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**TECHNICAL REVIEW OF THE ANALYTICAL BENEFITS TO BE GAINED FROM COLLECTING
STAFF-LEVEL DATA ON ECEC**

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TECHNICAL REVIEW OF THE ANALYTICAL BENEFITS TO BE GAINED FROM COLLECTING STAFF-LEVEL DATA ON ECEC

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1. Introduction and Overview

1. This paper aims to clarify what insights could be gained through a staff-level survey about the *teaching, learning and well-being environment* in ECEC settings. It will give advice with regard to the statistically defensible insights and constraining features of development of an ECEC staff-level survey, list other possible research questions such a survey can respond to, provide advice on the scope of the survey, and list possible operational constraints and risks.

2. This paper is based on the work as outlined in the proposed analytical framework [[EDU/EDPC/ECEC\(2013\)1/ANN2](#)]. This framework distinguishes input, process, and output indicators. In doing so, some additional aspects have to be considered: While the main causal chain can be conceptualized as going from input via process to output, outcomes can re-enter as inputs in subsequent sequences of the causal chain. An example is child's language competencies, which are certainly an important outcome of an ECEC setting, but they can also serve as an input since it affects the child-staff interactions, thus the process. *Inputs* to be considered consist of structural characteristics of an ECEC setting as well as personal characteristics of the ECEC staff members. *Process* relates mainly to interactions between staff and child. Also conditions that foster these interactions (like available materials) can be related to pedagogical processes. *Output* is often referred to child outcomes like cognitive and non-cognitive competencies but other outcomes should not be neglected. Especially for an ECEC staff-level survey outcomes related to staff (e.g., job satisfaction) seem valuable.

3. This paper will discuss the possibility of an ECEC staff survey as developed within the German National Educational Panel Study (NEPS) framework under the authors' responsibility. Therefore, I will first give an overview of the NEPS in the next section. After that I will consider aspects (contents) to be included in an ECEC staff-level survey in section 3. Beside experiences from NEPS I also draw from TALIS (Teaching and Learning International Survey). Section 4 will give advice on the implementation, and feasibility of an ECEC staff-level survey. The paper closes with a short conclusion.

2. National Educational Panel Study (NEPS) in Germany

4. NEPS is a scientific infrastructure providing access to a database on educational processes and trajectories covering the whole lifespan (Blossfeld et al., 2011). Therefore, six panel surveys with different cohorts are conducted (for details, see below). Education is considered as a lifelong process that neither starts nor ends with formal schooling. The underlying theoretical orientation is a life-course perspective which bridges psychological and sociological theories and embeds individual development within a social and historical context (Blossfeld and von Maurice, 2011). The concept of NEPS has been framed around five pillars that form the theoretical foundation of the study:

- Pillar 1: Competence development across the lifespan;
- Pillar 2: Education Processes in life-course-specific learning environments;

- Pillar 3: Social inequality and educational decisions in the life course;
- Pillar 4: Educational acquisition with migration background in the life course; and
- Pillar 5: Returns to education in the life course.

5. For every NEPS Pillar there is a team of researchers working mainly on two tasks: (1) to keep track on the ongoing theoretical discussions and empirical evidences in their respective field of work and (2) to develop items and instruments for the surveys that are conducted in the different cohorts of NEPS (see below). There is one marked difference between NEPS Pillar 1 and all other NEPS Pillars, namely concerning instrumentation. The team of NEPS Pillar 1 is responsible for the development of test items and test instruments for competence tests whereas the teams of NEPS Pillars 2 to 5 take care of the survey instruments. With respect to ECEC settings, the team of NEPS Pillar 2 is in charge because it concerns the diversity and quality of formal, non-formal, informal as well as family learning environments and other learning opportunities over a person's lifespan. Concerning quality, a framework model is used that bears a close resemblance to the second tier of the analytical framework of the OECD Network on ECEC [[EDU/EDPC/ECEC\(2013\)1/ANN2](#)]. Within the framework, three basic quality domains are differentiated: structural quality (framing conditions of an educational setting—e.g., the “iron triangle” of staff-child ratio, group size, and staff qualification), orientational quality (beliefs and opinions concerning 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 (Baeumer et al, 2011).

6. In addition to the NEPS Pillars that provide the theoretical foundations of the NEPS, eight stages that divide the life course into meaningful educational periods have been identified:

- Stage 1: From Birth to Early Child Care;
- Stage 2: From Kindergarten to Elementary School;
- Stage 3: From Elementary School to Lower Secondary School;
- Stage 4: From Lower to Upper Secondary School;
- Stage 5: From Upper Secondary School to Higher Education, Vocational Training, and the Labor Market;
- Stage 6: From Vocational Training to the Labor Market;
- Stage 7: From Higher Education to the Labor Market; and
- Stage 8: Adult Education and Lifelong Learning (see chapter 18, this volume).

