

Competence Profiles: Genesis and Assessment

Modeling and Measurement of Competencies in Higher Education

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Steps

1. On the genesis of competencies
2. On quality measures
3. Basics

Knowledge Base 1. Developmental Psychology

Developmentalists need knowledge on:

- cognitive development
- language development
- moral development
- physical development
- motivational development
- perceptual development etc.

Knowledge Base 2

Developmentalists need knowledge on

- Stages (critical), phases, styles
- transformations
- research techniques
- developmental modeling techniques like discontinuity / continuity development, longitudinal and cross-sectional designs
- special issue on contingent life phases like childhood, midlife, high old life etc.

But what are competences?

for instance

- to analyze and to prognose language gaps of a first grader having difficulties to express feelings
- to diagnose social deficits of students in adolescence under situational peer group pressure
- to apply the concept of the “unhappy moralist syndrome” to different age groups by using different forms of test
- to diagnose motivational difficulties over 3 age groups and school cycles with respect to the academic self-concept and the “big fish/little pond” effect.

Knowledge versus Competences

- the first slides contains knowledge parts stemming from canonic handbooks on developmental psychology
- the fourth slide contains competences in situations in with someone needs knowledge parts and different action types like search for a text, applying the text, studying other results of the developmental frame, formulating diagnostic statements etc.

The problem is:

- A specialist needs more knowledge that that he/she can need in exercising a competence
- Exercising a competence needs additional situational knowledge (ex. Learning climate)

2. Teachers training knowledge

- CK
- PCK
- PK
- Management knowledge
- Developmental knowledge

Knowledge competence-relation

- A teacher needs more knowledge than it is needed for competencies

But

- For to exercise a competence he/she needs additional “non academic” knowledge (situational, personal, reactive etc.knowledge

For modeling competencies we need two sources

- The sources on a academic knowledge base

And

- The sources on the practical field (see the idea of signature pedagogy) which are complex, situation bounded and emergency room related

Teacher's competencies

Ex.: The teacher is able to organize different forms of group work such that all students participate and profit and the result is integrated into the further phase of the teaching-learning process.

Ex: The teacher is able to solve group conflicts of students in concrete daily classroom situations by forming roundtables and setting the criteria for realistic discourses.

How did we come to the formulation of such competencies?

Important Definitions

Definition „Standard“ :

- A standard = competence profile + measurability,
- referring to an integral and definable situation,
 - enabling optimal solutions,
 - ethically justifiable and
 - permitting a benchmarked measurement.

Standard

Definition „Competency Profile“

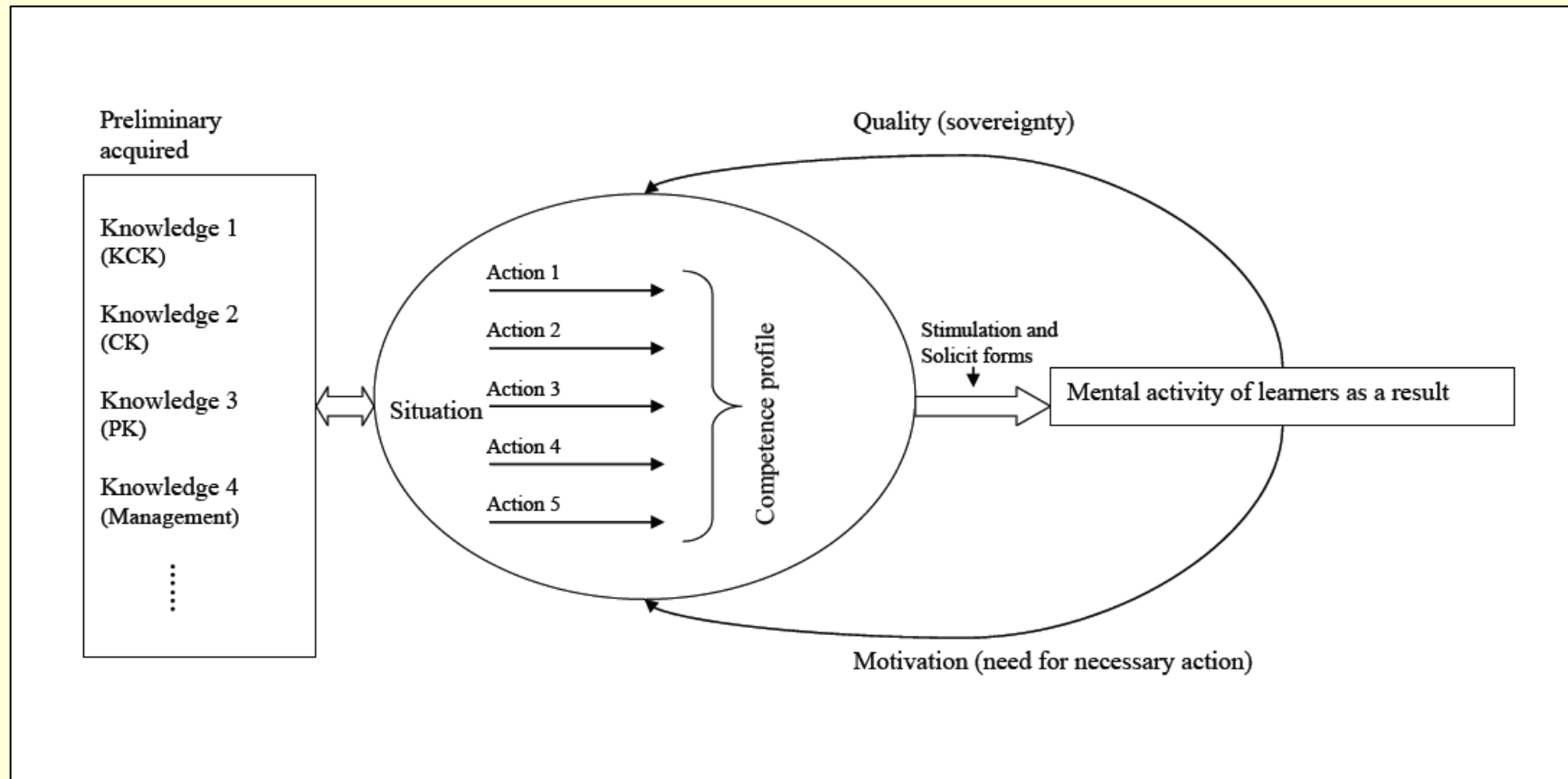
A Competency Profile is an impact teaching action in complex situations. This action must be definable, adequate, efficient and ethically justifiable and stimulates trainees in a differential manner. It is depending on the teaching and learning situation.

