

The logo for NEPS (National Educational Panel Study) features the acronym 'NEPS' in a bold, blue, sans-serif font. To the left of the text is a stylized orange bracket shape that partially encloses the letters.

**NEPS**

**National Educational Panel Study**

## **Information on Competence Testing**

**NEPS Starting Cohort 6 — Adults**

*Adult Education and Lifelong Learning*

Wave 7: 28-71 years

**Research Data**

The logo for LifBi (Leibniz Institute for Educational Trajectories) consists of the letters 'LifBi' in a bold, black, sans-serif font. A vertical blue bar is positioned to the left of the 'i', and a vertical pink bar is positioned to the left of the 'B'.

**LifBi**

**LEIBNIZ INSTITUTE FOR  
EDUCATIONAL TRAJECTORIES**

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Bamberg; July 12, 2018

<b>Information on testing</b>				
Test situation	Computer assisted personal interviews (CAPI), normally held at the study participant's home			
Test sequence	The tests were conducted computer-based with notebooks. The sequence of the tests was identical for all study participants. <b>Test order:</b> listening comprehension + procedural metacognition, cognitive basic skills			
Test duration (net processing time)	23.5 minutes			
Breaks	Possibility for a break after test of listening comprehension (max. 3 minutes)			
<b>Information on the individual tests</b>				
<b>Construct</b>	<b>Number of Items</b>	<b>Allowed Processing Time</b>	<b>Survey Mode</b>	<b>Next Measurement</b>
<i>Listening comprehension at word level</i>				
Receptive vocabulary	89	approx. 12 min	CAPI (computer-based)	-
<i>Domain-specific procedural metacognition</i>				
Regarding listening comprehension	1	1 min	CAPI (computer-based)	-
<i>Cognitive basic skills (non-verbal)</i>				
Perceptual speed (NEPS-BZT)	93	1.5 min	CAPI (computer-based)	-
Reasoning (NEPS-MAT)	12	9 min	CAPI (computer-based)	-

## **Preliminary note**

The development of the individual tests is based on framework concepts. They constitute overarching concepts on the basis of which education-relevant competences are to be shown consistently and coherently over the entire personal history. Therefore, the following framework concepts that served as a basis for the development of the test tools to measure the above-mentioned constructs are identical in the different studies.

## Listening comprehension at word, sentence and text/discourse level as indicators of linguistic competence in German

The importance of linguistic competence for learning in school as well as for explaining social disparities during school careers is largely undisputed.

In NEPS, the linguistic competences in German are measured through listening comprehension at word, sentence and text/discourse level on the one hand, and – from 2nd grade elementary school – through reading ability indicators (reading competence, reading speed) on the other where, however, not all indicators are measured at each survey. In the adult cohort, in addition to reading ability indicators, listening comprehension at word level is measured.

### Listening comprehension at word level: receptive vocabulary

Measures of the receptive vocabulary represent a favorable, internationally compatible indicator for the acquired language abilities and skills of children and adults. In numerous, comprehensive international, panel studies such as the Head Start Family and Child Experiences Survey – FACES (USA)<sup>1</sup>, the National Longitudinal Survey of Children and Youth – NLCSY (Kanada; e.g. Lipps & Yiptong-Avila, 1999)<sup>2</sup>, the British Cohort Study – BCS70 (e.g. Bynner, 2004) or the European Child Care and Education (ECCE) Study carried out in Germany, Austria, Spain and Portugal (e.g. European Child Care and Education (ECCE) Study Group, 1997), the receptive vocabulary is measured as a central and sometimes even sole indicator of the cumulatively acquired linguistic-cognitive abilities against the background of individual basic skills (e.g. working memory capacity, speed variables) and environmental stimulation.

The internationally most used instrument for measuring the receptive vocabulary certainly is the **Peabody Picture Vocabulary Test (PPVT)**; Dunn, 1959; Dunn & Dunn, 1981, 1997, 2007) which is now available in different versions. Basically, the PPVT can be used over a wide age spectrum and is also easy to carry out and evaluate.

