



General and Differential Effects of a Long-Term Practicum

Using a Pre-/Posttest Design



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The Practicum (internship) as part of the university-led teacher study programmes

Visiting, observing and doing supervised trials at the workplace (the school) is an obligatory part in the German teacher education programmes.

All stakeholders believe that internships are necessary to assist in career choice, to enhance competencies, to develop relevant personal characteristics, to connect theory and practice, to design one's biography, and to foster reflection on thinking and acting (Makrinus, 2013, and many others).

However, researchers (e.g., Hascher, 2012) suspect that internships nurture false competence beliefs, mislead to imitate old-fashioned teaching practices, and devalue theoretical frameworks. Studies show indeed e.g. that teacher students' subjective theories are hard to modify (Gottein, 2016), that reflective talks about given lessons are only partially used for learning (Futter, 2016), and that single experiences are not combined into coherent knowledge (Büscher, 2004).

Research on teacher students' internships

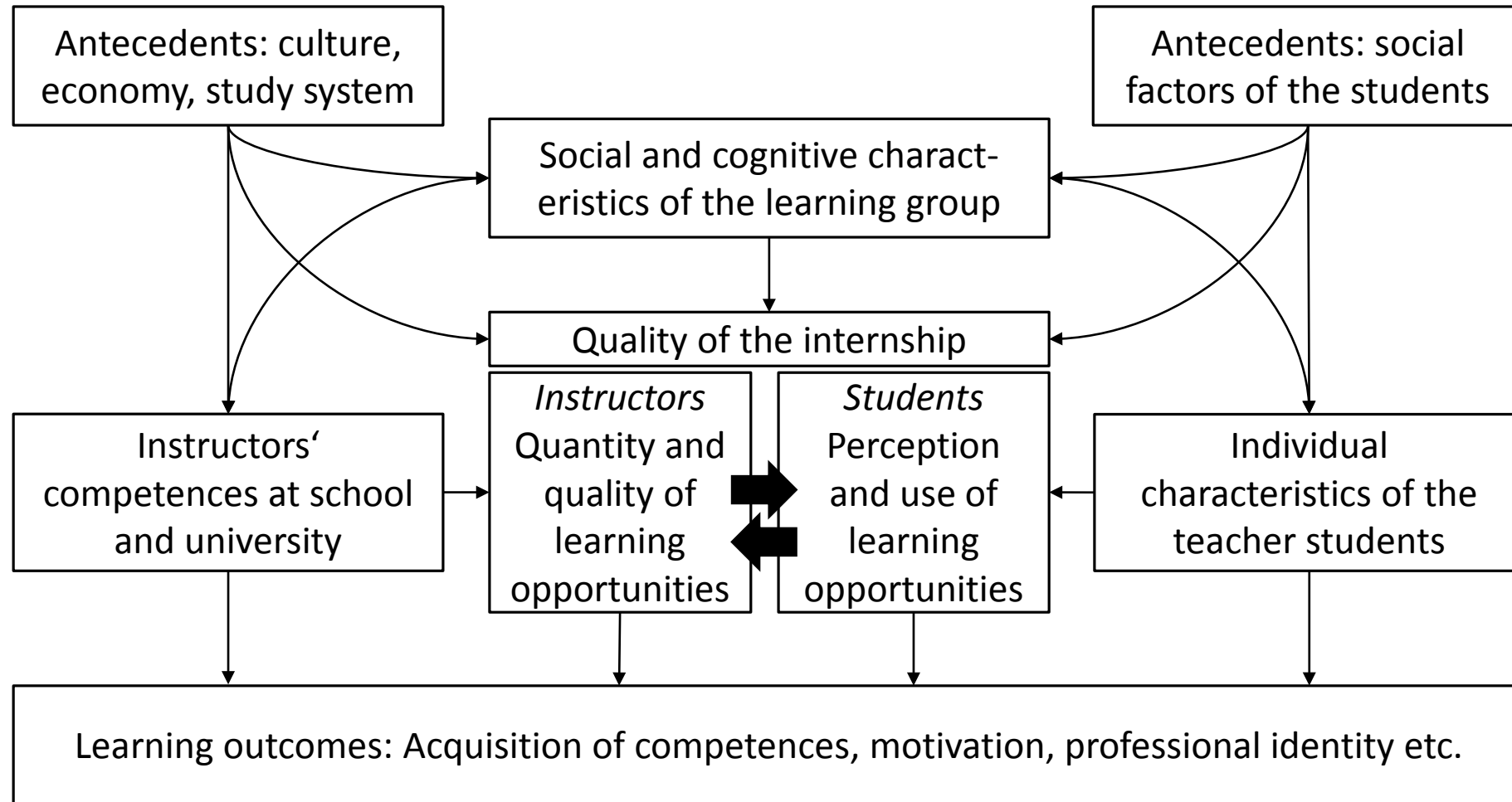
There are hundreds of studies regarding the practical experiences of teacher students, often with small samples using a qualitative approach.

