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Research Data

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Competence Data in NEPS:

Overview of Measures and Variable Naming Conventions (Starting Cohorts 1 to 6)

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Research Data Documentation

The NEPS *Research Data Documentation Series* presents resources prepared to support the work with data from the National Educational Panel Study (NEPS).

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Introduction

The collection and provision of data on the development of competencies and skills throughout the life course is a key element of the German National Educational Study (NEPS). Competence measurements are implemented in all six NEPS starting cohorts covering domain-general cognitive abilities and domain-specific cognitive competencies as well as metacompetencies and stage-specific competencies.

Data from competence tests and direct measures pass through an edition process to enable users to work with scored items and test scores such as the sum or mean of correct answers. Detailed descriptions on how these competence scores are estimated can be found in the respective reports for the different competence domains at the documentation website for each starting cohort. Relevant descriptions are linked in the following overviews, the corresponding cells in the tables are marked by a colored frame. All NEPS Scientific Use Files include a dataset named *xTargetCompetencies* (in Starting Cohort 1 there is an additional dataset *xDirectMeasures* with competence data of the first three survey waves; in Starting Cohort 4 there is and in Starting Cohort 3 there will soon be another dataset named *xTargetSpecialNeedsCompetencies* with data from tests administered to students in special-needs schools) in which the prepared competence data are compiled. In contrast to other data files these competence datasets are structured in the so-called WIDE format, that is, all responses of a single respondent are represented in one row of the data matrix. Thus, the integration of information from several competence domains measured across several survey waves requires specific conventions for naming the variables.

This document facilitates the use of NEPS data for empirical analyses by providing both an overview of implemented competence measures and a description of how competence variables are named in the Scientific Use Files. In the first part, figures for all six starting cohorts show the schedule, the domains and the modus of conducted tests as well as direct measures respectively. The figures are updated and extended at regular intervals referring to already prepared and released data as well as to data that are not yet published. In the second part, the conventions for naming variables in the competence datasets are introduced. The applied nomenclature not only indicates the domain, the target group, and the sort of scoring in the variable name, but also allows for the identification of repeatedly measured competence items in a certain starting cohort or across different starting cohorts. A few examples will finally illustrate the rationale of naming competence variables in NEPS.

Any questions and suggestions regarding NEPS survey and competence data can be directed to the Research Data Center at fdz@lifbi.de.

Starting Cohort 1—Newborns (Waves 1 to 5)

Direct Measures / Competence Measures		2012/13 **Wave 1** (6-8 months)	2013 **Wave 2** * (16-17 months)	2014 **Wave 3** (25-27 months)	2015 **Wave 4** (37-39 months)	2016 **Wave 5** (4 years)
Domain-Specific Competencies						
Vocabulary: Listening Comprehension at Word Level	vo	--	--	--	CBT	--
Mathematical Competence	ma	--	--	--	--	CBT
Scientific Competence	sc	--	--	--	--	--
Stage-Specific Direct Measures						
Habituation-Dishabituation-Paradigm	hd	OR	OR	--	--	--
Interaction at Home: Parent-Child Interaction	ih	OR	OR	OR	--	--
Cognitive Development: Sensorimotor Development	cd	OR	--	--	--	--
Categorization: SON-R Subtest	ca	--		--	CBT	--
Delayed Gratification: Executive Control	de	--	--	--	CBT	--
Digit Span: Phonological Working Memory	ds	--	--	--	CBT	--
Flanker Task: Executive Control	ec	--	--	--	--	CBT

OR = Observer Rating (based on videos), CBT = Computer-Based Test (proctored)

* CAPI Subsample: Direct measures in wave 2 are available for a subsample of target persons only (simple random selection of 34 out of 84 initial municipalities).

