



Conference on “Modeling and Measurement of Competencies in Higher Education”  
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# The German National Educational Panel Study (NEPS)

## Assessing Competencies over the Life Course

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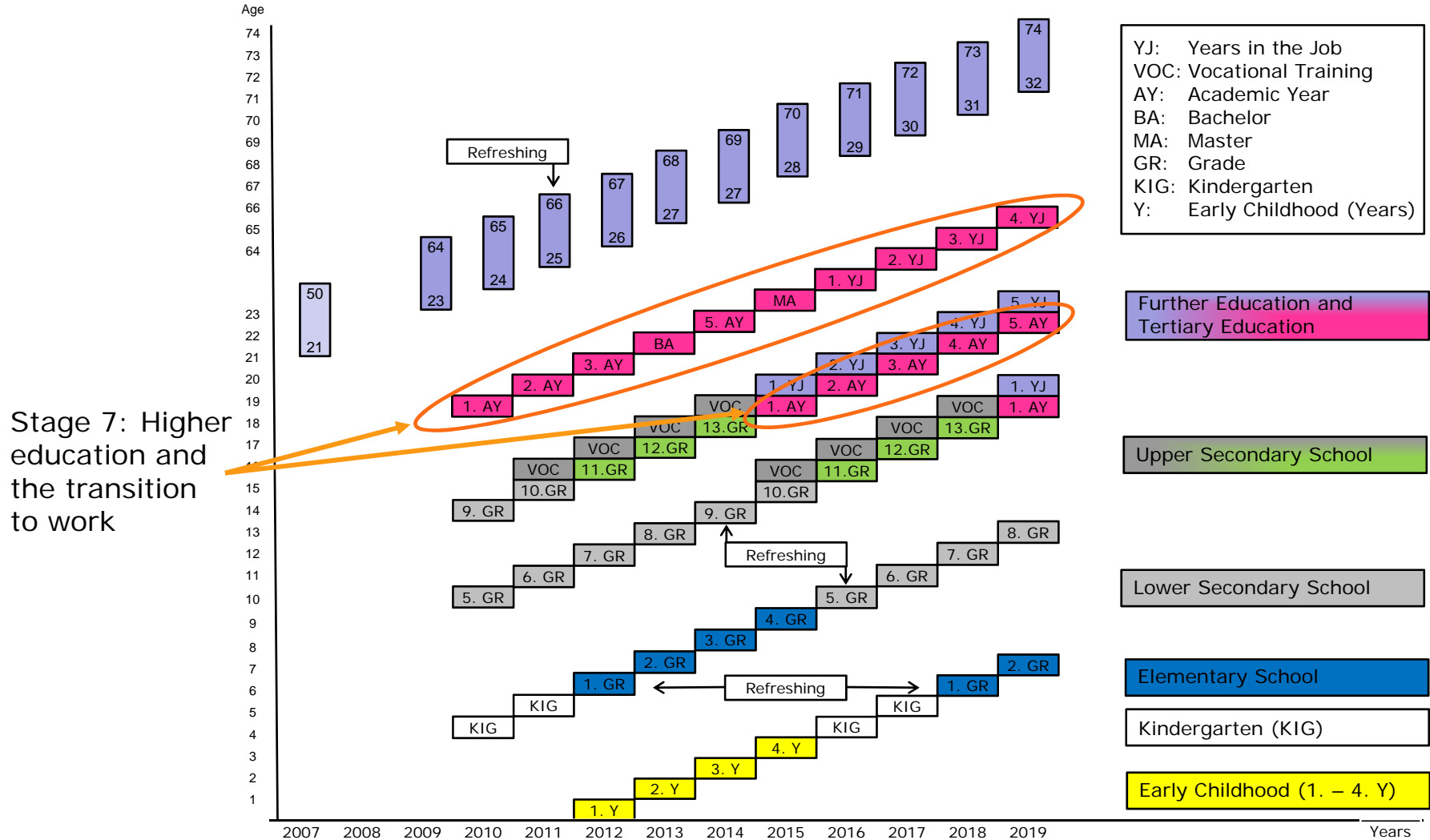