Competence Profile

A single competence „[...] is a disposition to act in similar ways in variable situations successfully and responsibly. (single act)

Competence

Resource-model of Competence (Oser, 2011)



The competence profiles applied by vocational school teachers

1 Framing Activities

- Developed by means of a Delphi-Study

2 Competence Measurement

- In collaboration with experienced vocational teachers

3 Expert-Rating

- 45 competence profiles that vocational teachers apply in teaching situations could be developed and validated in a representative survey

Informations about the Quasi- Delphi-Study

(see Häder & Häder, 1995; Brosi, Krekel, Ulrich, 1999; Krekel & Ulrich, 2000)



- „bottom-up“ in cooperation with experienced VET teachers
- 4 rounds in all
 - 1. and 2. round: Interrogation of complex situation out of everyday's experts (teacher) work.
 - 3. round: Concentration of these situation into 45 competence profile (4 main groups).
 - 4. round: Validation (N=793).

An example:

The teacher is able to give a stimulating feedback to the trainees at different timings and with different instruments

Samples

Delphi-Study in order to develop competence profiles	1. phase: 21 experts 2. phase: 14 experts and 98 students 3. phase: 3 experts 4. phase: 789 vocational teachers
Validation of the diagnostic instruments a) direct teaching (old version) b) giving supporting feedback c) group work	N = 94 (67 teachers, 27 non-teachers) N = 107 (80 teachers, 27 non-teachers) N = 164 (139 teachers, 25 non-teachers)
Expert-ratings for the diagnostic instruments: direct teaching, giving supporting feedback and group work	4 experts / diagnostic instruments
Competence profiles for trainers * Pilot study (interviews) * First round of the Delphi-Study	9 vocational trainers 12 vocational trainers and line managers
Competence profiles for sports teachers a) first Delphi-Round b) second Delphi-Round c) third validation round	

The Results of the Delphi Study

1 Framing
Activities

45 competence profile that vocational teachers apply in teaching situations could be developed and grouped into four main classes.

2 Competence
Measurement

3 Expert-Rating

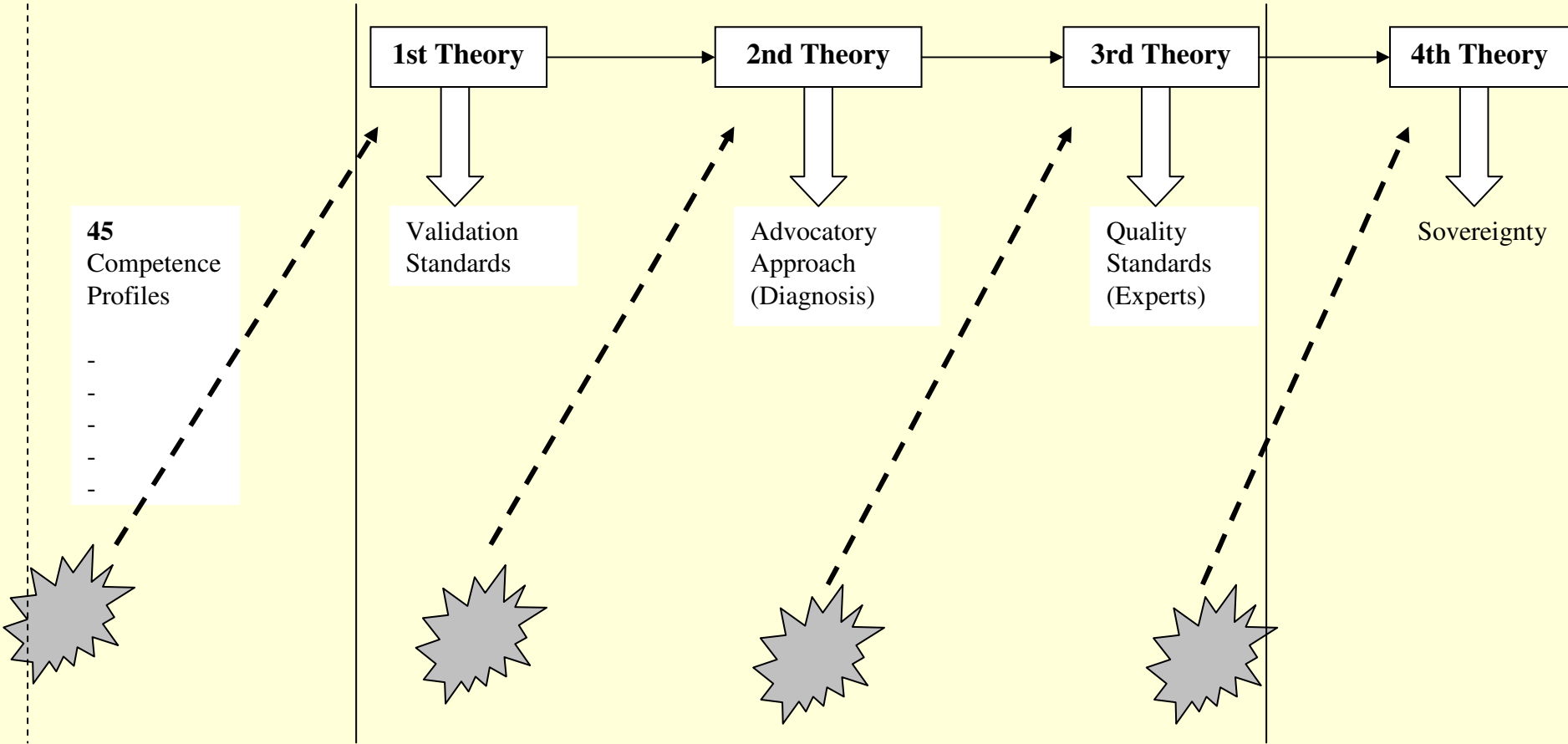
4 Relevance

Main- groups	Sub- groups
A Competence profiles of teaching	A1 Instruction preparation
	A2 Teaching- forms
B Competence profiles of learning- environment	B1 Conditions of learning
	B2 Worth- and conflict management
C Competence profiles of learning- processes	C1 Diagnosis
	C2 Monitoring
	C3 Evaluation
D Accomplishment of vocational requirements and co-operation	D1 Co-operation
	D2 Teachers' coping strategies