7. As for the NEPS Pillars there are also teams for every stage which (1) provide stage-specific elaborations of the theoretical perspectives of the NEPS Pillars and (2) compile the items provided by the NEPS Pillars (2 to 5) into a comprehensive survey instrument. As the stages relate strongly to one (formal) educational context, the collaboration between the NEPS Stages teams and NEPS Pillar 2 team is particularly strong. NEPS Stage 2 is explicitly concerned with ECEC contexts (whereas the team of NEPS Stage 1 primarily attends to family). The overall research questions of Stage 2 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 (Berendes et al., 2011).

8. To collect and obtain relevant data as quickly as possible, six separate cohorts were started between 2009 and 2012 following a so-called multi-cohort sequence design (Assmann et al., 2011). Each of the cohorts is followed for at least once a year. As a result, the data base expands with every measurement wave:

- Starting Cohort 1: Early Childhood – education from the very beginning
- Starting Cohort 2: From Kindergarten to elementary school
- Starting Cohort 3: Paths through lower secondary school
- Starting Cohort 4: School and Vocational Training
- Starting Cohort 5: From higher education to the labor market
- Starting Cohort 6: Adult education and lifelong learning

9. Generally, the teams of the NEPS Stages care for the Starting Cohorts but in the long run the starting cohorts will pass through different stages. Starting Cohort 2 refers to formal early learning environments and is therefore most relevant for the purpose of this paper. ECEC settings also serve as the setting where cluster sampling of this cohort (see below) takes place. Nevertheless, following Starting Cohort 1, which started in 2012 with seven month old children tested in the context of their families, surveying their ECEC settings will soon become relevant, too (e.g., only about 2% of the seven month old children of this cohort went to an ECEC setting (crèches) but in the second wave about 17% already did, being 14 month old by that time).

10. Following six different cohorts (different with regard to age and learning environments, for example) in parallel leads to rather complex sampling strategies used in NEPS. A first decision with regard to sampling applies to the target person of the survey. As NEPS is concerned with educational trajectories, the individual learner is the natural focus of study, called target person in NEPS. A second decision on sampling relates to the question of individual versus cluster sampling. In individual sampling, every individual of a population has the same probability of being selected into the sample, whereas in cluster sampling the sampling unit is of a higher order (for example schools) so that the sampling probability of an individual depends on the sampling probability of the higher order unit (e.g. of the school). In educational research, cluster sampling is the most commonly used procedure because most individuals are situated in a formal educational institution. Within NEPS, this is indeed the case for Starting Cohorts 2 to 5. It has to be noted however, that the cluster sampling procedure relates to the recruitment of the sample and last only as long as the individuals stay in the same institutional context (with exception of Starting Cohort 2; see below). After the target persons leave that context/setting, they will be followed individually. For Starting Cohorts 1 and 6, an individual sample was drawn from the beginning because there are no or less institutional settings involved with this cohorts, at least when sampling was started. Finally, a third decision regarding sampling relates to the selection of the best respondent for certain questions. Some questions are more appropriate or suitable to ask to certain people. Therefore, beside target persons (that is individual learners) also so-called context persons are surveyed within the NEPS. For schools and ECEC contexts teachers and principals are surveyed as context persons for the NEPS target persons (children or students) to give information on the educational settings and parents are asked for information on the familial context.

11. Concerning the data collection methodology, a range of survey instruments is used in NEPS. These include paper-and-pencil questionnaires (PAPI), computer assisted telephone interviews (CATI), face-to-face interviews (CAPI), and online questionnaires (CAWI). The competence tests of target persons are mainly conducted with the use of paper-and-pencil instruments, but computer-based assessments

(CBA) will be used in the future. Data collection and fieldwork is done by two external research institutes which have a high amount of expertise in their domain: one conducts all surveys and tests in institutional contexts, the other institute conducts all individual surveys. These surveys mainly use CATI and CAPI instruments with target persons in Starting Cohorts 5 and 6 and with parents of targeted children in Starting Cohorts 1 to 4. Within institutional/formal settings, the main task is to conduct the tests with the targeted children. In schools these are group tests while in ECEC settings, individual tests are conducted. Pupils in grade 3 and above also answer a questionnaire within the group setting. Teacher and head/manager questionnaires are handled out to the staff members on the testing days as well. Participation in the tests and surveys is on voluntary basis. Despite this, response rates are rather high (e.g., 56% for Starting Cohort 2). A central coordination department keeps track of the work in the study, the surveying and testing processes, as well as the field processes during the conduction of the surveys. The coherence of the multi-cohort sequence design is a very challenging task.

