



The skilled mentor

Mentor teachers'
use and acquisition
of supervisory skills

Frank J.A.J. Crasborn
Paul P.M. Hennissen

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To Paula and Emily

To Yvonne, Leonie, Severine and Remco

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door

Franciscus Johannes Antonius Jacobus Crasborn

geboren te Thorn

en

Peter Paul Marie Hennissen

geboren te Weert

Dit proefschrift is goedgekeurd door de promotoren:

prof.dr. Th.C.M. Bergen
en
prof.dr. F.A.J. Korthagen

Copromotor:
dr. C.N. Brouwer

Kerncommissie

Promotoren:

prof.dr. Th.C.M. Bergen (Technische Universiteit Eindhoven / Radboud Universiteit Nijmegen)

prof.dr. F.A.J. Korthagen (Vrije Universiteit Amsterdam / Universiteit Utrecht)

Copromotor:

dr. C.N. Brouwer (Radboud Universiteit Nijmegen)

Leden:

prof.dr. A. Aelterman (Universiteit Gent)

prof.dr. D. Beijaard (Technische Universiteit Eindhoven)

prof.dr. T. Wubbels (Universiteit Utrecht)

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1

General introduction

1 Initiation of the research project

A vital and widespread part of teacher education programmes are field experiences, in which a pivotal role is played by experienced teachers who mentor student teachers in their classrooms. The availability of effective guidance by a mentor teacher is an essential condition for student teachers' learning in the workplace (e.g. McIntyre, Hagger & Wilkin, 2005). Mentor teachers are influential because of their close interaction with their mentees. They are usually the first to be consulted since they are physically near to the mentees, who see them as a valuable source of information because of their experience as a teacher. Since teachers' knowledge and skills are event-structured, context based, and practice-oriented in nature (e.g. Elbaz 1983; Kessels & Korthagen, 2001), mentoring dialogues about teaching experiences are an important educational context for helping student teachers to develop professional knowledge and/or to transform existing teaching practice (Hiebert, Gallimore, & Stigler, 2002). This means that through mentoring dialogues, mentor teachers may have a considerable influence on how and what student teachers learn (e.g. Helman, 2006; Edwards & Protheroe, 2004).

1.1 Call for flexible mentor teachers

Student teachers' learning is influenced by personal characteristics as well as contextual (workplace) factors. Oosterheert and Vermunt (2001) and Korthagen (1988) established that student teachers have different learning styles. Also, several researchers concluded that student teachers' professional development takes place at differing speeds, and thus, their needs and concerns change over time (e.g. Ballantyne, Hansford, & Packer, 1995; Furlong & Maynard, 1995; Kagan, 1992; Katz, 2003). Moreover, according to Eraut (2007) and Holton and Baldwin (2000), how a person acquires a particular set of knowledge and skills is strongly intertwined with the situation in the workplace in which this person is learning.

For these reasons, it may be assumed that student teachers' learning may improve, if mentor teachers become better at adapting to mentoring situations in which workplace features interact differently with individual student teachers' characteristics. In their review of a large number of studies of supervision, Glickman and Bey (1990) concluded that "no one supervisory approach is effective for all students" (p. 560). Accordingly, mentor teachers need to assure that the strategies they use to support

mentees' learning are receptive to their mentees' concerns and suitable for the mentee's current stage of development. A disparity between the mentoring approach and the individual student teachers' learning needs may lead to the withdrawal of a student teacher from teacher education or may limit chances for them to reach their best possible levels of competence (Williams et al., 1998). Hobson, Ashby, Malderez, and Tomlinson (2009) conclude that the extent to which mentor teachers are able to address the mentees' learning needs is an important factor in the success of mentoring. Hence, these notions call for flexibility in mentor teachers' supervisory behaviour.

However, most mentor teachers hardly vary their supervisory behaviour in response to student teachers' different needs. They, either consciously or subconsciously, stick to a certain supervisory approach (Dunne & Bennett, 1997; Wang, Odell, & Strong, 2006). Still, proficiency as a teacher within one's own classroom does not guarantee the ability to support others in their professional growth as a teacher (Bullough, 2005; Johnson, 2004; Moir & Gless, 2001; Rigler, 2002; Yusko & Feiman-Nemser, 2008; Zeichner, 2005). The development of effective mentor teachers thus involves learning new, sometimes complex skills and understandings that are seldom self-evident (Achinstein & Athanases, 2005; Fantilli & McDougall, 2009; Ganser, 1996a, 1996b; Vonk, 1993; Wolfe, 1992).

Therefore, it is important to train mentor teachers to meet the multiple and complex demands of their work. Mentor teachers themselves repeatedly acknowledge the crucial role of training in supervisory skills for their mentoring activity (Clinard & Ariav, 1998). Accordingly, many schools, often in cooperation with teacher education institutions, implement training programmes to broaden mentor teachers' supervisory skills repertoires (Strong & Baron, 2004). This is an important prerequisite for dealing with the diversity in mentoring situations. Developing versatility in mentor teachers' use of supervisory skills in mentoring dialogues, then, constitutes an important challenge.

1.2 Trainees' evaluations as a starting point for our research

In the Netherlands, the authors' home country, annually tens of thousands of mentor teachers are involved in the mentoring of student teachers who participate in a teacher education programme (Sectorbestuur Onderwijsarbeidsmarkt, 2009). As teacher educators and authors of this

book we have, in co-operation with schools, been closely involved in the development and implementation of a training programme in supervisory skills for mentor teachers, entitled Supervision Skills for Mentor teachers to Activate Reflection in Teachers (SMART). Since 1996, we have worked with almost five hundred mentor teachers, in different types of education: primary, secondary and higher education, as well as in vocational and adult education. The initiation and implementation of the research described in this book stems from our personal experiences and observations related to our work as trainers of mentor teachers.

Table 1.1
Mentor teachers' satisfaction with the SMART programme (N=165)*

General Satisfaction		Alpha	Mean	SD
01	I am satisfied about the programme.		4.4**	0.6
02	The training suited my personal learning needs.		4.3	0.7
03	I have learned from the programme.		4.6	0.5
04	I can use the learned skills in my own work.		4.5	0.7
05	I was motivated to take part in the programme.		4.6	0.5
		0.73		
Pedagogy				
06	There is a relation between theory and practice in the programme.		4.5	0.6
07	The experience of participants was discussed and used in the programme.		4.4	0.8
08	There was a mix between theory and practice during the sessions.		4.4	0.7
09	Bringing along video fragments, to discuss specific personal learning needs, was useful.		4.5	0.7
10	The literature fitted in well with the programme.		4.3	0.7
		0.70		
Trainers				
11	The trainers are experts in this field.		4.7	0.5
12	The trainers worked together well.		4.8	0.4
13	The trainers are flexible.		4.4	0.6
14	The trainers created an open and safe climate during meetings.		4.6	0.5
15	The trainers gave me food for thought.		4.5	0.5
		0.77		
Total scale		0.86	4.5	

* N = Number of mentor teachers in primary education who participated in the SMART training

** For every statement the following five-point scale was used:

5 (strongly agree); 4 (agree); 3 (neither agree or disagree); 2 (disagree); 1 (strongly disagree)

In evaluations, the groups of mentor teachers we worked with reported their appreciation of the SMART programme. For example, mentor teachers in primary education evaluated different aspects of the SMART programme on average with 4.5 on a five-point scale (Table 1.1). In addition, in written learner reports, various groups of mentor teachers pointed out a heightened awareness with regard to the application of particular supervisory skills, the phrasing of mentoring dialogues, their preconceptions about mentoring, their predominant supervisory roles and the importance of paying attention to student teachers' concerns and active participation in mentoring dialogues.

However, after the SMART programme, many mentor teachers also reported that they often found it difficult to systematically use the trained skills during the mentoring dialogues. Mentor teachers frequently said: "[I] have learned a lot, but cannot always apply it". Applying what had been learned seemed to be far from easy. This typical reaction inspired us to further investigate mentor teachers' use and acquisition of supervisory skills.

2 Research aims

The reflections by mentor teachers regarding the impact of the SMART programme on their use of supervisory skills, and Kirkpatrick's (1998) notion that high customer satisfaction (Table 1.1) and positive learner reports do not necessarily reflect changes in behaviour in the workplace, set off this research project. The main research aim is to understand mentor teachers' use and acquisition of supervisory skills during authentic mentoring dialogues with student teachers. According to Clarke and Hollingsworth (2002), the relationship between a person's own actions and cognitions is reciprocal, interactive and cyclic. Consequently, the level of competence in a particular skill domain can be reflected in behaviour and cognitions (Berliner, 2001; Chi, Glaser, & Farr, 1988). To deepen our understanding of mentor teachers' use and acquisition of supervisory skills, both behavioural and cognitive components are investigated.

The main research aim is specified in six specific research aims, each guiding one or more studies into the behavioural or the cognitive component of mentor teachers' use and acquisition of supervisory skills.