Teacher Training

- 81 competences
- 45 competences

Theoretical element B: Expert studies

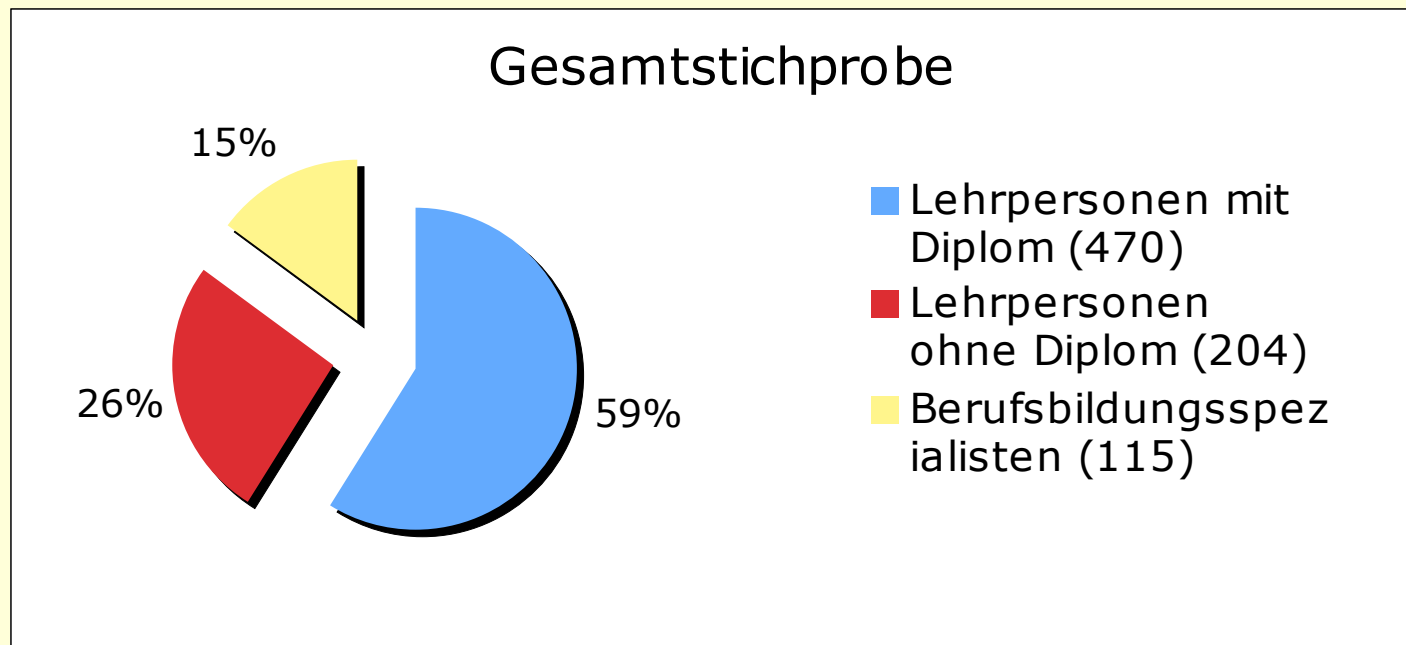


Criteria for competences

- Related to convert situations
- Taylorized
- Cluster of professional activities
- Benchmark for quality
- Chaining with other competence profiles

Zur Überprüfung der 45 Kompetenzprofile

(Gesamtstichprobe n=789)



Criteria for the (one) validation

- Importance
- Frequency of application
- Difficulty of application
- Meaning for the training

Resultat (1): Wichtigkeitseinschätzung

Untergruppen der Kompetenzprofile	Mean	Standard Deviation
B1: Lernbedingungen	2.684	.147
A1: Unterrichtsvorbereitung	2.618	.068
D2: Coping der Lehrperson	2.505	.065
A2: Vermittlungsformen	2.457	.118
C1: Diagnose	2.456	.138
C2: Begleitung	2.477	.621
C3: Evaluation	2.317	.186
B2: Wert- und Konfliktmanagement	2.315	.147
D1: Zusammenarbeit im Kollegium	2.18	.179

4-Skalierung:

0 = nicht wichtig;

1 = eher nicht wichtig;

2 = eher wichtig;

3 = wichtig

gemittelter Mittelwert = 2.44 / SD = .195

Resultat (2): Häufigkeitsurteil

Untergruppen der Kompetenzprofile	Mean	Standard Deviation
A1: Unterrichtsvorbereitung	2.573	.105
B1: Lernbedingungen	2.524	.241
A2: Vermittlungsformen	2.284	.194
C2: Begleitung	2.123	.293
C3: Evaluation	2.12	.072
C1: Diagnose	2.087	.135
D2: Coping der Lehrperson	1.988	.222
B2: Wert- und Konfliktmanagement	1.853	.229
D1: Zusammenarbeit im Kollegium	1.824	.145

4-Skalierung:

0 = nie;

1 = selten;

2 = manchmal;

3 = oft

gemittelter Mittelwert = 2.17 / SD = .309

Resultat (3): Umsetzungsschwierigkeit

Untergruppen der Kompetenzprofile	Mean	Standard Deviation
D1: Zusammenarbeit im Kollegium	1.994	.164
C1: Diagnose	1.643	.055
B2: Wert- und Konfliktmanagement	1.527	.155
D2: Coping der Lehrperson	1.373	.189
C2: Begleitung	1.363	.231
C3: Evaluation	1.353	.076
A2: Vermittlungsformen	1.33	.204
B1: Lernbedingungen	1.274	.188
A1: Unterrichtsvorbereitung	1.243	.105

4-Skalierung:

0 = nicht schwierig;

1 = eher nicht schwierig;

2 = eher schwierig;