Starting Cohort 1—Newborns (Waves 6 to 10)

Direct Measures / Competence Measures		2017 **Wave 6** (5 years)	2018 **Wave 7** (6 years)	2019 **Wave 8** (Grade 1)	2020 **Wave 9** (Grade 2)	2021 **Wave 10** (Grade 3)
Domain-General Competencies						
DGCF: Cognitive Basic Skills	dg	--	CBT	--	--	CBT [2]
Domain-Specific Competencies						
Early Reading Competence [1]	rx	--	--	--	WBT	--
Reading Speed	rs	--	--	--	WBT	--
Vocabulary: Listening Comprehension at Word Level [1]	vo	CBT	--	CBT	--	CBT
Mathematical Competence [1]	ma	--	CBT	--	WBT	--
Scientific Competence [1]	sc	CBT	--	CBT	--	CBT
Stage-Specific Direct Measures						
Delayed Gratification: Executive Control	de	CBT	--	CBT	--	--
Digit Span: Phonological Working Memory	ds/bd	--	CBT	CBT	--	--

CBT = Computer-Based Test (proctored), WBT = Web-Based Test (proctored)

[1] Subsequent to the respective competence test the target persons had to assess their own test performance (Procedural Metacognition, mp) – except for waves 6 and 7.

[2] Only the DGCF subtest "Reasoning" was administered in Wave 10, but not "Perceptual Speed".

Starting Cohort 1—Newborns (Waves 11 to 13) | *Please note: The schedule for future waves may be subject to change.*

Direct Measures / Competence Measures		2022 **Wave 11** (Grade 4)	12	2025/26 **Wave 13** (Grade 8)
Domain-General Competencies				
DGCF: Cognitive Basic Skills	dg	CBT [2]	--	CBT
Domain-Specific Competencies				
Early Reading Competence [1]	rx	CBT	--	--
Reading Speed	rs	CBT	--	--
Vocabulary: Listening Comprehension at Word Level [1]	vo	--	--	CBT
Mathematical Competence [1]	ma	CBT	--	--
Scientific Competence [1]	sc	--	--	CBT

CBT = Computer-Based Test (proctored)

[1] Subsequent to the respective competence test the target persons had to assess their own test performance (Procedural Metacognition, mp).

[2] Only the DGCF subtest "Perceptual Speed" was administered in Wave 11, but not "Reasoning".

[3] Only the DGCF subtest "Reasoning" will be administered in Wave 13, but not "Perceptual Speed".

Starting Cohort 2—Kindergarten (Waves 1 to 4)

Competence Measures		2011 **Wave 1** (4-5 years)	2012 **Wave 2** (5-6 years)	2013 **Wave 3** (Grade 1)	2013/14 **Wave 4** (Grade 2)
Domain-General Competencies					
DGCF: Cognitive Basic Skills	dg	--	PBT	--	PBT
Domain-Specific Competencies					
Early Reading Competence [1]	rx	--	--	--	PBT
Reading Speed	rs	--	--	--	PBT
Vocabulary: Listening Comprehension at Word Level [1]	vo	PBT	--	PBT	--
Grammar: Listening Comprehension at Sentence Level [1]	gr	PBT	--	PBT	--
Mathematical Competence [1]	ma	--	PBT	PBT	PBT
Scientific Competence [1]	sc	PBT	--	PBT	--
Native Language Russian / Turkish: Listening Comprehension [1,2]	nr/nt	--	--	--	PBT
Metacompetencies					
Declarative Metacognition	md	--	--	PBT	--
Stage-Specific Competencies					
Early Knowledge of Letters	lk	--	PBT	--	--
Phonological Working Memory	ds/bd	--	PBT	--	--
Phonological Awareness	on/ri/ip	--	PBT	--	--
Delayed Gratification: Executive Control	de	--	PBT	--	--

PBT = Paper-Based Test (proctored)

[1] Subsequent to the respective competence test the target persons had to assess their own test performance (Procedural Metacognition, mp).

[2] The L1 Test for Russian and Turkish language (nr/nt) has been applied to target persons with a corresponding migration background only.

