

European Studies on Educational Practices 2

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Katharina Rosenberger The Ability to Differentiate:

A Teacher's Prerequisite for Dealing with Heterogeneity

Gaining Specific Knowing¹ for Teaching to Diversity: Challenges for Teacher Training

Dealing with heterogeneity (learning abilities, cultural background, gender etc.) requires a number of specific qualifications from teachers in compulsory schools. They constantly face the question of whether to support the individual in the best way possible or to focus on group dynamics so as to encourage the development in the learning group. One approach to heterogeneity and plurality represents a 'cross-section task' (Krüger-Potratz, 2004: p. 559) that concerns an issue that cannot be classed with individual teaching subjects. In order to realise pupils' potential in a pedagogically fruitful way as well as to overcome difficulties in communication and integration, teachers need to have a varied repertoire of didactic methods that enables them to initiate and accompany various interactions of teaching and learning individually or in a group process. Thus they need knowing about certain obstacles in the process of learning (i.e. difficulties in learning and communicating) and about pedagogic and pragmatic options (i.e. teaching techniques). To cope with pedagogic-practical challenges on one hand requires conceptualised knowledge (acquired through formal training) and, on the other hand, embodied practical knowing (acquired by doing). (cf. Polanyi, 1958; Neuweg, 2004) For this reason the debate about teacher expertise is closely related to the question of professional competence and its acquisition in various formal and informal ways. No doubt, it is an important issue in teacher training.

Professional knowing has to manifest itself in successful practice. Teacher education institutions face various challenges in the aim of supporting the acquisition of knowing. Their curricula and training serve primarily as a structure for the direction of teaching, but cannot determine it. Thus, these institutions need to find ways to support effectively the acquisition of practical knowing. A key approach in initial teacher training in various European

In this article I use the term 'knowing' to indicate to the practical disposition to perceive and judge a situation correctly and act appropriately. Thus knowing has a similar meaning to practical reasoning, know-how and 'phronesis'. 'Knowledge' is reserved for conceptualised insights, theoretical content and cognitive rationalisation. Knowledge therefore has a similar meaning to theory, know that, 'episteme'.

countries is observation, analysis and verbal reflection of teaching – either one's own practice or other people's teaching. This practice of reflection in groups became especially popular with Donald Schön's distinction between reflection-in-action and reflection-on-action. While the first is integrated in action and remains therefore unarticulated, the second serves as a form of retrospective reasoning on action. "Through reflection, he [the practitioner] can surface and criticize the 'taken-for-granted assumptions' that have grown up around the repetitive experiences of a specialized practice, and can make new sense of the situations of uncertainty or uniqueness which may allow himself to experience." (Schön, 1983: p. 61) Although Schön does not follow the classical Cartesian model of the rational subject, he does not reject the concept of reflection. On the contrary, he recognises the reflection of concrete situations as a form of creating or refining professional wisdom.

The Investigation of Teacher Students' Ability to Differentiate within a Research Project

This text aims to present a way of reconstructing pedagogic knowing through picture and text vignettes.² The vignettes have been used to show students' – and in comparison expert teachers' – varying ways of seeing and interpreting a given classroom situation. Both vignettes are embedded in a broader multi-method research design of the on-going research project "Competency development of students in teaching degrees, using the example of the ability to differentiate as one of the prerequisites for handling heterogeneous student groups competently" (cf. Datler et al., 2009),³ which is being carried out from 2009 to 2012 at the Vienna/Krems University College of Teacher Training. The project follows two basic research tracks: on the one hand the description of actions taken in the

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The vignette analysis was originally developed as a method in quantitative empirical research of measuring the influence of social status on decision making behaviour. Rossi (1979) wrote, for example, realistic scenarios ('vignettes'), in which he made families' essential status-characteristics evident by giving fictitious descriptions of them. Participants in his study were thus not given a normal questionnaire, but various combinations of descriptions. This type of vignette analysis is carried out, either as complete factorial design or as a fractionalised factorial design. In qualitative research the number of vignettes used is consistently lower. The event or constellation described in a text or presented by a film or picture has the main function of presenting a hypothetical case. They mostly act as structured impulses which meant to evoke cognitive processes. Vignettes seem to be generally well-suited for a multi-method-design. (Larcher & Müller, 2007)

The project receives funding from the jubilee fund of the National Bank of Austria as well as from the Austrian ministry for education, art and culture. Project team: Katharina Rosenberger, Margit Datler, Manuela Kohl, Franz Prammer, Agnes Turner.

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The Ability to Differentiate

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classroom by students in teaching degrees through reconstructive methodologies, and on the other hand an explorative study and an analysis of the professional framework that generates such interpretations. These concepts are widely tacit or quite open and metaphorically articulated. A central aim of the project is to investigate the changes in the students' pedagogically directed perception, in their interpretative skills and their appraisal of situations and actions at the beginning and at the end of their studies.

The theme of the project – dealing with heterogeneity and plurality in teaching – is at the forefront of both, the current education discussion in Austria on the main task of schools as well as in teachers' concrete efforts to do justice to the diversity of their pupils.

The research focuses in particular on exposing and analysing the dimensions of the knowing in a one-off, transient situation during teaching, in which the students' ability to differentiate comes to bear. Based on the Austrian ministry of education's working group EPIK ("Entwicklung von Professionalität im internationalen Kontext"/"Developing Professionalism in an International Context"), the understanding of a particular teaching situation and the constructive solution of this pedagogic challenge is called 'Differenzfähigkeit'/ 'the ability to differentiate'. The working group has worked out five domains of professionalism that determine teaching activity in everyday life (independent of type of school and subject): ability to differentiate, collegiality, reflection and discourse, professional awareness, personal mastery. These domains are understood as fields of competence that define individual competence on the one hand and the design of system structures on the other. In this context, the ability to differentiate is understood as "[...] first of all primarily in the ability perceived in the individual action of the teacher, which however, gets its their motivation from processes of social change." (Schratz et al., 2007: p. 72, my translation). In professional pedagogical action, the function and aim of the ability to differentiate is "[...] to facilitate individualisation and differentiation on the basis of the interpretation of individual cases" (ibid.: p. 73).

