

ESF-Science Meeting – Final Report:

EUCCONET-Workshop: Early Childhood Educational Measures

Methods of Data Collection and Instruments in the Millennium Cohort Study (MCS), Etude Longitudinale Française depuis l'Enfance (ELFE) and National Educational Panel Study (NEPS)

University of Bamberg, 24.01.2011 - 26.01.2011

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1. Summary

Between the 24th and 26th of January 2011 experts of three European birth cohort studies gathered in Bamberg, Germany to exchange and discuss their approaches in assessing early childhood educational measures. Three of the participants attended from the ELFE (Etude Longitudinale Française depuis l'Enfance), two scientists joined from the MCS (Millennium Cohort Study) and about two dozen of the NEPS (National Educational Panel Study) staff from Kiel and Bamberg.

Goal of the workshop was to inspire each other and make each other aware of challenges, obstacles and problems occurring in this very special field of research. At the beginning each project was introduced to the workshop participants. Afterwards the focus areas of the first day were sampling, field procedure, cohort maintenance, and the interviews and questionnaires for parents and day-care-givers. On the next day the direct measurement from the first years up to kindergarten were central issues. In the afternoon, a special session on possibilities of cooperation in the three panels was held. Main fields of cooperation could be the exchange of items and instruments concerning early language (e.g. expressive vocabulary), extra-familial day-care (e.g. to compare systems of early education and early day-care), the use of the subtest "picture similarity" of the British Ability Scales in the NEPS (as it has been used / will be used in the MCS / the ELFE), the use of the Strength and Difficulties Questionnaire and also cooperation with other cohorts/stages of the NEPS and the MCS. The following day, literacy, language and metalinguistic skills as well as the interview of parents and teachers were addressed.

In each session the expert groups of the different projects presented their approaches and goals and consecutively. A discussion followed to make things clear and give suggestions. Whereas a minority of aspects was unique to each cohort study most topics could be discussed gainful.

2. Description of the scientific content of and discussion at the event

2.1 Presentation of NEPS, MCS and ELFE

Hans-Peter Blossfeld introduced NEPS to the participants. He explained the importance of NEPS because of the lack of educational studies in such a longitudinal design, since most studies have been cross-sectional so far (e.g. PISA). Also in contrast to MCS and ELFE, NEPS is using a multicohort-sequential approach to get important results faster. Due to this fact it was necessary to seek experts all over Germany for NEPS with Bamberg as centrum. The focus of the NEPS lies on competence development, learning environment, educational decisions, the influence of migration background on education and returns to education.

Next, Lisa Calderwood presented the MCS. The survey follows 19,000 children (9 months, age 3, 5, 7 and 11) from different areas in the UK. Main research issues are education and health. Ethnic minorities and socially disadvantaged families are oversampled. The MCS uses administrative data linkage to gain more information about the target person's health and level of educational exams. The MCS also collects biological samples like oral fluid from children at the age of 3 and DNA-samples from parents when children are 11 years old. The aims are to chart initial conditions, to compare patterns of development with other cohort studies, to collect information in previously neglected topics and to gather certain social economic information for future analysis. The applied tools in this survey were interviews with parents, cognitive assessments, psychological measurements, interviewer observations, teacher surveys and medical data.

The last presented study was ELFE. The goal sample here is 20,000 children born in 2011. The focus of this study lies on development and health. The pilot study took place in 2007 whereupon the questionnaire had to be modified. There will be different kinds of interviews through different stages of age:

At birth: 20 minutes face-to-face CAPI additional to medical information from existing files, biological samples and auto questionnaire (on nutrition)

At two months: One-hour phone interview, daily records on nutrition, environmental sensors (e.g. dust)

At one and two years: Phone interviews and records from physician at the 24th months visit

At three years: Face-to-face interview at home, biological samples of the child and mother, again environmental sensors and "picture similarity" of the British Ability Scale.