Starting Cohort 2—Kindergarten (Waves 5 to 11)

Competence Measures		2014/15 **Wave 5** (Grade 3)	2015/16 **Wave 6** * (Grade 4)	**7**	**8**	2018/19 **Wave 9** ** (Grade 7)	**10**	2021 **Wave 11** (Grade 9)
Domain-General Competencies								
DGCF: Cognitive Basic Skills	dg	--	--	--	--	--	--	PBT [2]
Domain-Specific Competencies								
Reading Competence [1]	re	--	PBT	--	--	PBT	--	--
Vocabulary: Listening Comprehension at Word Level [1]	vo	PBT	--	--	--	--	--	--
Mathematical Competence [1]	ma	--	PBT	--	--	PBT	--	PBT
Scientific Competence [1]	sc	PBT	--	--	--	PBT	--	--
Metacompetencies								
Declarative Metacognition	md	PBT	--	--	--	--	--	--
ICT Literacy [1]	ic	PBT	--	--	--	--	--	--
Stage-Specific Competencies								
Orthography [1]	or	--	PBT	--	--	--	--	--
Delayed Gratification: Executive Control	de	--	PBT	--	--	--	--	--

PBT = Paper-Based Test (proctored)

[1] Subsequent to the respective competence test the target persons had to assess their own test performance (Procedural Metacognition, mp).

[2] Only the DGCF subtest "Reasoning" was administered in Wave 11, but not "Perceptual Speed".

* Reduced testing: For individually traced target persons, competence tests were realized in the domains of reading and mathematics only in wave 6.

** Reduced testing: In wave 9, a randomized allocation of competence tests with two out of the three domains (re + ma OR re + sc OR ma + sc) has been applied.

Starting Cohort 3—Grade 5 (Waves 1 to 6)

Competence Measures		2010/11 **Wave 1** (Grade 5)	2011/12 **Wave 2** (Grade 6)	2012/13 **Wave 3** (Grade 7)	4	2014/15 **Wave 5** (Grade 9)	2015 **Wave 6** (Grade 9)
Domain-General Competencies							
DGCF: Cognitive Basic Skills	dg	PBT PBT	--	--	--	--	PBT
Verbal Reasoning	vi	PBT	--	--	--	--	--
Nonverbal Reasoning	ni	PBT	--	--	--	--	--
Domain-Specific Competencies							
Reading Competence [1]	re	PBT	--	PBT	--	--	PBT
Early Reading Competence	rx	--	--	PBT	--	--	--
Reading Speed	rs	PBT	--	--	--	PBT	--
Listening: Listening Comprehension at Text Level [1]	li	--	--	--	--	--	PBT
Vocabulary: Listening Comprehension at Word Level [1]	vo	--	PBT PBT	--	--	--	--
Mathematical Competence [1]	ma	PBT	--	PBT	--	PBT	--
Scientific Competence [1]	sc	--	PBT	--	--	PBT	--
Native Language Russian / Turkish: Listening Comprehension [1,2]	nr/nt	--	--	PBT	--	--	PBT
Metacompetencies							
Declarative Metacognition	md	--	PBT	--	--	--	PBT
ICT Literacy [1]	ic	--	PBT	--	--	PBT	--
Stage-Specific Competencies							
Orthography [1]	or	PBT	--	PBT	--	PBT	--

PBT = Paper-Based Test (proctored)

Dark blue = Tests are (also) administered to students in special-needs schools.

[1] Subsequent to the respective competence test the target persons had to assess their own test performance (Procedural Metacognition, mp).

[2] The L1 Test for Russian and Turkish language (nr/nt) has been applied to target persons of a corresponding migration background only.