Many studies in Germany (including ours) are of *an evaluative character*: Does the practicum increase competences, self-efficacy, beliefs, commitment to the profession, etc. and what are the critical features of the practicum?

In-depth studies focus on the mentor-student teacher-dialogues (Schüpbach, 2007), on the acquisition of practical theories (Korthagen & Lagerwerf, 2001), on the development of reflective thinking (e.g. Wyss, 2008), on the development of planning competence (e.g., Bach, 2013), or on the effective design of practical training (Fraefel, 2012).

One of the central questions is: *What kind of learning takes place during practical phases and how can it be optimized?*

Supply-use-model of teaching and learning for the practicum elements in the education of teachers (after Hascher & Kittlinger, 2014)



Standard design: Changes of competence (Gröschner, Schmitt, and Seidel (2013))

Researchers investigated the changes of judgments of competence caused by an internship term (Friedrich Schiller University of Jena, N=221, secondary school only)

The 15 weeks practicum term at Jena comprises all practical experiences provided in the academic course.

General effect:

- The participants showed gains in all domains of teaching-related competence measured.

Differential effects:

- University-based subject-specific supervision in teaching methodology (Fachdidaktik) was relevant for individual gains in *teaching* competence.
- Supervision in educational theories and practices was relevant for gains in competences regarding *classroom management, assessment, and innovation*.

Advanced design: Correlation between learning opportunities and competences (Grassmé et al., 2016)

| | correlation coefficient |
|----------------------------------|-------------------------|
| Planning instructional sequences | .64 |
| Providing lessons | .49 |
| Educating / Transmitting values | .39 |
| Assessing / Grading | .46 |
| Behaving professionally | .51 |

Students from the universities of Saarland and of Nürnberg-Erlangen (N~500);

one-time measurement during the study course;

use of 6-point Likert scales;

all coefficients are significant

Our own study (University of Erfurt)

Our students got an assortment of practical experiences *before* entering the practicum term (half year internship) at the end of the study programme.

Most of our students aim for a teaching degree for primary school (grades 1-4).

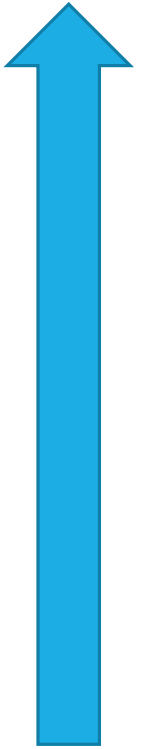
We included several „cohorts“ of students to validate the results.

We collected data of *learning opportunities* and personal experiences in the design that paralleled the competence scales.

We avoided using Likert scales, instead we developed *expertise-related scales*.

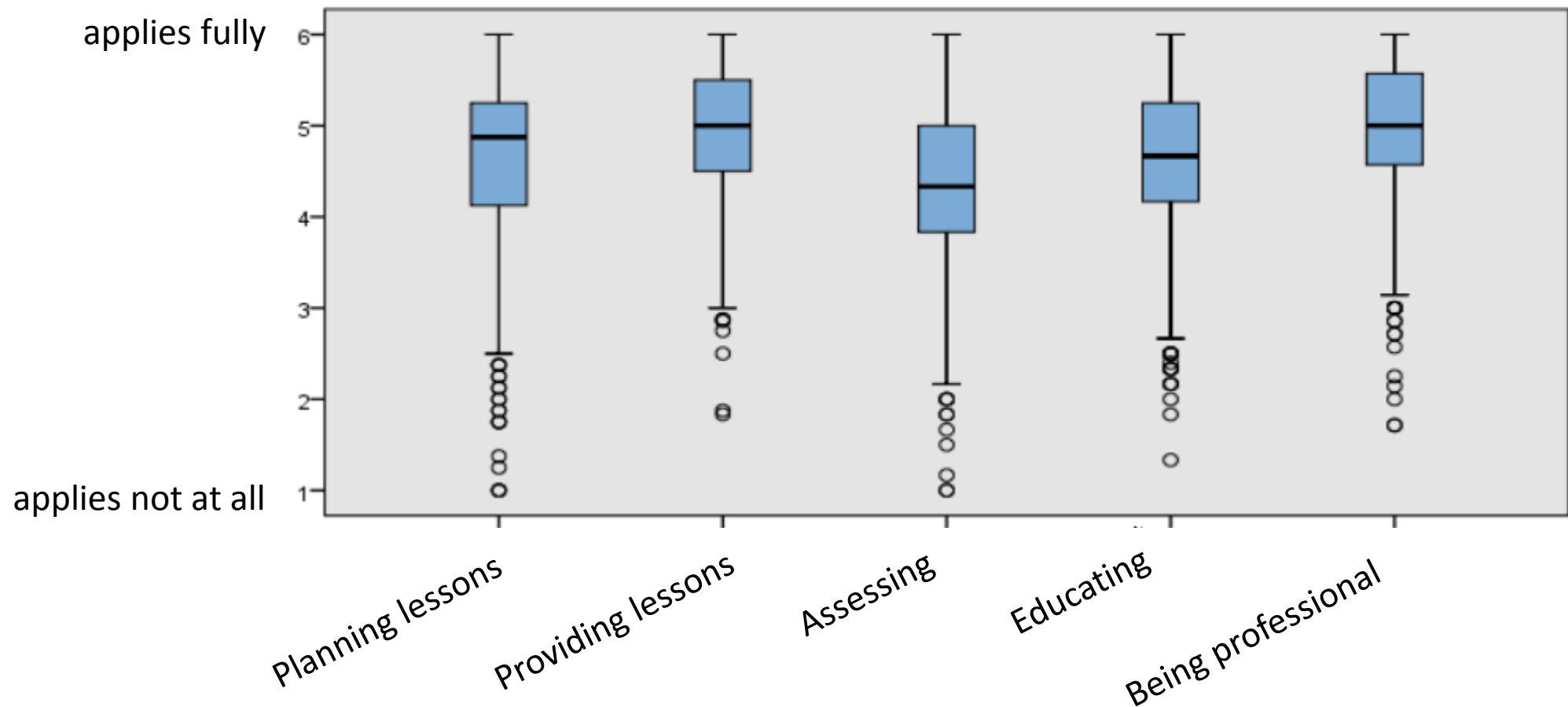
We assessed some aspects of *behavior and experiences* in the practicum school.

