# Clarifying pre-service teacher perceptions of mentor teachers' developing use of mentoring skills

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## ARTICLE INFO

## ABSTRACT

The aim of this study is to clarify how pre-service teachers perceive mentor teachers' use of mentoring skills. Sixty stimulated-recall interviews were conducted, each in connection with a previously recorded mentoring dialogue. A quantitative analysis showed that six types of mentoring skills appeared to be perceived by pre-service teachers as offering emotional support and five others as offering task assistance. After mentor teachers were trained in mentoring skills, shifts in their frequencies of use of distinct skills, as observed by independent raters, corresponded to a considerable extent with shifts in frequencies of pre-service teacher perceptions of mentor teachers' mentoring behaviour.

## 1. Introduction

Today, increasing emphasis is placed on the significance of school practice as a learning environment for pre-service teachers (Mantle-Bromley, 2003; Smith, 2003). As a consequence, during the past several years the importance of field experiences as a proportion of the overall time invested in initial teacher education has increased, both in North America and Europe (Wilson, Floden, & Ferrini-Mundy, 2002). This development can be attributed to increasing evidence and recognition of the value of learning in the workplace (Eraut, 2000; Garrick, 1998), criticism regarding the practical relevance of theory in teacher education programmes (Darling-Hammond, 2000), teacher shortages many countries are faced with (Buchberger, Campos, Kallos, & Stephenson, 2000; Villani, 2002), and the idea that teacher education is less expensive if carried out in the workplace (Caldwell & Carter, 1993).

The development of school-based teacher education has made the role of the mentor teacher, i.e. a classroom teacher with the additional responsibility of mentoring pre-service teachers, more important than ever before. The available international research literature provides a growing body of empirical evidence for the benefits of mentoring as a feature of the workplace (e.g. Hobson, Ashby, Malderez, & Tomlinson, 2009; McIntyre, Hagger, & Wilkin, 2005; Wang, Odell, & Schwille, 2008). With regard to the benefits for pre-service and beginning teachers, mentoring positively impacts their developing teaching competencies (Lindgren, 2005), plays a key role in their socialization process (Bullough & Draper, 2004) and provides emotional and psychological support (Marable & Raimondi, 2007).

At the same time, the literature suggests that mentor teachers' mentoring behaviour should fulfil certain requirements, if these benefits are to be achieved. From an extensive research review, Hobson et al. (2009) conclude that the extent to which mentor teachers are able to address mentees' learning needs is an important factor in the success of mentoring. In their review of a large number of studies of supervision, Glickman and Bey (1990) conclude that "no one supervisory approach is effective for all students" (p. 560). Consequently, mentor teachers need to assure that the mentoring roles they take and the strategies they use to support mentees' learning are receptive to their mentees' concerns and suitable for their current stages of development.

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Through mentoring dialogues, mentor teachers can have a considerable influence on how and what pre-service teachers learn (Edwards & Protheroe, 2004; Helman, 2006). The assumed influence of mentoring dialogues about specific lessons on pre-service teachers' learning is consistent with the premise that knowledge is situated in and grows out of a context (e.g. Eraut, 2000). In the professional context of teaching, this means that teachers' knowledge and skills are event-structured, context-based, and practice-oriented in nature (e.g. Kessels & Korthagen, 1996). Hence, mentoring dialogues about teaching experiences are an important educational context for helping pre-service teachers develop professional knowledge and to transform existing teaching practises (Crasborn, Hennissen, Brouwer, Korthagen, & Bergen, 2010; Hiebert, Gallimore, & Stigler, 2002).

The impact on teachers' task performance in the classroom appears to be higher when mentor teachers are trained (Evertson & Smithey, 2001; Giebelhaus & Bowman, 2002). As a consequence, many schools, often in cooperation with teacher education institutions, implement training programmes to broaden mentor teachers' supervisory repertoires in mentoring dialogues (Strong & Baron, 2004). The present study has been carried out in the context of the development and implementation of such a training programme.

The effectiveness of mentor teachers' mentoring behaviour is determined to a large degree by pre-service teacher perceptions of this behaviour (Martin, 1996). Blumberg (1980) stated in his research on mentor teachers' styles in mentoring dialogues that "how a person perceives the behaviour of another is much more important than the behaviour itself" (p. 63). This concurs with a classic theorem formulated by the American sociologists Thomas and Thomas (1928): "If men define situations as real, they are real in their consequences" (p. 572). For mentoring in teacher education, this implies that, in order to better understand the impact of mentor teachers' mentoring behaviour on pre-service teachers, research is needed into pre-service teacher perceptions of this behaviour. Hawkey (1997) concluded that: "…Studies are also needed that elicit the perceptions of student teachers on the support and challenge that their mentors offer… (p. 333)."

The aim of this study was to clarify how pre-service teachers perceive mentor teachers' use of specific mentoring skills during mentoring dialogues, before and after mentor teachers were trained in the use of mentoring skills. Investigating pre-service teacher perceptions of mentor teachers' use of those skills in mentoring dialogues can give us insight into the impact that mentor teachers' use of specific mentoring skills may have on pre-service teachers. Research in this area may be helpful to arrive at a better understanding of the intricacies of interactions in mentoring dialogues. It may provide clues for improving mentor teachers' awareness of the impact of distinct mentoring skills they put into practice. In addition, investigating pre-service teacher perceptions, both before and after mentor teachers were trained, is relevant, as shifts in mentor teachers' mentoring repertoires will gain in significance, if pre-service teachers perceive them. Hopefully, such research will provide clues for selecting skills to design training programmes aiming at improving mentor teachers' repertoires of mentoring skills.

In this study, we define *mentoring* as the one-to-one support of a pre-service or beginning teacher by a more experienced teacher. The expression *mentoring dialogue* refers to the formal two-way conversation between a mentor teacher and a pre-service or beginning teacher.