Starting Cohort 3—Grade 5 (Waves 7 to 13)

Competence Measures		2016 **Wave 7** (Grade 10)	2016 **Wave 8** (Grade 11)	2017 **Wave 9** * (Grade 12)	**10**	**11**	**12**	**13**
Domain-General Competencies								
DGCF: Cognitive Basic Skills	dg	--	--	--	--	--	--	--
Domain-Specific Competencies								
Reading Competence [1]	re	--	--	PBT	--	--	--	--
Listening: Listening Comprehension at Text Level [1]	li	--	--	--	--	--	--	--
Mathematical Competence [1]	ma	--	--	PBT	--	--	--	--
Scientific Competence [1]	sc	--	PBT	--	--	--	--	--
Native Language Russian / Turkish: Listening Comprehension [1,2]	nr/nt	--	--	--	--	--	--	--
Metacompetencies								
Declarative Metacognition	md	--	--	--	--	--	--	--
ICT Literacy [1]	ic	--	--	PBT / CBT [3]	--	--	--	--
Stage-Specific Competencies								
English Reading Competence [1]	ef	PBT	--	PBT	--	--	--	--
Scientific Thinking	st	--	--	PBT	--	--	--	--

PBT = Paper-Based Test (proctored), CBT = Computer-Based Test (proctored)

[1] Subsequent to the respective competence test the target persons had to assess their own test performance (Procedural Metacognition, mp).

[2] The L1 Test for Russian and Turkish language (nr/nt) has been applied to target persons of a corresponding migration background only.

[3] The administration of the ICT-Literacy test in wave 9 was paper-based in the institutional context and computer-based for individually traced target persons.

* Reduced testing: In wave 9, both stage-specific competence tests (ef, st) were realized in the institutional context only (without individually traced target persons). For individually traced target persons, a randomized allocation of competence tests with two out of the three domains (re + ma OR re + ic OR ma + ic) has been applied.

Starting Cohort 4—Grade 9 (Waves 1 to 6)

Competence Measures		2010/11 **Wave 1** (Grade 9)	2011 **Wave 2** (Grade 9)	2012 **Wave 3** (Grade 10)	**4**	2012/13 **Wave 5** (Grade 11)	**6**
Domain-General Competencies							
DGCF: Cognitive Basic Skills	dg	--	PBT PBT	--	--	--	--
Verbal Reasoning	vi	PBT	--	--	--	--	
Nonverbal Reasoning	ni	PBT	--	--	--	--	
FAIR: Attention Abilities	fa	PBT	--	--	--	--	--
Domain-Specific Competencies							
Reading Competence [1]	re	--	PBT PBT	--	--	--	--
Reading Speed	rs	PBT PBT	--	--	--	--	--
Vocabulary: Listening Comprehension at Word Level [1]	vo	PBT PBT	--	--	--	--	--
Mathematical Competence [1]	ma	PBT PBT	--	--	--	--	--
Scientific Competence [1]	sc	PBT	--	--	--	PBT	--
Native Language Russian / Turkish: Listening Comprehension [2]	nr/nt	--	PBT	--	--	--	--
Metacompetencies							
Declarative Metacognition	md	--	PBT	--	--	--	--
ICT Literacy [1]	ic	PBT	--	--	--	--	--
Stage-Specific Competencies							
English Reading Competence [1]	ef	--	--	PBT	--	--	--

PBT = Paper-Based Test (proctored)

Dark blue = Tests are (also) administered to students in special-needs schools.

[1] Subsequent to the respective competence test the target persons had to assess their own test performance (Procedural Metacognition, mp).

[2] The L1 Test for Russian and Turkish language (nr/nt) has been applied to target persons of a corresponding migration background only.

Starting Cohort 4—Grade 9 (Waves 7 to 14)

Competence Measures		2013/14 **Wave 7** * (Grade 12)	8	9	2016/17 **Wave 10** (21 years)	11	12	13	2021/22 **Wave 14** (26 years)
Domain-General Competencies									
DGCF: Cognitive Basic Skills	dg	--	--	--	CBT [2]	CBT [2]	--	--	--	--
Domain-Specific Competencies									
Reading Competence [1]	re	PBT	--	--	CBT [3]	CBT	--	--	--	--
Mathematical Competence [1]	ma	PBT	--	--	CBT [3]		--	--	--	--
Scientific Competence [1]	sc	--	--	--	--		--	--	--	CBT
Metacompetencies									
ICT Literacy [1]	ic	PBT	--	--	--		--	--	--	CBT
Stage-Specific Competencies									
English Reading Competence [1]	ef	PBT	--	--	--		--	--	--	--
Scientific Thinking [1]	st	PBT	--	--	--		--	--	--	--

PBT = Paper-Based Test (proctored), CBT = Computer-Based Test (proctored)

Dark blue = Tests are (also) administered to students in special-needs schools.