12. As explained above, with regard to ECEC settings, Starting Cohort 2 is most relevant. With regard to ECEC staff quality, Pillar 2 is of greatest importance, in close collaboration with Stage 2. This cohort started in 2011 with 2 996 target children in 720 different groups, in 279 ECEC settings (Kindergartens in Germany). During the second wave of testing, 2 727 children (91 %) could be tested again. After these two waves the majority of the children were enrolled in school, so that there is a total of two waves of assessment within ECEC settings. Besides testing the competencies of the children (listening comprehension and scientific competence in first wave, mathematical competence in second wave), a wide variety of information is gathered about their socio-economic and family background as well as their home learning environment. This information is collected through interviews with parents. Also, information about the ECEC settings is gathered through a paper-and-pencil questionnaire for heads/managers and teachers. The questionnaire for heads/managers collects information on size and composition of the ECEC setting, and other structural characteristics such as the opening hours, educational orientation, programs and networks with external services, as well as number of staff and qualifications of the staff members. A part of the survey is dedicated to language support and training in ECEC (e.g. language support programs and qualification of staff to deliver these programs). The teacher questionnaire collects data on the composition of the group, the frequency of various activities within and outside the group, and the availability of educational equipment (pedagogical materials). It also inquires about the qualifications, continuing education and training participation, and other characteristics of the ECEC staff, such as gender, age or migration background. The items of these staff questionnaires will be discussed in the next chapter. Data from the two preschool waves are already available as Scientific Use Files (SUF), i.e. data files that can be downloaded by researchers after registration and signing a data use agreement. In the first wave, 831 ECEC staff members responded to the survey, and 975 did in the second wave. Of these staff members, 581 (70 %) answered the questionnaire for both waves, indicating that for some questions there are repeated measurements.

13. For Starting Cohort 2 a special sampling design was used. In Germany, an official register for all primary schools exists, but such a register does not exist for ECEC settings. To be able to follow the targeted children in their educational setting over a longer period of time, an indirect sampling approach was utilized. The sampling frame of Starting Cohort 2 consists of a representative sample of all elementary schools and therefore also of first grade pupils in school year 2012/2013 because primary schooling is compulsory in Germany. In the second step in sampling, the kindergartens were selected by asking principals of the selected primary schools to list all kindergartens of which they recruited pupils (of which ECEC settings the primary schools received children from). A Germany-wide representative sample was obtained in this manner.

14. NEPS studies are preceded by pilot studies as well as (cognitive) pre-tests to secure a high level of quality of the data. In the case of Starting Cohort 2, a small methodological study was conducted with a

special focus on the assessment of process quality through educators' questionnaires. This was done for several reasons:

- Process quality is an inevitable feature of ECEC settings which has been found to be highly important for the level of quality in ECEC and child development according several national and international studies (e.g. EPPE – effective Provision of Pre-School Education: Sammons et al., 2003; CQC – Cost, Quality, and Child Outcomes in Child Care Centers: Peisner-Feinberg and Burchinal, 1977; NICHD-Study of Early Child Care: NICHD Early Child Care Research Network, 2002; ECCE – European Child Care and Education: ECCE-Study Group, 1997).
- The most frequently used approach to measure process quality within ECEC settings is observation, which is a very labour intensive task and therefore very costly too.
- Little is known concerning the reliability and validity of staff surveys on process quality, although ECEC staff is the most important source for collecting data and information on process quality when observation is unfeasible.
- Within a panel design like the NEPS, the possibilities for observational studies are very limited. Besides financial limitations because of the high costs of observational studies there is generally speaking a limited expertise of data collection institutes to conduct observational studies. In the case of a scientific infrastructure like the NEPS that publishes data for the scientific community challenges of data confidentiality have also to be taken into account.

15. In NEPS, observational data of 60 kindergarten groups using the ECERS rating scale was compared to data from the first pilot questionnaire for staff. The main results of this study show a rather comprehensive picture: quality, as measured by the ECERS rating scale, was found to be positively related to two main aspects: (1) hours of education and care a preschool group and every single child receives and; (2) the quality of teacher training. Unfortunately, items intended to measure process quality directly, were found to be not well assessed in this study. A more in-depth discussion of the different items of the survey and its results will be discussed in the following chapter that will provide recommendations for items to be included in an ECEC staff survey (and is referred to as “NEPS methods study”).

16. There are a few limitations related to the ECEC staff-level survey the NEPS study implemented:

- The NEPS ECEC staff survey does not cover all items that are proposed to be tested by the OECD Network on ECEC. Due to space limitations, the questionnaires cover structural quality features, staff professional status and their development (teacher education and further education), as well as working conditions. Questions on process quality are limited to questions on (general) activities and materials used, and available, by staff and children.
- Staff in ECEC settings is not the main target group of the survey. The NEPS ECEC staff survey serves as an assessment tool for contextual factors influencing child development. The learning person is the target person of the study (i.e. the child) and not the teaching or caring person. In short, the NEPS ECEC staff survey is a supplementary instrument to an individual panel survey on educational trajectories.
- The questions in the NEPS ECEC staff survey are adapted to the German context and may not be directly useful for implementation in an international context. Although English versions of the questionnaires are available, it is important to keep in mind that these are simple translations of the original without any specific or standardized scientifically guided translation procedures¹.