The specific research aims are to

- map key aspects of mentor teachers' supervisory behaviour during mentoring dialogues as a starting point for developing a conceptual framework for mentor teacher roles in mentoring dialogues;
- explore empirically a two-dimensional model for describing mentor teacher roles during mentoring dialogues;
- describe mentor teachers' use of distinct supervisory skills during mentoring dialogues, before and after mentor teachers were trained in supervisory skills;
- clarify student teacher perceptions of mentor teachers' use of supervisory skills during mentoring dialogues, before and after mentor teachers were trained in supervisory skills;
- capture differential frequencies of mentor teachers' reflective moments as indicators of different levels of consciousness in mentor teachers' use and acquisition of supervisory skills;
- uncover contents of mentor teachers' interactive cognitions during mentoring dialogues, before and after mentor teachers were trained in supervisory skills.

The first four aims steered studies into the behavioural component and the last two aims guided studies into the cognitive component of mentor teachers' use and acquisition of supervisory skills. Our standpoint underlying the whole research project is that mentoring of student teachers requires a broad variety of mentor teacher supervisory behaviour, because mentoring in teacher education is, as many researchers and educators state, of an idiosyncratic nature (Hobson et al., 2008; McIntyre, Hagger & Wilkin, 2005). This means that in different contexts, mentoring may have a variety of purposes and goals, may involve a variety of practices and strategies, and may take place at different stages of student teachers' professional development and over different durations.

For the purpose of the current research project, we define *mentoring* as the one-to-one support of a student 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 student or beginning teacher. We define the term *mentor teacher* as a teacher of pupils with an additional responsibility as a mentor of student or beginning teacher. We use the term *student teacher*, for those who are participating in a teacher education programme, and *beginning teacher*, for those who are in the first three years as a teacher. We apply the term *prospective teachers* to refer to student- and beginning teachers.

Although, to a certain degree there may be an identity shift involved in the transition from student teacher to beginning teacher, both groups have in common that they are in the initial phase of their professional development as a teacher, and, in most cases, they are under the guidance of a mentor teacher and/or participate in a mentoring programme.

In this research project, we refer to both groups to inform us about behavioural and cognitive aspects of supervisory behaviour in mentoring dialogues, because in practice it is often difficult to distinguish between a student teacher and a beginning teacher. On the one hand, student teachers are in fact beginning teachers because in pre-service teacher education programmes independent teaching during work placements has increased to overcome the reality-shock (Veenman, 1984). As a result of teacher shortages student teachers, often before certification, accept a (part-time) job as a (beginning) teacher. On the other hand, beginning teachers frequently are 'student teachers', because in many cases they receive their initial education as a teacher through an in-service programme, and in most cases, after certification, they want or need to continue formal training in some kind of school-based in-service training or mentoring programme.

3 Theoretical and practical relevance

The theoretical relevance of the current research project is fourfold. Firstly, there exists a plethora of terms and concepts referring to mentor teachers' supervisory behaviour in mentoring dialogues. A coherent conceptual framework to study mentor teachers' supervisory behaviour in mentoring dialogues is lacking. Our research improves conceptual order in the diverse terminology and identifies key aspects of mentor teachers' supervisory behaviour in mentoring dialogues as a starting point for developing a conceptual framework for studying mentor teachers' supervisory behaviour in mentoring dialogues.

Secondly, the range of distinct supervisory skills mentor teachers put into practice in mentoring dialogues, are seldom investigated simultaneously. In previous research, usually a restricted selection of supervisory skills was examined, often those practiced during training. In addition, mostly high-inference rating methods in coding the data resulting from questionnaires and assessment scales were used for categorising relatively large chunks of supervisory behaviour. This increases the risk of

subjectivity on the part of the raters. Investigating the whole range of specific supervisory skills, from both the independent observer's perspective and the student teacher's perspective, deepens our understanding of mentor teachers' supervisory approaches in authentic mentoring dialogues and the impact of separate supervisory skills on student teachers.

Thirdly, a person's overt actions strongly interact with cognitions. Detailed knowledge about mentor teachers' cognitions accompanying mentor teachers' actions during mentoring dialogues is lacking. To our knowledge, there are no instruments to investigate and describe mentor teachers' cognitions accompanying the use of distinct supervisory skills during mentoring dialogues. In addition, one-method approaches used to register cognitions during action have quite a few limitations. Hence, disclosure of mentor teachers' cognitions, by developing a conceptual model and instruments for studying relations between cognitions and overt supervisory behaviour, and by collecting detailed data about interactive cognitions enlarges our understanding of mentor teachers' supervisory behaviour.

Fourthly, competence as a teacher of pupils is by itself insufficient as a preparation for mentoring. Mentor teachers need to develop specific knowledge and skills. Little is known about how mentor teachers develop proficiency in the use of supervisory skills, set off by a training programme. Simultaneously investigating related behavioural and cognitive aspects of mentor teachers' supervisory behaviour, before and after training in supervisory skills, may deepen our insight into the acquisition of mentor teachers' use of distinct supervisory skills and the impact skills training may have on the development of mentor teachers' competence in the use of supervisory skills. Hence, the research project expands our knowledge about how, in the context of becoming a proficient mentor teacher, experienced teachers develop their use of supervisory skills.

The practical relevance of the current research project is that the findings may offer tools and guidelines for designing and improving training programmes to support mentor teachers' professional development in the use of supervisory skills. First, an encompassing conceptual framework for describing supervisory behaviour in mentoring dialogues may be useful for mentor teachers to reflect on their supervisory approaches in order to develop awareness about how their supervisory repertoires

affect individual student teachers. Second, the identification of pivotal supervisory skills may direct the selection of supervisory skills for training. Third, insights gained from our studies into the cognitive component of mentor teachers' use of supervisory skills, may be helpful for mentor teachers to better understand their own supervisory behaviour. Elicitation of cognitions during behavioural practice of supervisory skills may provide clues for improving the effectiveness of skills training.

4 Context of the research project

In our close involvement as teacher educators and researchers in the education of mentor teachers, our personal interest became interwoven with an important trend in teacher education, namely the increased significance of field experiences in teacher education programmes (Wilson, Floden, & Ferrini-Mundy, 2002). Over the years, in many Western countries, more emphasis has been placed on the school as a vital learning environment for student teachers. School-based teacher education became an important way of supporting teachers' initial and early professional learning.

4.1 International trend: The rise of mentoring

The rise of school-based teacher education, which puts much emphasis on mentoring, can be ascribed to three factors. Firstly, it can be attributed to a number of developments in society and teacher education. One such development is that in recent years teacher shortages emerged in several countries (Buchberger, Campos, Kallos, & Stephenson, 2000; Villani, 2002). As a consequence, governments attempt to increase the supply of teachers by introducing alternative certification programmes, including employment-based routes into teaching (Brouwer, 2007). Another development is increasing criticism of the relevance of theory in teacher education as a preparation for practice (Koetsier & Wubbels, 1995). The phenomenon of the reality shock experienced by many beginning teachers (Veenman, 1984), is assumed to be a result of the limited practical relevance of educational theory for learning to teach (Brouwer & Korthagen, 2005; Darling-Hammond, 2000). Increasing the amount of student teachers' time in practice is one alternative in trying to reduce the gap between theory and practice. Finally, amongst policy-makers the view exists that teacher education is less expensive if it is done in the workplace (Caldwell & Carter, 1993).

Secondly, the rise of school-based teacher education including mentoring can be ascribed to a considerable boost, since the 1980s, in the theory and research about the nature of teacher learning and the development of teaching competence (Munby, Russell & Martin, 2001). There is a variety of conceptual frameworks and perspectives on professional knowledge and its acquisition which underline the value of learning in the workplace, including concepts and theories about informal learning processes in the workplace (Eraut, 2000; Hoekstra, 2007), neo-Vygotskian and socio-cultural theories (Edwards & Collison, 1996; Tharp & Gallimore, 1988), reflective practice (Schön, 1983; 1987; Zeichner, 1994), the psychology of skills acquisition (Anderson, 2006), situated cognition and learning (Brown, Collins, & Duguid, 1989; Lave & Wenger, 1991), practical reasoning (Fenstermacher, 1994), personal practical knowledge (Elbaz, 1983; Kessels & Korthagen, 1996), and craft knowledge (Grimmett & MacKinnon, 1992; Leinhardt, 1990).

Thirdly, a supporting factor for the rise of school-based teacher education and mentoring is the growing body of empirical evidence for the benefits of mentoring, as an important feature of the workplace as a powerful learning environment. Besides a long list of benefits, some studies point at disadvantages for mentor and student teachers, for example, increased workloads for and feelings of insecurity (e.g. Bullough, 2005; Lee & Feng, 2007) and the failing of providing enough support or challenge (e.g. Beck & Kosnick, 2000; Smith & Macclay, 2007), respectively.

However, most of the research on mentoring in teacher education presents a wide range of benefits for all the participants (Hobson et al., 2009). With regard to the benefits for beginning teachers, mentoring positively impacts their developing teaching competencies (Lindgren, 2005), plays a key role in their socialisation process (Bullough & Draper, 2004), and provides emotional and psychological support (Marable & Raimondi, 2007). Mentor teachers themselves get new ideas and new perspectives out of their mentoring activities (Simpson, Hastings, & Hill, 2007), feel reassured and less isolated as teachers and enjoy the increased collaboration associated with mentoring (Hagger & McIntyre, 2006), reflect more often and more deeply on their own teaching practice (Lopez-Real & Kwan, 2005), derive satisfaction and pride from their work as a mentor teacher (Boreen, Johnson, Niday, & Potts, 2000), get consolidation of their identity as a mentor teacher and their professional status as an expert teacher in the professional community (Steffy, Wolfe,

Pasch, & Enz, 2000), and feel 're-energised' or 're-engaged' with the teaching profession (Hobson et al., 2007). With regard to benefits for school organisations, teachers who are mentored have been found to be less likely to leave teaching and less likely to move from one school to another within the profession (Ingersoll & Kralik, 2004), to collaborate more with colleagues, to have more job satisfaction, and sometimes to be more willing to call on colleagues for individual help and advice regarding their work as a mentor teacher (Moor et al., 2005).