Practical elements in the Erfurt teacher training study programmes



| Study programme | Year or term | Practical elements during the training |
|-----------------|-----------------------|---|
| Master | 2nd year, summer term | 15 weeks practicum for the other half the cohort, master thesis etc. for the others |
| | 2nd year, winter term | 15 weeks practicum for half the cohort, master thesis etc. for the others |
| Bachelor | 1st year | Practical work in psychology and in each of the teaching disciplines (giving lessons) |
| | 3rd year | Practical work in school education |
| | 2nd year | Practical work: supervised orientation |
| | 1st year | Practical work: self-directed orientation |

Distribution of perceived competences using Likert scales (Grassmé et al., 2016)



Research questions / hypotheses

H1: The practicum term („Komplexes Schulpraktikum“) provides the students with substantial practical learning opportunities. (general effect)

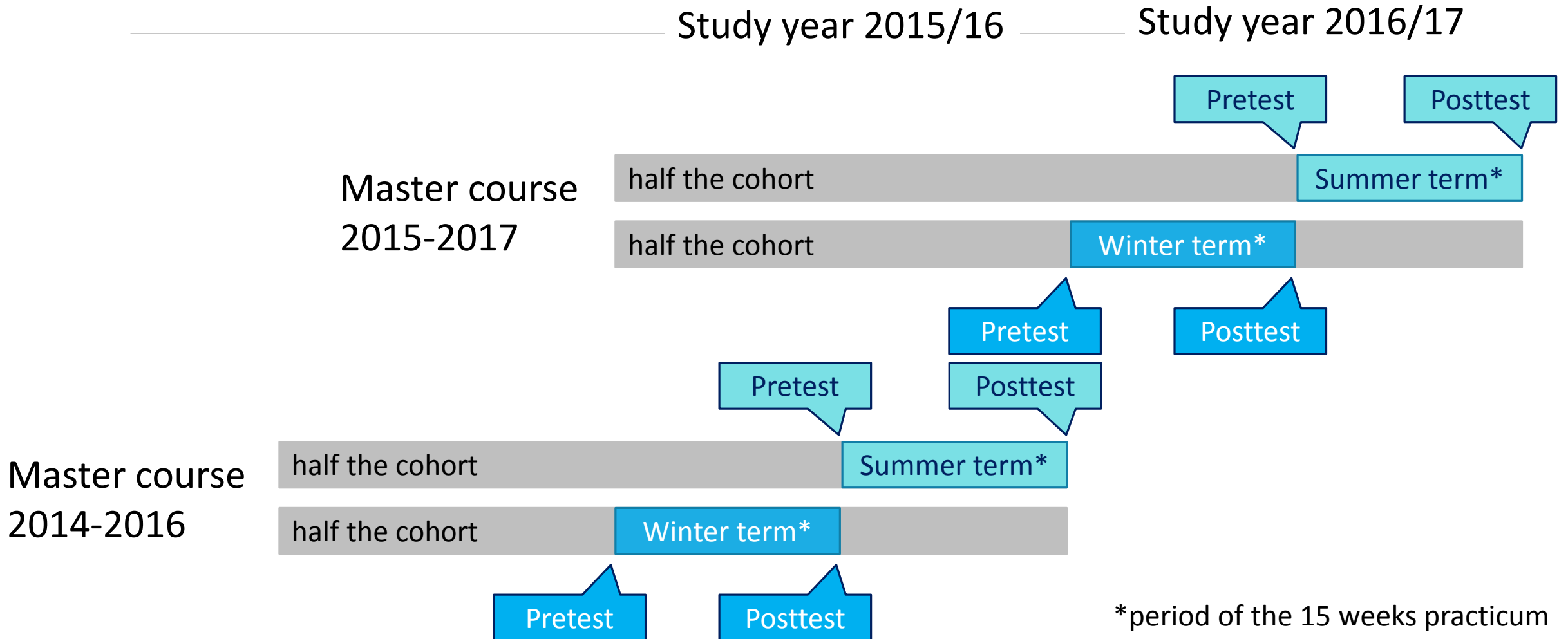
H2: The average competence levels rise as a consequence of the practicum term. (general effect)