¹ The instruments are available under URL: www.neps-data.de/Portals/0/NEPS/Datenzentrum/Forschungsdaten/SC2/1-0-0/SC2_1-0-0_Q_w1_en.pdf and www.neps-data.de/Portals/0/NEPS/Datenzentrum/Forschungsdaten/SC2/2-0-0/SC2_2-0-0_en.pdf.

3. Considerations regarding the development of an ECEC Staff Level Survey: aspects to be included

17. The following section will give advice on the items and indicators that should be included in an ECEC staff survey. The advice given is based mainly on the experiences with NEPS surveys as described in the previous section. In addition, I also draw on TALIS (Teaching and Learning International Survey). TALIS is a study implemented by OECD in 2008 and 2013 (OECD 2010, 2013). Teachers and schools are asked about their working conditions and learning environments. Actually, questions from the TALIS teacher questionnaire were also used in NEPS teacher questionnaires (for Starting Cohorts 3 and 4). Note that all conclusions and recommendations should be treated as tentative because of the relatively small amount of data my conclusions and recommendations are based on. Both NEPS and TALIS do not specifically focus on process quality, and questions and survey items to find out more about process quality will therefore need to be developed for an ECEC staff-level survey. While both NEPS and TALIS consist of staff-level surveys, to make these example surveys more suitable to the ECEC context – and to actually be able to collect information and data on process and staff quality in ECEC, certain adaptations are needed:

- With regard to the NEPS survey, adaptation to an international context is important since the survey now caters to the German context;
- With regard to the survey as used in TALIS, careful reconsideration is needed to adapt the survey to the ECEC context.

18. NEPS, TALIS and the OECD Network on ECEC all share the same analytical framework that distinguishes input, process, and output indicators. NEPS and TALIS (and PISA as well) also share the framework of sub-dimensions of process quality, often called basic dimensions of instructional quality: structure, support, and challenge. *Structure* 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 cognitive activating tasks given to the students. The following selection of items and indicators, which are important to be included in a staff-level survey, is based on NEPS surveys and TALIS surveys as well as the list provided in the terms of reference for this review provided by the OECD Network on ECEC.

- *Personal characteristics* (age, gender, immigrant background): These are needed for a description of the sample population, although their relation to process and outcome is rather weak. Some questions on personal characteristics may be perceived as discriminatory by staff, which should be taken into account when drafting the questions. To avoid this, it is recommended to frame such questions in the context of other personal questions, like questions on qualification or working conditions. Also, a short explanatory introduction is advisable. In general, the survey should be subdivided into sections that are separated with short titles (and some introductory remarks). In TALIS, such questions are framed as “Background Information” while in NEPS they are titled as “Questions on your person and work”. Also, placement in the questionnaire has to be considered. Whereas the TALIS teacher questionnaire starts with this section, NEPS educator questionnaire ends with it.
- *Qualification* (level of formal education, vocational/professional education): These questions also belong to the section “Questions on your person and work”. Here, TALIS-like questions can be used with adaptations to the ECEC context. NEPS items are not very suitable for an international context.
- *Further Education*: Both NEPS and TALIS have a quite extensive list of questions on this topic. In the NEPS methods study, questions on further education (or professional development in TALIS) were found to be highly correlated with observed quality. For this reason, it is important to include questions on this aspect into an ECEC staff-level survey as well. TALIS items can be

used for an ECEC survey, with (minor) adaptations – particularly concerning content of further education activities (professional development).

- *Salary*: Neither NEPS nor TALIS contain questions on salary. Nevertheless, salary may impact on ECEC quality in different ways. For example, low wages may prevent highly qualified persons to choose working in an ECEC setting and contribute negatively to job satisfaction of ECEC staff members (see below). Therefore, questions on salary should be included. They might be best placed within the context of working conditions and job satisfaction.
- *Working hours and working schedule*: These items relate not only to general working conditions of ECEC staff, but play also a role for the quality of child-staff interactions. The NEPS methods study found that working hours in general, as well as share of direct and indirect pedagogical work, is related to observed quality. In conjunction with other results, this can be interpreted as follows: the more time staff have available to work on actual education and care, the better educational quality can be realized. It is therefore recommended to include such questions in an ECEC staff survey. The NEPS survey probably has questions on this which suit the ECEC context better than the TALIS study, although these items would have to be adapted to an international context.
- *Work experience*: Work experience (or years on the job) is also a “standard” item often used in staff surveys. Within ECEC settings, results concerning these items are mixed. In relation to trends in most countries toward better professionalization of ECEC staff, years on the job can be associated with lower qualification and thus be negatively related to ECEC quality. Additional information on e.g. further education is therefore of high importance to provide further insights into work experience aspects. Work experience should not be used as a “stand-alone” item.
- *Staff responsible for class/group cared for*: The NEPS methods study has shown that there might be no simple linear relation between the staff-child-ratio and ECEC quality. Questions concerning the working hours of up to four staff members responsible for a group, found that there was a positive correlation to ECEC quality for the first person (“main caregiver”), but that this positive correlation diminishes with every additional staff member and even gets negative for the fourth person. This result can be interpreted in two ways: first, pre-school children might need one attachment person which is maybe missing if more than two staff members share a group. Second, the need for a third or fourth staff member may implicate that there are problems within the group which reduces the level of quality as a whole. Therefore, computation of staff-child-ratio is not an easy task. It has to account for work tasks of the staff members as well as composition of the group concerning specific child characteristics (see below).
- *Composition of class/group cared for*: Composition of class/group (e.g. in relation to gender, age, immigrant background, special needs; group size) does not relate to ECEC quality per se, but can have an effect that can be positively or negatively correlated with ECEC quality. The NEPS methods study shows that an equal share of boys and girls and a share of immigrant children up to 30 %, can increase ECEC quality. Unfortunately, this does not hold for children with special needs: this resulted in a negative correlation to ECEC quality. Although such findings need to be interpreted with caution, the findings regarding children with special needs and its relation to quality can be interpreted as follows: every child which has to be treated in a special way reduces the total amount of education and care time for the group as a whole, as well as each individual child. This can lead to an overall reduced evaluation of preschool quality. Also, this points to the need of additional staff members caring for the group. In summary, composition of the group of children cared for can serve as a relevant input factor of a teaching, learning and well-being environment and should therefore be included in an ECEC staff survey. This information is also needed to compute a valid staff-child-ratio.