[1] Subsequent to the respective competence test the target persons had to assess their own test performance (Procedural Metacognition, mp).

[2] Limited to a subsample of secondary school students and students in special-needs schools.

[3] Split design: A subsample of secondary school students received the DGCF and either the reading or the mathematical competence test; the remaining sample received the reading and the mathematical competence test.

* Reduced testing: In wave 7, both stage-specific competence tests (ef, st) were realized in the institutional context only (without individually traced target persons). For individually traced target persons, a randomized allocation of competence tests with two out of the three domains (re + ma OR re + ic OR ma + ic) has been applied.

Starting Cohort 4—Grade 9 (Waves 15 to 17) | *Please note: The schedule for future waves may be subject to change.*

Competence Measures		15	16	2024/25 **Wave 17** (29 years)
Domain-General Competencies				
DGCF: Cognitive Basic Skills	dg	--	--	--
Domain-Specific Competencies				
Reading Competence [1]	re	--	--	CBT / WBT [2]
Mathematical Competence [1]	ma	--	--	CBT / WBT [2]
Scientific Competence [1]	sc	--	--	--
Metacompetencies				
ICT Literacy [1]	ic	--	--	--
Stage-Specific Competencies				
English Reading Competence [1]	ef	--	--	--
Scientific Thinking [1]	st	--	--	--

CBT = Computer-Based Test (proctored), WBT = Web-Based Test (unproctored)

[1] Subsequent to the respective competence test the target persons had to assess their own test performance (Procedural Metacognition, mp).

[2] Split design: A mixed-mode approach with Computer-Based Testing (CBT) and Web-Based Testing (WBT) will be administered.

Starting Cohort 5—First-Year Students (Waves 1 to 10)

Competence Measures		2011 **Wave 1** (2nd Sem.)	2	3	4	2013 **Wave 5** (6th Sem.)	6	2014 **Wave 7** (7th Sem.)	8	9	10
Domain-General Competencies											
DGCF: Cognitive Basic Skills	dg	--	--	--	--	PBT / CBT / WBT	--	--	--	--	--
Domain-Specific Competencies											
Reading Competence [1]	re	PBT	--	--	--	--	--	--	--	--	--
Reading Speed	rs	PBT	--	--	--	--	--	--	--	--	--
Mathematical Competence [1]	ma	PBT	--	--	--	--	--	--	--	--	--
Scientific Competence [1]	sc	--	--	--	--	PBT / CBT / WBT	--	--	--	--	--
Metacompetencies											
ICT Literacy [1]	ic	--	--	--	--	PBT / CBT / WBT	--	--	--	--	--
Stage-Specific Competencies											
Business Administration and Economics	ba	--	--	--	--	--	--	PBT [2]	--	--	--
English Reading Competence [1]	ef	--	--	--	--	--	--	--	--	--	--

PBT = Paper-Based Test (proctored), CBT = Computer-Based Test (proctored), WBT = Web-Based Test (unproctored)

[1] Subsequent to the respective competence test the target persons had to assess their own test performance (Procedural Metacognition, mp).

[2] Reduced testing: In wave 7, the stage-specific competence test (ba) was realized in a subsample of students and graduates of business sciences only.