## Project overview

- The NEPS is funded by the Federal Ministry of Education and Research.
- The NEPS was set up to
  - ➔ study the acquisition of competencies, qualifications, and credentials
  - ➔ assess the consequences of education for the life course
  - ➔ describe educational processes, transitions and careers across the life span
- Pre-eminent theoretical characteristic: life-course perspective
- Methodology: multicohort sequence design, starting with six cohorts
- The NEPS is carried out by an interdisciplinary consortium of researchers and research institutes.
- Longitudinal integration ensured by a theoretical orientation towards five major dimensions (“pillars”)



# The multicohort sequence design

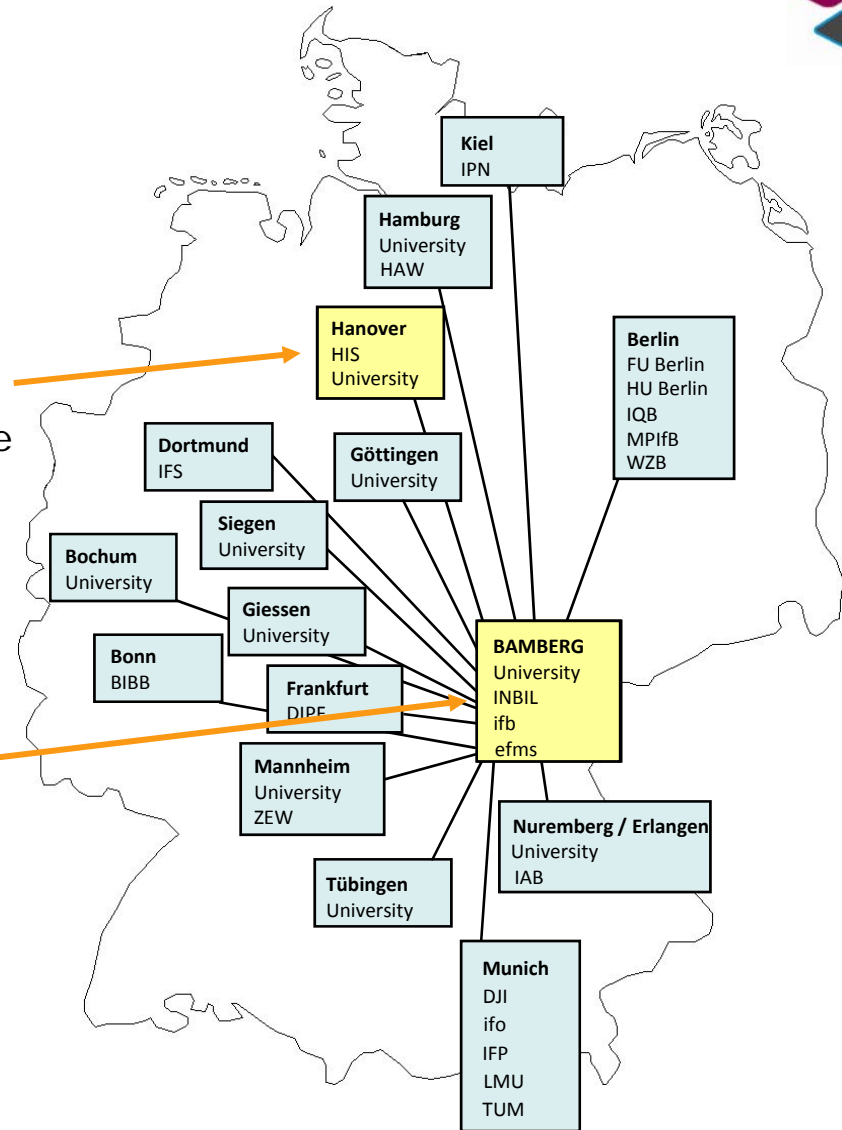




## Organizational network

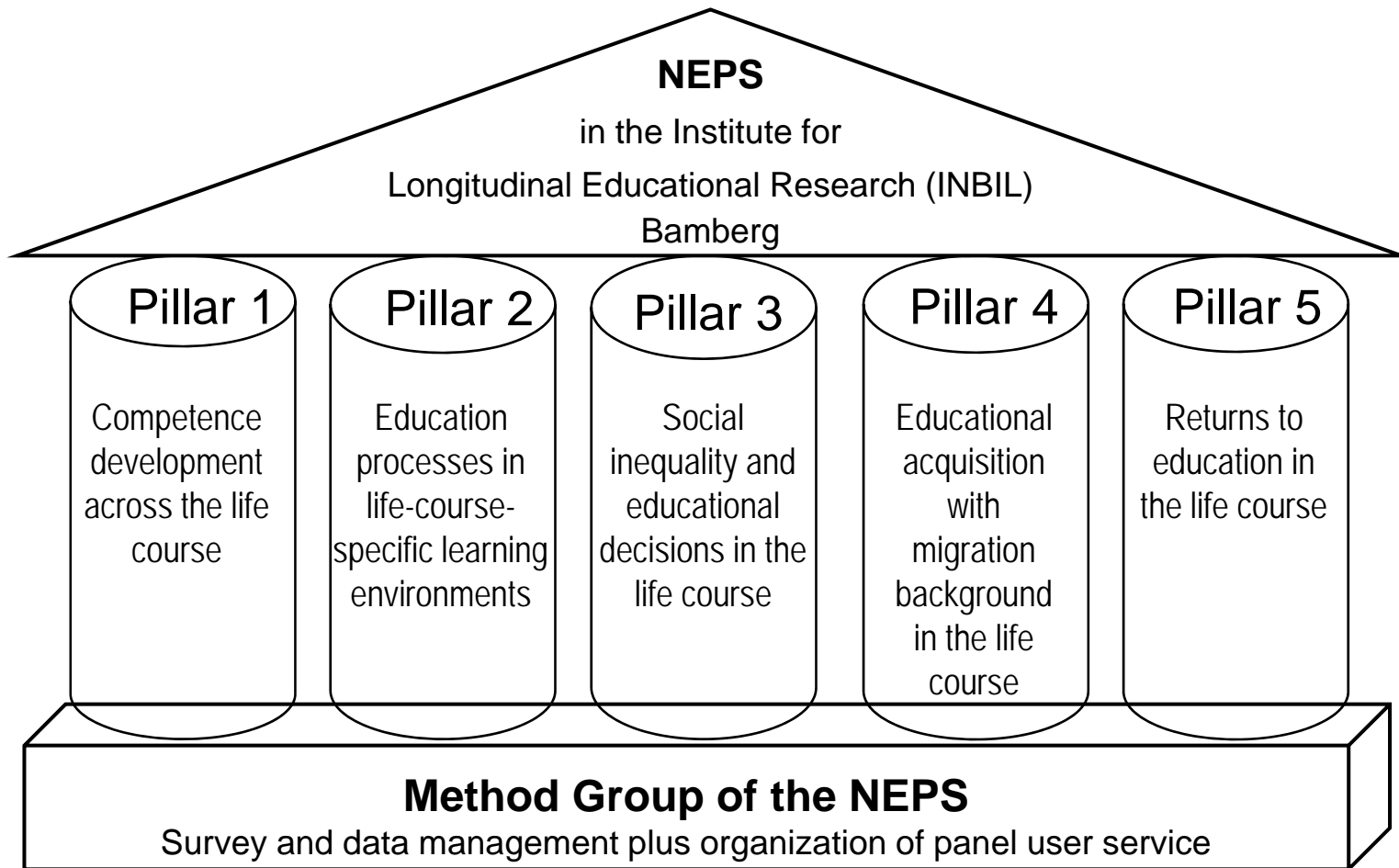
Hanover, HIS Institute for Research on Higher Education:  
Responsible for the higher education stage

Bamberg, INBIL:  
Administration and central coordination





## The five basic pillars of the NEPS “house”





## Concept of Competence

- Context-specific cognitive dispositions that are acquired and needed to successfully cope with certain situations or tasks in specific domains (Klieme, Hartig & Rauch 2008)
- Exclusion of non-cognitive aspects (e. g., motivation, volition, affection)?  
No, but separate assessment
  - ➔ for analytical reasons: possibility to analyze the interplay between cognitive and non-cognitive components
  - ➔ for pragmatic reasons: difficulty of handling the complexity of a holistic competence model
  - ➔ for reasons of longitudinal measurement: domain-specific cognitive competencies will and can be reconstructed in their lifelong internal dynamics
- Distinction between context-bound, domain- and demand-specific competencies and domain-general, rather context-free cognitive dispositions (the former can be acquired, the latter are learnable only to a limited extent)



## Competence domains addressed in the NEPS

- Domain-general cognitive abilities and capacities (“fluid intelligence”, “cognitive mechanics”; indicators: figural reasoning, perceptual speed)
- “Basic” domain-specific cognitive competencies (which become cross-curricular in later life):
  - ➔ German language competencies (reading literacy, listening comprehension)
  - ➔ Mathematical literacy
  - ➔ Scientific literacy

The above mentioned competencies will be assessed consistently and coherently across the life span.