H3: Domain-specific levels of competence correspond to domain-specific levels of practical learning opportunities. (differential effect)

H4: Competence *gains* are determined by learning experiences. (differential effect)

H5: Individual experiences at the workplace (school) shape the practical learning opportunities and the acquired competences. (differential effect)

Measurement design



Longitudinal samples

(of the ~260 teacher students at Erfurt each year)

| | | Total | Primary School | Secondary School | percent female | Mean Age | Range Age |
|-----------------|-------------|------------|----------------|------------------|----------------|----------|-----------|
| Year 2015/16 | Total | 217 | 151 | 64 | 82 % | 25.0 | 22 – 42 |
| | Winter Term | 100 | 69 | 31 | 78 % | 25.1 | 22 – 42 |
| | Summer Term | 115 | 82 | 33 | 86 % | 24.8 | 22 – 39 |
| Year 2016/17 | Total | 208 | 149 | 59 | 85 % | 25.3 | 21 – 48 |
| | Winter Term | 104 | 66 | 38 | 73 % | 25.2 | 21 – 48 |
| | Summer Term | 104 | 83 | 21 | 99 % | 25.4 | 22 – 39 |
| Total | | 423 | 300 | 123 | 83 % | 25.1 | 21 – 48 |

About 20 % of the total sample were lost for the longitudinal calculations due to missing data on t1 or t2 or non-matchable personal codes

Selection/Development of 43 items within eight scales for action competencies

| Concepts (following Meier, 2015) | phz | Meier | inTASC | T & B | new |
|-----------------------------------|-----|-------|--------|-------|-----|
| Planning instructional sequences | | | | 6 | |
| Structuring lessons | 3 | | 1 | 2 | |
| Considering diversity | | | | | 5 |
| Reflecting | 3 | 2 | | | |
| Motivating / Classroom management | 1 | 2 | | 2 | |
| Educating / Transmitting values | 1 | 3 | | 1 | |
| Assessing / Grading | 2 | 1 | 2 | 1 | |
| Innovating | 2 | 2 | 1 | | |

Sources: phz = Professionsstandards der PH Zug (2004); Meier = Meier (2015): Kompetenzen von Lehrkräften; inTASC = Interstate Teacher Assessment and Support Consortium (InTASC) Model Core Teaching Standards (2011); T & B = Thiel & Blüthmann (2009). Ergebnisse der Evaluation der lehrerbildenden Studiengänge an der Freien Universität Berlin - Sommersemester 2009.

Selection/Development of 43 items within eight scales for competencies *and* learning opportunities

| Concepts (following Meier, 2015) | Opportunities for theoretical learning | Opportunities for practical learning | Subjectively assessed competencies |
|-------------------------------------|--|---|--|
| Planning instructional sequences | 6 | 6 | 6 |
| Structuring lessons | 6 | 6 | 6 |
| Considering diversity | 5 | 5 | 5 |
| Reflecting | 5 | 5 | 5 |
| Motivating / Classroom management | 5 | 5 | 5 |
| Educating / Transmitting values | 5 | 5 | 5 |
| Assessing / Grading | 6 | 6 | 6 |
| Innovating | 5 | 5 | 5 |

Sample items

| Scales (cf. Meier, 2015) | Item |
|--|--|
| Planning instructional sequences | designing a usable draft for a lesson |
| Structuring lessons | using diverse methods for instruction, suitable for the class, the topic, and the goal of the lesson |
| Considering diversity | preparing the lesson for diverse learners |
| Reflecting | analysing your own experiences in class and recognizing reasons for the way the lesson was going |
| Motivating / Classroom management | providing helpful feedback for the pupils |
| Educating / Transmitting values | dealing with disturbances in a way that let the lesson go on |
| Assessing / Grading | assessing the course of learning with different criteria and different instruments |
| Innovating | dealing with questions of school development and actively and responsibly contributing to development projects |

Design of the answer scales: Learning opportunities

Self-judgment of learning opportunities, separately for (a) theoretical learning and (b) practical learning.