In our definition, the term 'ability to differentiate' covers three essential elements:

- the ability to recognise relevant differences as such, and to perceive them as relevant differences.
- to know and be able to implement various methods of dealing with different learning, communication and integration opportunities (in more general terms, knowing of options for action in the face of the opportunities and difficulties that arise with heterogeneous groups of learners).

the ability to offer individualised and differentiated learning activities. A central aim of the project is the question about the changes that can be detected at the beginning and at the end of their studies in the students' pedagogically directed perception, in their interpretative skills and their understanding of the effects and consequences of a teacher's actions.

The extent to which this subject is a central part of students' formation process is shown in the following extract from a written reflection of practice of a female student on a teaching degree for primary schools, first term:

When the children read out sounds they had heard, Tanja said that she had heard a brook 'bramble'. However, I did not correct her, as it was not very obvious to me due to my nervousness??!! [...] While the sentences were being read out, Stefan repeatedly hit his head on the table. I asked him why he was doing this, and he answered with a very serious face that he could not act differently. I felt quite challenged in this situation, as I did not know the reason for his actions and was thus at a loss as to how to react to them.

The extract reveals different dimensions: the elementary topic is coping with executing a planned teaching sequence (competency of execution). Indicating her emotional state, the student finds herself confronted with events that she had not anticipated. In this situation she becomes aware of a central experience of the teaching profession, namely the fact that teaching can never be entirely planned. "There are many reasons for this discrepancy between planning and reality - firstly, all teaching processes are one-offs and unique, as are the teachers and students acting in them. Living and lively students cannot be planned for naively - they help determine the very process. And even a wellprepared teacher will not be naïve enough to insist on rigidly acting on the planned out teaching-learning sequence. After all – regardless of which teaching conception this teaching-learning sequence follows – s/he is intent on listening to the students, on encouraging them to ask questions, on answering questions by students, on coming back to contributions made by students, on integrating them, and on making them more precise and developing them." (Becker, 2004: p. 240, my translation) At the first 'fault line' the student thinks, in hindsight, that a certain solution would have been sensible (correcting the pupil's mistake) and gives reasons for not taking this course of action. At the second 'fault line' she speaks of her reaction of addressing the other pupil directly and asking him for the reason for his conspicuous behaviour. She was not able to follow up on this step, however, as his answer did not give her any hints for further

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As shown by the example, the practical knowing, i.e. the ability to act appropriately in a certain situation, presupposes a comprehension of the crucial aspects of pupils' behaviour. This form of sense-making of phenomenological behaviour often transcends a level that can be represented in language, as it is a matter of Gestalt-seeing (Gestalt-Sehen). It is the ability to grasp intuitively the significant features of a case that is constituted in the course of professional enculturation. And it is precisely this dimension of knowing that our project focuses on. Accordingly, the review of student competency is not primarily concerned with checking their declarative knowledge but with this mostly non-explicable knowing, which becomes evident in the sensitive handling of a pedagogic situation. For this reason, picture and text vignettes, which are examined in textual analysis as well as video analysis, play a key part in the research project.

Data Collection with Open Vignettes

The open vignettes we used open up a pedagogic scope of action that functions as a catalyst for thought processes and allows for a number of possible replies. The vignettes challenge the respondent to put their response into writing by interpretation or containment. In this process, the given description (text vignette) or photo (picture vignette) serve as filters that favour certain interpretations of the presented situation and exclude others. The quality of the responses that include interpretations and propositions for action cannot be determined in advance. This is why we did not define precise criteria in advance to judge the quality or even the correctness of the different propositions for action. From our point of view, it is more important to see whether the answers are viable and fitting, and to what extent they take account of the situation being undetermined.

The decision for the semantic openness of the vignettes and against the attempt to predetermine the event presented as precisely as possible is based on our acknowledging that, in principle, real situations in pedagogic day-to-day work are open and ambiguous. For teachers, a lack of all-embracing information

is a rule rather than an exception. In this way, these situations are different from classical, well-defined problems (as found, for example, in scientific experiments), and which can be addressed sufficiently by a hierarchical, systematic approach. In addition, these day-to-day interactions develop their own momentum, which is determined by numerous components that are discreet and, in all likelihood, impossible to uncover conclusively. The challenge for the teacher is to understand a concrete situation and to invest it with meaning in order to act appropriately.⁴ This corresponds to a selection process from a number of imaginable and legitimate alternatives. It is characterised by a subtle discrimination among these alternatives to find the situation-tailored one (cf. Esser, 1996: pp. 5f.) With an open vignette, we can trigger and illuminate this process of constituting meaning. Here, we assume that observations are not naturalistic images of a subject-independent reality, but that observing is an intentional process of 'holding something to be true'. By addressing the vignettes, the respondents enable us to see their pedagogic patterns of interpretation and, through that, their professional approach as expressed in their own language and within their style of expression and thought. Explicable foundations of their actions can be recognised from this manifest style, as well as indications for implicit, hard to articulate elements - that is, elements practically addressing the situation that play a role immanent to their teaching practice. We assume as a basic principle that attitudes of this kind develop from personal and collective processes, as well as from such that are related to experience. In that sense, meanings that are ascribed to situations by the respondents are not just idiosyncratic, but a result of shared patterns of interpretation, cognitive figures and social systems of meaning, all together based on a shared form of life that are drilled into us on the basis of our socialisation.6

By using two different media – photo and text – on the one hand the ability of these media to generate meaning impulses through a very rough outline of a situation is utilised. On the other hand, the respective characteristics of the two media complement one another. At first glance, looking at a vignette image seems simple – what am I seeing? However, it calls for an interpretation on the part of the observer that is linked to their own experience and values.

4 For an investigation of the circuitousness, as well as the difficulties inherent in normative pedagogic terms such as 'suitability to children', see Rosenberger, 2005.

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⁵ See also the well-known Thomas theorem: "If men define situations as real, they are real in their consequences." (Thomas & Thomas, 1928: p. 572, quoted in Esser, 1996: p. 2).