## 2. Areas of assistance

### 2.1. Two main areas of perceived assistance

Until now, in the context of teacher education most research on mentee perceptions of mentoring take the full range of mentor teachers' mentoring activities into account. Generally, this research often deals explicitly with the issue of what area(s) of assistance pre-service or beginning teachers perceive as relevant to their learning. For example, among 45 pre-service teachers in secondary education, Booth (1993) found three such areas. First, *general support*, which includes accessibility of the mentor, sympathetic and positive support and time spent on mentoring. In addition, *practical support*, in the form of knowledge that pre-service teachers could immediately use in their classrooms. Finally, a general category *support* including activities such as asking questions, discussing points of view and being helpful and positive. In a study among 78 second- and third-year pre-service teachers in secondary education, Rajuan, Beijaard, and Verloop (2007) found three main areas of perceived assistance: *person-oriented*, which includes the creation of trust and safety; *practice-oriented*, including information sharing about pupils and ways to make lessons more interesting; and *technique-oriented*, including discussions about lesson planning and classroom management.

In a study by Huffman and Leak (1986), 108 beginning teachers at the end of their first year, pointed at three areas of assistance: *addressing beginning teachers' needs* by providing encouragement, support and collegiality, *giving feedback and evaluation*, and *giving specific helpful suggestions for the improvement of teaching*. In a small-scale study with seven beginning teachers, Lindgren (2005) found two areas of assistance, *personal/emotional* and *professional*. Assistance in the professional area was mainly encouraged by using mentoring skills such as asking questions and giving feedback. Analyzing logbooks from 16 beginning teachers, Ballantyne, Hansford, and Packer (1995) derived four areas of assistance. The respondents experienced *personal and/or emotional support*, when mentor teachers encouraged them by offering empathy and reassurance. Secondly, beginners reported *task-related assistance and advice*, which was often promoted by mentoring skills such as giving advice and useful information. Thirdly, mentor teachers gave *problem-related assistance and advice* through discussion and exploration of problems. A fourth area was *critical reflection and feedback on practice*, but this was rarely reported. Beginning teachers felt that mentor teachers sometimes tended to be over-helpful rather than allowing them as beginners to develop their own teaching skills.

From this quite diverse collection of findings, we distil two main areas of perceived assistance. On the one hand, pre-service and beginning teachers appear to be in need of *emotional support*, wishing to experience a sense of basic trust and care, enabling them to move ahead. This includes, for example, accessibility of the mentor teacher, sympathetic and positive support, time spent together and offering empathy. On the other hand, pre-service and beginning teachers need support in the form of *task assistance* helping them to refine their teaching skills. This type of support includes giving feedback, information and practical advice, asking questions and discussing topics concerning teaching.

However, mentor teachers do not always seem to succeed in finding an adequate combination of offering emotional support and task assistance during mentoring activities. Butcher (2002) explored pre-service teacher perceptions of the mentoring they received. He found that some support was given by mentor teachers, but opportunities for a discourse in which the mentor teacher models, guides, advises and questions the pre-service teacher in a collaborative context, were not taken up adequately. Hobson (2002), on the contrary, concluded that pre-service teachers perceived their mentor teachers as very effective in assisting them to develop the ability to manage pupils, to maintain discipline and to use a range of teaching methods effectively. However, the results also indicated that the quality of mentoring was diverse and some mentor teachers did not appear to provide a safe and supportive learning environment.

In sum, from a pre-service and beginning teachers' perspective, the essence of adequate mentoring is based on a combination of offering emotional support and task assistance. The value of combining these two areas of assistance is also at stake in a conclusion drawn by Glickman and Bey (1990) from a review of a large number of studies on the supervision of teachers. "What is apparent about the nature of feedback in supervision is that two dimensions are attended to simultaneously: (a) focus on the task at hand for conveying and discussing classroom observations leading to future goals, actions, and reflections; and (b) focus on the interpersonal dimension for promoting open discussion, care, and consideration for each other" (p. 555).

Although we have noted above that mentees' perceptions seem crucial for what happens during mentoring, one might still wonder to what degree the conclusion that (a) and (b) represent two relevant aspects of mentoring is relevant, if this conclusion would be based on the perspective of mentees only. However, similar conclusions have been drawn in studies from other perspectives and in other contexts. Daloz (1986), for example, considers mentoring from an observer stance and also concludes that effective guidance by a mentor teacher is based on a balance of support in the interpersonal relationship in conjunction with adequate opportunities for challenging a pre-service teacher to learn new things. Moreover, behavioural dimensions similar to (a) and (b) are advocated for the behaviour of leaders in organizations. Hersey and Blanchard (1977), for example, developed a conceptual model of leadership. This so called "situational leadership model" views leaders as varying their emphasis on dimensions of leadership, "relationship behavior" and "task behaviour" to best deal with different levels of follower maturity. The model has been popular over the years because it can be applied to many different situations. In sum, we conclude that (a) and (b) represent important dimensions in mentoring, both from a mentee and from an outsider perspective.

## 2.2. Identifying triggers for emotional support and task assistance in mentoring dialogues

The research findings discussed in the previous section indicate that during various mentoring activities, mentor teachers need to provide both emotional support and task assistance to encourage pre-service or beginning teachers' learning in the workplace. In the particular educational context of the mentoring dialogue, pre-service and beginning teachers' perceptions of both types of mentor behaviour play their own roles. From the pre-service teachers' perspective, there is hardly any research investigating to what extent these two types of assistance are manifested within mentoring dialogues, except a very few. In a study by Kagan and Albertson (1987) among 24 undergraduate pre-service teachers in their first semester of field teaching, mentees showed themselves hypersensitive to mentor teachers' behaviour during dialogues expressing criticism of their performance. They perceived that too much time was spent discussing their shortcomings. Based on two different studies with 166 and 210 beginning teachers, Blumberg (1980) established that these teachers perceived it to be most helpful when supervisors or mentor teachers combined a relatively heavy emphasis on *direct behaviour* with *indirect behaviour* in dialogues, by using skills such as telling and criticising in combination with asking and listening. Based on answers to questionnaires, Thobega and Miller (2003) found that 244 beginning high school teachers, perceived four different types of mentor teachers' mentoring styles during dialogues: *directive informational*, *collaborative*, *nondirective* and *directive control*. These differed in the degree of power and control exerted by mentor teachers, in particular with regard to who formulates plans and who decides to follow these plans.