Scaling followed and extended earlier work done by Oser and Oelkers (2001):

- **Never** heard/read about – done it.
- Heard/read about it – tried it – **rudimentarily**.
- Heard/read about it – practiced it – **in depth**. [added in second year]
- Heard/read about it – practiced it – **comprehensively**.

Participants were asked to judge their learning opportunities as they had experienced them so far. We did not explicitly mention the 15 weeks practicum.

The ordinal scales were awarded points (1 to 3) for parametric evaluation.

Design of the answer scales: Competences

Self-judgments with regard to levels of expertise (Dreyfus, 2004):

- I can't manage it.
- I manage it in a rudimentary way.
- I manage it successfully in standard situations.
- I manage it successfully even in diverse situations.
- I master this activity nearly perfect and perform it in a routine way.

Participants were asked to judge their competences as they had developed so far. We did not explicitly mention the 15 weeks practicum.

The ordinal scales were awarded points (1 to 5) for parametric evaluation. Calculations based on the ordinal scales generated comparable results.

Learning opportunities during the study program (before entering the half-year practicum)

| | Theory | | Practice | |
|--|--------|-----|----------|-----|
| | M | SD | M | SD |
| Planning instructional sequences | 2.18 | .33 | 2.08 | .31 |
| Structuring lessons | 2.18 | .36 | 2.05 | .35 |
| Considering diversity | 2.11 | .36 | 1.86 | .34 |
| Reflecting | 2.14 | .36 | 2.02 | .34 |
| Motivating / Classroom management | 2.07 | .35 | 1.99 | .35 |
| Educating / Transmitting values | 1.89 | .35 | 1.66 | .35 |
| Assessing / Grading | 1.87 | .33 | 1.50 | .33 |
| Innovating | 1.45 | .33 | 1.25 | .28 |

Perceived competencies (before entering the half-year practicum)

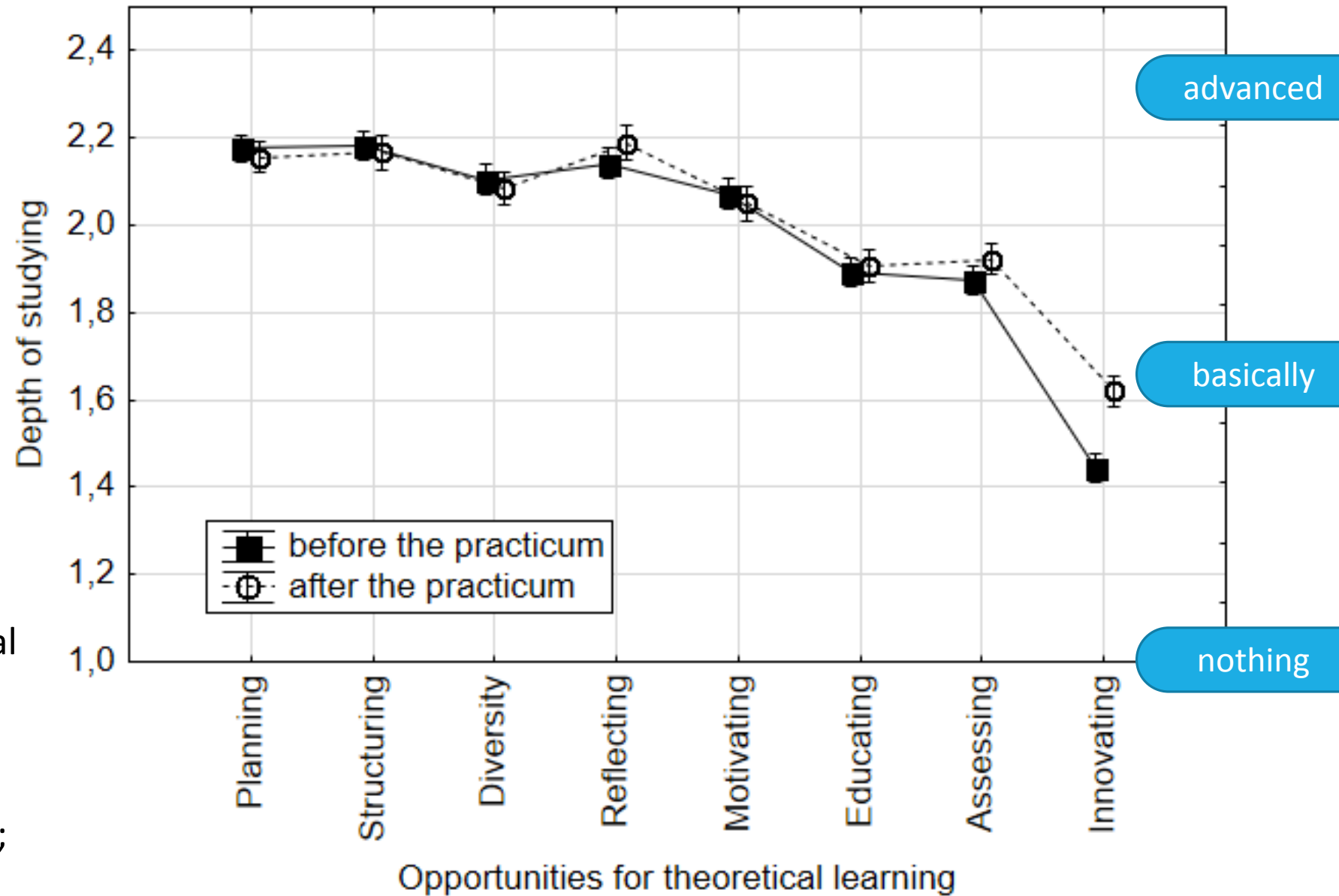
| | M | SD | alpha |
|-----------------------------------|------|-----|-------|
| Planning instructional sequences | 3.16 | .51 | .74 |
| Structuring lessons | 3.08 | .58 | .77 |
| Considering diversity | 2.79 | .56 | .74 |
| Reflecting | 3.04 | .57 | .71 |
| Motivating / Classroom management | 3.12 | .58 | .72 |
| Educating / Transmitting values | 2.60 | .59 | .77 |
| Assessing / Grading | 2.32 | .49 | .76 |
| Innovating | 2.06 | .50 | .75 |