4.2 Local setting: Implementation of a training programme

In the Netherlands, a movement promoting a stronger influence of schools on teacher preparation first emerged in 1993, when a governmental committee published a report aiming at improvements in the image of the teaching profession. In this report a more prominent role of the schools in teacher education was advocated (Van Es, 1993). Partly on the basis of the committee's proposal, longer school practice periods have been introduced into teacher education programmes (Verloop & Wubbels, 2000). Since 2000, teacher education institutions and schools in the Netherlands have intensified their cooperation concerning the preparation of teachers and are engaged in creating and improving work-based curricula (Van Vonderen, 2001).

The current research project was carried out in the context of the implementation of the SMART programme, developed in 1999 in cooperation with primary and secondary schools and, since then, in steady use in the Department of Teacher Education of Fontys University of Applied Sciences, located in the south of the Netherlands. The SMART programme is situated within the reflective-developmental paradigm (Pajak, 1993) and focuses on the development of the following supervisory skills that, according to Korthagen (2001b), encourage reflection in student teachers: *asking for concreteness, summarising feeling (showing empathy), showing genuineness, confronting (giving feedback, summarising inconsistencies, utilising the here and now), generalising (asking for similar situation), helping in making things explicit, and helping in finding and choosing alternatives*. These skills can be used to encourage a cyclical sequence of five steps (ALACT model), which together constitute a complete reflection process: 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 (Korthagen, 2001b). The SMART programme consists of three main components: training, peer consultation and personal coaching. In total, the SMART programme consists of nine sessions of half a day each, spread over a period of almost three months. The pedagogy of the SMART programme was derived from two sources: principles of *realistic teacher education* as developed by Koster and Korthagen (2001) and principles of *micro-training* developed by Ivey (1971). In chapter four, these principles will be described more extensively.

5 Overview of the studies

Table 1.2
Overview of the studies

Chapter & Part	Study Type	Research Aims	Participant Groups					Methods				
			MTs				STs	OBS		SRI		Other
			GrA (20)	GrB (12)	GrC (30)	GrD (8)	GrE (30)	B	A	B	A	
1.	General introduction											
Part I:		MT roles										
2.	Review	To map key aspects of MTs' supervisory behaviour in MD as a starting point for developing a conceptual framework										Research review
3.	Empirical	To explore empirically a two-dimensional model of MT roles in MDs	•					20				
Part II:		MTs' supervisory behaviour										
4.	Empirical pilot study	To describe MTs' use of supervisory skills in MDs, before and after training		•				12	12			
	Empirical main study	Idem			•			30	30			
5.	Empirical	To clarify STs perceptions of MTs' use of supervisory skills in MDs			•		•	30	30	30	30	
Part III:		MTs' interactive cognitions										
6.	Empirical	To capture differential frequencies of MTs' reflective moments, indicating different levels of consciousness in MTs' use and of supervisory skills.		•				30	30	30	30	
7.	Empirical study 1	To uncover contents of MTs' interactive cognitions in MDs, before and after training				•		8	8			Push-button device
	Empirical study 2	idem			•			30	30	30	30	
8.	General conclusion and discussion											

MT = Mentor teacher; MD = Mentoring dialogue; ST = Student teacher; GrA to GrE = Participant groups A to E.
OBS = Observation; SRI = Stimulated-recall interview; B = Number of observed MDs or SRIs *before* training;
A = Number of observed MDs or SRIs *after* training.

The entire research project consists off a series of eight studies. In Table 1.2 an overview of the studies is presented. In column 1, the part and the chapter of the book in which each separate study is reported are identified. As is pointed out in column 2, the research project includes one review study and seven empirical studies. The specific research aims of the studies are described in column 3. An overview of the participant groups in the studies is presented in column 4. The participants in the research project were mentor teachers in primary education from schools in the middle region of the province of Limburg, in the south of the Netherlands. They all guided a student teacher in his/her their final year of pre-service teacher education. In this phase of the teacher education programme, the student teacher carried out a teaching practice of half a year. In total, *100 participants* were involved: *70* mentor teachers and *30* student teachers. In distinct studies of the project, mentor teachers participated in four separate, but comparable, groups (group A, B, C and D). About these different groups, information that is more detailed will be presented in the various chapters. The student teachers (group E) participated in one of the studies.

In column 5 of Table 1.2, an overview of the methods used for data collection is given. Behavioural aspects of mentor teachers' use and acquisition of supervisory skills were investigated empirically by means of *observations* of audio and/or video recordings of authentic mentoring dialogues, before and after mentor teachers were trained in supervisory skills. To clarify student teacher perceptions, and to uncover aspects of mentor teachers' interactive cognitions, a *stimulated-recall technique* was used, during which participants had to verbalise their conscious cognitions in response to watching video recordings of the mentoring dialogues they were involved in. Finally, to capture mentor teachers' reflective moments accompanying their use of distinct supervisory skills, an additional method, employing a *push-button device*, was developed to register mentor teachers' reflective moments during the ongoing mentoring dialogue.

6 Outline of the book

This book entitled, *The skilled mentor*¹, starts with a general introduction and an overview of the whole research project in *Chapter 1*. The next six chapters of the book (2, 3, 4, 5, 6 and 7) are grouped into three interrelated parts, each including two chapters. The centre of attention in Part I and II of the book are overt aspects of mentor teachers' roles and their use of supervisory skills in mentoring dialogues. In Part III of the book, the focus will be on cognitive aspects of mentor teachers' use and acquisition of supervisory skills. Finally, in *Chapter 8*, the main findings, implications, limitations and further research options resulting from the research project as a whole, will be discussed.

6.1 Part I: Mentor teacher roles

Based on overt aspects of mentor teachers' supervisory behaviour, the studies presented in this part focus on developing a model to identify and analyse mentor teacher roles in mentoring dialogues. In *Chapter 2*, a research review is presented that aims at mapping key aspects of mentor teachers' supervisory behaviour in mentoring dialogues, as a starting point for developing a conceptual framework for mentor teacher roles in mentoring dialogues.

Chapter 3 presents a study that builds on the previous chapter and empirically explores a two-dimensional model of mentor teacher roles in mentoring dialogues, which emerged from the research review. In total 20 mentor teachers participated in the study. Data regarding five key aspects of their mentoring dialogues were collected, using a sample of 20 transcriptions of mentoring dialogues, one of each mentor teacher. A cluster analysis was conducted to empirically establish distinct mentor teacher roles in mentoring dialogues.

6.2 Part II: Mentor teachers' supervisory behaviour

In Part II, studies are presented that investigate behavioural aspects of mentor teachers' use and acquisition of distinct supervisory skills from two points of view: that of independent observers (reported in *Chapter 4*),

1. The title of our book was inspired by the title of Gerard Egan's famous book *The Skilled Helper* (1975).

and that of student teachers (reported in Chapter 5). In *Chapter 4*, two consecutive empirical studies are presented, together aiming at describing mentor teachers' use of supervisory skills in mentoring dialogues, before and after mentor teachers were trained in supervisory skills. In a pilot study with 12 mentor teachers, instruments for gathering, transcribing and coding data in authentic mentoring dialogues were developed and tried out. Two mentoring dialogues of each mentor teacher were analysed, one before and one after they were trained in supervisory skills. Based on the pilot study, a number of improvements to the instrumentation were implemented in a main study with 30 mentor teachers. Of each mentor teacher, video recordings of authentic mentoring dialogues were analysed, one before and one after they were trained.

In *Chapter 5*, mentor teachers' use of supervisory skills in mentoring dialogues is considered from the point of view of student teachers. The aim of the study presented in this chapter is to clarify how student teachers perceive their mentor teachers' use of supervisory skills during mentoring dialogues. To clarify student teacher perceptions related to mentor teachers' use of supervisory skills, in connection with a previously recorded mentoring dialogue, stimulated-recall interviews with 30 student teachers were conducted, 30 before and 30 after mentor teachers were trained in supervisory skills.

6.3 Part III: Mentor teachers' interactive cognitions

The third part of the book includes *Chapter 6 and 7*. The studies in this part focus on cognitive aspects of mentor teachers' use and acquisition of supervisory skills. Research objects in this part are the frequencies and contents of mentor teachers' cognitions that are directly linked to their use of supervisory skills, both before and after training in supervisory skills. In *Chapter 6*, a study is presented which registered differential frequencies of mentor teachers' reflective moments as indicators of different levels of consciousness in mentor teachers' use and acquisition of supervisory skills. For each of the 30 mentor teachers, two mentoring dialogues and two stimulated-recall interviews were analysed, one before and one after training in supervisory skills. To capture their reflective moments during mentoring dialogues, the push-button device and the stimulated-recall technique were combined in a two-method approach.