^{6 &}quot;The basis of every explanation is training. (Educators should bear this in mind.)" (Wittgenstein, 1970, §419, transl. by the author).

harina Rosenberger re different from cientific experinical, systematic elop their own are discreet and, hallenge for the with meaning in process from a rised by a subtle tailored one (cf. d illuminate this rvations are not observing is an addressing the gic patterns of xpressed in their 1ght. Explicable est style, as well nat is, elements to their teaching nd develop from it are related to ituations by the ired patterns of ing, all together

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Perceptions are never value-free, because as a rule people do not encounter everyday situations indifferently but intentionally. They constantly attempt to understand a meaning in the light of their own situation, their tasks and their commitment. In this sense, the comments by those questioned reflect their background knowledge and their way of thinking. This background knowledge is partly outside the focus of consciousness and eludes the grasp of reflection. In a certain sense it thus represents a tacit knowledge. Because there is no explanatory commentary on the photo we are using, e.g. whether it concerns a break or a teaching situation, the interviewees must create this context themselves. It is thus not just a question of the description of the obvious, but of judgement (here there is situation X). The interviewees project particular categories (e.g. here a child is being excluded from class) and identify a type.

A text vignette, on the other hand, operates with terms that themselves contain differing degrees of interpretation. The text in the text vignette is consciously kept as general as possible and only gives very vague background information about the imaged situation and other essential aspects (e.g. the gender of the children). Likewise it leaves the time perspective completely in the dark. Something that is not described has preceded the concrete situation. Here too, the interviewees must generate interpretations of meaning and construct contexts.

Both media – picture and text – contain different signs: pictorial details and words. The explanation of situations shown (of the plot) is influenced by the details that are observed and incorporated into the interpretation, by the details which are ignored and by new elements that are added (for example, in picture vignettes, the invisible person who took the photo or the assumption of particular preceding events in text vignettes). The 'seeing something' or 'reading something' thus becomes a 'seeing as something'. In the analysis of the vignettes it is thus a question of attributing significance and categorising the elements. In this sense, competence means lending something significance in a meaningful way. In the analysis of the vignettes it is then primarily about the descriptive registration of the constitution of meaning through the varying categorisation and evaluation of the picture or text elements. In a second step, the analysis assesses how pedagogically meaningful and consistent the interpretation and recommended action is. In a third step, the evaluation takes account of how strongly the answers address the heterogeneity of the class.

At the time of the first questioning the students polled were at the start of their degrees that is in the first month of a teaching degree they had only just begun, in which there are only introductory seminars and lectures and the first few observation visits to schools. As far as possible, all first-term students registered with the University College of Teacher Education in Vienna and Lower Austria for all degrees (primary school, special school and foundation school, religious education) were involved. This analysis was repeated recently towards the end of the degree (6^{th} term).

The analysis in the end is supposed to allow conclusions on possible changes in the future compulsory schools teachers' ability to observe and judge.

In addition, the text vignette was given to 60 teacher mentors (teachers with years of experience and additional training who deliver the students' practical training in schools). Their answers were used as a comparison group. A dualistic contrasting of first-term students without any teaching experience and experienced teachers in the sense of a previously postulated expectation of a 'good' or 'not yet very good' teaching performance is, however, problematic methodically. Firstly, there are interpersonal differences, which can have numerous consequences for dealing with ambiguous situations such as the ones we analysed. Both groups are heterogeneous within themselves: it is possible that students have had experience in dealing with children that is valuable in the teaching context, for example because they are trained Kindergarden teachers or lead other children's groups, because they have children themselves, because they give private lessons, or because they are sensitised to certain situations etc. Teacher mentors, on the other hand, are not immune to blind spots, fixed routines, coping strategies and burnout tendencies despite (or precisely because of) their many years' experience. Moreover, the attribution of competence that goes hand in hand with training and appointment of teacher mentors is subject to change. A teacher who was appointed to this position about twenty years ago often falls back on his or her training (the own teacher training and the training for mentor teachers), even though the work and the training has changed considerably in content. Despite the uncertainty of the expert status, in our analysis we contrast the statements of the first-term students with those of their teacher mentors. We are aware, on the one hand, that teachers do not always have to shine and produce better results than the students starting out in their degrees. On the other hand, by using this contrast we try to extract the nuances of knowing that no book or training could teach.

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The Ability to Differentiate

In an overview, the sample is as follows (cf. fig. 1):

	First term students	Sixth term students	Teacher mentors	Comparison of first-term students and teacher mentors (total)
Primary	152	100	33	185
school	(55.7%)	(60.2%)	(55.0%)	(55.6%)
Lower	68	44	0	68
secondary	(24.9%)	(26.5%)	(0.0%)	(20.4%)
school				
Special-	25	22	6	31
needs school	(9.2%)	(13.3%)	(10.0%)	(9.3%)
Religious	28	0	17	45
education	(10.3%)	(0.0%)	(28.3%)	(13.5%)
Not specified	0	0	4	4
	(0.0%)	(0.0%)	(6.7%)	(1.2%)
Total	273 (100.0%)	166 (100.0%)	60 (100.0%)	333 (100.0%)

Figure 1: complete sample

As the research project has not so far been concluded, the final results are not yet available. In this contribution, it is therefore only possible to address the results of the first survey and its comparison with the teachers' mentors – see final column. Most of the first-term students (60.4%) were aged between 18 and 21, almost another third (31.5%) were aged between 21 and 30. The teacher mentors were naturally significantly older than the first-term students: more than three quarters (76.6%) were 40 years or older.

The question of whether the choice of comparison groups is tenable is one of many problematic areas that have to be answered anew for each use of vignettes in a research project. Before the start of the project and during it, it is important to define benchmarks and to find answers to questions for which there is no universal solution. Nevertheless, some ambiguities remain, which need to be taken into account during the examination of the empirical results at the very latest.

The students' responses to the vignettes are in written form, since the vignettesheet provides a space for comments.

In the qualitative content analysis (cf. Mayring, 2007) texts are regarded as a medium, no more and no less. They give hints as to thoughts and feelings, but they are not identical with them. What is written by the respondents can, furthermore, not be equated with real actions. The respondents have an implicit knowledge which they themselves cannot access. Similarly, their experience is richer than can ever be represented. Accordingly, they know more than they can express. We as researchers have only limited influence on how the text comes about (for example by organising the questionnaire in a certain way). We can only make educated guesses as to how much people write, how seriously they take it etc. And lastly: a longer text does not necessarily mean better quality in the sense of having richer empirical material. The challenge the researcher is faced with in text-analytical reconstructions is to find the right compromise between interpreting too much or too little. Dealing with the text is a skill in itself, namely the art of interpretation.