The research into pre-service and beginning teacher perceptions of mentor teachers' mentoring behaviour during dialogues led mainly to descriptions of mentoring *style*. It identifies triggers for assistance in mentoring dialogues on a relatively low level of concreteness. There is little research identifying which type of assistance, emotional support or task assistance, is triggered by which specific mentoring skills during mentoring dialogues.

## 3. Impact of training on the use of mentoring skills

From previous research we know that the learning needs of pre-service and beginning teachers differ (Oosterheert & Vermunt, 2001), that their professional learning develops at different speeds (Furlong & Maynard, 1995), and that from the pre-service and beginning teacher perspective, mentor teachers do not always succeed in balancing emotional support and task assistance adequately (Butcher, 2002; Hobson, 2002). During mentoring dialogues, mentor teachers would do well to regularly adjust the balance between offering emotional support and task assistance. A disparity between the learning needs of individual pre-service teachers and the mentoring approach they experience may limit chances for pre-service teachers to reach their best possible levels of competence and may even lead to a pre-service teacher's withdrawal from teacher education (Williams et al., 1998). Hence, training in mentoring skills is important for improving mentor teachers' awareness of and proficiency in the use of those mentoring skills, which can offer an adequate combination of both types of assistance.

There is some evidence that training mentor teachers matters, because it may influence their mentoring behaviour during mentoring dialogues (Edwards & Green, 1999; Evertson & Smithey, 2001; Harrison, Lawson, & Wortley, 2005; Timperley, 2001). Changes established in mentor teachers' use of mentoring skills may gain in significance if they are also perceived by pre-service teachers. Therefore, it is a relevant question to investigate whether and how during authentic mentoring dialogues, shifts in mentor teachers' mentoring behaviour as observed by independent observers correspond with shifts in pre-service teacher perceptions of mentoring skills as offering emotional support or task assistance. An empirical demonstration of such a correspondence may underline the practical value of and refine objectives for the training of mentor teachers.

In this proposition, we define *correspondence* as similar directions of shifts in the frequencies of mentor teachers' use of mentoring skills as observed by independent raters and shifts in the frequencies of pre-service teacher perceptions of mentor teachers' use of mentoring skills which offer emotional support or task assistance. To avoid complex phrasing, in the following sections the expressions *shifts observed by independent raters* and *shifts perceived by pre-service teachers* are used respectively.

## 4. Method

### 4.1. Research questions

The above analysis led to the following two research questions:

1. Which mentoring skills used by mentor teachers during mentoring dialogues, are perceived by pre-service teachers as offering emotional support or task assistance?
2. Do shifts in frequencies of mentor teachers' use of distinct mentoring skills during mentoring dialogues, as observed by independent raters, correspond with shifts as perceived by pre-service teachers, and if so in what respects?

### 4.2. Context of the study

The present study is based on a pre-test post-test design with one group (Cook & Campbell, 1979) and was carried out in the context of the implementation of a training programme for mentor teachers entitled Supervision skills for Mentor teachers to Activate Reflection in pre-service Teachers (SMART). The first two authors of this article implemented the training programme. The research process was conducted and monitored by all five authors. The programme focused on the development of mentoring skills which encourage reflection in pre-service teachers. The following overt mentoring skills to encourage reflection were trained (based on Korthagen, 2001): asking for concreteness, summarising feeling (showing empathy), showing genuineness, generalising (asking for similar situations), helping in making things explicit, confronting (feedback, summarising inconsistencies, utilizing the here and now), helping to find and to choose alternatives. These were trained in coaching exercises where one participant coaches the other on a real concern and in role plays in which one participant plays a pre-service teacher.

The trained skills were derived from the literature about training for supervision, psychotherapy and the promotion of reflection in pre-service teachers (Brammer, 1973; Egan, 1975; Korthagen, 2001; Rogers, 1969). In the SMART training, the mentoring skills were linked to and practised with the help of the ALACT model (Korthagen, 2001), which describes a cyclical sequence of steps constituting a complete reflection process within a mentoring dialogue: Action (1), Looking back on the action (2), becoming Aware of essential aspects (3), Creating alternative methods of action (4), and engaging in a new Trial (5). The last step of one cycle is the first step of the following cycle. For more information on the elaboration of this framework within the context of the SMART training, see Crasborn, Hennissen, Brouwer, Korthagen, and Bergen (2008). The programme consisted of three main components: training, peer consultation and coaching. In total, nine sessions were conducted of half a day each, spread over a period of almost three months. The pedagogy used in the programme draws on principles of realistic teacher education (Korthagen, Loughran, & Russell, 2006; Koster & Korthagen, 2001) and micro-counseling (Ivey, 1971).

### 4.3. Research perspective and rationale behind the study

In this study, we prefer a quantitative research perspective. This can be explained from the context in which our study started: the development and implementation of a programme for the training of mentor teachers in the use of mentoring skills. An important question is what the findings of this study may show and in what respect this study contributes to the existing body of knowledge. Firstly, we believe that the findings of our study may direct the selection of mentoring skills, especially for training approaches in which complex human interactions are divided into discrete observable behaviours, and in which these observable behaviours are learned one by one with the aim to gradually develop a broad repertoire of skills. Identification of pivotal mentoring skills from a pre-service teachers' perspective can help teacher educators target and train distinct mentoring skills explicitly and efficiently.

Secondly, another important contribution of this study has to do with its focus. All the mentoring skills mentor teachers put into practice during mentoring dialogues, are seldom investigated simultaneously. In previous research, usually a restricted selection of mentoring skills is examined, often those practised during training programmes. Mostly high-inference rating methods are used in coding the data resulting from questionnaires and assessment scales, and relatively large chunks of mentoring behaviour are studied. This increases the risk of subjectivity on the part of the raters, and does not provide very specific knowledge that could guide the selection of skills for training. Hence, this simultaneous investigation seems an important contribution to the field of mentoring.

The rationale behind the present study was that studying the whole range of specific mentoring skills in a quantitative way, from both the independent observer's perspective and the pre-service teacher's perspective, before and after training in mentoring skills, may provide us with empirical and concrete evidence of the impact and practical usefulness of training mentor teachers.