At four years: Test of KAWI questionnaire with the child but no parent's questionnaire

At five years: Phone interview at 5 years and schooling evaluations

At six years: Medical examination and psychological tests

2.2 Sampling, field procedures and cohort maintenance in the birth cohorts

The initial response rate in the MCS sample design was 72% (lower in ethnic and disadvantaged areas). All kinds of questionings had to be acknowledged by the parent's signature. The contact took place in person in the first two waves and through prior telephone arrangements in the third and fourth wave. Besides it was taken care of the sample through contacts in between (personal visits, telephone, email etc.) to create a kind of stable relationship with the interviewees. Also the families received a brochure as feedback every year to keep them informed about the current results of the study. To keep this process successful the MCS is using a commercial program to update all the contact information properly. So tracking is quite successful: over 90% of mobile families are located at the next sweep and those families also aren't less likely to co-operate. The interview itself took place quite a long time, it was 1,25 hours with the mother and 0,5 hours with the father. In case of divorcement or split-up, the MCS follows the child and doesn't gather information about the other parent any more. The interviewers are trained for three days before having a testing phase and being debriefed. In average the interviewers, who work on a casual basis, have to collect about 50 children.

Objective of the ELFE cohort was to collect a national (metropolitan) representative sample. The sample is paired with the demographic panel of Insee (all births that occur within the first 4 days of the target months) and also in some parts with other data, like geo-matching with external data on air pollution and quality of water or the social security system. The sample was generated within maternities.

The tracking in ELFE takes place with certain administration and a relatively high presence at the respondent families. This means giving information at least quarterly through newsletters or leaflets. Privacy handling of the data has a high priority in the process. In the pilot study the tracking methods were evaluated and next to other results it turned out that families were concerned about the confidentiality of the data. Due to this and other reasons a media campaign is planned to gain publicity and trust within the population.

The NEPS sampling procedures are based on addresses. At the moment the sampling procedures are tested in Bavaria and North Rhine-Westphalia, also there are still some questions to be answered and discussed with the field agency.

2.3 Early childhood (1.-4. year) parent and day-care interviews and questionnaires

The content and results of parent interview MCS1/2 were that most of the mothers have a part-time employment and education level of the mother is important for child-care options. For the measurement itself two instruments were used to assess the quality of child care: ECERS-R and ECERS-E. It was found that there is a variation in quality according to centre characteristics. Also the quality ratings were better than 5 years earlier. The parent interview contains information about how parents manage their job and day care and also the home learning environment. Two factors which are important for the later outcome.

The ELFE questionnaires were used for the 1 to 3 year old children. In this study it was decided not to use material since it's more time-consuming and complicated. Therefore a

telephone survey and a day-care questionnaire were utilized for the 1- to 3- year-olds. Additionally the 2-year-olds were tested for play activities, language (expressive vocabulary with the CDI), motor function, behavior, sleep and hygiene. The 3 year-olds were assessed for language development, fine and gross motor function and with the British Ability Scales.

The big difference to other studies and the birth cohort in the NEPS is that there is just one context person, normally the mother. The sample size is planned to be $n = 3000$. Three different instruments will be applied here: CAPI with the mother, direct measures for assessing child's competencies and parent-child-interaction and a PAPI for the head of the day-care group and/or the childminder, if the child is already in extra-familial day care. The first wave will take place in 2012, when infants will be around 7 months old. The second wave will follow, when children are around 14 months old. Main topics are sociodemographics, child's temperament, health indicators, the home learning environment, non-maternal day-care history, the global quality of extra-familial day-care arrangements, decisions about day-care arrangement and questions concerning the migration background (language use and proficiency and segmented assimilation of neighbours of same ethnic origins).

2.4 Direct measures of early child development (1.-4. year) in panel studies

The developmental milestones measured in the first year of the MCS were gross motor co-ordination, fine motor co-ordination and communicative gestures. Also cognitive assessments were applied. So the MCS used the Bracken School Readiness Assessment at age 3 and the BAS Naming Vocabulary, selected from British Ability Scales, at age 3 and 5. Unfortunately there were some practical problems during the assessments. They were for example other persons present during the assessment, child's energy level during the assessment, the language (if the child has a different mother language) or if the child was too shy or too young to attempt the assessment. These problems resulted in about 16% missing cases at age 3. Still, both assessments are highly predictive of later cognitive and school outcomes. Nevertheless the challenge here is to monitor a child's progress longitudinally. The behavioral development was measured by scoring the Strength and Difficulties Questionnaire. It was found that more attention has to be paid to total difficulties than to individual subscales. Another type of measurement was the measurement of body size which was of interest due to questions about obesity. It was found that 6% of the children were put in an obese category and there was evidence of increasing obesity.