To assess the texts written in response we use the following questions: How do the respondents comment on the pedagogic situation described? What do they articulate and how do they articulate it? In these regards we follow Reckwitz (2003: p. 292) in his definition of practical knowing and focus on the meaning that the respondents ascribe to persons and things, the relations they see between them, the courses of action they suggest (i.e. what scripts are available to them) and the broader context into which they put the situation (that is, their intentions). The comments of the individual are embedded in a social world, for which the logic of the praxis is constitutive. Meanings are the result of a process of negotiation, which is historical, contextual and particular. The assumption that the ascription of meaning is anchored in a praxis community means that a differentiation between theory and praxis, doing and reflecting, spontaneous action and understanding would be impossible to resolve. "In this process, negotiating meaning entails both interpretation and action. In fact, this perspective does not imply a fundamental distinction between interpreting and acting, doing and thinking, or understanding and responding. All are part of the ongoing process of negotiation meaning." (Wenger, 2002: p. 54)

The statements given in response to the vignettes show what the respondents see as relevant and how they put this into language. This was evaluated by using text analysis according to categories (taking into account the quality criteria described by Mayring, 2007) in a number of stages, whose main elements will be laid out in the following. The coding system was designed as a balance between deduction and induction, and was checked repeatedly, by loops

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in the testing system, for its consistency, logic, inter-code reliability and usability. At the first level (What was said? e.g. for the text vignette: What courses of action were suggested? Or for the picture vignette: What actions were mentioned?) descriptive codes and process codes were developed. On the second level (meta level: e.g. for our text vignettes: How were the suggested courses of action justified? Or for our picture vignettes: How has the respondent related the depicted persons to each other?) structure codes and versus codes were elaborated. Code memos and code rules were noted for each code. Normative codes (for example different levels of the ability to reflect), as used for example by Schwindt (2008) in the analysis of lesson observations, were not used, as a context-independent assessment of individual aspects cannot in our view be argued for convincingly. (However, this article does not have the scope to discuss this problem in more details.) The coded segments were not weighted according to relevance – it is, so to speak, an all or nothing, yes or no category-sation.

A quantification of the categorisations (mainly in a descriptive statistical way) is also embedded in the consistently qualitatively oriented process of our text analyses. The mutual influence of qualitative and quantitative approaches makes it possible to analyse comparatively, so that the individual traits of a text which are supported by its categorisation become obvious. We define types as particularly appropriate cases which make core characteristics of typical traits (bundling of similarities of traits) easy to recognise or represent them well. These can in turn be used to be further pursued and interpreted as individual cases. The reconstruction of cases and the comparative analysis make it possible to define the field in which the cases are situated. (On the principle of mutual causation; see Bude, 2006: p. 60)

A Short Insight into the Text Vignette

The respondents were asked to interpret the following situation in writing, as well as giving and justifying strategies to deal with them:

The pupils read a short text together in class. Afterwards, the teacher asks questions about the text. N. is unable to answer a simple question. The teacher repeats the question: "N., what does the woman say at the beginning of the story?" N. shrugs and remains silent. Some of his fellow pupils begin to laugh.

For the conceptual differentiation of code types see Saldaña, 2009.

The three questions asked afterwards for interpretation and for the drafting of possible alternatives for action were put as follows:

- 1. What might N. be thinking during this situation?
- 2. How could the teacher react in this situation?
- 3. What would you do in this situation? Please explain your decision.

In comparison to usual interview and discussion transcripts, the amount of data on individual people is relatively small. From the beginning, the room was limited by a given frame for each of the three questions on the questionnaire. Participants were given a maximum of about three quarters of an A4 sheet to answer the impulse questions on the text vignette. The texts varied in length from a few words to several paragraphs.

In developing the category system, the focus was not only on what was argued and how, but also on what was not expressed because it was not addressed by the participant or did not occur to them.

Two main categories are now given as examples of the interpretation of the text vignettes: "Assumed causes for N.'s silence" and "Proposed measures and intentions of the teacher".

Key category 1: Assumed causes for N.'s silence

One of the central categories comprises conjectures as to the reason for N.'s behaviour. If we assume that an action is based on a plausible explanation or at least on a 'sense' of meaningfulness (What could be the cause of N.'s behaviour?) this becomes an essential area. All suggested courses of action (What could be done? What would I do if I were in the position of the teacher?), as contained in the second category, are influenced by the interpretation of N.'s behaviour. In the first round, it was particularly interesting for us to see what causes the respondents had linked their answer to, not so much the place in the text or how often they gave this cause. This thinking-of-certain-causes appeared explicitly as well as implicitly.

In this phase of the analysis, the individual areas themselves are still defined relatively broadly, as they serve an initial wide categorisation. 'Willingness to contribute', for example, includes all kinds of not paying attention, regardless of whether it is because of personal attitudes or conditions

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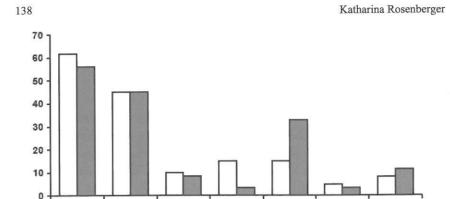
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hemselves are still ide categorisation. ids of not paying tudes or conditions of the lesson (material, events in class). 'Ability' includes diverse competences; 'dissocial behaviour' covers connections to the social aspect of the classroom community or personal attitudes of a destructive nature. The latter area is closely connected with 'willingness to contribute'. The code 'language' was given when language problems in the sense of 'German not as the first language' (an issue for migrants)' or 'difficulties in communication due to a low competency in German despite it being the first language' (having poorly educated parents) were given. 'Shyness' was identified as a certain 'emotional problem' addressed in a text (also social fear, low self-confidence, shame, fear of giving a wrong answer etc.). The code 'physiological factors' especially includes the topic of having a handicap (e.g. being hard of hearing) but also illnesses and health complaints (e.g. a headache).