Starting Cohort 5—First-Year Students (Waves 11 to 19)

Competence Measures		11	2017 Wave 12 * (13th Sem.)	13	14	15	16	17	18	19
Domain-General Competencies										
DGCF: Cognitive Basic Skills	dg	--	--	--	--	--	--	--	--	--
Domain-Specific Competencies										
Reading Competence [1]	re	--	CBT / WBT	--	--	--	--	--	--	--
Reading Speed	rs	--	--	--	--	--	--	--	--	--
Mathematical Competence [1]	ma	--	CBT / WBT	--	--	--	--	--	--	--
Scientific Competence [1]	sc	--	--	--	--	--	--	--	--	--
Metacompetencies										
ICT Literacy [1]	ic	--	--	--	--	--	--	--	--	--
Stage-Specific Competencies										
Business Administration and Economics	ba	--	--	--	--	--	--	--	--	--
English Reading Competence [1]	ef	--	CBT / WBT	--	--	--	--	--	--	--

CBT = Computer-Based Test (proctored), WBT = Web-Based Test (unproctored)

[1] Subsequent to the respective competence test the target persons had to assess their own test performance (Procedural Metacognition, mp).

* Reduced testing: In wave 12, a randomized allocation of competence tests with two out of the three domains (re + ma OR re + ef OR ma + ef) has been applied.

Starting Cohort 6—Adults (Waves 1 to 8)

Competence Measures		1	2	2010/11 **Wave 3** * (24-67 y.)	4	2012/13 **Wave 5** ** (26-69 y.)	6	2014/15 **Wave 7** (28-71 y.)	8
Domain-General Competencies									
DGCF: Cognitive Basic Skills	dg	--	--	--	--	--	--	CBT	--
Domain-Specific Competencies									
Reading Competence [1]	re	--	--	PBT	--	PBT	--	--	--
Reading Speed	rs	--	--	PBT	--	PBT	--	--	--
Vocabulary: Listening Comprehension at Word Level [1]	vo	--	--	--	--	--	--	CBT	--
Mathematical Competence [1]	ma	--	--	PBT	--	--	--	--	--
Scientific Competence [1]	sc	--	--	--	--	PBT	--	--	--
Metacompetencies									
ICT Literacy [1]	ic	--	--	--	--	PBT	--	--	--

PBT = Paper-Based Test (proctored), CBT = Computer-Based Test (proctored)

[1] Subsequent to the respective competence test the target persons had to assess their own test performance (Procedural Metacognition, mp).

* Wave 3: Randomized allocation of reading and mathematics competence tests to split sample (50% with three domains: re, rs, ma / 50% with two domains: rs, ma or rs, re)

** Wave 5: The first-surveyed target persons of the refreshment sample were tested in their reading competencies (re, rs); the target persons of the initial sample were tested in their scientific and ICT literacy competencies (sc, ic).

Starting Cohort 6—Adults (Waves 9 to 17) | *Please note: The schedule for future waves may be subject to change.*

Competence Measures		2016/17 **Wave 9** * (30-73 y.)	10	11	12	13	2021/22 **Wave 14** (35-75 y.)	15	16	2024/25 **Wave 17** (38-75 y.)
Domain-Specific Competencies										
Reading Competence [1]	re	CBT	--	--	--	--	--	--	--	CBT
Mathematical Competence [1]	ma	CBT	--	--	--	--	--	--	--	CBT
Scientific Competence [1]	sc	--	--	--	--	--	CBT	--	--	--
Metacompetencies										
ICT Literacy [1]	ic	--	--	--	--	--	CBT	--	--	--

CBT = Computer-Based Test (proctored)

[1] Subsequent to the respective competence test the target persons had to assess their own test performance (Procedural Metacognition, mp).

* Wave 9: The target persons of the refreshment sample were tested in their reading competencies (re) only, while the target persons of the initial sample were tested in their reading and mathematics competencies (re, ma).