In the ELFE's 2-years-pilot a health notebook (standard questions in development) and a test (four pictures which the child has to name) was used. The test should not require any special equipment, and should be fully implemented under a computerized form. Also the rules should be simple and the test shouldn't last more than 10 minutes. Three tools have been identified here: Raven matrices, the Bracken and the British Ability Scales. The measures don't contain verbal comprehension or naming vocabulary, since it is not relevant in the context of the ELFE 's 3 year survey. Moreover it was more about solving nonverbal problems, perception and verbal analysis, linking meanings to images and verbal mediation. Finally Mr. Lanoë presented the "Jeu Bas" on the internet to illustrate the procedure.

The NEPS sample size has approximately $n = 3000$. The field phase starts in 2012. The competencies included in the NEPS are domain-general cognitive abilities (relatively contex-

free and culture-fair), domain-specific cognitive competencies (mathematical literacy, scientific literacy, reading literacy and oral language comprehension), metacompetencies and (metacognition, self-regulation, information and communication technologies literacy) and social competencies. Following direct measures are planned to be used in the first wave with children around 7 months old: A research short form of the most recent Bayley Scales III of Infant and Toddler Development (the cognitive scale) will be used to assess domain-general cognitive competencies. There are also pretests going on to evaluate the possibility of using the habituation paradigm, i.e. the visual information processing speed, in the NEPS. In several reviews and meta-analysis the result of the habituation paradigm in early infancy proved to be predictive of late intelligence development. Another important measure in the birth cohort of the NEPS will be an indicator of parent-child-interaction. Direct measure of basic cognitive abilities took place through the habituation paradigm. It was noted that measuring habituation was reasonable because of its ability to measure potential and so predict IQ.

2.5 Measuring scientific literacy in kindergarten: challenges and a special approach

Scientific literacy plays an important role for making sense of our environment and the modern world. Health as well as environment and technology are the contexts for scientific literacy. A test was applied which aims to find if a strongly contextualized test setting leads to gains in test performance. The result was that there are no differences between less and strong contextualized settings nor gender differences. The results can be explained through the ceiling effect and the impracticality of a strong contextualization.

2.6 Language and meta-linguistic measures in the kindergarten cohort of the NEPS

Language is a key competence when it comes to school achievement and career. In the kindergarten cohort the German language competency is measured by vocabulary and oral language comprehension. Phonological awareness plays also an important role for written language and is a predictor of later reading and spelling success.

2.7 The Kindergarten Cohort of the NEPS – Parent telephone interview (CATI) and educator/principal questionnaires (PAPI)

In the kindergarten cohort a sample of primary schools was taken, with children age 4 in the first wave and age 5 in the second wave. The CATI tested for language support, expectations/stereotypes about primary schools, coping with school life, satisfaction with kindergarten, early school enrollment, social and ethnic background of the child, culture and social capital, language use and proficiency, segmented assimilation of neighbours of same ethnic origins, health, income and other factors. The PAPI asks for educator's estimation of the child's competencies, teacher assessment of social behaviour, general kindergarten characteristics, kindergarten composition, materials, activities, staff, language support programs, German language skills, degree of competition and other aspects. The first wave is

in the field right now, whereas wave 2 is under preparation. Wave 3 will start in 2011/12, so that the first data can be obtained in October 2012.

3. Assessment of the results and impact of the event on the future direction of the field

The first and second session of the workshop was about sampling, field procedures and cohort maintenance in the birth cohorts. The presentations and discussions were very fruitful especially for the both panels whose starting wave has to come yet. So the ELFE and the NEPS learned from ideas, plans and experiences of the MCS.

