

The Role of Key Competencies in the Bologna Process: Rhetoric and Reality

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Introduction Concepts Data Results Discussion

Key Competencies and the Bologna Process

- Key competencies are not explicitly mentioned in the official documents on the Bologna process.
- But: Key competencies are closely related to an explicit objective of the reform efforts: enhancing employability of higher education graduates.
- Enhanced employability is often considered to be the most important aim of the Bologna process (Schick 2005) or as the driving force (Haug & Tauch 2001).
- Key competencies are central to the concept of employability and are considered to be a means for achieving employability (Schindler 2004).
- Hence, key competencies are an implicit, “derived” or “second grade” objective of the Bologna Reforms (Kohler 2004).
- Guidelines for the introduction and accreditation of bachelor’s and master’s programmes in Germany stipulate that curricula have to pay special attention to key competencies.

Key competencies

- Combine cognitive and non-cognitive components (Weinert 2001a)
- Are multifunctional
 - ➔ "The term generally refers to multi-functional and transdisciplinary competencies that are useful for achieving many important goals, mastering different tasks, and acting in unfamiliar situations." (Weinert 2001b, p. 52)
- Are critical, important
 - ➔ "... the notion of key competencies is used ... as a synonym for critical or important competencies ... that contribute to a successful life and a well-functioning society, are relevant across different spheres of life, and are important for all individuals." (Rychen & Salganik 2003, p. 54)
- Are to be analytically distinguished from field-specific competencies that are related to and are important for specific tasks/occupations
- Are often classified into four categories: social competence, self competence, systematic competence, and generally applicable domain-related competencies (Braun et al. 2008; Orth 1999; Reetz 1999; Roth 1971)

Data

- Panel survey of higher education graduates who earned their first degree at a German higher education institution in the academic year 2005
- First interview (postal questionnaire) carried out on an average of twelve months after graduation
- 11,786 survey participants
 - ➔ 10,162 with a traditional degree (all types of HEIs and subject areas)
 - ➔ 1,624 with a bachelor's degree (selected subject areas)
- Reduced sample used for analysis: subject groups with a sufficient number of cases (n = 5,369)
 - ➔ 3,981 graduates of traditional degree programmes
 - ➔ 1,624 graduates of bachelor's degree courses

Measurement of competencies

- Self-assessment of the level of competencies possessed at time of graduation
- 24 abstract items (e. g. ability to cooperate, working independently), measured on a 5-point Likert scale ranging from 1 “low extent” to 5 “high extent”
- Factor analysis yielded four sufficiently reliable/consistent factors (Cronbach’s Alpha: 0.69 to 0.81)
- Analysis of selected competencies

Competencies selected for analysis

- Key competencies
 - ➔ Systematic competence = ability to select, plan, realise, and develop adequate problem solving strategies (additive index consisting of 5 items, e. g. working independently, problem-solving ability, analytical ability; $\alpha = 0.75$)
 - ➔ Social competence = ability to exchange information, to communicate, and to establish, develop and maintain social relationships (additive index based on 6 items, e. g. ability to cooperate, conflict management, ability to communicate, leadership; $\alpha = 0.81$)
- Field-specific competencies
 - ➔ Specialised subject-specific knowledge (single item)
 - ➔ Knowledge of scientific methods (single item)

Level of competencies and type of degree

- OLS regression of competence level on type of degree (stand. coeff.) controlling for subject area, type of HEI, indicators of competencies at entering higher education and of work experience during HE

Competencies	Bachelor's vs. traditional degree		R square (full model)
	Effect at universities of applied sciences	Effect at universities	
Specialised subject-specific knowledge		-0.09 **	0.04
Knowledge of scientific methods		-0.06 **	0.08
Systematic competence		-0.06 **	0.06
Social competence	+0.06 **	+0.08 **	0.06
* p < 0.05 ** p < 0.01 HIS Graduates Survey 2005, 1 st panel wave			

- At universities: graduates with a bachelor's degree report a lower degree of field-specific and methodical competencies.
- Graduates with a bachelor's degree report a higher degree of social competencies.
- Effects are small; poor explanatory power of the models.

Level of competencies and learning environment I

- OLS regression of competence level on learning environment (selection, stand. coeff.), controlling for type of degree, subject area, type of HEI, indicators of competencies at entering higher education and of work experience during HE

Learning environment (selection)	Specialised subject-specific knowledge	Knowledge of scientific methods	Systematic competence	Social competence
Interaction with faculty	+0.04 **		+0.05 **	
Academic quality of teaching	+0.10 **	+0.11 **	+0.11 **	
Practice orientation	+0.17 **		+0.12 **	+0.20 **
Activation			+0.05 *	+0.08 **
R square (full model)	0.13	0.27	0.18	0.19
* p < 0.05 ** p < 0.01 HIS Graduates Survey 2005, 1 st panel wave				

- Significant increase in R square indicating the relevance of teaching-learning arrangements for competence acquisition.
- Surprisingly, the effects of activating teaching methods are small; they do not enhance the development of field-specific competencies.

Level of competencies and learning environment II

- The finding concerning activating educational settings conflicts with constructivist learning theories and contradicts previous empirical research (Meng & Heijke 2005; Schaeper & Briedis 2004).
- High correlation between indicators of teaching approaches and the assessment of the quality of teaching: problem that partial effects are difficult to determine, imprecise estimation possible, reduction of effects
- The effect of activating teaching methods when excluding variables that represent the quality of teaching (stand. coeff.)

	Specialised subject-specific knowledge	Knowledge of scientific methods	Systematic competence	Social competence
Activation	+0.12 **	0.09 **	+0.15 **	+0.16 **
* p < 0.05 ** p < 0.01 HIS Graduates Survey 2005, 1 st panel wave				

- Student-centred activating teaching methods prove to assist in developing field-specific and key competencies.
- Regression coefficients are significant for all target variables and of considerable size.

Conclusion I

- The new Bachelor's programmes in Germany succeed in enhancing the level of some key competencies by improving the curriculum and the teaching-learning environment in a way that favours the acquisition of these competencies.
- But: Findings should not be generalised because they are based on a small range of subject areas and refer to an early stage of the Bologna process.

Conclusion II

- University graduates with a bachelor's degree report a lower level of field-specific competencies than "traditional" university graduates. This finding was expected ...
 - ➔ Bachelor's programmes at universities are considerably shorter than traditional university programmes (differences at university of applied sciences are less pronounced).
 - ➔ Curricula of bachelor's programmes at universities are less scholarly oriented than curricula of traditional degree courses.
- ... but is problematic
 - ➔ Action competence = field-specific competencies + key competencies
 - ➔ Key competencies do not substitute for domain-specific competencies (Weinert 2001b).
 - ➔ Small and narrow study programmes bear the risk of producing "small-time" graduates.

Conclusion III

- What do self-reports on competencies measure?
 - ➔ Self-reports do not assess the level of competencies in an objective manner.
 - ➔ But: Research has revealed a systematic association between self-reports and alternative measurements of the same constructs in general and between competence-related self-concepts and the results of achievement tests in particular (for an overview see Braun et al. 2008).
 - ➔ But: Self-concepts guide future action; self-reports data, therefore, possess a considerable degree of prognostic validity (Grob & Maag Merki 2001).
- Self-reports provide reliable information on the correlation between competencies on the one hand and characteristics of students and the learning environment on the other hand.
- Self-assessment instruments are an economic way of collecting data on competencies in large scale surveys.

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