participants report that they work exclusively with open groups without forming any core groups. Most common are age-mixed groups (children between the ages of 2 or 3 to 6 years old), but about 40% of institutions also report to have special groups for children under the age of 3 (crèches). The mean size of our target children's core groups amounts to about 20 children. The mean share of children with immigrant background in these institutions is recorded as 21.2%, (SD = 24.1). Most groups have two teachers working part-time (50-75% of a full-time equivalent).

Irrespective of ECEC providers and the way in which working with the children is organized, there is a German peculiarity concerning pedagogical orientations. The so-called situation-oriented pedagogy (Situationsansatz) has a long-lasting tradition in the practice of working with children. "Erziehung, Bildung, Betreuung" (educare) are inseparable activities in this approach. However, there are also other pedagogical concepts such as Waldorf, Montessori, or Reggio that some institutions include in their everyday work. We have asked the heads of institutions as to the extent to which their day-to-day pedagogical work is influenced by different pedagogical approaches. As a result,

87.1% reported to be fairly or very influenced by the Situationsansatz, 13.9% by Montessori, and 8.8% by Reggio pedagogics (multiple answers were possible).

Furthermore, the ECEC institutions may focus their work on supporting (one or several) areas of development. Most institutions stated that they had a specific focus (77.2%). Most prominent is the focus on motor development (51.9%), music (30.4%), and natural sciences (33.8%), whereas mathematics (17.7%) and foreign languages (12.0%) are reported much less in comparison.

Despite its popularity, the Situationsansatz has been criticized for being simplified and arbitrary in practice because of its (theoretical) complexity. As a reaction to this early criticism during the nineties, and as a consequence of the German PISA shock about 10 years later, the debate on educational standards for ECEC environments has become more prominent (OECD, 2004).

Since then, more emphasis has been placed on the educational task of the ECEC environment—first and foremost in terms of political declarations of understanding and programs on the federal and state level. Several constructs are measured within the NEPS that consider quality development, education plans, and the amount of structuring the everyday work in terms of written lesson plans. We asked the heads if their institutions had participated in any quality development program over the past 12 months and 45.3% of them agreed. Because there are

numerous measures and plans for quality development, we offered a list from which to choose the most prominent quality measures. The results indicate the heterogeneity in this field because the majority of institutions reported having engaged in a program that was not included in the list. Since 2005, almost all German Federal States have introduced education plans for the ECEC sector. Those plans can be best understood as guidelines for a curriculum. Those plans differ substantially by state concerning their length and particularity, but none of them is a compulsory curriculum. Instead, it must rather be viewed as a reference guide for educational tasks and focuses in the field of ECEC. We asked whether the daily work was influenced by these plans and whether these plans were useful for their (everyday) pedagogical work. Consequently, 93.7% of the participants rather or fully agreed that their work was influenced by these education plans, and 88.5% rather or fully agreed that these plans were useful for their pedagogical work. Furthermore, working with and fostering the development of children with special educational needs can be organized by using individual plans. Here, 46.8% of the institutions reported that they had individual plans to foster children with developmental disabilities, 40.5% had those plans for children with disabilities, 27.9% for children with immigration background, and 9.7% had plans for gifted children. International research has indicated that ECEC class

teachers' level of qualification is associated with ECEC quality and thus also with the children's educational progress (Sylva et al., 2004). However, looking at the pedagogical staff in Germany's ECEC, there is almost no variation with regard to the formal educational level. With 69%, *Erzieherinnen* (the name *Erzieherin*² derives from the German term *Erziehung* and might be best translated as kindergarten pedagogue) form the major part of the total personnel employed (Statistisches Bundesamt, 2012). Surveying the demographics and qualifications of the participating heads of ECEC institutions, we found that about 95% were female, and their mean age was 51 years. As ECEC class teachers, about one third of the heads of institutions held qualifications allowing them to study at university, and almost 23% also had a professional qualification based on a university degree. Most of them had participated in further training over the past 12 months. On average, the duration of further training activities was 77 hours. The most hours of further training were spent on learning about fields of quality development and management tasks. Looking at the ECEC class-teacher demographics and qualifications, only about 2.7% of the group leaders were male. The mean age was approximately 42 years. About one third of teachers had left school with a degree that allowed them to study at university. Yet only about 5% held a professional qualification based on a university degree, whereas about 90%

were *Erzieherinnen*. More variation becomes visible when looking at further training. The class teachers participated in about 30 hours (mean value) of further training within the last 12 months. Most hours of their further training was concerned with the fields of reading, writing, school preparation, quality development, and support of children with special needs. Further training concerning the documentation of children's developmental progress was mentioned most often, but—regarding the number of hours actually spent on this field—took up a smaller share of training courses.