Chapter 7 builds on the previous chapter. To contribute to our knowledge about how interactive cognitions (may) mediate the conscious use and acquisition of supervisory skills, two interrelated consecutive studies, both using stimulated recall, were conducted. In the first study, with eight mentor teachers, an instrument was developed to categorise contents of interactive cognitions. In the second study, with 30 mentor teachers, the instrument was applied to uncover contents of mentor teachers' interactive cognitions, before and after training in supervisory skills.

Finally, in *Chapter 8*, the main findings, implications, limitations and further research options resulting from the research project as a whole, are discussed. All studies of the project reported on in the *Chapters 2 to 7* have been or are going to be published as an article in an international peer-reviewed scientific journal. Hence, every chapter is also written to be read on its own. As a result, some recurrence and overlap across chapters were inevitable.



Part I: Mentor teacher roles



2

Mapping mentor teachers' roles in mentoring dialogues

This chapter has been published as:

Hennissen, P., Crasborn, F., Brouwer, N., Korthagen, F., & Bergen, T. (2008). Mapping mentor teachers' roles in mentoring dialogues. *Educational Research Review*, 3, 168-186.

The research review reported in this chapter deals with the issue of how to conceptualise the supervisory behaviour of mentor teachers in mentoring dialogues by systematically examining empirical literature on key aspects of mentor teachers' behaviour during dialogues with prospective teachers. From the findings a model is derived which can be used to study mentor teachers' behaviour in mentoring dialogues. The model may be helpful in the further development of the quality of mentor teachers' behaviour in mentoring dialogues.

1 Introduction

When Odysseus went into battle with the Trojans during the Trojan War, he left his son Telemachus behind and placed him under the wing of a personal supervisor and companion. This mentor was at the same time a father-figure, a teacher, a role model, an advisor and guide. The versatility of the mentor role from classical times is reflected in the wide variety of terms and concepts found in the description of the mentor in professional training such as teacher education. The role of the mentor teacher as it exists nowadays in teacher education in the Western world has over the last decades gained importance, more recently in connection with a trend towards school-based teacher education. In teacher training, there is now more emphasis placed on the school as a learning environment (Brouwer, 2007; Mantle-Bromley, 2003; Smith, 2003). This shift can be attributed to four factors: increasing scientific recognition of the value of learning in the workplace (Eraut, 2000), criticism of the relevance of theory in teacher education programmes as a preparation for practice (Koetsier & Wubbels, 1995), the teacher shortages faced by many countries (Stijnen, 2003), and the idea that teacher training is less expensive if it is done in the workplace (Caldwell & Carter, 1993).

One essential condition for teachers to learn in the workplace is the availability of effective guidance by and cooperation with a mentor teacher whose supervisory approach matches the learning needs of the prospective teacher (Bennett & Carré, 1993; Bullough & Draper, 2004; Geldens, 2007; Kagan, 1992; Williams et al., 1998). This places a great demand on the professionalism of mentor teachers in stimulating prospective teachers to learn from their practical experiences in the school setting. In practice, mentor teachers' supervisory styles are manifested in large part in the intentions, the approach and the contents of their dialogues with prospective teachers. In these respects, mentor teachers have a considerable influence on how and what prospective teachers learn (Feiman-Nemser, 2000; Geldens, 2007; Glickman & Bey, 1990).

How mentor teachers behave during their mentoring dialogues is a question that has been studied from various perspectives and in differing contexts. This has led to a certain amount of confusion about the exact meaning of the terms used by researchers in describing mentor teachers' work and the mentoring dialogues they conduct (Sundli, 2007). In this

research review, therefore, we first of all survey the existing array of diverse terminology. No encompassing and coherent conceptual framework exists for studying mentor teachers' supervisory behaviour in mentoring dialogues. Such a framework could be helpful in research and development in the context of mentoring. Hence, the aim of this review study is to map key aspects of mentor teachers' supervisory behaviour in mentoring dialogues as a starting point for developing a conceptual framework.

2 Terminology

In the literature, a plethora of terms, explanations and expectations can be found with reference to the mentor's role, both within and outside the field of education (Mertz, 2004; Turner, 1993). In the field of teacher education, this confusion is rooted in three different sources: various social positions from which supervisory activities can be undertaken, changed role expectations of mentor teachers and diversity of terms used to refer to mentoring dialogues.

2.1 Three social positions

The first source for the confusion is the diversity in terminology to denote different social positions from which supervisory activities can be undertaken. A social position refers to the position of a person in relationship to others, in both large and small group settings (De Jager, Mok, & Sipkema, 2004). This is what Merton (1968) calls social status. In teacher education, three social positions can be distinguished from which supervisory activities can be undertaken.

We speak of the *first position* when supervisory activities are carried out by a member of the school staff who is mostly working in the classroom as a teacher. In the literature, this position is diversely referred to as *mentor* (Edwards & Collison, 1996; Edwards & Protheroe, 2004; Evertson & Smithey, 2001; Franke & Dahlgren, 1996; Geldens, 2007; Hawkey, 1998a, 1998b; Martin, 1997; Orland-Barak & Klein, 2005; Stanulis & Russell, 2000; Veenman & Denessen, 2001; Vonk, 1996; Wang, 2001; Wang, Strong, & Odell, 2004; Williams et al., 1998), *mentor teacher* (Feiman-Nemser, Parker, & Zeichner, 1992; Strong & Baron, 2004), *school-based mentor* (Edwards, 1997; Hughes, 1998; Timperley, 2001), *school teacher mentor* (Haggarty, 1995; Turner, 1993), *class teacher* (Dunne & Bennett, 1997; Edwards &

Protheroe, 2004), *cooperating teacher* (Borko & Mayfield, 1995; Coulon, 1994; Dunn & Taylor, 1993), *coach* (Engelen, 2002; Veenman & Denessen, 2001), *coach-teacher* (Edwards & Green, 1999), and *induction tutor* (Harrison, Lawson, & Wortley, 2005).

We speak of the *second position* when supervisory activities are carried out by someone who is part of the school staff or school district, and is not working as a teacher. Such a personnel is referred to as *support teacher* (Feiman-Nemser, 2001; Feiman-Nemser et al., 1992), *teacher tutor* or *professional tutor* (Turner, 1993), *associate-tutor* (Collison & Edwards, 1994) or *mentor* (Achinstein & Barrett, 2004; Orland, 2001; Wang et al., 2004). The term *teacher educator*, traditionally used for staff at teacher training institutes is currently also used for staff at the school district level who are involved in supervising prospective teachers (Feiman-Nemser et al., 1992; Orland, 2001).

We speak of the *third position* when supervisory activities are carried out by a member of a teacher education institute or university. They are not employed by the school where the prospective teacher is working and are usually referred to as *supervisors* (Borko & Mayfield, 1995; Byra, 1994; Dunne & Bennett, 1997; Vásquez, 2004; Waite, 1992; Zeichner & Listen, 1985) and *tutors* (Ben-Peretz & Rumney, 1991; Collison & Edwards, 1994; Haggarty, 1995; McNamara, 1995).

In this study, we are concerned with supervisory activities undertaken from the first position. We refer to personnel in this position with the term *mentor teacher*. This is a teacher of pupils with an additional responsibility as a mentor of prospective teachers. As a synonym for supervisory activities undertaken by the mentor teacher the term mentoring is used.

2.2 Changed role expectations

A second source for the confusion about terminology was the change of attitudes and expectations regarding the role of the mentor teacher, which occurred during the 1990s. Similarly to De Jager et al. (2004), we have defined the term *role* as being the expected behaviour within a social position. Within a social position, there are various roles that can be taken on. Roles and role expectations can change with the years. In the seventies and eighties, supervising teachers focused mainly on

socialisation of prospective teachers within the school organisation by discussing day-to-day events, by giving advice, instruction and explanation. Field (1994a) describes this role as follows: "...welcomed the students into the school, made sure they knew the 'geography' of the building, introduced them to the staff, told them where to buy their lunch, ...etc" (p. 46).

From introducing the prospective teacher to the way the school worked, mentoring gradually also came to include the encouragement of the new teacher to grow professionally through reflection on his or her own practice (Feiman-Nemser, 2001). This role shift requires also that mentor teachers attend to prospective teachers' present concerns. However, quite some confusion exists about the meaning of the word reflection (Rogers, 2001). Several authors wrote about the subject (Dewey, 1933; Hatton & Smith, 1995; Luttenberg, 2002; Zeichner & Liston, 1985). Korthagen (2001a) states that most conceptualisations of reflections can be brought together by the following definition: "reflection is the mental process of trying to structure or restructure an experience, a problem, or existing knowledge or insight" (p. 58). The term Schön (1987) uses for the process of restructuring is reframing. Several models describe how reflection in teacher learning should take place (e.g. Ferry & Ross-Gordon, 1998; McAlphine, Weston, Beauchamp, Weiseman, & Beauchamp, 1999). Systematic reflection does not come about by itself (Korthagen, 1988; Van Eekelen, 2005). It requires support in the form of supervisory activities (Kwakman, 2003).