### 4.4. Participants

Thirty pre-service teacher–mentor teacher pairs in primary education were studied. Thirteen pairs participated in the study in the spring of 2002 and 17 pairs in the spring of 2003. The researchers were not from the same teacher training college as the participating pre-service teachers. As a consequence, they didn't have any kind of educative role with regard to the pre-service teachers involved in the research.

The pre-service teachers, 27 women and three men, were in their final year of a four-year pre-service teacher education programme. Their ages ranged from 20 to 23 and averaged 21. During their pre-service education, the pre-service teachers participating in the study did not receive any prior training in concepts and views regarding mentoring. The mentor teachers were 18 women and 12 men, whose ages ranged from 25 to 54 and averaged 44. On average, they had almost 20 years of teaching experience and almost 10 years of experience in mentoring pre-service teachers. None of the mentor teachers had been trained in mentoring skills before they took part in the present study.

### 4.5. Data collection

As a first step in data collection, video recordings were made of 60 mentoring dialogues in authentic settings. Two recordings were made of each of the 30 pairs. The first was made one month before the mentor teachers participated in the SMART training and the second one month after training. To achieve ecological validity, the mentor teachers were instructed in the way of a work sample test (Straetmans, 1993). This means that the mentor teachers performed tasks in authentic settings, which are considered to be a sample of similar tasks in the regular work situation. Mentor teachers conducted the dialogues with their pre-service teachers, with whom they had already established rapport. Pre-service teachers were asked to discuss during the mentoring dialogue a concern related to a situation that had occurred in the previous week during their teaching.

We sought to standardize the setting for data collection by giving all 30 participants instructions in advance, both orally as well as in written form. The mentor teachers were instructed to discuss a pre-service teachers concern which had arisen in the previous week and which had not been on the agenda earlier. From a previously conducted pilot study with 12 mentor teachers, we learned that 15 min was time enough to discuss the pre-service teachers concerns. Also, Geldens (2007) produced empirical evidence that analyzing longer periods of time does not improve the assessment of the quality of a mentoring dialogue. In short and long mentoring dialogues the same conversational phases and main activities occur. Hence, in order to ensure comparability of the data, the recordings of the dialogues were restricted to the first 15 min.

The second step in the data collection was to record pre-service teacher perceptions of mentor teachers' use of mentoring skills, using stimulated recall (Bloom, 1954). Immediately after each

mentoring dialogue, a stimulated-recall interview with the pre-service teacher was conducted. The validity of stimulated recall has been questioned (Yinger, 1986), as has that of other retrospective methods (Veenman, 2005). Nevertheless, the idea is that the cues provided by replaying the video of the mentoring dialogue enable the pre-service teacher to recollect and to report his or her perceptions of specific mentoring behaviour used by the mentor teacher. Two stimulated-recall interviews were carried out with each of the 30 pre-service teachers, the first one month before the mentor teachers participated in the SMART training and the second one month after the training.

The notion that effective mentoring is based on a combination of emotional support and task assistance formed the framework for carrying out the stimulated-recall interviews. For use with the pre-service teachers, we operationalized task assistance in the educational context of a mentoring dialogue as *an encouragement to think* about a specific aspect of a past or future teaching experience, as task assistance in practice means that the pre-service teacher's thinking about a task situation is further enhanced. Previous to the start of the stimulated-recall interview, the following sentence was used to instruct the pre-service teachers: "Please stop the video whenever you recall a specific utterance of your mentor teacher as offering emotional support or as offering an encouragement to think." The reactions the pre-service teachers reported during the stops of the video recordings were audio-taped and transcribed.

### 4.6. Transcription and coding

All 60 mentoring dialogues were transcribed literally (see the example of coded transcription in Table 1). Utterances during a mentoring dialogue were marked as separate using the principle of turn-taking. The moment when a mentor teacher commences speaking marks the beginning of a conversational turn. A mentor teacher's turn ends at the moment when the pre-service teacher commences speaking. The pre-service teacher reactions registered during the stimulated-recall interviews were transcribed in immediate adjacency to the mentor teachers' utterances and summarized with the codes E, used for *Emotional support*, or T, used for *Task assistance*.

#### 4.6.1. Coding mentor teachers' utterances

For coding the mentor teachers' utterances (see column 4 in Table 1), a category system developed by Crasborn et al. (2008) was used by three independent raters. This system distinguishes 15 overt mentoring skills: showing attentive behaviour (1), asking an open starting question (2), asking for concreteness (3), summarising feeling (showing empathy) (4), summarising content (5), showing genuineness (6), completing sentence/clarifying question (7), confronting (giving feedback, summarising inconsistencies, utilizing the here and now) (8), generalising (asking for similar situations) (9), helping in making things explicit (10), helping in finding and choosing alternatives (11), asking for something new (12), giving information (13), giving opinion/assessing (14), and giving advice/instruction (15). For utterances which cannot be labelled, a category other (16) was used.

The coding of skill number 14, giving opinion, was differentiated into three subcategories in order to enable the researchers to identify which types of giving opinion triggered pre-service teacher perceptions of specific mentoring skills as offering emotional support or task assistance. The first subcategory is *giving positive opinion* (14a), which is used by a mentor teacher to confirm a pre-service teacher's action and/or utterance. For example, "I think that is a very good idea." The second subcategory is *giving negative opinion* (14b), which is used by mentor teachers to reject a pre-service teacher's action and/or utterance. For example, "I don't think your intervention was a good idea." The third subcategory is *giving other opinion* (14c), i.e. not specifically positive or negative. This type of giving opinion is often used by mentor teachers to evaluate other people than the pre-service teacher and/or other situations. For example, "She is a very motivated pupil. She works hard and will receive good notes."