A German version of the PPVT, which is suitable for children from an age of 13 years and adults, was published in 2004 (Dunn & Dunn, 2004) and is based on the PPVT-III (Dunn & Dunn, 1997). From a total of 204 items of the PPVT-III 89 items were selected, which (in contrast to the original English version) were administered without stop criterion. According to the test manual, the internal consistency is .93.

The task of the study participants is to select the correct picture for each presented word from a set of four pictures. In the adult cohort the test administration was computer-based.

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<sup>1</sup> <http://www.acf.hhs.gov/programs/opre/hs/faces/>

<sup>2</sup> <http://www.statcan.ca/english/sdds/4450.htm>

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## Metacognition

Metacognition is the knowledge and control of the own cognitive system. According to Flavell (1979) und Brown (1987), declarative and procedural aspects of metacognition are differentiated which are both covered in the National Education Panel.

### Procedural metacognition

Procedural metacognition includes the regulation of the learning process through activities of planning, monitoring and controlling. Within the framework of NEPS in combination with the competence tests of the individual domains, the procedural aspect of metacognition is not assessed as a direct measure of such planning, monitoring and controlling activities but as a metacognitive judgement that refers to the control of the learning performance during (and/or shortly after) the learning phase (also see Nelson & Narens, 1990). After participants have taken their competence tests, they are requested to rate their own performance. They are asked to state the number of questions presumably answered correctly.

Usually, one question is asked per domain. For competence domains that can be divided into coherent individual parts (e.g. reading competence referring to different texts), the inquiry of procedural metacognition is referred to these parts as well, which, of course, leads to a longer processing time.

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## **Cognitive basic skills (non-verbal) – Perceptual speed and reasoning**

In NEPS, cognitive basic skills are measured based on the differentiation between “cognitive mechanics” and “cognitive pragmatics” following Baltes, Staudinger and Lindenberger (1999). While the former is measured using task contents as education-independent, new and domain-unspecific as possible, the tasks for measuring cognitive pragmatics are based on acquired skills and knowledge (Ackerman, 1987). Consequently, some of the domain-specific performance tests used within the framework of NEPS may serve as indicators of pragmatics.

In contrast to this, the tests of basic cognitive skills aim at assessing individual differences of fluid cognitive abilities. While these are subject to age-related changes, in comparison to the education- and knowledge-related competences they prove to be less culture-, experience- and language-dependent. In this context, these tests provide an individual basis and differentiating basic function for the acquisition of education-dependent competences.

Among the facets of cognitive mechanics, two common marker variables stand out: perceptual speed and reasoning.

Perceptual speed marks the basal speed of information processing (“*speed*”). In NEPS, this is measured by the Picture Symbol Test (NEPS-BZT). This is based on an improved version of the Digit-Symbol Test (DST) from the tests of the Wechsler family by Lang, Weiss, Stocker and von Rosenbladt (2007). Analogously to this improved version, the NEPS-BZT requires the performance to enter the correct figures for the preset symbols according to an answer key.

Reasoning serves as key marker of mental performance (Baltes et al., 1999). The NEPS reasoning test (NEPS-MAT) is designed as a matrices test in the tradition of the typical reasoning tests. Each item of the matrices test consists of several horizontally and vertically arranged fields, in which different geometrical elements are shown – with only one field remaining free. The logical rules on which the pattern of the geometrical elements is based have to be deduced in order to be able to select the right complement for the free field from the offered solutions.

Both tests have been designed in such a way that they can be effectively used without changes to the item sets across as many age groups as possible and relatively independent from the subjects’ mother tongue. In the NEPS the tests are administered paper-based as well as computer-based; in the adult cohort the test administration was computer-based.

The results of both tests provide an estimator of basic cognitive skills which, however, is not directly comparable to the overall result of a traditional intelligence test (IQ). It rather permits controlling for differential initial capacities in the competence acquisition process.



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