Despite a high degree of consensus (Clinard & Ariav, 1998; Feiman-Nemser, 2001; Field, 1994a, 1994b; Veenman & Denessen, 2001) about expected changes in the mentor teacher's role, a clear and manageable terminology did not evolve. At times, the term mentor is used as starting point for describing any changes in the role and at other times as end point: *from cooperating teacher to mentor* (Clinard & Ariav, 1998), *from supervisor to mentor teacher* (Field, 1994b), *from mentor to coach* (McLennan, 1995; Veenman & Denessen, 2001), *from more conventional approaches that emphasise situational adjustment, technical advice and emotional support to educative mentoring* (Feimann-Nemser, 2000).

2.3 Dialogues: Diversity of terms

The third source for the diversity in terminology is the wide range of terms used to refer to the dialogues between mentor teachers and prospective teachers. Holland (1989) noted that in the period before 1990, the term *supervisory conference* had been used for thirty years to describe the dialogue between a mentor teacher and a prospective or experienced teacher. With the introduction of the concept of school-based teacher education in the beginning of the 1990s, many new terms were introduced, while in fact they all refer to the same type of mentoring dialogues. In the literature, the following terms are to be found: *post-lesson conference* (Ben-Peretz & Rumney, 1991; Coulon, 1994), *supervisors' talk* (Waite, 1992), *supervisory conference* (Byra, 1994; Waite, 1993), *post-teaching conference* (Coulon, 1994), *mentoring session* (Franke & Dahlgren, 1996), *post-agenda discussion* (Dunne & Bennett, 1997), *coaching conversation* (Martin, 1997), *coaching conference* (Veenman & Denessen, 2001), *post-observational discourse* (Hughes, 1998), *dialogue* (Williams et al., 1998), *mentor-protégé-conference* (Evertson & Smithey, 2001), *post-observation interview* (Edwards & Protheroe, 2004), *post-observation meeting* (Vásquez, 2004), *professional review meeting* (Harrison et al., 2005), *mentoring conversation* (Achinstein & Barrett, 2004; Geldens, Popeijus, Peters, & Bergen, 2005; Orland-Barak & Klein, 2005; Strong & Baron, 2004; Timperley, 2001).

In the framework of this study, we have chosen to use the term *dialogue* or *mentoring dialogue* to refer to the conversation between the mentor teacher and the prospective teacher, as it should be seen as a formal two-way conversation. Terms such as conversation, discourse, talk and conference are not so appropriate. The term conversation does not indicate the number of interlocutors, and the term discourse can be applied to a monologue or to a situation involving more than two interlocutors. The term talk indicates a more informal chat, whereas mentoring dialogues can have a more formal nature. The term conference tells us little about how many participants are present and gives little indication of the nature of what is said.

3 Research questions

The apparent diversity of research into mentor teachers' varying roles and supervisory behaviour highlights the lack of a single conceptual framework capable of describing how mentor teachers behave during dialogues. In order to build a conceptual framework suitable for studying mentor teachers' supervisory behaviour in dialogues with prospective teachers, key aspects of mentor teachers' behaviour should be identified. Hence, the research questions are:

1. Which key aspects of mentor teachers' supervisory behaviour in mentoring dialogues are investigated in previous research?
2. What is known from previous research on mentor teachers' supervisory behaviour in mentoring dialogues?
3. How can the extracted key aspects be connected to build a conceptual framework for studying mentor teachers' supervisory behaviour in mentoring dialogues?

4 Method

Because of the mainly qualitative nature of the research material and the limited number of empirical studies we did not conduct a quantitative meta-analysis. We used the approach of narrative literature study (Van IJzendoorn, 1998) and carried this out in three phases. In the first phase, five criteria were applied to the selection of the studies. Empirical studies (1) were selected and the studies had to be conducted from 1990 till 2006 (2). Studies were selected which focused on supervisory behaviour of mentor teachers in the workplace (3) through analysing mentoring dialogues (4) that were conducted in authentic, real-life situations (5). We chose the year 1990 as a starting point, because of the various developments in the field of teacher education, notably the increase in the importance of the workplace as a learning environment (Eraut, 2000) and an increase in the importance of the reflective paradigm within mentoring (Pajak, 1993).

We retrieved publications which satisfied the above criteria from the Educational Resources Information Center (ERIC) catalogue and the following relevant journals: *American Educational Research Journal*, *Australian Educational Research*, *British Educational Research Journal*, *British Journal of Teacher Education*, *Educational Research*, *Journal of Counseling and Development*, *Journal of Curriculum and Supervision*,

Journal of Educational Measurement, Journal of Education for Teaching, Journal of Educational Research, Journal of Teacher Education, Journal of Curriculum Studies, Teaching and Teacher Education and Teaching in Higher Education.

To prevent any relevant studies from being overlooked, we used a wide range of search terms, not only for the mentor teacher, but also for the dialogues. These included combinations of key words such as mentor teacher and dialogue. For phrases referring to the mentor teacher, we used the terms *mentor, mentor teacher, cooperating teacher, supervisor, tutor, teacher educator, and coach*. For terms referring to the dialogues we used the words *dialogue, discourse, conversation, talk, and conference*. All the key words have been indexed in both singular and plural forms. One author searched publications using the key words formulated in singular form, and one other author searched with keywords in the plural form. The title and abstract of each of the retrieved publications were printed. The final selection was stripped of double publications, whereupon 379 hits remained.

Then a second selection phase followed, in which the sources identified had to meet four criteria: supervisory activities undertaken from the first position, by a teacher of pupils who have an additional responsibility as a mentor of prospective teachers (1), each dialogue took place between one mentor teacher and one prospective teacher and referred to actual (teaching) experiences of the prospective teacher (2), the relationship between mentor teacher and prospective teacher was not a peer-coaching relationship, but more or less hierarchical (3) and the analysis of dialogues occurred based on tape recordings, either audio or video, transcripts or observations (4). On the basis of printed titles and abstracts, the two authors independently selected studies which met the criteria. Subsequently, to realise consensus concerning the definite selection, the studies both authors selected separately, were exchanged and discussed. In those situations where the decision differed or where a decision could not be made, full text documents were obtained and were re-screened for inclusion on the basis of consensus between the two authors. Ultimately, 26 studies were selected which met all four criteria.

In the third phase, from the 26 selected studies data were extracted with reference to three basic features: the *year and country* where the study was carried out, relevant (parts of the) *research question(s) or aim*, and

core elements of the *research method(s)* used. The most important part of the third research phase was to map key aspects of mentoring dialogues studied in previous empirical research (question 1), to describe mentor teachers' behaviour in mentoring dialogues concerning these aspects (question 2) and to try to connect the selected aspects in a coherent conceptual framework (question 3). To achieve this, the two authors independently made a summary of each study, containing the basic features of the study. They also separately listed aspects of mentoring dialogues which were investigated in the selected studies.

To answer the first research question, both authors exchanged the key aspects they listed and discussed them to realise consensus. To be able to answer the second research question, both authors independently categorised the findings of the studies using the extracted key aspects. The categorisations were exchanged and discrepancies were discussed and resolved. Extracted characteristics of the studies in the review were summarised in the *Appendix* (see p. 234). To answer the third research question, the key aspects of mentoring dialogues extracted from the selected empirical studies were discussed to establish if they could contribute to the development of a conceptual framework. An important criterion was the degree to which in the selected studies empirical evidence indicated that a specific aspect connects distinctive mentor teachers' behaviour in mentoring dialogues. Decisions were made on the basis of consensus between two authors. At the end of the process all five authors discussed in which way the selected key aspects of mentoring dialogues could be related to each other in a conceptual framework for studying mentor teachers' supervisory behaviour in mentoring dialogues. Also in this phase, decisions were made on the basis of consensus. Using these key aspects to form a conceptual framework requires a kind of creativity and intuition during the stage of data analysis and interpretation, as is emphasised by Van IJzendoorn (1998).

5 Findings

After a description of the three basic features of the selected studies, five key aspects of mentor teachers' behaviour in mentoring dialogues are outlined. A model is derived based on the inventory of key aspects, which can be helpful in mapping mentor teachers' behaviour in mentoring dialogues.

5.1 Features of the selected studies

1 Year of publication and country where the study was carried out

A total number of 26 relevant sources were selected which met the inclusion criteria of phases 1 and 2 of the method: 20 articles from journals, 4 papers, 1 research report and 1 book. These sources covered research carried out between 1990 and 2006: 31% between 1990 and 1995, 31% between 1996 and 2000 and 38% between 2001 and 2005. The authors of the selected studies come from the USA (35%), UK (35%) and other countries (31%) including Israel, Sweden, New Zealand, Canada, and the Netherlands.

2 Research questions of the selected studies

The research questions or aims of the selected studies mainly dealt with seven themes. If a study dealt with more than one theme, it is mentioned here only once. The themes are: *the content of the dialogues* (Borko & Mayfield, 1995; Edwards & Collison, 1996); *mentor teacher style/supervisory skills* (Ben-Peretz & Rumney, 1991; Dunne & Bennett, 1997; Feiman-Nemser & Parker, 1990; Feiman-Nemser et al., 1992; Geldens et al., 2005; Haggarty, 1995; Hawkey, 1998b; Martin, 1997; Stanulis, 1995; Williams et al., 1998); *specific supervisory skills: giving advice* (Dunn & Taylor, 1993; Strong & Baron, 2004); *conceptions of mentoring* (Edwards & Protheroe, 2004; Franke & Dahlgren, 1996; Orland-Barak & Klein, 2005); *effects of training on mentor teachers* (Crasborn, Hennissen, & Brouwer, 2005; Evertson & Smithey, 2001; Timperley, 2001; Veenman & Denessen, 2001); *effects of supervisory activities by the mentor teachers on prospective teachers* (Coulon, 1994; Harrison et al., 2005; Hawkey, 1998a; Hughes, 1998); *influence of cultural context on mentor teachers behaviour* (Wang et al., 2004).