Discussion & Outlook

As already mentioned in the introduction, one major issue of early educational research and politics is to determine educational and compensatory effects of early child care and education. The public and political expectations are high for ECEC to show those effects and although there are no binding curricula in the field of German ECEC, the Federal States have focused on introducing educational plans and language support programs over the past years.

As part of other preliminary analyses we have determined the socioeconomic disparities in children's competencies of Starting Cohort 2—Kindergarten, which are already present in the first wave (Linberg & Wenz, 2012; Linberg, Relilkowski, & Schneider, 2013). Table 1

gives an overview on effect sizes (Cohens d corrected for uneven groups) of the gaps in vocabulary and scientific literacy for different subgroups in this sample.

The differences reported here compare the effect size of the competence difference related to affiliation to lower versus middle social class, having parents with low versus intermediate education, or belonging to a household that is in the lowest versus the middle 20% of the overall income distribution, and so on. This is not intended as a comparison of extremes, but rather aims to document the extent of the competence gap that emerges as a result of growing up in less favorable conditions.

Whereas there are almost no differences concerning the gender of children aged 5, the parents' education,

income, and especially having an immigrant background does make a substantial difference.

Also, taking into consideration that an age difference of 1 year amounts to $d = .76$ for vocabulary and $d = 1.20$ for scientific literacy, these gaps are not only evident in numbers but, for language competencies, also become substantial in meaning: If ECEC aim to provide children with a more even start at school enrollment, they will have to make up a difference of more than 1 year regarding immigrant children. The aim of *this* paper has been to provide some information on the legislative framework and on the objectives of German ECEC. Some first descriptive results have been presented to show the scope of descriptive data for reporting and monitoring the ECEC system in Germany provided by the NEPS In