The scoring task of the three independent raters consisted of determining to which category each utterance of a mentor teacher

**Table 1**
Example of coded transcription.

| Time (min) (1) | Inter-locutor (2) | Utterances of mentor teacher (MT) and pre-service teacher (PT) (3) | Code of MT's utterance (4) | PT's reactions during stimulated-recall interview (5) | Code of PT perception of MT's utterance (6) |
|---|---|---|---|---|---|
| 10.28 | MT | So actually you find it difficult to deal with her feelings of inferiority? | 5 | I felt emotionally supported *(E)* by the mentor teacher's summary of the problem. | 5 |
| 10.37 | PT | Yes. | | | |
| 10.38 | MT | So what would you like her to do? | 3 | | |
| 10.41 | PT | I wish she would be more positive. I wish she would not moan so much and shout at people and threaten to leave school. | | | |
| 10.54 | MT | How would you deal with that, eh, negative self-image? | 11 | I was encouraged to think *(T)* by the mentor teacher's question about how to deal with the negative self-image of the pupil | 11 |
| 11.04 | PT | Yes, if she has a good note, then I will encourage her extra by saying: "Yes, you can do it" or "Well done". I will tell her this every time. I want to let her know that she can do it. | | | |
| 11.19 | MT | Yes, I think that is a very good idea. | 14a | I felt emotionally supported *(E)* because the mentor teacher agrees with me. | 14a |

The code numbers assigned to the mentoring skills that were used in the example: 3 = asking for concreteness; 5 = summarising content, 11 = helping in finding and choosing alternatives, 14a = giving positive opinion. E = Emotional support; T = Task assistance.

belonged. They were prepared and trained for their task with the help of a written scoring procedure. The raters read the transcript, then viewed the video recording to consider also the non-verbal aspects, and finally assigned their codes to the mentor teacher's utterances. When two (or more) types of mentoring skills were performed during one turn, only the last type was coded, because in almost all cases this was the trigger for the pre-service teacher's reaction. Examples of code numbers assigned to mentor teachers' utterances are noted in column 4 of Table 1. The three raters scored all the 2274 mentor teachers' utterances. Cohen's kappas, indicating the paired inter-rater reliabilities were on average 0.76. The lowest was 0.73 and the highest 0.79.

### 4.6.2. Coding triggers for emotional support and task assistance

Using the transcriptions of the pre-service teachers' reactions during the stimulated-recall interviews, three raters also coded which types of mentor teacher utterances triggered, according to the pre-service teachers, emotional support or task assistance (Table 1, columns 5 and 6). The same coding system of 15 mentoring skills as described before was applied. In total, all three raters scored 668 reported pre-service teacher reactions, registered before and after mentor teachers were trained in mentoring skills. To prevent the rating process from being influenced by the different moments when the two measurements took place, the reactions before and after training were mixed and printed in such a way that it was not possible for the raters to determine whether the reactions were registered before or after the SMART training.

First, the raters coded 283 mentor teachers' utterances which were recalled by pre-service teachers as triggers for emotional support. For example, one pre-service teacher said: "I felt emotionally supported by the mentor teacher's summary of the problem." As a trigger for the pre-service teacher's perception of emotional support (E), the pre-service teacher's reaction "by the summary of the problem" was coded as *summarising content*. In a second step, the raters coded 385 mentor teachers' utterances that were recalled by the pre-service teachers as triggering task assistance. For example, one pre-service teacher said: "I was encouraged to think by the mentor teacher's question about how to deal with the negative self-image of the pupil." As a trigger for this perception of task assistance (T), the pre-service teacher's reaction "by the mentor teacher's question about how to deal with the negative self-image of the pupil", was coded as *helping in finding and choosing alternatives*.

On average, for each of the three combinations between two raters, Cohen's kappas for the pre-service teacher perceptions of distinct mentoring skills as offering emotional support were on average 0.82, the lowest being 0.78, while for those perceived as offering task assistance kappas were on average also 0.82, the lowest being 0.80.

### 4.7. Data analysis

Data analysis proceeded in the following steps. To begin with, descriptive statistics were used. In addition, with regard to each mentoring skill, two-tailed $t$ tests for paired observations ($p < 0.05$) were calculated on the shifts in frequencies observed by independent raters and on the shifts perceived by pre-service teachers, between the measurements before and after mentor teachers were trained in mentoring skills. To find out if shifts occurring between the pre- and post-training measurements were statistically significant, the metric used was the standardised mean difference ($d$-index) effect size (ES) (Cohen, 1988).

To answer the second research question about possible correspondences between shifts in frequencies as observed by independent raters and as perceived by pre-service teachers we inspected for which mentoring skills these shifts occurred in parallel patterns. We speak of a parallel pattern, when the frequencies observed by

independent raters and those perceived by pre-service teachers change in the same direction, i.e. increase or decrease. The magnitude of these shifts was expressed as the relative percentage with which the shifts noted by the independent raters and the pre-service teachers increased or decreased. These percentages were calculated for each mentoring skill.

## 5. Findings

### 5.1. Offering emotional support and task assistance

In almost all recorded dialogues, 15 min was time enough to discuss the pre-service teachers' concerns. Most dialogues were shorter than 15 min: on average 12 min with a range from 7 to 15 min. Hence, most of the relevant skills could be observed during the 15 min time period.

Table 2 contains an overview of the results concerning the first research question, about pre-service teacher perceptions of mentor teachers' use of mentoring skills as offering emotional support or task assistance. The total percentages in the columns 5 and 9 were calculated on the basis of the total number of mentor teacher utterances in the data set. These percentages show that as a group, the pre-service teachers perceived predominantly the mentoring skills summarising content (28%), giving positive opinion (24%), showing attentive behaviour (20%), showing genuineness (9%), summarising feeling (6%), and giving information (5%) as offering emotional support. The mentoring skills asking for concreteness (37%), helping in finding and choosing alternatives (23%), asking for something new (18%), giving advice/instruction (9%), and giving information (4%) were primarily perceived by the pre-service teachers as offering task assistance. More specifically, with regard to the mentoring skill of giving opinion, which was subdivided, the subcategory giving *positive* opinion was perceived as offering emotional support (24%), while the subcategory giving *negative* opinion was perceived as offering neither emotional support (0%) nor task assistance (0%).

Almost each of the mentoring skills mentioned above were perceived as either offering emotional support or task assistance. An exception to this pattern was the skill giving information. This skill was, almost to an equal extent, perceived as a trigger for both emotional support (5%) and task assistance (4%). Pre-service teachers perceived the mentoring skill giving information as offering emotional support when the information given matched with pre-service teachers' actions and/or ideas. They perceived the skill giving information as offering task assistance, when the information provided by the mentor teacher opened a new perspective to the pre-service teacher.