3 = schwierig

gemittelter Mittelwert = 1.38 / SD = .21

Resultate (4): Stellenwert in der Ausbildung

Untergruppen der Kompetenzprofile	Mean	Standard Deviation
A1: Unterrichtsvorbereitung	2.405	.055
B1: Lernbedingungen	2.39	.126
C2: Begleitung	2.26	.185
C1: Diagnose	2.257	.126
A2: Vermittlungsformen	2.203	.164
D2: Coping der Lehrperson	2.195	.117
C3: Evaluation	2.1	.17
B2: Konflikt- und Wertmanagement	2.085	.162
D1: Zusammenarbeit im Kollegium	1.84	.186

4-Skalierung:

0 = gering;

1 = eher gering;

2 = eher hoch;

3 = hoch

gemittelter Mittelwert = 2.19 / SD = .21

Ethnographic work: On quality



Explanation of the fixed-image:

The worksheet can be retrieved at any time by clicking on the button on the screen

At any part of the questionnaire, you can return to the film and vice versa

Arbeitsblätter

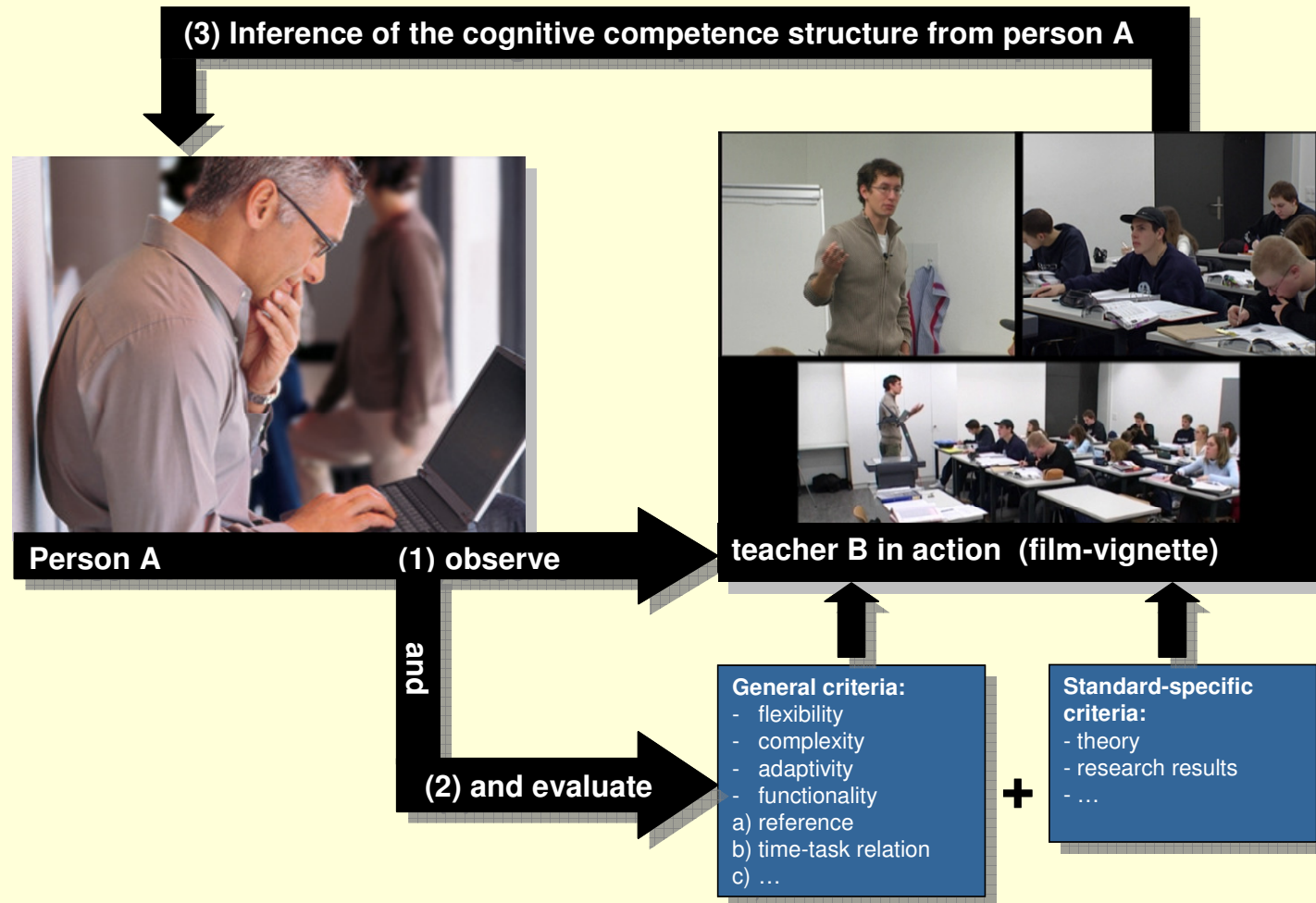
Fragebogen

Effective teaching time (the frames of the film can be identified using the time code)