What insights are gained by the coding of assumed causes? With 35.6% of the codes given (first-term students and mentors together), the topic 'willingness to contribute' is mentioned most. Even taking into account that some categories are larger pools than others, and that there are differences between the school reality of the cohorts (e.g. lower secondary school classes, special-needs school classes, religious education in small groups), it is possible to come to the conclusion that the respondents often use the pattern of "N. doesn't want to" to explain his/her behaviour. The distinction of whether children do not want to contribute or whether they are just unable to do so is indeed essential for the pedagogic praxis. It does not only determine the assessment of pupils with regard to their ability, but also the possible methods of supporting the pupil as well as - and this has to be said in the interests of honesty - the willingness to offer support to the child in its learning. Looking, now, at the question whether first-term students give different hints from teacher mentors, it becomes obvious that there are significant differences in two areas (see figure 2). The experienced teachers more often gave language difficulties as a possible cause for N.'s silence, while students pointed more to shyness or social fear as a possible problem.



□ Teacher mentors ■ First term students

Language

Shyness

social fear

Willingness to

contribute

Ability

(cognitive)

Dissocial

hehaviour

Physiological No category

aspects

Figure 2: Assumed causes for N.'s behaviour – Comparison of the proportion in percentage of first-term students and teacher mentors

How can we interpret this result? Figure 2 shows that the first-term students are hardly aware of the suspected cause 'language' - e.g. very poor vocabulary, poor syntax, low level of understanding. (Only 3.3% of all first-term students made a comment in relation to this.) At the beginning of their degree course, students do not yet have the relevant pieces of information. Teachers especially in Vienna – are confronted with this issue in most schools on a day to day basis, since more than 40% of children of school age do not have German as their first language. In addition, students at the beginning of their degree tend to recall their own experience as pupils, which is usually not far in the past – but they lack experience as teachers. As most students do not have a migration background themselves, as they have been able to attain a good education (often in a secondary academic school), and because they usually come from an education-friendly background, language or the family background obviously does not concern them closely. It is also interesting to note, however, that only 15% of teacher mentors (all of whom work in Vienna) mentioned 'language' as possible cause for the pupil's silence. Considering the topicality of the subject, this is quite a low percentage. (It remains to be seen whether the students show better results in this, when responding at the end of their degree course. This would indicate that their training is relevant to the current situation in this area.)

In contrast to this, students mentioned 'shyness' far more often than teacher mentors (33%). Again, we think that this has to do with the identification of the students with the pupils as well as with the characteristics of

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their late adolescence. It might also be related to their own situation as future teachers, if less closely. This new and still unfamiliar professional role creates tension and insecurity. Only 15% of teacher mentors were assigned codes in this area. It seems that the emotional dimension remains in the background for them.

Finally it should not remain unmentioned that open questions such as those in our text vignette produce answers that go beyond the tightly restricted framework of conventional answering behaviour. To make no comments on the suspected causes for N.'s behaviour does not necessarily mean that the quality of the answer is poor. The text of the answer could go in a direction in which there is no place for the category 'suspected cause'. It is therefore essential in the analysis repeatedly to go back to the original texts in order not to lose the overall sense of the answer.

Key category 2: Proposed measures and intentions of the teacher

The second main category to be presented in this article concerns the manner and the purposes of the measures given in response to questions 2 and 3. In the following I will only address the analytical unit of question 3 (What would you do in this situation?), as a more comprehensive discussion would go beyond the scope of this article.

In the first step of the analysis, the kinds of intervention given by the respondents were coded. For this we developed a category system with 47 different codes. The interventions cover the statements about what the teacher does (e.g. asking the group to stop laughing) and what results are expected from these actions (e.g. making it easier for N. in an unspecified way). In particular when dealing with the pedagogic aspect, in this case it is not possible to make a clear differentiation between the kind of measure taken and the purpose.

It is possible to differentiate, widely, between two chronologically related directions. Some measures can be comprised under 'exploring the cause' (e.g. asking N. about the cause of his/her silence). This way of dealing with the situation is on a different level from, so to say, methodical didactic measures (such as "asking N. to read the text again"), as it does, in a way, precede these. The second direction stands precisely for the measures that were expressed directly, which have to do either with the social processes in the classroom (often with a pedagogic connotation) or are of a didactic nature. Pedagogic and didactic actions are, logically, only effective if their assumptions about the causes are correct. The measures proposed can either be about the pupil N. or the whole group of learners, as the text vignette addresses dynamics within both

of these frameworks of interaction. The framework of this main category can, accordingly, be sketched as in the following (fig. 3):

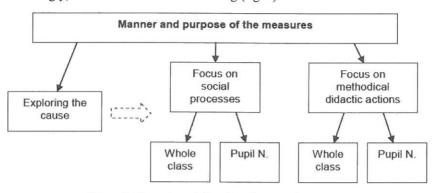


Figure 3: Character and direction of proposed measures

The differentiation of the category 'social processes' and 'methodical didactic measures' corresponds to the dual direction of school scenarios in every classroom situation. Herbart's conception of 'formative schooling' (in German: 'erziehender Unterricht')⁸ implies that teachers have to constantly and simultaneously address different targets. This is not about widening the area of tuition (a common misconception), it is rather a programmatic basic challenge that refers to the dual task of formation and tuition in schools.

For the purpose of coding the text vignettes, the category 'social processes' was defined by the teacher leaving the factual level and switching to an explicitly pedagogic level (relationship, behaviour, emotions). (The starting point for the text vignette is, after all, a teaching situation on the factual level – a text analysis.) The term 'social processes' was preferred to an alternative description of 'pedagogic' (in German 'erzieherisch') because some of the examples would have been misinterpreted by reducing them to a purely pedagogic connotation. In the category 'methodical didactic measures', the teacher stays on the factual level. With these, the intention is primarily to further develop the teaching process and to 'keep it going'.

In total, 316 (94.9%) of the 333 respondents suggested concrete measures. In the categories of the two different groups, this amounts to 85% of the teacher mentors and 97.1% of the first-term students. The following figure gives a brief

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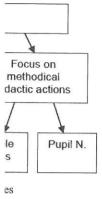
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[&]quot;And I confess, here already, that I do not have a concept of formation without education, as much as I, conversely, at least in this piece, do not acknowledge any education that is not also formative" (Herbart, 1806: p. 22, transl. by the author).