### 5.2. Shifts as observed by independent raters and as perceived by pre-service teachers

#### 5.2.1. Shifts as observed by independent raters

Table 3 contains an overview of the data regarding the second research question. Before training, mentor teachers' mentoring skills repertoires consisted largely (85%) of the following eight skills (see the shaded rows in Table 3): showing attentive behaviour (9%), asking for concreteness (16%), summarising content (10%), helping in finding and choosing alternatives (4%), asking for something new (9%), giving information (14%), giving opinion/assessing (10%) and giving advice/instruction (13%). After training, these same eight skills still accounted for most of the mentor teachers' mentoring behaviour (85%).

The frequencies of use of two mentoring skills show a statistically significant *increase*: asking for concreteness (from 16% to 31%; $p < 0.05$, ES = 2.00), and summarising content (from 10% to 18%;

**Table 2**
Frequencies of use of mentoring skills perceived by pre-service teachers as offering *emotional support* or *task assistance* in absolute (abs.) and relative (%) numbers.

| Mentoring skills | Perceived as emotional support | | | | Perceived as task assistance | | | |
|---|---|---|---|---|---|---|---|---|
| | Abs. numbers | | | % of total | Abs. numbers | | | % of total |
| | Before training | After training | Total | | Before training | After training | Total | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| 01. Showing attentive behaviour | 24 | 33 | 57 | 20 | 0 | 0 | 0 | 0 |
| 02. Asking open starting question | 0 | 1 | 1 | 0 | 2 | 0 | 2 | 1 |
| 03. Asking for concreteness | 1 | 4 | 5 | 2 | 35 | 106 | 141 | 37 |
| 04. Summarising feeling | 3 | 15 | 18 | 6 | 0 | 2 | 2 | 1 |
| 05. Summarising content | 20 | 58 | 78 | 28 | 1 | 2 | 3 | 1 |
| 06. Showing genuineness | 15 | 11 | 26 | 9 | 0 | 0 | 0 | 0 |
| 07. Completing sentence | 2 | 1 | 3 | 1 | 0 | 0 | 0 | 0 |
| 08. Confronting | 0 | 1 | 1 | 0 | 2 | 0 | 2 | 1 |
| 09. Generalising | 1 | 0 | 1 | 0 | 2 | 4 | 6 | 2 |
| 10. Helping making explicit | 0 | 0 | 0 | 0 | 2 | 9 | 11 | 3 |
| 11. Helping finding alternatives | 2 | 3 | 5 | 2 | 23 | 66 | 89 | 23 |
| 12. Asking for something new | 0 | 2 | 2 | 1 | 34 | 35 | 69 | 18 |
| 13. Giving information | 8 | 7 | 15 | 5 | 13 | 2 | 15 | 4 |
| 14. Giving opinion | | | | | | | | |
|   a. *Positive* | 36 | 32 | 68 | 24 | 0 | 0 | 0 | 0 |
|   b. *Negative* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|   c. *Other* | 0 | 0 | 0 | 0 | 3 | 3 | 6 | 2 |
| 15. Giving advice/instruction | 0 | 2 | 2 | 1 | 28 | 8 | 36 | 9 |
| 16. Other types | 0 | 1 | 1 | 0 | 2 | 1 | 3 | 1 |
| Total | 112 | 171 | 283 | 100 | 147 | 238 | 385 | 100 |

$p < 0.05$, ES $= 0.96$). Three mentoring skills show a statistically significant *decrease* in frequencies of use: giving information (from 14% to 5%; $p < 0.05$, ES $= 1.09$), giving opinion/assessing (from 10% to 6%; $p < 0.05$, ES $= 0.56$), and giving advice/instruction (from 13% to 3%; $p < 0.05$, ES $= 0.89$). The effect sizes found are medium to large (Cohen, 1988).

### 5.2.2. Shifts as perceived by pre-service teachers

Before mentor teachers were trained in mentoring skills, pre-service teachers reported that emotional support was mainly triggered (94%) by the following six skills (see the shaded rows in Table 3): showing attentive behaviour (21%), summarising feeling (3%), summarising content (18%), showing genuineness (13%),

**Table 3**
Relative frequencies of use of mentoring skills before and after SMART training as observed by independent raters and as perceived by pre-service teachers.

| Mentoring skills | Observed by independent raters | | | | Perceived by pre-service teachers as | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Emotional support | | | | Task assistance | | | |
| | Before % | After % | Sign. $p < 0.05$ | d-Index | Before % | After % | Sign. $p < 0.05$ | d-Index | Before % | After % | Sign. $p < 0.05$ | d-Index |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
| 01 Showing attentive behaviour | 9 | 7 | 0.33 | | 21 | 19 | 0.92 | | 0 | 0 | | |
| 02 Asking open starting question | 3 | 2 | | | 0 | 1 | | | 1 | 0 | | |
| 03 Asking for concreteness | 16 | 31 | 0.00 | 2.00 | 1 | 2 | | | 24 | 45 | 0.00 | 0.87 |
| 04 Summarising feeling | 1 | 2 | | | 3 | 9 | 0.08 | | 0 | 1 | | |
| 05 Summarising content | 10 | 18 | 0.00 | 0.96 | 18 | 34 | 0.01 | 0.7 | 1 | 1 | | |
| 06 Showing genuineness | 3 | 2 | | | 13 | 6 | 0.18 | | 0 | 0 | | |
| 07 Completing sentences | 3 | 3 | | | 2 | 1 | | | 0 | 0 | | |
| 08 Confronting | 1 | 2 | | | 0 | 1 | | | 1 | 0 | | |
| 09 Generalising | 0 | 0 | | | 1 | 0 | | | 1 | 2 | | |
| 10 Helping making explicit | 0 | 1 | | | 0 | 0 | | | 1 | 3 | | |
| 11 Helping finding alternatives | 4 | 7 | 0.06 | | 2 | 2 | | | 16 | 28 | 0.02 | 0.78 |
| 12 Asking for something new | 9 | 8 | 0.76 | | 0 | 1 | | | 23 | 15 | 0.02 | −0.65 |
| 13 Giving information | 14 | 5 | 0.00 | −1.09 | 7 | 4 | 0.38 | | 9 | 1 | 0.17 | |
| 14 Giving opinion | 10 | 6 | 0.04 | −0.56 | 32 | 19 | 0.18 | | 2 | 1 | | |
| 15 Giving advice/instruction | 13 | 3 | 0.00 | −0.89 | 0 | 1 | | | 19 | 3 | 0.00 | −0.90 |
| 16 Other types | 5 | 3 | | | 0 | 1 | | | 1 | 0 | | |
| Total shaded rows | 85 | 85 | | | 94 | 91 | | | 91 | 92 | | |
| N = | 989 (100%) | 1285 (100%) | | | 112 (100%) | 171 (100%) | | | 147 (100%) | 238 (100%) | | |