Scales reaching from 1 to 5; participants seemed to answer realistically with the expertise-related scales

Theoretical learning opportunities

The main effect of the practicum is not significant ($F[1, 422]= 3.02$; $p>.05$; partial $\eta^2=.01$).

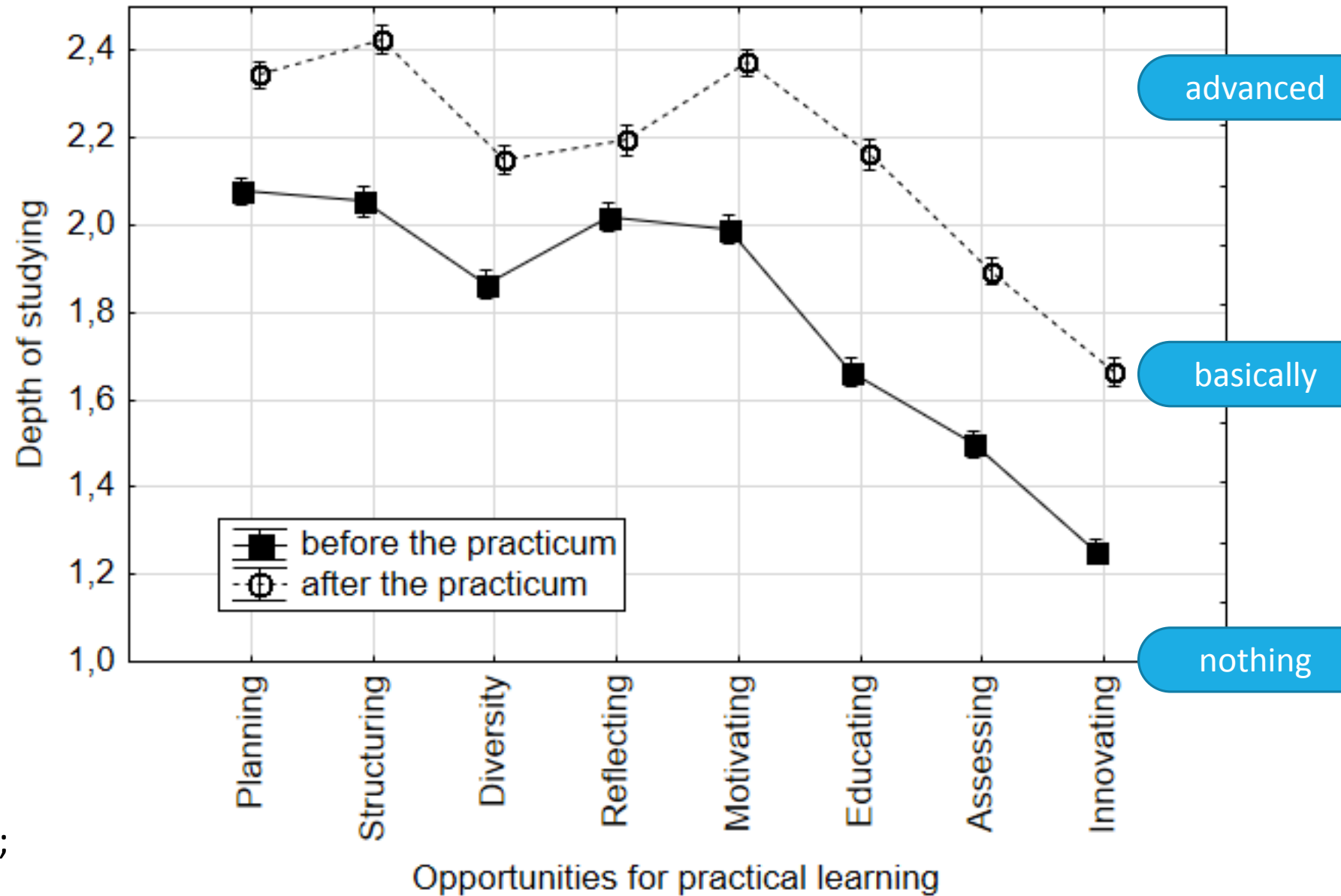
The interaction effect is significant ($F[7, 2954]= 22.06$; $p<.01$; partial $\eta^2=.05$).