3 Characteristics of the research methods

The selected studies display a wide variety in the number of respondents. The number of mentor teachers per study averaged 10, ranging from 1 to 57. The number of prospective teachers averaged 11, ranging from 1 to 57. The average number of dialogues analysed is 24, ranging from 4 to 114. Quite a few researchers used an established analysis framework. This was the case in 10 of the studies. In 10 other studies, a new framework or new categories were developed on the basis of the raw data according to the idea of 'grounded-theory' (Edwards & Protheroe, 2004; Hawkey, 1998a, 1998b; Martin, 1997; Orland-Barak & Klein, 2005; Stanulis, 1995). In two studies, researchers combined using an existing analysis framework and developing a new one. In four studies, there was merely a description of the results with no application of a framework. The recording of the

dialogues was mainly done by audiocassettes from which a transcription was made. In one study (Ben-Peretz & Rumney, 1991), dialogues were not taped, but direct observations were used. The unit of analysis differed between the studies: in 27% of the studies whole dialogues were used as the unit of analysis, 62% used (a) part(s) of the dialogue. Parts of dialogues were referred to with quite diverse terminology, for instance: “instances of talk, i.e. a unit of talk, uttered by one person, which focused on a single idea” (Dunne & Bennett, 1997, p. 231), “guided-teaching episode” (Borko & Mayfield, 1995, p. 504), “a meaning unit, defined as a string of words which carry one meaning in the context of the conversation” (Edwards & Protheroe, 2004, p. 188), or “a theme, defined as a discussion or monologue about a particular idea or event” (Haggarty, 1995, p. 189). Likert scales were used for measuring the effects of training by Evertson and Smithey (2001), Veenman and Denessen (2001), and Timperley (2001) to score different behaviours of mentor teachers during dialogues. To analyse the data, three researchers used computer programmes such as Qualitative Solutions Research (Harrison et al., 2005; Hughes, 1998) or Kwalitan (Geldens et al., 2005).

5.2 Five aspects of mentoring dialogues

The aspects of mentoring dialogues on which the selected studies focused differ from study to study. One or more of the following five aspects were considered: content and topics dealt with, the style and supervisory skills of the mentor teacher, the mentor teachers' input, time aspects of the dialogue and phases of the dialogue.

1 Content and topics

The content of the dialogues was a concern in 14 studies. The topics in mentoring dialogues identified fall mostly into three main categories: *instruction and organisation* (planning, approach, material, maintaining order, and classroom management), *the pupils and the class* (behaviour, learning styles, aptitude, reactions, learning process) and *the subject matter* (sources, terms, ideas). In addition, a category of *miscellaneous* can be distinguished including topics such as prospective teachers' professional development and requirements from the training institute.

During mentoring dialogues, the mentor teachers are mainly concerned with the instructional and organisational competence of the prospective teacher (Ben-Peretz & Rumney, 1991; Dunne & Bennett, 1997; Edwards & Collison, 1996; Edwards & Protheroe, 2004; Feiman-Nemser & Parker,

1990; Hawkey, 1998b; Hughes, 1998). This is also reflected in the studies of specific supervisory skills such as giving advice to the prospective teacher or giving assignments. Strong and Baron (2004) record that 88% of the advice given to prospective teachers concerns the instructional aspects and classroom management. Coulon (1994) reports that most of mentor teachers' comments concern prospective teachers' instruction lesson content, management, organisation and feedback. Very few mentor teachers' comments dealt with the pupils, the class and the actual lesson content. In a few studies instructional and organisational aspects are not the most important ones. In a comparative study of American and Chinese mentors, Wang et al. (2004) showed that the latter were much more concerned about lesson content than their American counterparts. Feiman-Nemser and Parker (1990) used case studies to show that it is almost impossible not to refer to the subject matter during mentoring dialogues.

2 Style and supervisory skills

Another aspect of the mentoring dialogues is mentor teachers' style and supervisory skills. Specific supervisory skills are seen as indicators of a particular style of mentoring. In a number of studies, style and supervisory skills are dealt with separately, while others deal with them simultaneously. In seven studies, an explicit analysis framework was used to categorise the various styles identified. Well-known is the distinction between a directive and a non-directive style. Using the directive style a mentor teacher tells the prospective teacher what to do, assesses, corrects, recites and informs. This is evidenced by terminology such as *authoritarian* (Ben-Peretz & Rumney, 1991), *directive and informing* (Hawkey, 1998a; Williams et al., 1998), *critical* (Evertson & Smithey, 2001), *instructive* (Harrison et al., 2005), *corrective* (Franke & Dahlgren, 1996), *advising* (Crasborn et al., 2005). Then, there are less directive styles, often described with terms such as *reflective* (Franke & Dahlgren, 1996; Harrison et al., 2005), *cooperative* (Ben-Peretz & Rumney, 1991), *guiding* (Evertson & Smithey, 2001; Harrison et al., 2005), *elicitive* (Hawkey, 1998a; Williams et al., 1998).

Most untrained mentor teachers appear to prefer the directive style (Ben-Peretz & Rumney, 1991; Crasborn et al., 2005; Evertson & Smithey, 2001; Franke & Dahlgren, 1996; Harrison et al., 2005; Williams et al., 1998). Ben-Peretz and Rumney (1991) note that 74% of dialogues are more authoritarian and prescriptive than cooperative in nature. The prescriptive style can be characterised as instructive, critical, with few

questions and accompanied by a personal expression of support. Williams et al. (1998) and Franke and Dahlgren (1996) have reported similar findings, according to which the prospective teacher views the mentor teacher as a role model, often emulating the mentor teachers' way of doing things. Mentor teachers consider it important to transmit their own subject matter knowledge to the prospective teacher (Ben-Peretz & Rumney, 1991). Also mentor teachers use their own knowledge and experience as a teacher as a frame of reference for the dialogue (Haggarty, 1995). Not all researchers found that the directive style is dominant in the dialogues. Some mentor teachers do allow prospective teacher opportunities to reflect on their own performance. Hawkey (1998a) reports on one mentor teacher who, although using a directive style, was able to encourage the prospective teacher to reflect critically on his own performance and to learn from this. Another exception to the directive style is reported by Harrison et al. (2005). They concluded that trained mentor teachers are able to use a more guiding and reflective style in their dialogues.

A reason emerging from the studies for the more directive styles of mentor teachers is that they are more concerned with the learning process of their own pupils than that of the prospective teacher under their supervision (Edwards & Collison, 1996; Edwards & Protheroe, 2004). Given the nature of teaching and the need to progress in the curriculum, mentor teachers may want to focus on the instructional aspects of the teaching performed by the prospective teacher rather than their learning processes (Geldens et al., 2005). This means for example that the emphasis is not on the prospective teacher's concerns and learning objectives. In a study by Orland-Barak and Klein (2005), it appears that the instrumental and the developmental narrative of mentoring were both present in mentor teachers' approaches. They maintain that the approach chosen can also have a political element. On the one hand, the mentor teacher is operating within the parameters laid down by government focusing on pupil's achievement and instructional aspects of teaching (instrumental narrative). On the other hand, the mentor teacher is operating within the parameters laid down by the teacher education institute, which is more concerned with the prospective teacher's own learning (development narrative). It also appears that during mentoring dialogues, mentor teachers can be formal and unresponsive, particularly with regard to ideas put forward by prospective teachers. These ideas are then seldom taken up by the mentor teacher, nor investigated further. The prospective

teacher is seldom challenged and the emphasis is more on *comfort* rather than on *competence* (Dunne & Bennett, 1997; Edwards & Collison, 1996).

In 16 of the selected studies, specific supervisory skills of mentor teachers were examined (Crasborn et al., 2005; Dunn & Taylor, 1993; Edwards & Protheroe, 2004; Evertson & Smithey, 2001; Feiman-Nemser et al., 1992; Geldens et al., 2005; Haggarty, 1995; Harrison et al., 2005; Hawkey, 1998b; Hughes, 1998; Orland-Barak & Klein, 2005; Strong & Baron, 2004; Timperley, 2001; Veenman & Denessen, 2001; Wang et al., 2004; Williams et al., 1998). Characteristics of mentor teachers' directive supervisory skills were: assessing, appraising, instructing, confirming, expressing one's own opinion, offering strategies and giving feedback. The non-directive supervisory skills include the following: asking questions, guiding to developing alternatives, reacting empathetically, summarising and listening actively.