Possibilities of further cooperation in the three panels could be the exchange of items and instruments concerning early language (e.g. expressive vocabulary), extra-familial day-care (e.g. to compare systems of early education and early day-care), the use of the subtest “picture similarity” of the British Ability Scales in the NEPS (as it has been used/will be used in the MCS/the ELFE), the use of the Strength and Difficulties Questionnaire and also cooperation with other cohorts/stages of the NEPS and the MCS.

An important aspect for ELFE was the educational evaluation (especially in the fields of language, math and science) that is under preparation for the 5-year-olds in France. Here the ELFE invited experts of these fields to organize further exchange and cooperation.

The EUCCONET-Workshop “Early Childhood Educational Measures: Methods of Data Collection and Instruments in the Millennium Cohort Study (MCS), Etude Longitudinale Française depuis l’Enfance (ELFE) and National Educational Panel Study (NEPS)” was one important milestone in launching further cooperation between these three panels. All participants agreed in fostering further meetings and exchange, self-organized or during other conferences to come, e.g. the annual meeting of the Society for Longitudinal and Life Course Studies which will take place in Bielefeld this year.



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EUCCONET-Workshop¹: Early Childhood Educational Measures

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University of Bamberg, 24.01.2011 - 26.01.2011

Final Programme

Monday, 24.01.2011: "Birth Cohorts"

- 9.00: Welcome (Hans-Peter Blossfeld)**
Presentation of NEPS (Hans-Peter Blossfeld)

- 9.30: Presentation of MCS and ELFE**
9.30: MCS (Heather Joshi & Lisa Calderwood)
9.45: ELFE (Jean-Louis Lanoë)

- 10.00: Coffee break**

- 10.15: Sampling, field procedures and cohort maintenance in the birth cohorts**
10.15: MCS (Lisa Calderwood)
10.30: ELFE (Jean-Louis Lanoë & Nathalia Baltzinger)
10.45: NEPS (Christian Aßmann)
- 11.00: Discussion**

- 12.30: Lunch break**

- 13.30: Early childhood (1.-4. year) parent and day-care interviews and questionnaires**
13.30: MCS (Heather Joshi)
14.00: ELFE (Philippe Guimard)
14.30: NEPS (Claudia Schlesiger & Sebastian Megerle)

- 15.00: Coffee break**

- 15.15 - 17.00: Discussion: Interviews and questionnaires**

19.00: Dinner

¹EUCCONET-Workshop „Early Childhood Educational Measures“ supported by the ESF





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Tuesday, 25.01.2011: “Birth Cohorts & Kindergarten”

9.00: Direct measures of early child development (1.-4. year) in panel studies

9.00: MCS (Heather Joshi)

9.30: ELFE (Jean-Louis Lanoë)

10.00: NEPS (Jennifer Lorenz)

10.30: Coffee break

10.45: Discussion: Direct measures

12.30: Lunch break

13.30: Cooperation MCS, ELFE, NEPS (Moderation: Thorsten Schneider)

14:30: ELFE: Evaluation at 5 years in kindergarten (Philippe Guimard)

15.00: Assessing mathematical competence in kindergarten - challenges, methods and first results (Irene Neumann & Christoph Duchhardt)

15.30-16:15: Discussion

19.00: Dinner

Wednesday, 26.01.2011: “Kindergarten”

8.30: Measuring scientific literacy in kindergarten: challenges and a special approach (Katrin Schöps, Inga Hahn & Inger Marie Dalehefte)

9.00: Language and metalinguistic measures in the kindergarten cohort of the NEPS (Karin Berendes & Stefan Zimmermann)

9.30: Coffee break

9.45: Parent telephone interview (CATI) and teacher/principal questionnaires (PAPI) (Sebastian Wenz, Doreen Fey & Tobias Linberg)

10.15: Discussion: Direct measures in kindergarten

11.00: Discussion/End

Convenor(s):

Dr. Claudia Schlesiger, University of Bamberg, National Educational Panel Study
Dr. Jutta von Maurice, University of Bamberg, National Educational Panel Study

Speakers:

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