- *Pedagogical beliefs and attitudes*: As input conditions, pedagogical beliefs and attitudes serve as a relevant source of teaching, learning and well-being environments as TALIS has shown, and they should be included in an ECEC staff-level survey. The NEPS study did not include questions on these aspects for ECEC settings. But TALIS gives an excellent account on these aspects, although they need some alteration for the ECEC context. Pedagogical beliefs and attitudes will not influence child outcomes directly, but can influence process features like interactions and activities with the children. There is no one-to-one relation between beliefs and pedagogical practices because of other structural influences impacting pedagogical practices as well the influence children themselves have on pedagogical practices. In general, beliefs and attitudes can be prone to distortions, for example in the direction of social desirability. This should be taken into account when designing the questions, and when interpreting the results.
- *Self-efficacy and job satisfaction*: Again, these questions were not included in the NEPS survey, although questions on these aspects are part of the TALIS survey. The TALIS items can be used in an ECEC staff-level survey with minor adaptations. Self-efficacy and job satisfaction do not only impact the quality of teaching, learning and well-being environments (as TALIS has shown, for example; OECD, 2010), but can also be of high relevance for staff members to respond to, because they feel appreciated. Thus, these questions may increase the incentive for staff to participate in an ECEC staff-level survey.
- *Pedagogical practices*: Pedagogical practices are a main feature of process quality. They have been included in the TALIS survey but not in the NEPS survey. The current TALIS questions on this aspect can be used but have to be adapted to the ECEC context. The TALIS basic dimensions of instructional quality (which is also used in NEPS) should also be assigned to the ECEC context that is to develop aspects with regard to *structure, support and challenge* realized in a teaching, learning and well-being environment. It is recognized that these items still have to be developed for use in the ECEC context but are of high relevance. Pedagogical practices are more closely related to processes and outcomes than beliefs. But again, within a survey, responses may be biased since people might report more what they would like to do rather than what they really do. Therefore, more general activities and interactions with the children should also be assessed with an ECEC staff-level survey.
- *Activities*: Because questions on pedagogical practices were not included for ECEC settings in the NEPS survey, a more general approach was used by asking for frequencies of activities that are commonly offered to the children. These questions might be used as a substitute for pedagogical practices if questions on pedagogical practices cannot be developed in time. However, questions on activities in the NEPS survey need adaptations and improvements concerning content as well as answer scale, too.
- *Materials/facilities*: Although materials and facilities are often assessed in the ECEC context, for example by the ECERS scales, it should be kept in mind that these serve often as input conditions rather than as an expression of process quality because the availability of materials does not mean that staff and children use all of them. As materials and available facilities are easier to assess than activities, and can even serve as prerequisites of activities, they should be optionally included. The NEPS ECEC staff questionnaire on this aspect can serve as an example.
- *Interaction with children (sensitivity, responsiveness)*: The quality of the interactions between staff and children is a core feature of process quality and can be related to the support dimension of instructional quality proposed by TALIS and NEPS. Yet, it is very difficult to assess, measure, or collect information on. For children in ECEC, the most valuable features of a child-staff-interaction are staff's sensitivity and responsiveness (e.g. NICHD Early Child Care Research Network, 2002). Collection of information on process quality is mostly conducted via

observational tools. Unfortunately, development of questionnaire items is still in a preparatory state. Given its significance, efforts to overcome this situation should be undertaken.