Conventions for naming Competence Variables

The variable names in NEPS competence data files (*xTargetCompetencies, xTargetSpecialNeedsCompetencies, xDirectMeasures*) follow a specific nomenclature:

1. The first part of the variable name defines the **competence domain**, indicated by the two characters at the beginning.

ba	Business Administration and Economics	lk	Early Knowledge of Letters
bd	Backwards Digit Span: Phonological Working Memory	ma	Mathematical Competence
ca	Categorization: SON-R Subtest	mb	Mathematics (IQB Trends in Student Achievement)
cd	Cognitive Development: Sensorimotor Development	md	Declarative Metacognition
cl	Civic Literacy	mp	Procedural Metacognition
dc	Digital Competence	ni	Nonverbal Reasoning
de	Delayed Gratification: Executive Control	nr	Native Language Russian: Listening Comprehension
dg	Domain-General Cog. Functions (DGCF): Cognitive Basic Skills	nt	Native Language Turkish: Listening Comprehension
ds	Digit Span: Phonological Working Memory	on	Blending of Onset and Rimes: Phonological Awareness
ec	Flanker Task: Executive Control	or	Orthography
ef	English Foreign Language: English Reading Competence	rb	Reading Competence (IQB Trends in Student Achievement)
fa	FAIR: Attention Abilities	re	Reading Competence
gk	General Knowledge	ri	Rimes: Phonological Awareness
gr	Grammar: Listening Comprehension at Sentence Level	rs	Reading Speed
hd	Habituation-Dishabituation-Paradigm	rx	Early Reading Competence
ic	Information and Communication Technology (ICT) Literacy	sc	Scientific Competence
ih	Interaction at Home: Parent-Child Interaction	st	Scientific Thinking: Science Propaedeutics
ip	Identification of Phonemes: Phonological Awareness	vi	Verbal Reasoning
li	Listening: Listening Comprehension at Text/Discourse Level	vo	Vocabulary: Listening Comprehension at Word Level

2. The second part of the variable name defines the **target group** and survey wave or class level in which the item was first used, indicated by the two or three succeeding characters. Some competence tests are not designed for specific age groups, but are implemented unmodified in different cohorts and testing waves. The target group of these tests is indicated by “ci” (cohort invariant).

n1	Newborns in the first survey wave	s1	University students in the first survey wave
…	…	…	…
nX	Newborns in the Xth survey wave	sX	University students in the Xth survey wave
k1	Kindergarten children in the first survey wave	a1	Adults in the firsts survey wave
…	…	…	
kX	Kindergarten children in the Xth survey wave	aX	Adults in the Xth survey wave
g1	Students at school in Grade 1	ci	Cohort invariant (for instruments administered unchanged in all starting cohorts)
…	…		
gX	Students at school in Grade X		

3. The third part of the variable name consists of three to four characters and defines the **item number**. For some competence domains these item numbers follow a certain scheme, but for most competence domains they only indicate the different items.

4. The fourth part of the variable name includes one or more additional suffixes which inform (a) about the **mode** of test execution if more than one survey modus has been applied for a test, (b) about **item scores and overall measures** of the competence score, and (c) about the **repeated administration** of an test item in a different testing wave or starting cohort.

_pb	Paper-based test modus (proctored)	_wb	Web/Internet-based test modus (unproctored)
_cb	Computer-based test modus (proctored)		
_c	Scored item variable (0=”not solved”, 1=”solved”) [1]	_sc1	Weighted Likelihood Estimate (WLE) [2, 3, 4]
_p	Maximum value for an item (only in SC1)	_sc2	Standard error for the WLE [2, 4]
_b	Minimum value for an item (only in SC1)	_sc3	Sum score [2]
_m	Mean value for an item (only in SC1)	_sc4	Mean score [2]
_s	Sum value for an item (only in SC1)	_sc5	Difference score (for Procedural Metacognition) [2]
_n	Number value for an item (only in SC1)	_sc6	Proportion correct score (for Procedural Metacognition) [2]
		_sc8	Test stop
		_sc9	Ceiling set / Basal set (for Vocabulary) Number of administered practice items (for Digit Span)

[1] Partial scored item variables are indicated by “s_c” (e.g., *rea3012s_c*: 0=”0 out of 2 points”, 1=”1 out of 2 points”, 2=”2 out of 2 points”).