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insight into measures that were mentioned most by respondents and points to the fact that the two groups do show some dissimilarities when it comes to content.

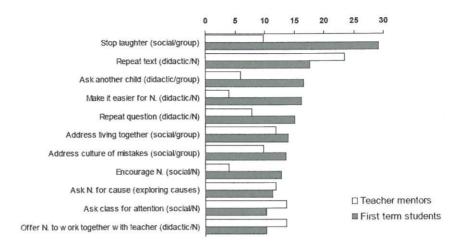


Figure 4: The measures mentioned by the highest number of people – differentiated according to teacher mentors (n=51) and first-term students (n=265). The inscription shows not only the measure, but also the manner (social or didactic process) and the focus (whole group or N)

Comparing the two bars reveals some telling details: while, for example, 29.1% of all students would ask the group to stop laughing, only 9.8% of the teacher mentors proposed this measure. The teacher mentors addressed codes related to N. more than the students did. There are additional insights from the text vignette that indicate the students' tendency to include measures that address classroom management more than mentor teachers do. Almost three quarters of all students name at least one measure that relates to the group as a whole, whereas only half the mentor teachers do so. Furthermore, an analysis of the wording used to address the conditions on which a measure is taken (for example: "That completely depends on the child and my assessment of them" (language ability, self confidence, attentiveness), shows that there are significant differences between first-year students and working teachers.

Conditional statements (if this, then that relations) are articulated in particular, when there is a clear idea of how certain situations should or could be managed. It is, however, evident that this is less pronounced for the students, particularly in the areas of 'willingness to contribute', 'language', and 'physiological factors'. The issue of 'willingness to contribute', or, put differently, the question "what should I do, when N. or the whole group is not focused on the teaching but express themselves on a different level?" (e.g. when N. does not

pay attention or the whole group laughs at N.) proves to be uncertain ground for first-term students. Applied to the measure taken from above, 'stop laughter', a typical picture results: first-term students seem to feel better equipped for intervention in some areas (say, ability) than in others (say, willingness to contribute). This does not mean that they really have more subject knowledge or competence in this area, but that deficits are perceived more readily here than in other areas.

Contrasting the students' and teachers' groups thus shows interesting details, if not as many as originally assumed. It shows that the difference between students and mentor teachers is not so much their speaking about pedagogic situations but in how they act. It is, however, also constructive to differentiate between the four different types of school. Looking, for example, at the sub-groups who do not mention any measures aimed at N., it becomes evident that the students as well as the teachers of religious education have a special position: half of them do not address N. directly, which is a relatively high percentage compared to the others. A possible explanation could be that in religious education the teacher's attention obviously has been focused more on group development than on working with students individually. Additionally, the subject was less achievement-focused than the others.

In this regard, furthermore the analysis of one detail is quite surprising: not a single text in the group of special-needs school teachers relates to the group as a whole; only measures that exclusively concern N. are proposed. This result may well be explained in conjunction with the 'directedness' of special-needs school teachers, who attach particular importance to the advancement of individual students in their working relationships.

A Short Insight into the Picture Vignette

Together with the text vignette participants were also shown the picture vignette. This consisted of a colour photo with a brief impulse question (fig. 5).

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Figure 5: Picture vignette (photograph by Clemens Seyfried)

The associated question was:

What is happening in this photo? Please describe the situation.

Similar to the text vignette, the space for the answer was limited by a frame on the questionnaire – participants were given half an A4 page. The texts varied in length from a few words to a few paragraphs (up to 132 words). Generally, mentor teachers wrote significantly shorter texts than the students. The following two answers should serve as examples to illustrate how differently the photo was described.

The children have been given the job of reading various problems or tasks on a particular subject as a group. Now these five girls have formed a team and are discussing how they can quickly and best carry out the task. In their enthusiasm, however, they have not noticed that the boy is just watching events and has been shut out of the teamwork, although he would apparently like to be involved but doesn't have the confidence to say anything.

Figure 6: Medium long response of the picture vignette (by first-term female student for Religious Education degree)

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A group of girls are talking/making themselves up – break?
Boy is sitting there alone / bored, is rocking on his chair from embarrassment?

Figure 7: Short response of the picture vignette (by a female mentor teacher for primary schools)

The answer texts by those questioned were categorised at several levels (cf. fig. 8): Based on the content mentioned it was investigated as to which actors and objects were seen as relevant, which actions are addressed and what relations are created between the people and the actions. Furthermore the questions are of interest, whether and to what extent the surroundings and the situative framework as well as the purposefulness and intentionality of the actors were an issue of interest. Similar to the text vignette, it was worked out what the interviewees were expressing as well as what was not addressed. As can be seen in an exemplary way in the next sub-chapters, there are significant differences between the first-term students and the mentor teachers in some areas. Finally, an attempt was made to filter out the elements of the texts that provide information on the degree or kind of reflexivity or method of interpretation (e.g. whether those polled gave reasons for their opinions).

Main categories	Sub-categories	Modality
Setting	Break lesson	optional? assertoric?
Subject	exclusion gender indifference	optional? assertoric?
Objects	equipment (pencils etc.) makeup boy's chair	
Perception of the children	boy girls children undifferentiated	referring to individual? referring to group?
Relations/ Interactions	girls, boy, children, others (not on picture)	
Attribution of feelings, thoughts etc.		optional? assertoric?
Way of Interpretation	descriptive interpretative ambiguous	

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referring to individual? referring to group?

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	certainty self-statement	certainty: assertoric?
Reflexivity	reasoning	optional?
	meta-level	

Figure 8: Overview of the code system of the picture vignette

The Modality of Judgement as Criterion for the Ability to Differentiate

One of the main criteria for the 'ability to differentiate' is the awareness that pedagogic situations are usually not unambiguous, although the actions of teachers have to be clear and direct. Optimally, however, they must do this in the awareness that the situation they are observing or reacting to could also be seen differently (see also the question of the 'assumed causes' in the text vignette.). We see an indication of how much those questions concern themselves with this principle openness and ambiguity in the way in which they formulate their statements, i.e. how much they think in variants and alternatives. In his "Critique of Pure Reason", Kant divides judgements in order to their modality into three groups:

- With a problematic judgement an affirmation or negation is taken as merely possible (optional). This proposition expresses logical possibilities.
- 2. With an assertoric judgement an affirmation or negation is taken as real (true). Assertoric judgements are thus statements that explicitly lay claim to truth.
- 3. In an apodeictic judgement an affirmation or negation is taken as necessary. This last group of judgements appeals to an inherent logical relationship as the basis of the judgement that is made.