- *Interaction among staff*: Interaction among staff should be taken into account in an ECEC staff questionnaire because these interactions contribute to the general climate of the setting which impacts educational processes. TALIS items can serve as a good example, with minor adaptations to the ECEC context.
- *Interaction with parents*: Interactions with parents contribute to the overall quality of teaching and caring, quality of learning and well-being environments, but are of minor interest if child outcomes are the focus. In addition, parent views should be included to get a more “objective” account. For an ECEC staff-level survey, it is recommended to consider these questions for inclusion.
- *Cooperation with primary schools*: The last aspect recommended to be included in the survey regards cooperation with primary schools. It might be better to ask questions on this matter within a center manager questionnaire.

4. Considerations regarding the implementation and feasibility of an ECEC staff-level survey

19. After discussing the content to be included in an ECEC staff-level survey, I will now argue on aspects that need consideration when implementing a survey. I draw especially on experiences with NEPS as this is one of the largest panel studies worldwide, implementing six parallel surveys and tests with different cohorts. Nevertheless, there is a marked difference to the proposed ECEC staff-level survey (as to TALIS as well). Pedagogical staff is not in the center of interest within NEPS but serve as context persons (educators, teachers) to the targeted children. Therefore, these context persons know that the information they give is supplementary to the data given by the target person (test and survey). In contrast, an ECEC staff-level survey focuses on the staff members themselves. Besides methodological aspects I will also contemplate on the costs of an ECEC staff-level survey: the expenditure of personal as well as financial resources.

20. The teaching, learning and well-being environment is the proximal environment to a child within an ECEC setting. Therefore, direct interactions between staff and children and other educational processes are of particular relevance for child development. In ECEC settings, such information has to be provided by staff members, because the children are too young to give valid accounts on these processes. More distal features, like physical environment and facilities, as well as staff characteristics serve as input conditions to processes and will not directly influence child outcomes. Nevertheless, they are a major topic in an ECEC staff-level survey.

21. To collect data on staff characteristics, particularly information on professional attitudes, expectations and perceptions, an ECEC staff-level survey is the only valid approach because these measurements are of subjective nature by itself. To collect data on professional education and development (initial education and further education), an ECEC staff-level survey also seems to be the most natural source. Other structural characteristics, especially those that relate to the whole ECEC setting (e.g., opening hours, local context and conditions) may better be asked from ECEC management. Structural features that relate to the group/class (e.g., available materials, age composition of the group) can best be provided by staff members. Processes and interactions cannot be captured by system-level data but are of core importance for teaching, learning and well-being environments. As one of the actors which directly shape the processes within these environments, staff members can be a valuable source of information.

22. But with regard to processes there are also constraints that have to be considered when implementing an ECEC staff-level survey. Clausen (2002) has argued that a comprehensive view on educational processes should include the perspectives of teachers (staff members), pupils (children) as well

as external observers. However, as pointed out above, children in ECEC are too young to be surveyed on this matter and involving other actors like observers makes such surveys more costly, too (see below). Therefore, with an ECEC staff-level survey, educational processes can only be captured partially. A second constraint refers to the relation between beliefs and practices, as well as between practices and staff-child-interactions. In each case, there are intervening factors that can diminish the direct relations between these three factors. Therefore, it seems preferable to include questions on beliefs, practices, and activities in the survey to contrast these three aspects.

23. Given these two constraints of an ECEC staff-level survey on surveying processes and the high relevance of educational processes it seems advisable to complement the survey with an observation of educational processes. But there are several constraints of the observational method as well. First, there are methodological constraints: (1) Observations are limited to a short time period and therefore capture staff process interactions at a certain point in time only. Observations therefore do not give a representative sample of the processes and interactions going on in a group. (2) Observations may alter the processes to be observed. Especially in ECEC settings observers cannot hide from staff members and children and thus may influence the interactions just because of the mere presence. (3) Observations can be conducted in person (by an individual) or through video studies as well. In the second case, the situation is rated afterwards, maybe by other experts and can be watched again. In ECEC settings, video studies are hard to conduct because of the unstandardized situation. But live ratings/observations conducted by individuals may not provide objective, reliable, consistent and valid rating or observation results, because the situation as well as the rating cannot be repeated. Other constraints of observational methods relate to personal and financial resources: (1) Observers have to be trained thoroughly. For example, training of the ECERS scales last a whole week for each individual. This is both time-consuming and costly (for example, a training seminar for the German ECERS scales last 40 hours and costs 650 Euro). (2) Rating scales have to be developed. If using standardized instruments additional costs have to be considered, like license fees. Also, in an international context, observation or rating instruments as well as guidelines etc. have to be translated and adapted - adding further to the costs of observations. (3) Conduction of observations bears additional costs, like expenses for traveling and accommodation of observation personal in addition to regular salary. In general, observational methods are useful in in-depth studies focusing on certain aspects of process quality, for example instruction in special subjects, but less useful and too costly in more general and international surveys on overall quality. This is the main reason why NEPS (and other panel studies) does not rely on observational methods but survey methods.