[2] If there are several aggregated scores for a test available, additional letters are appended to the suffix (e.g., _sc3a, _sc3b).

[3] WLEs and their standard errors are estimated in tests that are scaled based on models of item response theory (cf. Pohl and Carstensen 2012).

[4] WLEs and their standard errors are corrected for test position; uncorrected WLEs and standard errors are indicated by an additional “u” in the suffix (_sc1u, _sc2u).

Identification of repeated test items

Identifying repeatedly measured test items in NEPS data can be easily done by identifying competence variables with an identical word stem. If the same test item is surveyed in different testing waves or starting cohorts, the variable name is marked by an additional suffix, while the word stem always indicates the target group for which the item was initially used. The word stem is then fixed and does not change when the item is used again in later waves or other cohorts. The suffix that points to the repeated use consists of two parts: The first element indicates the starting cohort of current item administration (e.g., *sc2* for the Starting Cohort 2—Kindergarten) and the second element indicates the cohort or testing wave (e.g., *g1* for students at school in Grade 1).

To complete the example, the competence variable ***vok10067_sc2g1_c*** is a vocabulary item (*vo*) that was used for the first time in the first Kindergarten survey wave (*k1*) with the respective item number (*0067*). It was repeated among the target persons of Starting Cohort 2 at school in Grade 1 (*_sc2g1*), and it is available as a scored item response (*_c*). Further examples for the use of the described conventions are given below.

org51001_c	scored variable from orthography test [*or*] → administered to Grade 5 students at school [*g5*] → measuring that the respective item [*1001*] was "solved" or "not solved" by the respondent [*_c*]
ics5002s_c	scored partial credit variable from ICT literacy test [*ic*] → implemented in the fifth university students´ survey wave [*s5*] → indicating whether the respective item [*002*] was solved by the respondent with 0, 1 or 2 points out of 2 points [*s_c*]
rea3_sc1 *rea3_sc2*	overall score for the reading test [*re*] → implemented in the third adults´ survey wave [*a3*] → representing the WLE of the test [*_sc1*] and the respective standard error [*_sc2*] → corrected for test position
mag7_sc1u *mag7_sc2u*	overall score for the mathematics test [*ma*] → administered to Grade 7 students at school [*g7*] → representing the WLE of the test [*_sc1u*] and the respective standard error [*_sc2u*] → uncorrected for test position
grk1_sc3	overall score for the grammar test [*gr*] → being tested in the first Kindergarten survey wave [*k1*] → indicating the sum of all solved items of this test [*_sc3*]
dgg9_sc3a *dgg9_sc3b*	overall score for the DGCF test [*dg*] → administered to Grade 9 students at school [*g9*] → indicating the sum for perceptual speed [*_sc3a*] and the sum score for reasoning [*_sc3b*] → both are overall measures of domain-general cognitive functioning

man5v181_sc1n7_c	scored variable from mathematics test [*ma*] → first administered to targets of Starting Cohort 1–Newborns at wave 5 [*n5*] → current administration of this test item [*v181*] in wave 7 of Starting Cohort 1 [*_sc1n7*] → indicating whether the item was "solved" or "not solved" [*_c*]
mag5q301_sc3g7_c	scored variable from mathematics test [*ma*] → first administered to Grade 5 students at school [*g5*] → current administration of this test item [*q301*] in Grade 7 of Starting Cohort 3 [*_sc3g7*] → indicating whether the item was "solved" or "not solved" [*_c*]
scs5131s_sc4g11_c	scored partial credit variable from scientific competence test [*sc*] → first implemented in the fifth university students´ survey wave [*s5*] → current administration of this test item [*131*] in Grade 11 of Starting Cohort 4 [*_sc4g11*] → indicating whether the item was solved with 0, 1 or 2 points out of 2 points [*s_***_c*]