The first column shows the 15 mentoring skills distinguished in this study. Columns 2 and 3 show the percentages of the frequencies of use of specific mentoring skills observed by independent raters, before and after mentor teachers were trained, respectively. Columns 6 and 7 show the percentages of the frequencies of use of specific mentoring skills perceived by pre-service teachers as offering 'emotional support', before and after mentor teachers were trained, respectively. Columns 10 and 11 show the percentages of the frequencies of use of specific mentoring skills perceived by pre-service teachers as offering 'task assistance', before and after training, respectively. The columns 4 and 5, 8 and 9, 12 and 13 show the levels of statistical significance of the differences, expressed in d-index.

giving information (7%) and giving opinion (32%). After mentor teachers were trained, the same six skills for the most part (91%) still accounted for pre-service teacher perceptions of mentoring skills as offering emotional support. However, after training a statistically significant shift was found in frequencies of one skill perceived by pre-service teachers as a trigger for emotional support, i.e. summarising content. Pre-service teacher perception of the use of this skill as trigger of emotional support increased to a statistically significant extent from 18% to 34% ($p < 0.05$, ES $= 0.70$).

Before mentor teachers were trained in mentoring skills, pre-service teachers reported that *task assistance* was mainly triggered (91%) by the following five skills (see the shaded rows in Table 3): asking for concreteness (24%), helping in finding and choosing alternatives (16%), asking for something new (23%), giving information (9%), and giving advice/instruction (19%). After mentor teachers were trained, the same five skills still triggered for the most part (92%) pre-service teacher perceptions of task assistance. However, after training, a statistically significant shift was found in frequencies of use of four skills perceived by pre-service teachers as triggers for task assistance. The frequencies of use of *asking for concreteness* and *helping in finding and choosing alternatives*, perceived by pre-service teachers as offering task assistance, increased to a statistically significant extent, from 24% to 45% ($p < 0.05$, ES $= 0.87$) and from 16% to 28% ($p < 0.05$, ES $= 0.78$), respectively. The frequencies of use of *giving advice/instruction* and *asking for something new*, perceived by pre-service teachers as offering task assistance, decreased to a statistically significant extent, from 23% to 15% ($p < 0.05$, ES $= 0.65$) and from 19% to 3% ($p < 0.05$, ES $= 0.90$), respectively. All effect sizes found are medium to large (Cohen, 1988).

### 5.2.3. Correspondences between shifts

To answer the second research question, we identified with regard to which mentoring skill shifts in frequencies occurred in parallel patterns as observed by independent raters and as perceived by pre-service teachers. Increasing or decreasing patterns were found for 10 out of 15 mentoring skills. The remaining five (asking an open starting question, completing sentences/clarifying questions, confronting, generalising, helping in making things explicit) were omitted from further analysis, because the frequencies found, either before or after mentor teachers were trained, were very low, i.e. 3% or less.

The increases and decreases found in 10 mentoring skills (Table 3, see the rows in shaded type) all went in the same directions for independent raters and pre-service teachers. After mentor teachers were trained in mentoring skills, the independent raters and pre-service teachers noted parallel *increases* in four skills (see in Table 3 those numbered 3, 4, 5 and 11). For two skills, i.e. *asking for concreteness* and *summarising content*, the shifts were statistically significant for both the independent raters and the pre-service teachers.

Also, after mentor teacher training, a parallel *decrease* of frequencies was found with regard to six skills (see in Table 3 those numbered 1, 6, 12 through 15). For one skill, i.e. giving advice/instruction, the shifts were statistically significant for both the independent raters and the pre-service teachers.

## 6. Conclusion and discussion

### 6.1. Conclusions

In this study, mentor teachers' use of mentoring skills in mentoring dialogues is considered from the perspective of pre-service teachers. Our aim was to clarify how pre-service teachers perceive mentor teachers' use of mentoring skills during mentoring dialogues, before and after mentor teachers were trained in mentoring skills. A central notion underlying our study is that effective mentoring behaviour provides both emotional support and task assistance. Our study highlights the relevance and potential of specific mentoring skills for offering emotional support and task assistance in mentoring dialogues. Remarkable for empirical research into mentoring dialogues in teacher education, the findings were based on precise quantitative ratings of pre-service teacher perceptions of specific mentoring skills put into practice by mentor teachers during mentoring dialogues.

From the findings, we can draw two main conclusions. Most importantly, our study has identified two clear sets of specific and observable mentoring skills offering either emotional support or task assistance in mentoring dialogues. Pre-service teachers predominantly perceived six distinct skills as offering emotional support: summarising content, showing attentive behaviour, giving positive opinion, showing genuineness, summarising feeling and giving information. Pre-service teachers perceived five specific skills as offering task assistance: asking for concreteness, helping in finding and choosing alternatives, asking for something new, giving advice and giving information.

In addition, our study clarified how pre-service teachers perceive mentor teachers' use of specific mentoring skills during mentoring dialogues, before and after mentor teachers were trained in the use of mentoring skills. Both before and after training, the same set of mentoring skills for the most part triggered emotional support and task assistance. Also, parallel shifts occurred in the frequencies of mentor teachers' use of distinct mentoring skills and the frequencies of pre-service teachers' perceptions of those skills. Such correspondences were found to a considerable extent, in the sense that the frequencies of use as observed by independent raters and as perceived by pre-service teachers developed according to quite similar patterns.