24. Summing up, structural and orientational quality can be surveyed easily but collection of information on process quality through a staff survey is more challenging and is in need for a more scientific development approach regarding aspects and questions to be included in the survey, which bears additional costs. As NEPS and other panel studies in Germany are highly interested in this though, efforts in this direction will be undertaken in the future. It has to be kept in mind that it is unlikely or at least very difficult, to collect complete information on process quality through a survey. However, a survey on process quality may seem to be able to provide valuable information and data on process quality and therefore is likely to be worth the effort.

25. Taking these limitations, considerations and matters into account, it is recommended to use survey methods with regard to collecting information and data on staff and process quality in ECEC settings. The persons closest involved in pedagogical processes are the children and, of course, the ECEC staff. As children in ECEC settings are too young to give valid accounts, ECEC staff members seem to be the most reliable and useful source of information on the quality of ECEC settings, staff quality, and process quality. Taking into account that some items/aspects for a staff-level survey may need more time for development, the first wave of an ECEC staff-level survey should be restricted to:

- (i) staff in centre-based programmes and;

- (ii) staff in education-focused programmes and integrated programmes and;
- (iii) staff working for public providers.

26. The last point relates mainly to easy access to staff but may not be suited well to countries where ECEC is mainly provided on a private basis. For initial use, it is most likely easiest to reach out (and target as well as find) the above-mentioned staff members. Later versions of the survey, when improved and better being able to capture other aspects of staff and process quality, as well as cover other types of staff, may be sent to other types of staff too.

27. Regarding the scope of the study and given the above mentioned limitations of a survey regarding the ability to collect information on processes it might be advisable to focus first on ECEC staff characteristics and their professional attitudes and beliefs, as well as their professional development. Pedagogic and teaching practices could also be assessed but one has to keep in mind that measurement in this domain has to be adapted to ECEC settings. Besides, the survey should aim at collecting information on children at class/group level to provide important contextual background information. In general, the survey should focus on content areas that are of high personal relevance for staff in order to keep participation rate high. Scope in terms of number of pages or items (questions): as experiences from NEPS as well as other survey studies show, it should not take longer than 30 minutes for staff to respond to the survey in order to keep response rates high.

28. As indicated earlier in this paper, the ECEC staff survey is a “by-catch” of the examination of the children and their educational trajectories within the NEPS study. Therefore, costs of the ECEC staff questionnaires are rather low. Instrument development excluded, costs relate mainly to printing of questionnaires and providing incentives to the staff. When conducting an ECEC staff-level survey in an international context, the costs for each step of such a survey development have to be calculated. These steps include:

- Development of instruments, including translation to all languages of countries participating, since many ECEC staff members are not fluent in other languages.
- Printing costs of PAPI (paper and pencil surveys). The costs of these can be reduced by using online surveys but online access of ECEC staff has to be secured then. There are also other technical advantages of online surveys, like filtering questions.
- Sending out and receiving back the survey, as well as analysis of the survey. Again, with online surveys, coding of the items can be done automatically, thus leading to reduced costs.

29. Nevertheless, the costs involved in developing and implementing a survey are most likely to be only a small portion of the costs it would take to conduct observational studies (see above).

30. Although the analytical frameworks of NEPS, TALIS, and the OECD Network on ECEC all treat child outcomes as very important, other outcomes should not be neglected. Especially for an ECEC staff survey outcomes related to staff seem valuable. These outcomes (e.g. professional self-efficacy, job satisfaction) can also serve as inputs to the system. Incorporating these staff-related outcomes would lead to the possibility to answer additional research questions. Questions on job satisfaction or professional self-efficacy, as well as professional development within an ECEC staff-level survey, cannot not only be analyzed as inputs to teaching, learning and well-being environments but as an outcome on staff level as well. Thus, the impact of other characteristics of an ECEC setting, e.g. structural features like working hours, on staff characteristics can be analyzed. In a nutshell, in addition to child development and well-being also staff professional development and well-being (e.g., job satisfaction) could be monitored. There are at least three advantages associated with this conception:

- direct relevance for policy issues of professional development of ECEC staff;

- staff outcomes serving as inputs to subsequent child-staff-interactions (process) and influencing child outcomes again;
- motivation to participate in the survey thus impacting on response rates.

31. The last aspect also leads to operational constraints and risks which are related mainly to respondents' motivation to respond to the survey in my view. Questions and aspects of the survey should demonstrate relevance to the participants and include an explanation of why this aspect/question is important to receive responses to. It is recommended to avoid indicating that the survey serves for societal or policy matters, but to focus on the relevance it can have for staff. It is also recommended to not give the idea to staff that they are being evaluated because this may cause an increase in biased response rates and a higher incidence of social desirable responses.

