

The Demand for Specific Competencies in Teachers after Graduation from University

First Results from a Specialised Teacher Questionnaire Implemented in Graduate Tracer Studies in Germany

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Institutional Background of the Study

The 'Cooperation Project for Graduate Tracer Studies (KOAB)'

- initiated and coordinated by the *International Centre for Higher Education Research (INCHER) Kassel*
- partially funded by the *German Federal Ministry for Education and Research*
- 40 to 50 higher education institutions involved
- graduate tracer studies since 2007 – survey including graduates from the study year 2006 (1st September 2005 to 30th October 2006)
- *University of Cologne* involved since 2008 – survey including graduates from the study year 2007 (1st September 2006 to 30th October 2007)



Institutional Background of the Study

Emergence of the Need for a Specialised Teacher Questionnaire

- teacher education reform in Germany since 1990s
- universities are obligated to develop and improve teacher education programmes
- compared to students from other fields, students in teacher education programmes are prepared for specific demands of their future profession
- tasks of the teacher profession are underspecified in terms of a theoretical model comprising all teacher action fields and their structure
- lack of sound empirical research regarding an overview of demands on graduates training to become teachers after their graduation from university



Action Fields of the Teacher Profession – Theoretical Foundation

Teacher Education Standards in Germany

- 2000: *Standing Conference of the Ministers of Education and Cultural Affairs and Teachers' Unions* agreed on new principles of the teacher profession
- 2004: *Standing Conference of the Ministers of Education and Cultural Affairs* published guidelines on teacher education standards for the educational sciences based on these principles and an expertise issued by the working group on teacher education reform around Prof. Terhart (University of Munster) in 2002
- 2008: *Standing Conference of the Ministers of Education and Cultural Affairs* published guidelines regarding teacher education standards for the subject areas



Action Fields of the Teacher Profession – Theoretical Foundation

A Model of Teacher Action Fields

1 st layer	2 nd layer	3 rd layer	4 th layer
Teacher Action	Teacher Action Fields	Areas	items – specific teacher action
Teacher Action	Teaching	Planning and Design of Lessons	
		Enhancement of Pupils' Motivation and Performance	
		Support for Independent Learning Strategies in Pupils	
	Moral Education	Consideration of Pupils' Social Background	
		Conveyance of Norms and Values	
		Creation of a Pleasant Social Atmosphere	
	Student Evaluation	Diagnostics and Counselling	
		Grading and Evaluation on the Basis of Objective Standards	
	School Development	Creation of a Work-Life-Balance	
		Adapting to the Regulatory Framework	
		Evaluation	
	Subject Areas	Representation of Subject Areas	
		Application of Scientific Methods from Subject Areas	
		Use of Subject-Specific Pedagogical Knowledge	



Confirmatory Factor Analysis – ‘Teaching’

Factor Loading ‘Teacher Action’: 0.90

Planning and Design of Lessons Factor Loading ‘Teaching’: 0.70	planning and structuring lessons (0.74)	1	1
	varying methods in the design of lessons (0.77)	2	2
	creating an obvious underlying structure for each lesson (0.83)	3	3
	explaining difficult content comprehensibly	4	
	creating a lesson according to the learning objective (0.67)	5	4
Enhancement of Pupils’ Motivation and Performance Factor Loading ‘Teaching’: 0.80	including pupils’ mistakes in the learning process (0.81)	6	5
	analysing pupils’ mistakes (0.83)	7	6
Support for Independent Learning Strategies in Pupils Factor Loading ‘Teaching’: 0.91	supporting independent learning strategies in pupils (0.73)	8	7
	encouraging pupils to reflect on their individual learning process (0.82)	9	8
	guiding each pupil’s learning progress by offering individual support (0.71)	10	9



Confirmatory Factor Analysis – ‘Moral Education’

Factor Loading ‘Teacher Action’: 0.82

Consideration of Pupils’ Social Background Factor Loading ‘Moral Education’: 0.83	incorporating pupils’ intercultural differences in their learning experience (0.79)	11	10
	acknowledging influences from the social background on pupils’ learning process (0.88)	12	11
Conveyance of Norms and Values Factor Loading ‘Moral Education’: 0.94	conveying society’s norms and moral values(0.65)	13	12
	offering solutions and strategies for addressing conflicts(0.86)	14	13
Creation of a Pleasant Social Atmosphere Factor Loading ‘Moral Education’: 0.89	preparing lessons thoughtfully in order to avoid unnecessary conflict(0.85)	15	14
	dealing with conflicts in the classroom in an adequate manner (0.79)	16	15



Confirmatory Factor Analysis – ‘Student Evaluation’

Factor Loading ‘Teacher Action’: 1.04

Diagnostics and Counselling Factor Loading ‘Student Evaluation’: 0.82	assessing each pupil’s learning abilities (0.87)	17	16
	diagnosing steps in each pupil’s individual learning process (0.87)	18	17
	offering feedback to promote each pupil’s development (0.78)	19	18
	counselling pupils on their future learning prospects	20	
Grading and Evaluation on the Basis of Objective Standards Factor Loading ‘Student Evaluation’: 0.77	grading pupils’ work on the basis of objective standards (0.67)	21	19
	developing a grading system according to the curriculum (0.73)	22	20
	weighing up the advantages and disadvantages of different grading systems (0.73)	23	21



Confirmatory Factor Analysis – ‘School Development’