According to Edwards and Protheroe (2004), Hawkey (1998b), Williams et al. (1998), directive supervisory skills are dominant in most mentoring dialogues and non-directive supervisory skills are less frequent. Evertson and Smithey (2001) state that this is particularly the case with untrained mentor teachers. These mentor teachers give criticism, do not encourage further analysis of the situation, do not ask questions and are quick to give tips and advice. Geldens et al. (2005) talk about a strong emphasis on giving feedback with little focus on challenging the prospective teacher, giving explanations or coming to some sort of agreement with the prospective teacher about how to proceed further. This is confirmed in a study by Hughes (1998) showing that less than 1% of the prospective teachers were asked to explain their performance. Wang et al. (2004) observed that Chinese mentor teachers gave compliments, suggestions and advice and were critical. A supervisory skill occurring frequently in mentoring dialogues is advising. Hughes (1998) concludes that mentor teachers give indirect advice by stating what they have seen in the lesson, telling what they considered in appropriate and by explaining what they would have done in a situation. By doing so they imply that their own practice is the acceptable model. In Strong and Baron's study (2004) of dialogues, 20% of the dialogues was focussing on giving advice. Of the 206 suggestions made, 80% were indirect advice and the remainder was direct. Timperley (2001) found that much advice was given without asking the prospective teacher if he or she found this advice useful in solving any problems he or she was experiencing. Dunn and Taylor (1993)

found that mentor teachers gave advice about specific instances without extrapolating to other situations.

Within the trends described above, there is a difference between mentor teachers in their ability to be specific during dialogues and to probe certain topics more deeply (Borko & Mayfield, 1995). This applies also to the degree of directiveness or directionality (Glickman, 1981). Not all mentor teachers are mainly directive in their approach. A small number of mentor teachers manage to create an environment in which prospective teachers are encouraged to raise more general questions and to discuss their own concerns. Mentor teachers do this by listening actively and by giving a clear summary of situations from the point of view of the prospective teacher (Edwards & Collison, 1996).

To summarise, different styles and approaches as well as the various supervisory skills can be placed on a dimension of directiveness, with the non-directive style at one end and the directive style at the other. It can be concluded that the style and the supervisory skills of untrained mentor teachers mostly fall into the directive rather than the non-directive category. Several researchers conclude that the use of supervisory skills can be influenced by training (Crasborn et al., 2005; Evertson & Smithey, 2001; Harrison et al., 2005; Timperley, 2001; Veenman & Denessen, 2001) or by a form of coaching (Hawkey, 1998b).

3 Mentor teachers' input

In five studies (Feiman-Nemser et al., 1992; Geldens et al., 2005; Haggarty, 1995; Hughes, 1998; Wang et al., 2004), the researchers examined who took the most initiative during dialogues, the mentor or the prospective teacher, and what levels of participation, both displayed. All these studies show that it is the mentor teacher who usually introduces the topics into dialogues and thus is the source of active input. If the mentor teacher reacts to the input of the prospective teacher, then the input is of a reactive nature. Generally, the mentor teacher also directs the dialogue (Feiman-Nemser et al., 1992; Geldens et al., 2005; Haggarty, 1995), asks the questions and makes suggestions. Hughes (1998) found that in 69% of the units coded mentors teachers dominated the dialogue. Wang et al. (2004) found that Chinese mentor teachers initiated 80% of the topics. Geldens et al. (2005) comment that a less active mentor teacher and a prospective teacher who takes more initiative, will not automatically lead to more effective supervision. Overall, it can be concluded that mentor teachers give more active than reactive input during mentoring dialogues.

4 Time aspects

In 11 of the studies, elements of time were investigated. Ten researchers (Ben-Peretz & Rumney, 1991; Borko & Mayfield, 1995; Crasborn et al., 2005; Dunne & Bennett, 1997; Edwards & Collison, 1996; Geldens et al., 2005; Haggarty, 1995; Hawkey, 1998b; Hughes, 1998; Strong & Baron, 2004; Wang et al., 2004) mentioned the duration of the mentoring dialogues. Four researchers (also) reported mentor teachers' speaking time during dialogues (Crasborn et al., 2005; Dunne & Bennett, 1997; Hawkey, 1998a; Hughes, 1998).

The duration of dialogues between mentor teachers and prospective teachers varied from 5 min (Borko & Mayfield, 1995; Edwards & Collison, 1996) to 60 min (Hawkey, 1998b; Strong & Baron, 2004). Dunne and Bennett (1997) found that the mentor teacher contributed the greater part of verbal interaction in the dialogue. In the study by Hughes (1998) the mean percentage of total mentor talk was 69%. Crasborn et al. (2005) found that after training in supervisory skills, mentor teachers' total speaking time during mentoring dialogues on average decreased with 19%. Researchers do not agree on any link between the duration of the dialogues and the amount of time the mentor teacher is active in the dialogues on the one hand, and the implementation of specific speaking skills and the quality of the dialogues on the other. According to Hughes (1998), reflection by the prospective teacher can only take place during a longer dialogue, while Geldens et al. (2005) maintain that the duration of the dialogue has little effect on the degree of initiative or reflection on the part of prospective teachers. Borko and Mayfield (1995) report that the longer the duration of the dialogue the more specific suggestions were made by the mentor teacher. Hawkey (1998a) established that the mentor teacher who has a more directive style is a more active interlocutor and talks the most in the dialogue, whereas the mentor teacher who has a more cooperative style is active for half of the dialogue. Crasborn et al. (2005) note that using directive skills takes up more time than using non-directive skills.

5 Phases

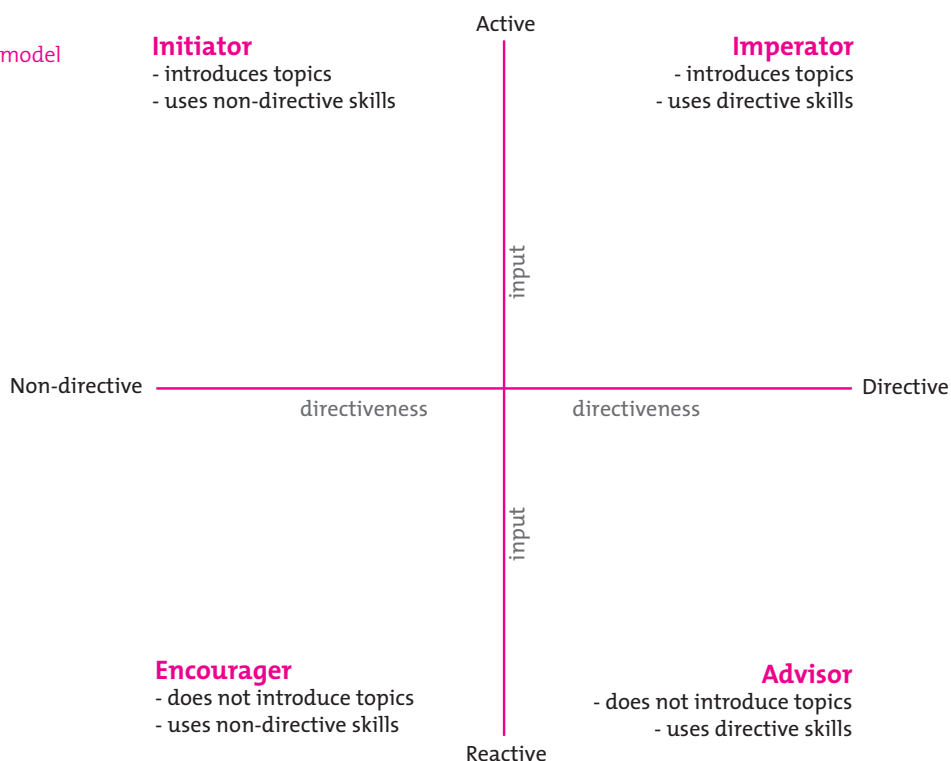
The aspect phases of the dialogue was examined in six of the selected sources. In three of the studies (Evertson & Smithey, 2001; Geldens et al., 2005; Harrison et al., 2005), an analysis framework was used, while in three other studies, this was not the case (Ben-Peretz & Rumney, 1991; Feiman-Nemser et al., 1992; Wang et al., 2004). Geldens et al. (2005) conclude that in the dialogues generally issues arising from situations occurring in the lessons discussed are addressed and that mentor

teachers make little reference to previous dialogues and few decisions about expectations for any future lessons. Evertson and Smithey (2001) established that untrained mentor teachers did not refer to previous dialogues and gave a range of suggestions, while trained mentor teachers were able to make observations and to assist prospective teachers in reconstructing lessons. Harrison et al. (2005) show that trained mentor teachers were better able to guide prospective teachers to analyse their teaching performance by clarifying their actions (deconstructing practice) and allowed them to think of new ways of dealing with situations (constructing practice).

Although researchers were not always explicitly examining the phases of dialogues as a separate issue, many still reported findings concerning phases in the dialogue. Feiman-Nemser et al. (1992) note that mentor teachers began by giving a compliment and continued by taking the prospective teacher through the lesson, making comments and asking questions about each part of the lesson. Ben-Peretz and Rumney (1991) distinguish three phases in dialogues: opening with a general question, one-directional feedback and a conclusion with clear directions for future lessons. Chinese mentors began their dialogues with a compliment, followed this up with some critical comments and completed the dialogues by giving suggestions (Wang et al., 2004). With regard to the phases of mentoring dialogues, there appears to be a division between mentoring styles looking back on what happened in lessons and those looking forward to how to change future lessons.