Effective time of the film excerpt

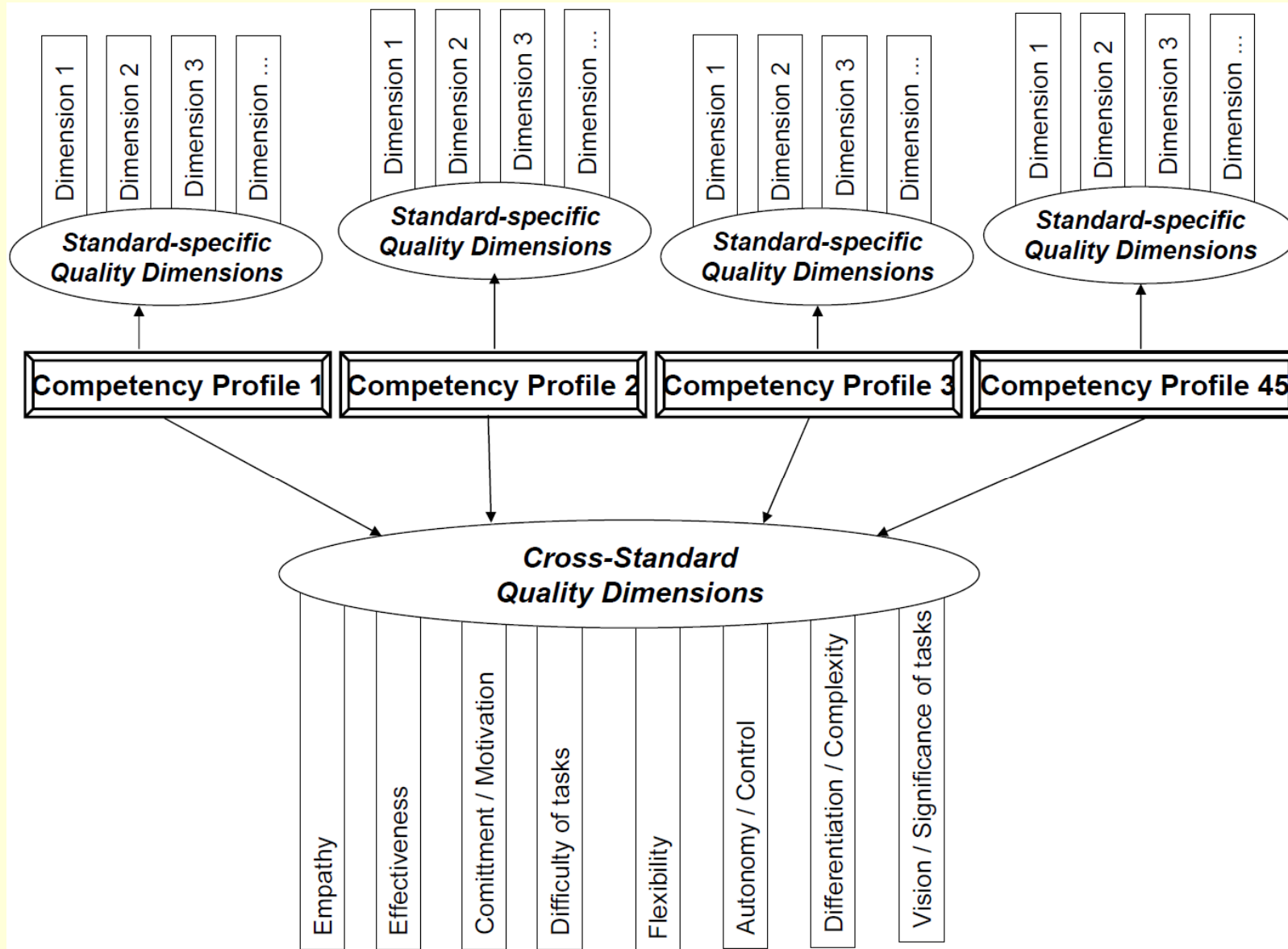
By using the scroll-bar, you can select any sequence of the film.

The Advocatory Approach



Quality Dimensions all reference related

Specific and General Dimensions



Results: validation significances *t* test: cross-standard dimensions

		Mean	Standard Deviation	<i>t</i>
Empathy	N-LP	4.4907	0.85761	2.93**
	LP	3.9250	0.87004	
Effectiveness, division of time constraint	N-LP	4.1358	0.76939	2.32*
	LP	3.7375	0.77167	
Commitment, motivation (teacher)	N-LP	4.6543	0.98485	3.98**
	LP	3.7500	1.03184	
Commitment, motivation (trainees)	N-LP	3.8519	0.91793	2.58*
	LP	3.3750	0.79556	
Difficulty of tasks, Adequacy of taks	N-LP	4.2130	0.71288	0.53
	LP	4.1188	0.82579	
Flexibility	N-LP	4.3889	0.87217	2.37*
	LP	3.8979	0.94634	
Autonomy, control	N-LP	4.1259	0.76891	2.51*
	LP	3.6275	0.92872	
Differentiation, complexity	N-LP	4.0648	0.76458	4.06**
	LP	3.2813	0.89688	
Vision, importance of tasks	N-LP	4.7269	0.62600	2.66**
	LP	4.3063	0.73344	

* = $p \leq .05$; ** = $p \leq .01$

Ad 3: Benchmark Setting

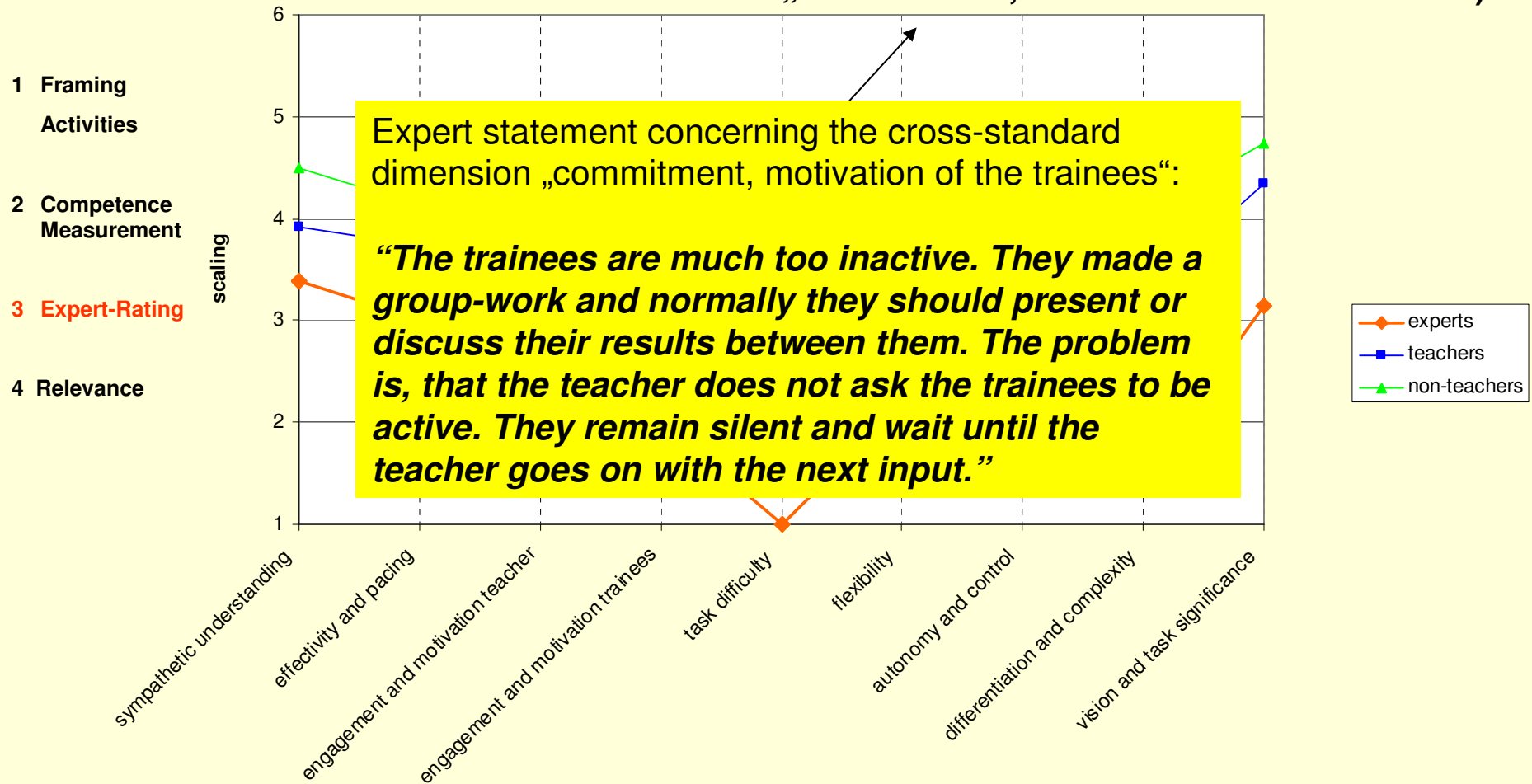
The quest for quality and quality measurement of the realization of a concrete competency profile is fundamental. This quality can be realized through:

- a) either setting individually a benchmark
- b) or comparing means
- c) or comparing individual scores with a consensus measure of experts

Results and Application

cross-standard dimensions

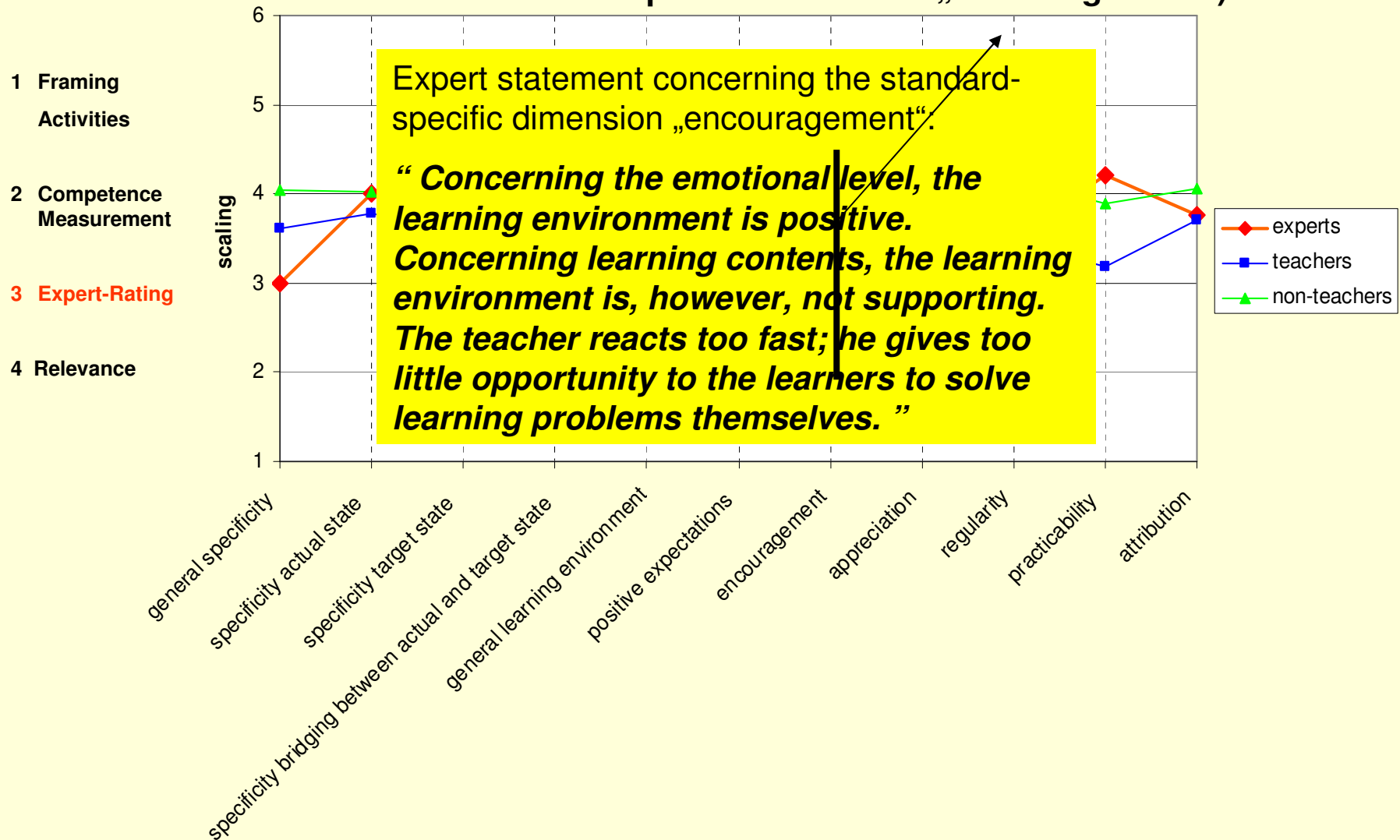
Difference teachers / experts (e.g. on cross-standard dimension „commitment, motivation of the trainees“)