Practical learning opportunities

The main effect of the practicum is significant ($F[1, 422]= 760.62$; $p<.01$; partial $\eta^2=.63$).

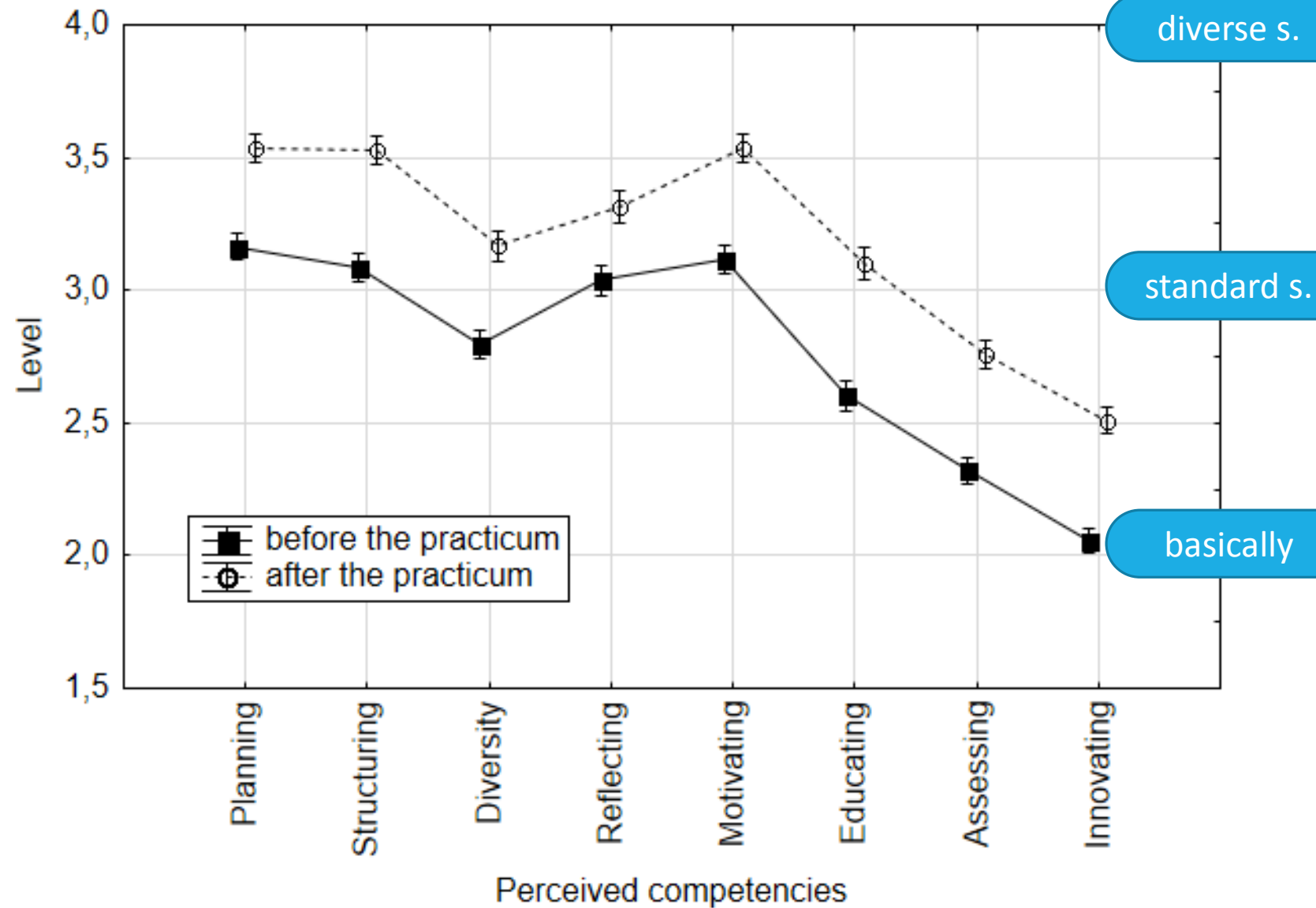
The interaction effect is significant ($F[7, 2954]= 47.33$; $p<.01$; partial $\eta^2=.10$).