5. Conclusion

32. To conclude, it is recommended to proceed with the development and implementation of an OECD ECEC staff-level survey. In short, a few aspects have to be kept in mind when developing the survey:

- The TALIS teacher questionnaire can serve as an excellent and primary source for an ECEC staff-level survey.
- In using the TALIS questionnaire as the basis for the ECEC-level survey, adaptations to ECEC contexts have to be conducted.
- In particular regarding process quality, aspects and questions (items) still need to be developed which requires a significant amount of expertise and time. The initial focus should be on staff characteristics, professional development, attitudes, beliefs and practices. Questions on process quality can be included in a later version (or the survey should be conducted in a later stage when development of items on process quality has been finalized).
- It is important to keep in mind when developing the survey to interest staff in responding to the survey and spark their incentives to participate.

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Thomas Bäumer is senior research scientist at Leibniz Institute for Educational Trajectories (LifBi) in Bamberg, Germany. He is operational manager of Operational Unit Education Processes in Life-Course-Specific Learning Environments of Department 1 Instrument Development and Research. His work is mainly related to item and instrument development with regard to learning opportunities and learning environments across the life course. In this context, the development of an ECEC staff-level survey for Starting Cohort 2 of the National Educational Panel Study (NEPS) was one of his major tasks. Before this position he was research assistant at Chair of Early Childhood Education (Prof. Dr. H.-G. Roßbach) and was actively involved in co-writing of the proposal of National Educational Panel Study (NEPS) and in project BiKS [educational processes, competence development and selection decisions in preschool- and school age]. In BiKS, observational studies as well as surveys in ECEC settings were conducted. Thomas Bäumer received his doctoral degree in psychology from Trier University, Germany in 2005.

BIBLIOGRAPHY

- Assmann, C., *et al.* (2011), "Sampling design of the National Educational Panel Study: challenges and solutions", in H.-P. Blossfeld, H.-G. Roßbach and J. von Maurice (eds.), *Education as a Lifelong Process: The German National Educational Panel Study (NEPS)*, VS Verlag für Sozialwissenschaften, Wiesbaden, pp.51-65.
- Baeumer, T., *et al.* (2011), "Education processes in life-course-specific learning environments", in H.-P. Blossfeld, H.-G. Roßbach and J. von Maurice (eds.), *Education as a Lifelong Process: The German National Educational Panel Study (NEPS)*, VS Verlag für Sozialwissenschaften, Wiesbaden, pp.87-101.
- Berendes, K., *et al.* (2011), "Kindergarten and elementary school", in H.-P. Blossfeld, H.-G. Roßbach and J. von Maurice (eds.), *Education as a Lifelong Process: The German National Educational Panel Study (NEPS)*, VS Verlag für Sozialwissenschaften, Wiesbaden, pp.203-217.
- Blossfeld, H.-P. and J. von Maurice (2011), "Education as a lifelong process", in H.-P. Blossfeld, H.-G. Roßbach and J. von Maurice (eds.), *Education as a Lifelong Process: The German National Educational Panel Study (NEPS)*, VS Verlag für Sozialwissenschaften, Wiesbaden, pp.19-34.
- Blossfeld, H.-P., J. von Maurice and T. Schneider (2011), "The National Educational Panel Study: need, main features, and research potential", in H.-P. Blossfeld, H.-G. Roßbach and J. von Maurice (eds.), *Education as a Lifelong Process: The German National Educational Panel Study (NEPS)*, VS Verlag für Sozialwissenschaften, Wiesbaden, pp.5-17.
- Clausen, M. (2002), *Qualitaet von Unterricht – Eine Frage der Perspektive?* (Quality of instruction – a question of perspective?), Waxmann, Muenster.
- ECCE-Study Group (1997), *European Child Care and Education Study. Cross national analyses of the quality and effects of early childhood programmes on children's development*, Freie Universität Berlin, Fachbereich Erziehungswissenschaft, Psychologie und Sportwissenschaft, Institut für Sozial- und Kleinkindpädagogik, Berlin.
- NICHD Early Child Care Research Network (2002), "Early child care and children's development prior to school entry: Results from the NICHD Study of Early Child Care", *American Educational Research Journal*, Vol. 39, No. 1, Sage, Thousand Oaks, CA, pp. 133-164.
- OECD (2010), *TALIS 2000 Technical report*, OECD, Paris, <http://dx.doi.org/10.1787/9789264079861-en>.
- OECD (2013), *TALIS 2013 Conceptual framework*, OECD, Paris, www.oecd.org/edu/school/TALIS%20Conceptual%20Framework_FINAL.pdf.
- Peisner-Feinberg, E. S. and M.-R. Burchinal (1977), "Relations between preschool children's childcare experiences and concurrent development. The Cost, Quality, and Outcomes Study", *Merill-Palmer Quartely*, Vol. 43, No. 3, Wayne State University Press, Detroit, MI, pp. 451-477
- Sammons, P., *et al.* (2003), "Measuring the impact of the pre-school on children's social/behavioural development over the pre-school period", *The Effective Provision of Pre-School Education (EPPE) Project Technical Paper 8b*, University of London, Institute of Education, London.