Results and Application

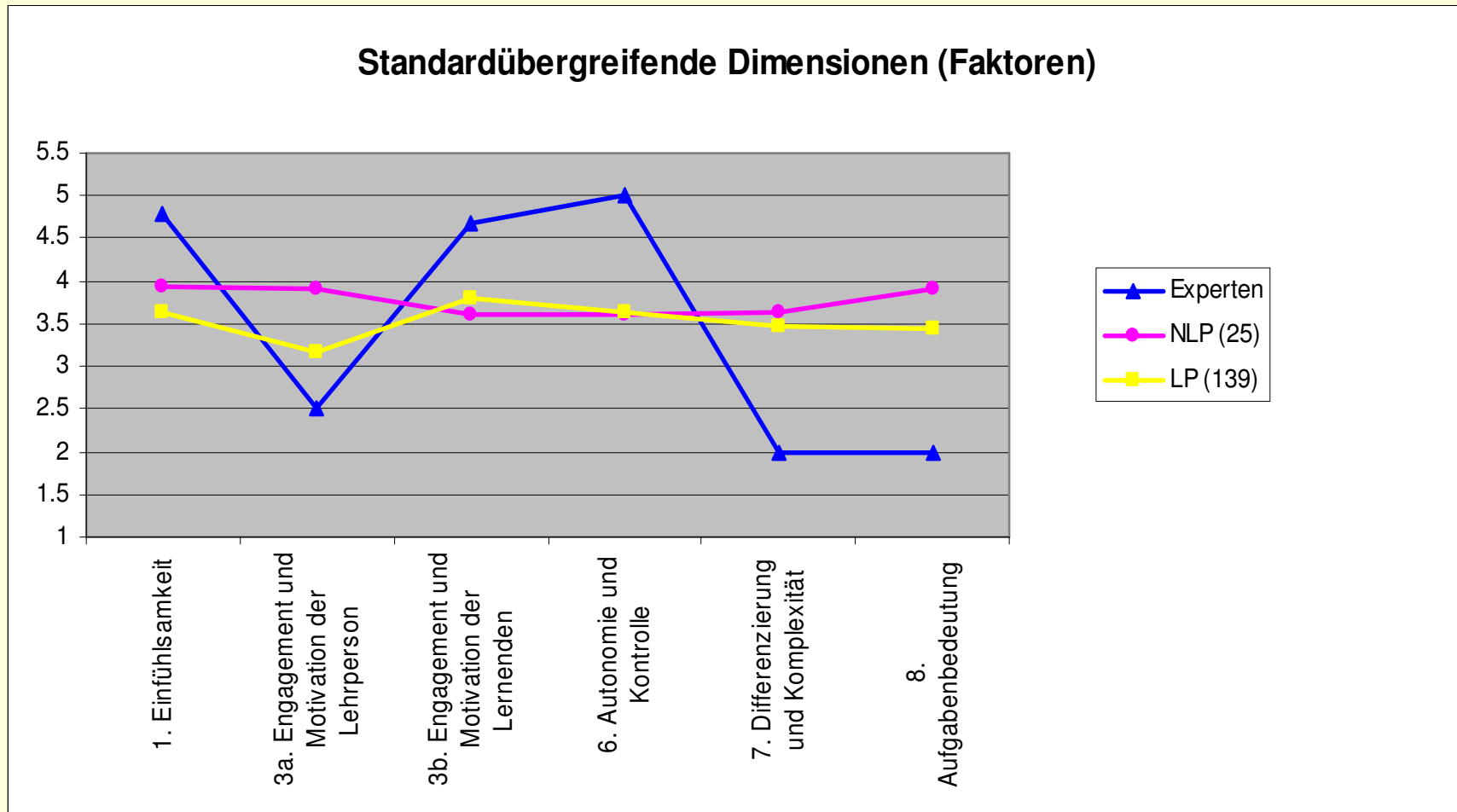
standard-specific dimensions

Difference teachers / experts (e.g. on standard-specific dimension „encouragement“)



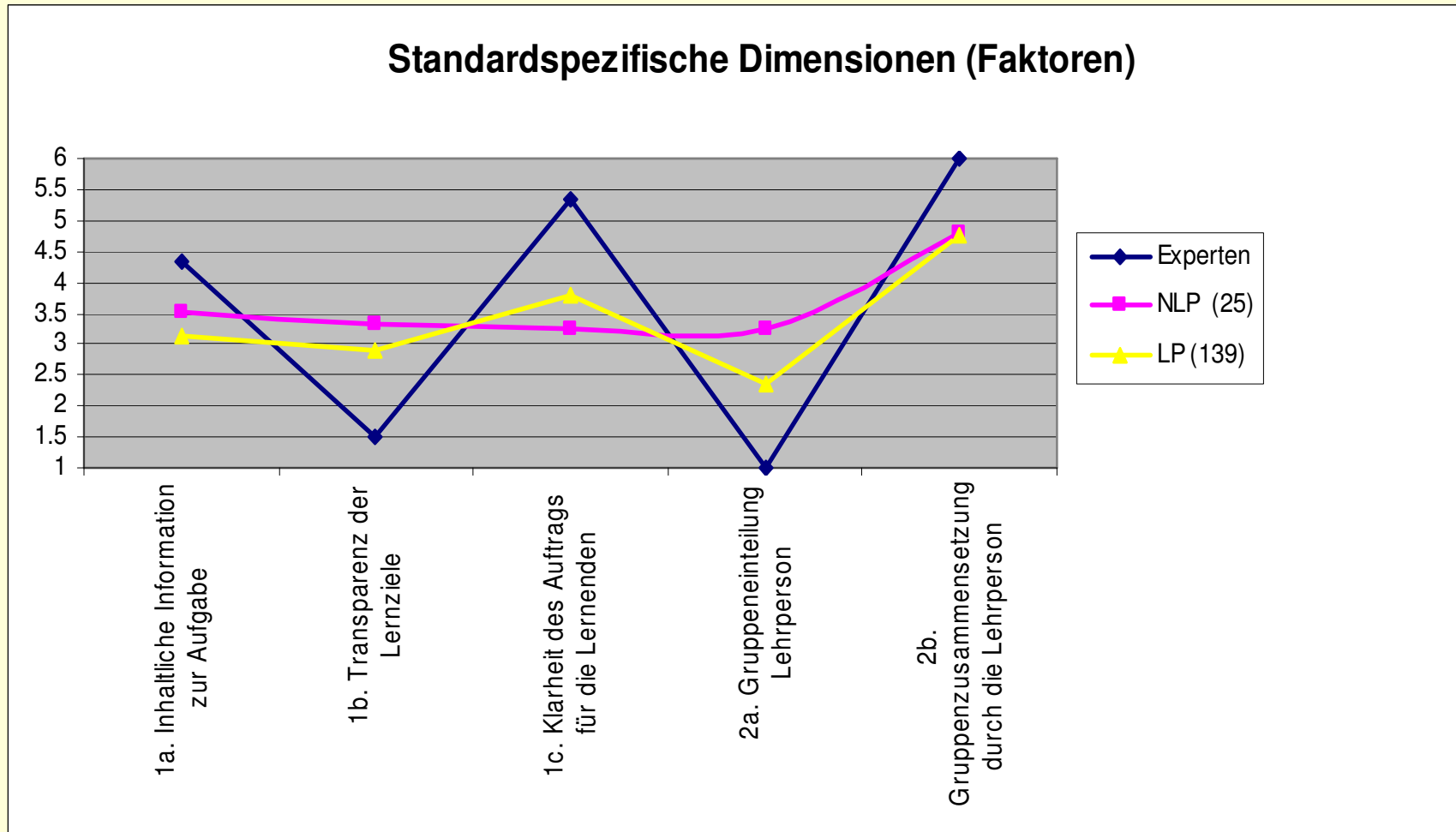
Vergleich:

Nicht-Lehrpersonen, Lehrpersonen und Expert/Innen



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Nicht-Lehrpersonen, Lehrpersonen und Expert/Innen



Delegation of Responsibilities - an in-company specific Competency Profile

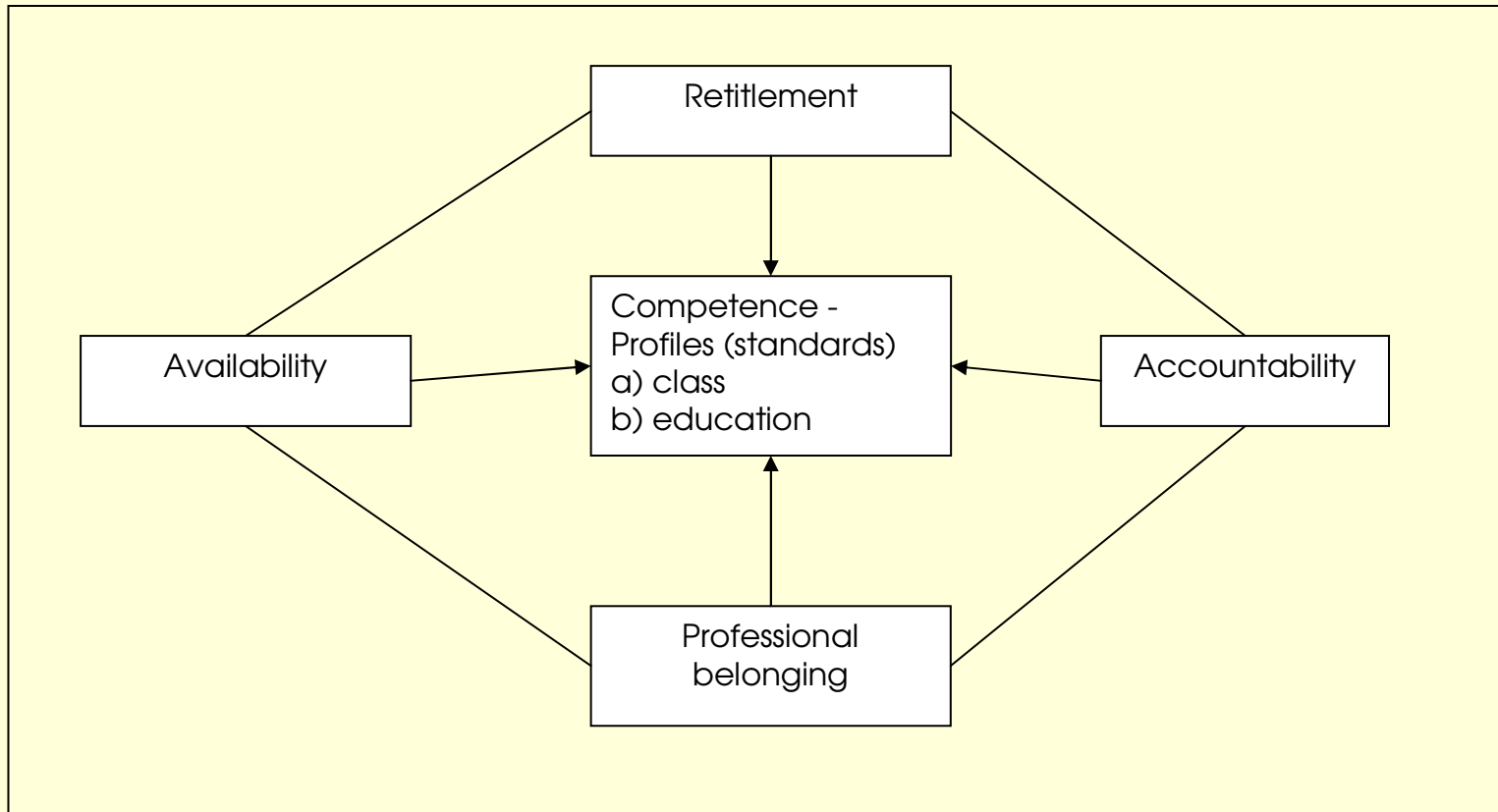
Specific situation in which a competency profile is needed

1. The pharmacy has a little candy Online-shop. The procedures are similar to the merchandise management in the pharmacy. The Online-shop was assigned to the learner in direct responsibility.
2. A customer ordered medicine the day before. She asked for the medicine to be prepared early so she could pick it up at 8 am. and catch the bus to work. The learner forgot to get the medicine ready. Because of that, the customer missed her bus and was annoyed about it.

General competency profile:

The vocational trainer is able to assign the learners adequate responsibility compared to their year of learning and their own competencies. The trainer can help the learners in estimating their own competencies and further to expand them and also that the learners get successive from controlled to autonomous professional acting.

Basics



Book

- “Keine Qualität ohne Kompetenzen” Klinkhart
2011