Whereas in his analysis of forms of judgement Kant questions how certain an assertion is and his concern is the logical difference, in the analysis of the text vignettes we are asking how certain someone is in his/her assertion. Thus we are concerned with the cognitive dimension as the awareness of a judgement as the result of an interpretation that under certain circumstances may be revised. We use Kant's term 'assertoric' for this and always use it, when someone claims something with certainty and sees no prospect of another possibility. ('It is the case that . . .') If someone explicitly or implicitly includes other possibilities in their statement, we use the term 'optional'. Kant's term 'problematic judgement' would lead to confusion here, as the word problematic has a different meaning in everyday language. We therefore use 'optional' for expressions that include a

possibility, but mean Kant's term 'problematic judgements' (in the form 'it may be that . . .'). The two text examples (fig. 6 and 7) clearly show how much the modality of the judgements can differ. Whereas the text in fig. 6 is an example of assertoric modality, fig. 7 shows an optional modality.

Assertoric modality: A student constructs a narrative with a chronological structure

The children are acting because they have previously been given a task. In the present situation, during the lesson, something is happening that is specifically formulated: the girls have formed a team and are working in a concentrated way, they are excluding the boy, the boy has particular feelings etc. The boy, on the other hand, has wishes that relate to a change in his present situation. The three time aspects - past, present and future - which can also be recognised by the various tense and modal forms of the verbs, underline the narrative character of the explanation of the picture. Essentially the description of the situation is more than an interpretation, although no argument is given for the explanation. Likewise, one's own view as an interpreter is not addressed. Apart from one small point in the text (the boy would 'apparently' like to be involved) the student asserts her interpretation without questioning it. She not only invents a course of action but also ascribes mental states such as thoughts, feelings and perceptions to the actors, which cannot be accessible to an outside observer. Only those directly concerned would be able to verify the truth of these explanations. But no mention of this is made by the student.

Optional modality: A primary-school teacher writes a very different text. Although it is much shorter, it offers numerous alternatives. The boy is not presented as related to the group of girls, but the text differentiates two areas, 'girls' and 'boy', which are dealt with separately. This is graphically expressed in that not only are the two sentences not linked to one another, but the teacher starts the second sentence with a new line. It gives the impression of a list: the facts around the girls are collated, then those around the boy. Only what seems obvious is stated - a group of learning girls and a boy rocking on a chair. Everything else is marked with a question mark or presented just as a possibility. Even the setting is not unambiguously determined, although in mentioning the word 'break' and not mentioning 'teaching' the interviewee shows a tendency to assert. No mental states are ascribed to the girls; the determination of their activity as 'talking' or 'making themselves up' is relatively easy to understand on the basis of their posture and utensils. The boy's situation appears less clear to the teacher. She therefore gives alternatives as to how he might feel and considers an explanation of why he is rocking on his

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chair. The text as a whole is much more open and fluid. Possible interpretations are immediately complemented by a different reading and softened in their effectiveness. Each statement ends with a question mark. The teacher thereby simultaneously calls her thoughts into doubt and leaves room for other interpretations.

Significant Findings between First-Term Students and Mentor Teachers

The comparison between students and experienced teachers makes the fact that differences might not be immediately evident. This is also shown in another study by Hüne & Mühlhausen (2005) examining the quality of records of teaching: Comparing students in teaching degrees with teachers, it became evident that the latter do not describe teaching more precisely than students do. The reason may lie in the fact that a description omits implicit, non-articulatable knowing. In this sense, the statement that experienced teachers do not describe teaching situations more precisely than students do is of no epistemological relevance. It is evident that experienced teachers have more knowing than they can say.

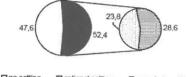
In total, the variation between the individual records was very great, as far as length, style and the individual content was concerned. Our study shows similar results. Nevertheless, areas can be found where first term students expressed themselves significantly differently in their texts than the mentor teachers did. I would like to give two brief examples of this here.

Setting - 'The Teacher's Eye'

For mentor teachers it seems to be important to give a context to the situation presented in the photo by classifying it within a recognised structure (break or teaching). More than 80% of the 60 asked mentor teachers gave an opinion on this. In contrast, less than half of all first term students said anything about whether the situation shown concerned a break or a teaching situation (cf. fig. 9 and 10, left-hand circle).



First-term students: Mentioning of at least





Mentor teachers: Mentioning of at least one

setting (n=59, in %)

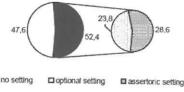


Figure 9: Break or teaching? Answers of first

term students

Figure 10: Break or teaching? Answers of mentor teachers

In principle the photo could have been taken during a break or during teaching. The mentor teachers' answers accordingly show no definite tendency in one direction. However, the first-term students who mention a setting interpret the situation more often as a break (double the amount). They possibly have a narrower image of teaching. In order to identify the picture as a teaching situation one needs the experience of open teaching situations, which students perhaps do not know from their own school history. Mentor teachers, at least those who associated it with a teaching situation, may apparently relate to it on the basis of their practical experience.

For the analysis, it is further interesting to note the mode (optional or assertoric) in which settings are mentioned (cf. fig. 9 and 10, right-hand circle). Here too, a difference can be seen between first-term students and mentor teachers: mentor teachers are more certain in their explanation of the situation as teaching or as a break. Here they have less expectation of other possibilities.

Looking at the non-mention of the setting, there are in principle three logical possibilities: 1. Those polled had no setting in mind. 2. They had a possible setting in mind, but did not regard it as relevant. 3. They had a setting in mind, but were not certain and therefore did not mention it. The fact that mentor teachers who mentioned a setting mostly dealt with the break/teaching classification in an assertoric way suggests that the third logical possibility is less applicable to them.