- ➔ Foreign language competencies
- Metacompetencies and social competencies (metacognition, ICT literacy, social competencies, self-regulation)
- Stage-specific competencies, e. g. subject-specific competencies in the higher education stage



## Subject-specific competencies in higher education

- The NEPS starts with two subject areas: business administration and teacher education
- Test for students of business administration: to be developed
- Test for students in teacher training programs: use of existing tests and of tests to be developed within the funding initiative “Modeling and Measurement of Competencies in Higher Education”
- Assessment at the end of the study program



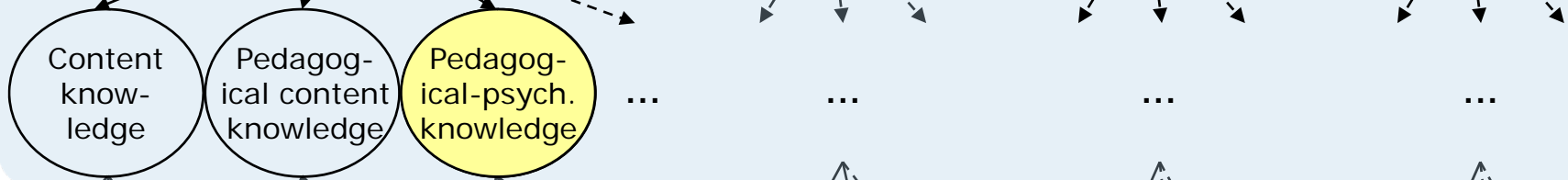


# Professional competence of teachers

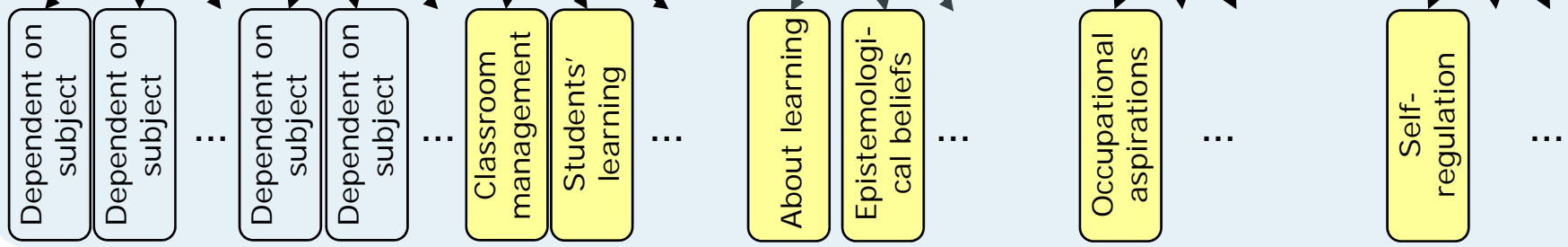
## Aspects of competence



## Areas of competence



## Facets of competence

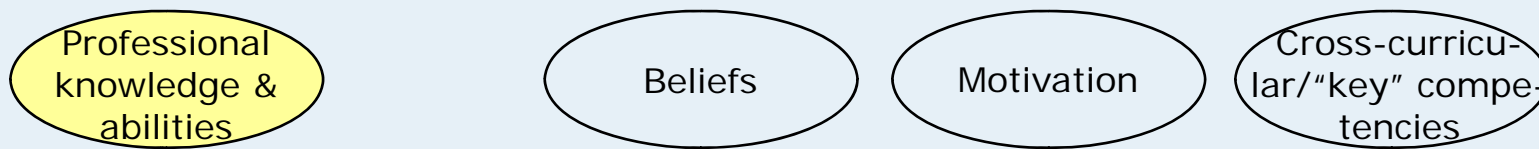


adapted from: Baumert & Kunter, 2006; Bauer et al., 2010

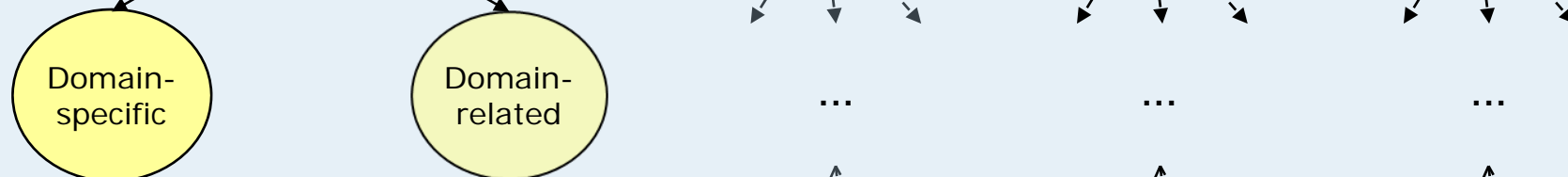


## Professional competence of graduates in business

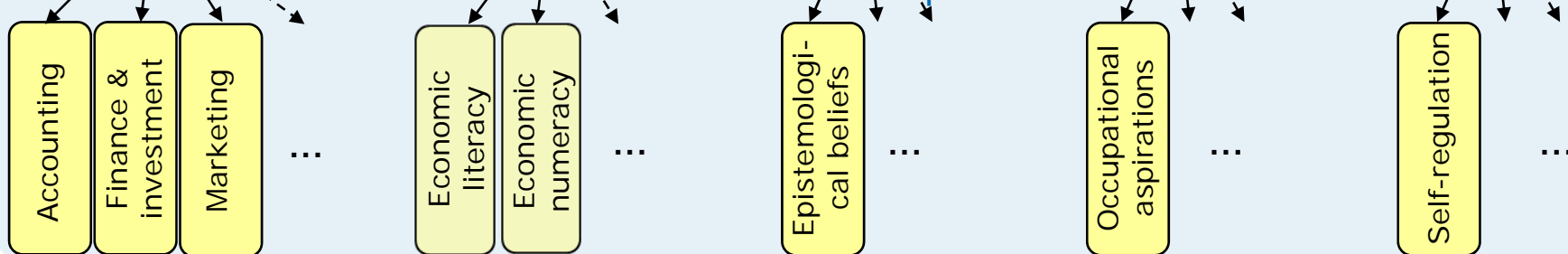
### Aspects of competence



### Areas of competence



### Facets of competence



following Baumert & Kunter, 2006; Bauer et al., 2010; Winther 2010