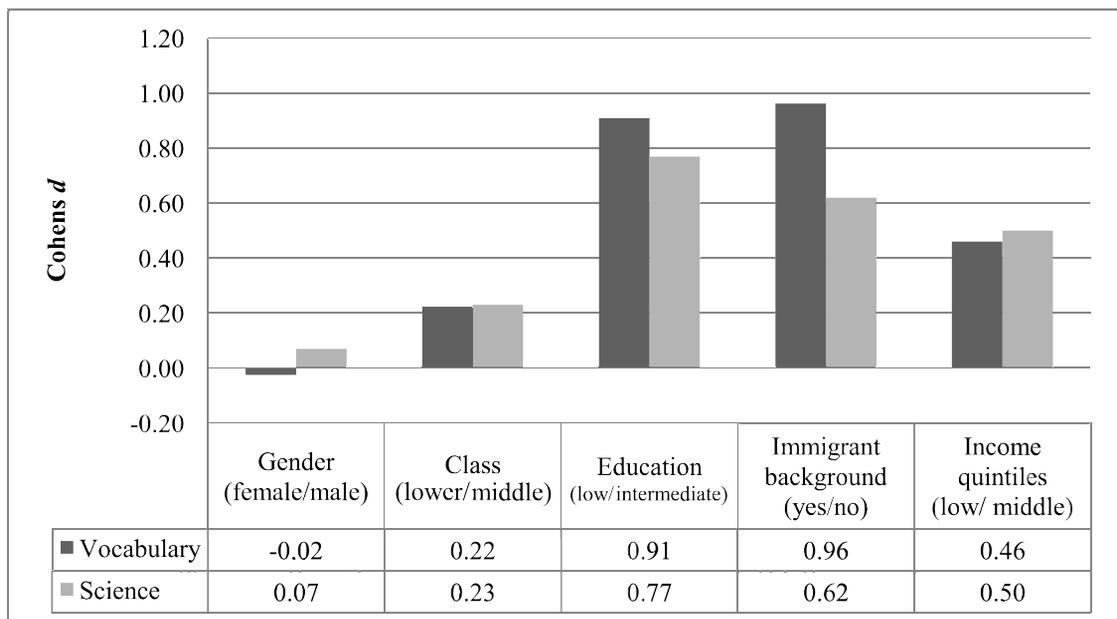


Figure 2. Effect sizes of differences by background characteristics

order to provide a view of how children in Germany are cared for. However, taking into consideration the high expectations and the political efforts made so far, the question arises if, and to what extent, the reported characteristics of institutional care and education may affect the competencies in general and those gaps in particular. In order to contribute to the question if, and to what degree, institutional and familial learning environments as well as individual/personal characteristics of the target children contribute to the development of competencies and the gaps in competencies by individual and socioeconomic background variables, sophisticated theoretically based models have to be applied to longitudinal data. This will first be possible with second-wave data that are going to be made available in the fall of 2013 and that will become more sustainable with every additional NEPS wave.

Unrelated to this important but specific research question, the scope of possible analyses is broad because the NEPS data go far beyond any other data source in Germany. Nevertheless, the results reported in this paper are only a very small portion of the data that are and will be provided by the NEPS:

1. Given the single variables that have been presented here, a more comprehensive view could lead to an overall assessment of the educational quality of the surveyed preschools and preschool groups.
2. The single variables and overall evaluations can be related to other information, most notably of the target children (e.g., their competencies).
3. The presented results all stem from the first wave of NEPS Starting Cohort 2—Kindergarten. As the second wave is also situated in the ECEC, possibilities will emerge of looking at changes and developments at institutional level.

Another sample (NEPS Starting Cohort 1—Early Childhood), which started in 2012 with 7-month-olds, will provide additional possibilities for analyzing the German ECEC system. On the one hand, this will allow analyses of historical societal and institutional trends in Germany (within a time interval of 4 years). On the other hand, new insights into the process of entering ECEC can be gained. This had not been possible for Starting Cohort 2—Kindergarten as target children were sampled within the ECEC. But it has to be kept in mind that this data will not be available before 2018. As NEPS will be funded on a permanent basis and will be allowed to raise additional funding from the year 2014 on, supplemental observational studies on the process quality of ECEC classes may be conducted with this cohort. As mentioned before, until now data on the ECEC system had been based on self-reported information by the heads of ECEC institutions and ECEC class

teachers. Whereas self-reports are clearly the method of choice for educational orientations, structural and especially process features might thus be distorted. Therefore, results reported in this paper mainly relate to factual information.

Although the NEPS offers a bulk of information on the German ECEC, it has to be stressed that this is only one part of the major task of providing data on individual educational biographies and decisions as well as competence development over the life course. All information on learning environments serve mainly as predictors or influencing factors of these criteria. Nevertheless, ECEC are not the only factors considered. Family and child activities outside the home or preschool are taken into account as well. In addition, special attention is given to the relations and transitions between different learning environments such as the family, ECEC, and school. Hence, not only single learning opportunities but their diversity and cumulation can be analyzed with regard to children's competencies and educational outcomes as the panel will continue to progress over the coming years. Against this background, the longitudinal perspective becomes highly relevant. It is easy to imagine the possibilities for analysis when the panel persists to run over a prolonged period of time. For example, what is the long-term impact of preschool attendance and preschool quality on competence development or educational decisions? Does it influence

even social participation in adulthood? Are there any long-lasting compensating effects of high-quality ECEC for children from less advantaged families?

NEPS data are also methodologically sophisticated. Given the large sample size on individual as well as institutional level, even multilevel structural equation modeling can be applied without any problems. Special attention is paid to issues of weighting and imputation.

NEPS provides, first and foremost, an infrastructure to the scientific community in the field of (quantitative) educational research. With different ways of data access and a comprehensive documentation in German *and* in English provided free of charge, the possibilities are countless and will grow with every wave of data collection (for further information see www.neps-data.de). Not least, there is also the chance of cross-national comparisons of ECEC, keeping in mind the German peculiarities.

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Notes

- ¹ Compulsory school age is 6 years. In general, children who have turned 6 by the end of the summer vacation may begin school in September.
- ² In general, after obtaining the lower secondary school diploma and 1-2 years of practical experience, Erzieherinnen receive 3 years of vocational training (not at college or university level) including a 1-year internship.