What do these details tell us? The statement of a setting could mean that the polled had their own role as (future) teachers in mind. The question whether as a teacher one carries on watching or perhaps even has to intervene only makes sense with the classification in a superior situation. In a break, school children can usually behave differently than they are expected to during lessons. During a school day teachers have to make such decisions innumerable times

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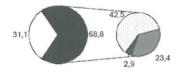
and are therefore particularly alert. Mentor teachers have internalised their role; they are in a state of constant readiness, whether they do anything or not. They are more alert and ready to intervene than are students, who still have to learn this. (In fact, during training it is repeatedly evident that it is by no means so easy for students to acquire this watchful presence.) For mentor teachers the setting is consequently more important, because it matters to them more whether it is a lesson or a break, as this represents a basic question for their readiness to intervene.

Mentioning Particular Subjects/Issues - 'the Student's Heart'

In analysing the texts of those polled it was noticeable that particular themes determining the descriptions were repeatedly mentioned:

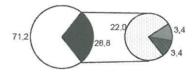
- exclusion of the boy: being excluded and not belonging, clear distancing from the group (self-exclusion). The issue has to be explicitly addressed.
- gender: subliminal allusion to the gender issue, which goes beyond the boy's general indifference to the girls' activities
- indifference of the boy: boredom, general lack of interest, non-participation, lack of motivation.

As many texts are in the light of these issues, we included them as inductive categories in our coding system. It became clear that approx. 28% of all mentor teachers and almost 70% of all first-term students read at least one of these three themes into the picture. (fig. 11 and 12)



□ no subject □ 1 subject ■ 2 subjects ■ 3 subjects

Figure 11: Mentioning of specific subjects: answers of first-term students (n=273, in %)



□no subject □ 1 subject □ 2 subjects □ 3 subjects

Figure 12: Mentioning of specific subjects: answers of mentor teachers (n=59, in %)

Above all, the large number of first term students who see the picture only in relation to at least one of these issues points to a rather emotional direction. Due to their professional distance, mentor teachers on the other hand interpret the situation in the photo without these ascriptions.

The question of exclusion was by far the most frequently mentioned — both by first-term students as well as by mentor teachers. For the polled, the respective issues usually had a very determining character — apart from the subject of gender, among the mentor teachers they were always mentioned in a more assertoric than an optional way. Above all concerning the assertoric observation of exclusion this is not unproblematic, however, because it goes far beyond what the picture itself tells. This construction possibly shows a lack of flexibility. The unquestioned observation of non-participation is also tricky. The boy may even actually be interested, but may be distracted at the moment of the shot and looking at the photographer. Similar to the suppositions concerning the silence of N. in the text vignette, it would be advantageous not to go in for particular explanations too hastily and without alternative options, which are determining for later actions (for example to protect the child).

Conclusions

The ability to differentiate is a challenge that on the one hand arises from the recognition of the heterogeneity of present-day society and on the other hand expresses an increased desire for inclusion. The school system in most countries in the German-speaking world has a long tradition of segregating children on the basis of social dividing lines very early. This means that children who do not correspond to particular conceptions of the norm, such as performance levels, have been sent to 'special' schools (secondary moderns or special schools). This policy is rooted in a belief that does not think much of egalitarian models of society. Various societal changes in the last 40 years have forced an opening up of school for children with different physiological conditions, social background and cognitive abilities. This process is not yet over and is associated with ideological trench warfare. An open school with heterogeneous classes generates new challenges for teachers. Teaching must be flexible in a targeted way and individually designed, the focus is now on the learning process and not on the results. Respect and recognition of differences are called for. The ability to differentiate as a skill is exemplary of knowing how, because in the school class it is not a question of developing a theory of differentiation but of the practice of a pedagogically meaningful differentiation. This ability is indeed dependent on

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discursively developed pedagogic and teaching concepts; but it is essentially a practical matter. It must be tested in and suited to the practice of teaching.

The research project presented is aimed at investigating the thinking of difference that reveals itself in the perception and interpretation of a pedagogical situation and ultimately also in the plans for action. The focus of the investigation is on the students at the University College for Teacher Training Vienna/Krems; a second group of experienced teachers serve as the control group. Text and picture vignettes were used among other things for the data survey. Through an analysis of the respondents' texts we are able to show what was addressed by them and whether they neglected essential aspects of the situation. This analytic step does, however, presuppose some factors which have to be introduced carefully. The evidence about the framework in which they should be interpreted, as gained from the statements, helps to understand the attitude of the respondent to the situation presented in the vignette. In the project this is above all of interest for the main criteria for the ability to differentiate: flexibility, simultaneity, modality, coping with ambiguity, ability to interpret. The text analytical reconstructions, moreover, provide hints to the types with which the interpretation of individual texts can be read in relation to the entire examined group.

If we make the assumption (which is to be substantiated in the research project presented by the means of video analysis) that experienced teachers act more competently than first-year students, i.e. that they have a wider repertoire and use it to address unplanned situations in which it makes pedagogic sense to address individual students or groups of students, then the question as to whether this competency of action is also evident in verbalising, explaining and reflecting pedagogic situations poses itself. Talking about teaching is, however, different from teaching itself. It cannot replace the direct experience of action an experience that is partly bodily and tacit, that is to say non-discursive. What did, however, become obvious when looking at the vignettes is the extent to which the individuals' solutions differ in certain instances, and that some subgroups tend towards particular ways of observation and certain lines of thought. This insight can be usefully employed in teacher training. The vignettes themselves prove to be a good methodical instrument in this, which can also be used directly as a case study. Open vignettes stimulate discussion, especially because there is a wide variety of potential answers. This could, on the one hand, help to widen the store of thought processes available, and, on the other, could help to make the practical knowing slightly more transitive. Trainers (professors) and mentor teachers should rather less define their roles as: "I am an expert and I will show you how it works." This leads to assertoric formulations and a one-dimensional picture of practice. An attitude of the type: "I will accompany you in dealing with ambiguous situations that require further investigation," or "I will contribute my experience and understanding and together with your experience will prepare a space for reflection on pedagogic-practical wisdom", rather leads to optional approaches. This attitude holds true with regard to students in training, above all in the practical school studies, but should also be the basic attitude in class teaching.

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