### 6.2. Implications

From the findings, three major implications emerge: two theoretical and one practical, which in our view represent important contributions to the existing body of knowledge. First, as they demonstrate the impact of distinct mentoring skills on pre-service teachers in terms of offering emotional support or task assistance, they add to our knowledge about mentoring pre-service teachers. When mentor teachers put these skills into practice, they do have an impact on pre-service teachers. Second, alongside research studies showing differences regarding mentor teachers' mentoring behaviour before and after training, the findings of this study provide a beginning of empirical evidence from the pre-service teacher's perspective. As shifts in the use of mentoring skills as observed by independent raters, correspond to a large degree with pre-service teacher perceptions of these shifts, skills training appears to be fruitful. Third, a practical implication is that the findings may provide a basis for selecting specific mentoring skills for incorporation in training programmes for mentor teachers. The mentoring skills included in this study can be characterized as discrete overt behaviours displayed in complex human interactions. As such they can be learned one at a time, so that mentor teachers may gradually develop broad repertoires of mentoring skills. Through training, mentoring skills such as those studied here can be targeted and developed explicitly.

### 6.3. Limitations and further research

The measurements in our study involved precise quantitative ratings of small units of mentoring behaviour and related pre-service teacher perceptions. Admittedly, this may be a reduction,

but this reduction did enable us to identify correspondences between shifts in frequencies of mentor teachers' use of mentoring skills and shifts in pre-service teacher perceptions of those mentoring skills as offering emotional support or task assistance.

We should bear in mind, that as a result of our choice to limit the analysis of each dialogue to the first 15 min, we cannot be completely certain that this restriction did not influence the outcomes, as in our own study we did not make the same comparison as Geldens (2007) did between brief and longer dialogues.

Another limitation of our study is that reported differences in (perceived) mentor teachers' use of mentoring skills, before and after training, are based on a quasi-experimental design with one experimental group. Consequently, other factors outside the SMART training may have influenced the presence or absence of the shifts registered. This makes it even harder than with stronger designs to exclude alternative hypotheses about changes before and after mentor teachers were trained. Shifts may, for example, have been influenced by variables outside the training, such as individual characteristics of participating mentor teachers, specific features of the workplace (Holton & Baldwin, 2000) and/or maturation.

However, investigating the whole range of specific mentoring skills, from both the independent observer's perspective and the pre-service teacher's perspective, deepens our understanding of mentor teachers' approaches in authentic mentoring dialogues and the impact of separate mentoring skills on pre-service teachers. The range of distinct skills mentor teachers put into practice in dialogues, are seldom investigated simultaneously. In previous research, usually a restricted selection of skills was examined, often those practised during training. In addition, mostly high-inference rating methods in coding the data resulting from questionnaires and assessment scales were used for categorizing relatively large chunks of mentoring behaviour.

However, as an additional indicator for differences before and after training, also a cognitive component has been investigated. The data of two parallel studies (Crasborn et al., 2010; Hennissen, Crasborn, Brouwer, Korthagen, & Bergen, 2010) with the same group of 30 participants as in the current study, point towards a close interaction of mentor teachers' behaviour and thinking during mentoring dialogues. More specifically, shifts in frequencies of use of regularly used mentoring skills have been shown to corresponded with shifts in the frequencies and contents of reflective moments, in which mentor teacher make deliberate choices based on insights gained during the training. Hence, these two previous studies add further evidence that the training did have an impact on the mentor teachers' conscious use of mentoring skills, and thus seem to support the conclusion that after training there is a beginning of change in mentor teachers' use of mentoring skills.

Finally, a limitation of this study is that despite the advantages of the stimulated-recall method mentioned in Section 4.5, it remains a retrospective method (Veenman, 2005), which relies on pre-service teachers' ability to recognise their own perceptions of mentor teachers' use of mentoring skills after the event. Yinger (1986) has noted that it is difficult to check to what degree the recall is an accurate description of what actually occurred. In particular, pre-service teachers not only perceive mentor teachers' use of mentoring skills consciously, but also at subconscious levels. Stimulated recall elicits exclusively pre-service teachers' conscious cognitions.

These limitations notwithstanding, our findings that pre-service teacher perceptions of mentor teachers' mentoring behaviour covary with this behaviour as observed by independent raters, raises the question to what extent pre-service teacher perceptions might be used as valid indicators of mentor teachers' mentoring behaviour. If both groups are observing mentoring behaviours to roughly equal extents, this emphasises the relevance of using pre-service teacher perceptions as a source of feedback for mentor teachers that may enhance their reflection on their mentoring

behaviour. To establish if pre-service teacher perceptions could be used as valid indicators of mentor teachers' mentoring behaviour, more research would be needed on larger data sets for each skill separately, in which pre-service teacher perceptions are compared with independent raters' observations. This type of research could elucidate the possible value of using pre-service teacher perceptions as a source of feedback to mentor teachers on the impact of their mentoring behaviour. Also, further research is needed to clarify how other variables may influence pre-service teachers' perceptions. Our study focused on how specific types of mentor teachers' mentoring skills are perceived by pre-service teachers. We realize that other 'variables', for example the substance of the dialogues, may also influence a person's perception of how (s)he is supported or given task assistance. Further research is needed to clarify these types of relations. Finally, despite the reported benefits of mentoring for pre-service and beginning teachers, evidence for the direct impact of mentoring in the classroom is relatively limited. Hence, further research is required to investigate how pre-service teachers apply discussions and reflections in mentoring dialogues to their task performance in the classroom. Although, as Hobson et al. (2009) state, differentiating in research between simultaneous effects of different potential contributing factors to pre-service teachers' development, such as diverse aspects of the teacher education programme remains difficult.

In this study, we clarified how pre-service teachers can perceive their mentor teachers' use of mentoring skills in mentoring dialogues. The findings suggest that pre-service teacher perceptions resonate, as it were, with the mentor teacher behaviours to which they refer. Within the context of school-based teacher education, this notion may persuade mentor teachers worldwide who are mentoring pre-service teachers that the assistance they provide to their mentees can contribute to their professional development.

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