Competencies

The main effect of the practicum is significant ($F[1, 422] = 377.22$; $p < .01$; partial $\eta^2 = .47$).

The interaction effect is significant ($F[7, 2954] = 10.53$; $p < .01$; partial $\eta^2 = .02$).



Correlation between competencies (t1 – t2; before and after the practicum)

| | correlation coefficient |
|-----------------------------------|----------------------------|
| Planning instructional sequences | .49 |
| Structuring lessons | .46 |
| Considering diversity | .45 |
| Reflecting | .43 |
| Motivating / Classroom management | .49 |
| Educating / Transmitting values | .51 |
| Assessing / Grading | .48 |
| Innovating | .35 |

N=423;
all coefficients are significant

Correlation between Learning Opportunities (t2) and Competences (t2)

| | correlation coefficient |
|-----------------------------------|-------------------------|
| Planning instructional sequences | .53 |
| Structuring lessons | .55 |
| Considering diversity | .56 |
| Reflecting | .57 |
| Motivating / Classroom management | .55 |
| Educating / Transmitting values | .51 |
| Assessing / Grading | .56 |
| Innovating | .42 |

N=423;
all coefficients are significant

Multiple regression analyses with the competences (t2) as criteria

| Competence (t2) | Predictor Competence (t1) | Predictor Learning Opportunities (t1) | Predictor Learning Opportunities (t2) | R ² | F (and p) |
|-----------------------------------|---------------------------|---------------------------------------|---------------------------------------|----------------|-----------|
| Planning instructional sequences | .41* | -.04 | .44* | .42 | 101.2* |
| Structuring lessons | .37* | -.11* | .48* | .40 | 93.9* |
| Considering diversity | .33* | .02 | .48* | .42 | 103.7* |
| Reflecting | .37* | -.10* | .51* | .42 | 102.5* |
| Motivating / Classroom management | .30* | .06 | .45* | .42 | 104.0* |
| Educating / Transmitting values | .44* | -.04* | .43* | .42 | 103.3* |
| Assessing / Grading | .36* | .03 | .47* | .45 | 114.6* |
| Innovating | .27* | .04 | .36* | .25 | 47.5* |

Scales representing experiences during the internship

| | N Items | M | SD | alpha |
|------------------------------------|---------|------|-----|-------|
| Being accepted by the staff | 4 | 3.06 | .83 | .78 |
| Getting challenging work | 4 | 2.52 | .78 | .69 |
| Investing time and energy | 5 | 2.69 | .69 | .62 |

Correlations of practicum experiences with learning opportunities (t2)

| | Being accepted by the staff | Getting challenging work | Investing time and energy |
|-----------------------------------|-----------------------------|--------------------------|---------------------------|
| Planning instructional sequences | .17* | -.03 | .28* |
| Structuring lessons | .21* | -.07 | .36* |
| Considering diversity | .17* | -.03 | .28* |
| Reflecting | .15* | .02 | .30* |
| Motivating / Classroom management | .16* | -.08 | .20* |
| Educating / Transmitting values | .18* | -.05 | .25* |
| Assessing / Grading | .15* | -.06 | .26* |
| Innovating | .31* | -.00 | .24* |

Correlations of practicum experiences with competencies (t2)

| | Being accepted by the staff | Getting challenging work | Investing time and energy |
|-----------------------------------|-----------------------------|--------------------------|---------------------------|
| Planning instructional sequences | .21* | -.13 | .26* |
| Structuring lessons | .26* | -.10 | .29* |
| Considering diversity | .25* | -.13 | .29* |
| Reflecting | .16* | -.06 | .23* |
| Motivating / Classroom management | .20* | -.13 | .21* |
| Educating / Transmitting values | .28* | -.08 | .15* |
| Assessing / Grading | .20* | -.09 | .24* |
| Innovating | .24* | .05 | .25* |

Discussion

There is evidence that the expertise-related item format elicits *more realistic estimations* of competence than Likert scales do (many answers are well below the upper limit).

Regarding the evaluative purpose of our study, we can demonstrate that the long-term practicum offers comprehensive *learning opportunities* and adds substantially to the students' *practical competences*.

Since the competences achieved in the practicum modules completed before the long-term practicum contribute to the final competences as well as the learning opportunities do, we regard the Erfurt system *of progressive internships* as very useful.

Discussion

We've got preliminary evidence that the organizational climate at the practicum schools as well as the student's active efforts contribute both to the gains of competence → that confirms the supply-use-model of teaching and learning.

We have started to include more variables about the teacher students' basic needs, their behavior, and their interactions at school in our ongoing data collections. → current study

We have observed that our students do a lot of lessons during their practicum because the regular teachers are absent due to illness. Thus, our students cannot copy the established teachers' behaviors. - Does this situation cause students to rely on what they have learned at the university, or what they have experienced as school students? → further studies

Thank you for your attention!