## Range, limitations, research desiderata, and intersections

- Because of the broad range of competencies measured, the NEPS can address a variety of important research questions which have not yet been answered satisfactorily.
- Until now, no longitudinal measurement of subject-specific competencies specific to higher education in the NEPS
  - ➔ major research gap: competence models that address the issue of competence development
- Restriction to two subject areas in the NEPS → inclusion of additional subject areas, e.g. engineering, medicine, in future funding periods of the NEPS intended
- Close cooperation with projects funded within the research initiative “Modeling and Measurement of Competencies in Higher Education” intended



## References

- Bauer, J., Drechsel, B., Retelsdorf, J., Sporer, T., Rösler, L., Prenzel, M. & Müller, J. (2010). Panel zum Lehramtsstudium – PaLea: Entwicklungsverläufe zukünftiger Lehrkräfte im Kontext der Reform der Lehrerbildung. In *Beiträge zur Hochschulforschung*, 32 (2), pp. 34–55.
- Baumert, J. & Kunter, M. (2006). Stichwort: Professionelle Kompetenz von Lehrkräften. In *Zeitschrift für Erziehungswissenschaft*, 9 (4), pp. 469–520.
- Klieme, E., Hartig, J. & Rauch, D. (2008). The Concept of Competence in Educational Contexts. In J. Hartig, E. Klieme & D. Leutner (Eds.): *Assessment of Competencies in Educational Contexts* (pp. 3–33). Toronto: Hogrefe & Huber.
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