Factor Loading ‘Teacher Action’: 0.93

Creation of a Work-Life-Balance	teaching well under pressure	24	
	being aware of and acting according to the school laws	25	
	carrying out school tasks effectively and with an adequate amount of effort		22
	creating your individual work-life-balance to reduce strains caused by the teacher profession		23
Adapting to the Regulatory Framework Factor Loading ‘School Development’: 0.86	being aware of and acting according to the school law (0.74)	25	24
	critically analyzing your teaching activities	26	
	perceiving school as an administrative unit (0.77)	27	25
	collaborating interactively with other teachers	28	
	planning school projects	29	
Evaluation Factor Loading ‘School Development’: 0.83	planning school projects (0.68)	29	26
	employing different methods of evaluation in school development (0.87)	30	27
	improving your teaching on the basis of evaluation studies (0.78)	31	28



Confirmatory Factor Analysis – ‘Subject Areas’

Factor Loading ‘Teacher Action’: 0.89

Representation of Subject Areas Factor Loading ‘Subject Areas’: 0.76	updating your knowledge in your subject areas (0.76)	32	29
	participating actively in discussions in your subject areas (0.83)	33	30
	using new scientific results for developing the curriculum (0.84)	34	31
Application of Scientific Methods from Subject Areas	using new scientific results for developing the curriculum	34	
	explaining difficult content by using specific examples	35	
	gaining an insight in new methods in your subject areas	36	
	structuring subject content over several school years with the help of the curriculum	37	
	employing scientific methods from your subject areas to plan teaching units		32
	adapting scientific methods from your subject areas to teach pupils		33
Use of Subject-Specific Pedagogical Knowledge Factor Loading ‘Subject Areas’: 0.97	structuring subject content over several school years with the help of the curriculum (0.66)	37	34
	using adequate teaching materials according to the plan of lesson and the subject matter	38	
	choosing learning content according to their scientific relevance (0.69)	39	35
	including pupils in an interactive development of concepts and definitions	40	



Parametrisation of Teacher Action Fields

Empirical Results from Confirmatory Factor Analysis

N=937-956

differentiated model (1st to 4th Layer):

SRMR: 0,0618, RMSEA: 0,061, TLI 0,900, CFI 0,910

competing model (1st, 2nd and 4th Layer):

SRMR: 0,0781, RMSEA: 0,089, TLI 0,786, CFI 0,803

⇒ Differentiated model scores better on all fit indices indicating at least moderate fit



Parametrisation of Teacher Action Fields

Empirical Results from Indices Representing Areas of Teacher Action

teacher action field	area	percentage of answers in top-box	rank according to top-box
Teaching	Planning and Design of Lessons	99.0 %	1
	Enhancement of Pupils' Motivation and Performance	85.8 %	4
	Support for Independent Learning Strategies in Pupils	92.5 %	2
Moral Education	Consideration of Pupils' Social Background	61.7 %	10
	Conveyance of Norms and Values	88.1 %	3
	Creation of a Pleasant Social Atmosphere	85.6 %	5
Student Evaluation	Diagnostics and Counselling	85.3 %	6
	Grading and Evaluation on the Basis of Objective Standards	83.3 %	7
School Development	Creation of a Work Life Balance		
	Adapting to the Regulatory Framework	72.2 %	9
	Evaluation	57.0 %	11
Subject Areas	Representation of Subject Areas	43.3 %	12
	Application of Scientific Methods from Subject Areas		
	Use of Subject-Specific Pedagogical Knowledge	81.8 %	8



Summary

Indications for Teacher Education and Future Research

- model of teacher action needs 3 theoretical layers (1st to 3rd) and 1 empirical layer (4th):
 - teacher action (1st layer)
 - teacher action fields (2nd layer)
 - areas of teacher action fields (3rd layer)
 - items representing specific teacher actions (4th layer)
- empirical evidence points at teacher action fields suggested by the Standing Conference of the Ministers of Education and Cultural Affairs but further definition is obligatory
 - ‘teaching’, ‘moral education’, ‘student evaluation’, ‘school development’ and ‘subject areas’ divided into connected subareas
- results from indices representing areas of teacher action provide evidence for demands in all areas included but put emphasis on subareas of ‘teaching’, ‘moral education’ and ‘student evaluation’
- the scale has the potential to become an indicator for demands of the teacher profession and respective abilities of graduates, providing an overview for the reform of teacher education programmes in German universities
- future research will concentrate on the validation and tests on reliability of the scale
 - revised scale has been used for the graduate year 2009 – complete model will be tested by confirmatory factor analysis
 - tests for different teacher groups classified by type of school
 - open text answers provided by graduates will be coded with the help of qualitative content analysis to improve the theoretical model and the corresponding scale
- education research can profit from the overview on demands of the teacher profession as it pictures the complexity of the teacher profession instead of giving in to its complexity



Discussion

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References

Kultusministerkonferenz. 2000. Gemeinsame Erklärung des Präsidenten der Kultusministerkonferenz und der Vorsitzenden der Bildungs- und Lehrergewerkschaften sowie ihrer Spitzenorganisationen Deutscher Gewerkschaftsbund DGB und DBB - Beamtenbund und Tarifunion vom 05.10.00.

Kultusministerkonferenz. 2004. Standards für die Lehrerbildung: Bildungswissenschaften. Beschluss der Kultusministerkonferenz vom 16.12.04.

Kultusministerkonferenz. 2008. Ländergemeinsame inhaltliche Anforderungen für die Fachwissenschaften und Fachdidaktiken in der Lehrerbildung. Beschluss der Kultusministerkonferenz vom 16.10.08 i. d. F. vom 16.09.10.

Terhart, Ewald. 2002. Standards für die Lehrerbildung. Eine Expertise für die Kultusministerkonferenz. Westfälische Wilhelms Universität Münster.