5.3 The MERID model

Figure 2.1
The MERID model



From the apparent diversity of research into mentoring dialogues it is clear that so far there is no single conceptual framework available to study mentor teachers' supervisory behaviour during dialogues with prospective teachers. For the selection of key aspects which can contribute to the construction of such a framework a criterion was used, namely the degree to which in the selected studies empirical evidence indicated that a specific aspect connects with distinctive mentor teachers' behaviour in mentoring dialogues. In the selected studies no empirical data were reported indicating that the key aspects *content* and *phases* connect with distinctive mentor teachers' behaviour. Three out of five key aspects remained: *style/supervisory skills*, *input*, and to some degree the aspect *time*. These key aspects are plausible candidates for constituting the

MEntor (teacher) Roles In Dialogues (MERID) model (Figure 2.1). The MERID model includes two dimensions. The horizontal axis represents the amount of directiveness displayed by the mentor teacher. The vertical axis represents the degree of input by the mentor teacher. The combination of these two dimensions results in four different mentor teacher roles in mentoring dialogues: *initiator*, *imperator*, *advisor* and *encourager*. First the construction of the dimensions of the model is explained and secondly the mentor teachers' roles which emerge when these dimensions are combined are described.

1 Dimensions

In 22 of the 26 selected studies, the key aspect style/supervisory skills was taken as an indicator of how a mentor teacher acts during dialogues. This indicator assesses the degree to which the mentor teacher steers the course of the dialogue. In the MERID model, this key aspect has been incorporated into the horizontal dimension of directiveness. This dimension is a continuum with two poles: directive and non-directive. On the basis of the literature studied, most mentor teachers can be placed on the right side of the horizontal axis, the mentor teacher instructing the prospective teacher and talking from the standpoint of his or her own experience and evaluating the behaviour of the prospective teacher (Ben-Peretz & Rumney, 1991; Edwards & Protheroe, 2004; Evertson & Smithey, 2001; Franke & Dahlgren, 1996; Harrison et al., 2005; Hawkey, 1998b; Williams et al., 1998). This behaviour can apparently be changed to some extent through training in supervisory skills (Crasborn et al., 2005; Evertson & Smithey, 2001; Harrison et al., 2005; Timperley, 2001; Veenman & Denessen, 2001) and by means of supervising mentor teachers (Hawkey, 1998b).

The sources analysed suggest that the duration of the mentor teachers' speaking time can help distinguish between roles taken by mentor teachers. The data from four of the studies indicate that there might be a relation between the duration aspect and the dimension of directiveness. Hawkey (1998a) showed that a mentor teacher whose style can be described as directive used more speaking time than a mentor teacher who used more elicitation during dialogues. Crasborn et al. (2005) showed that supervisory skills such as giving advice and giving information require more time than non-directive supervisory skills such as asking questions and summarising content. Consequently, there may be a positive correlation between the duration of dialogues and the degree of directiveness. A mentor teacher who is directive in style may use more speaking time than a more non-directive mentor teacher.

Another key aspect connected to empirical evidence indicating mentor teachers' distinctive behaviour in dialogues is the degree of input made by the mentor teacher. In the MERID model, this key aspect has been incorporated into the vertical dimension of input. This dimension is a continuum with two poles: active and reactive. One of the findings from this review is that mentor teachers often give active input and are the ones who introduce the topics into the dialogues (Feiman-Nemser et al., 1992; Geldens et al., 2005; Haggarty, 1995; Wang et al., 2004). These mentor teachers can be placed in the upper half of the MERID model. There are also mentor teachers who can be placed in the lower half of the model, because they are more reactive to the prospective teachers' concerns (Edwards & Collison, 1996). According to Feiman-Nemser (2001), a mentor teacher can encourage prospective teachers to reflect on their own experience if he or she is able to understand his or her concerns. An important indicator then, of the role of the mentor teacher in a dialogue is the question who introduces the topics.

The two dimensions of the MERID model seem to be independent of each other. This can be illustrated with an example in which the mentor teachers' input is *active*, visualised in the upper half of the MERID model, and an example in which his input is *reactive*, visualised in the lower half of the MERID model. If the mentor teacher introduces actively a topic about for example an unruly pupil in the class, then he can choose to do this in a directive manner ("I think the pupil was unruly because of the previous lesson") or in a non-directive manner ("Can you tell me about the unruly pupil?"). If the mentor teacher reacts on the input of the prospective teacher, then he also can choose to do this in a directive way ("I would tell the pupil to...") or in a non-directive way ("What do you mean by unruly?").

2 Four roles

The four quadrants in the MERID model will now be illustrated with examples of transcriptions of recorded authentic dialogues between untrained mentor teachers (MT) and prospective teachers (PT) (Crasborn et al., 2005). Pupil names are fictitious. The role in the upper left quadrant is referred to as *initiator*. The mentor teacher introduces a topic and then encourages the prospective teacher to think further about the topic. An example of the initiator role is presented below. The mentor teacher introduces the topic of *first impressions of the school* and subsequently uses non-directive supervisory skills to encourage the student teacher (ST) to further reflect on the topic:

MT: Okay, Ella, you've been here now for several days. What are your first impressions of the school?

PT: Well, I immediately felt welcome in the team. As soon as I introduced myself I felt at home. Also, considering it's an old building it's very nice and convenient.

MT: So you feel at home as a member of the team, and you like the school building.

PT: Yes.

MT: What made you feel welcome in the team?

PT: Well, the colleagues invited me to sit with them during lunch and offered me their help when I should need it. They also asked me if I would like to come to the school party next weekend.

Timperley (2001) presents findings referring to the initiator role. In her research it appears that after training, mentor teachers are able to express and formulate their input in such a way that the prospective teacher is able to address to the mentor teachers' topic.

The role in the upper right quadrant is referred to as *imperator*.² The mentor teacher introduces a topic and uses directive supervisory skills. An example of the imperator role is presented below. The mentor teacher introduces the topic of *use of notebook* and subsequently uses directive supervisory skills.

MT: Ella, in the reading comprehension lesson you carried out, I saw you had a correct diagram on the blackboard. Very good!

PT: Yes.

2. After an especially great victory, an army's troops in the field would proclaim their commander imperator (Berger, 1953). Associated with the meaning of the word in old times, in terms of the MERID model an imperator is a mentor teacher who is taking the lead in a mentoring dialogue by introducing most of the topics and by using predominantly directive supervisory skills.

MT: But, I saw that Paula wrote on a small piece of paper. You know, the agreement is that she must use her notebook. You should have told her to do so.

PT: Yes, I wanted her to write it in her notebook, but I forgot to give special attention to her, because a few other pupils were asking questions.

In the reviewed literature several authors present findings referring to the imperator role. Wang et al. (2004) emphasise that the Chinese teachers' approach consisted of a compliment, critical comments and suggestions for future lessons. Evertson and Smithey (2001) noted that untrained mentor teachers did not always refer back to the lesson, but immediately began giving various suggestions. Feiman-Nemser et al. (1992) found that after giving a compliment, the mentor teacher went through the lesson and gave comments on each part. Hughes (1998) states that mentor teachers first talked about what they had seen in the lesson, then indicated what they felt was not appropriate and then finally informed the prospective teacher what they would have done in that situation.

The role in the lower right quadrant is referred to as *advisor*. The mentor teacher reacts to the prospective teacher's input and gives advice on what to do. An example of the advisor role is presented below. The mentor teacher reacts to the topic introduced by the prospective teacher of *involving pupils in the lessons*, and subsequently uses directive supervisory skills.

PT: Hello Albert, I have a question. When I am sitting in a circle with these young pupils, how can I ensure that they are involved in the story I am telling? There always seem to be some children who just look around and don't respond to me.

MT: Yes Ella, I understand your problem. Everyone of course has different interests and some pupils are more interested than others. Personally, I think that it very much depends on you to make the topic interesting and attractive by how expressive you are and by your own body language. Constantly warning pupils doesn't help. Just saying "pay attention" will get you nowhere. You can involve pupils by maintaining eye contact, by making a gesture such as a wink, by asking questions, and by walking up to them to correct them.

Dunn and Taylor (1993) present findings referring to the advisor role. In their research we can see that advisor type mentor teachers react to questions and comments originating from the prospective teacher. They conclude that prospective teachers are not greatly challenged to reflect on other situations.

The role in the lower left quadrant is referred to as *encourager*. The mentor teacher reacts to the input of the prospective teacher and induces him or her to reflect on his or her performance in the classroom. An example of the encourager role is presented below. The mentor teacher reacts to the topic introduced by the prospective teacher of *dealing with pupils* and subsequently uses non-directive supervisory skills.

MT: Hello Ella. How are things going?

PT: Well, the new pupil Yvonne is talking about leaving school. She is always saying things like "I want to leave school and I am going to talk to my mother about it." And then I am unsure of how to react. She is constantly asking for attention, but there are more children who need that too. I can't give her all the attention she seems to need. If I ignore her, she just carries on talking. I really don't know anymore how to react. Maybe I should arrange a talk with her and her mother.

MT: You are confused because you don't know how to deal with Yvonne, who is constantly asking for your attention.

PT: That's right. I don't like it when she says these things, but it is a sign. I want to know why she's acting like that.

MT: Yes. Can you think of a specific situation in which this sort of behaviour occurs?

In the reviewed literature several authors present findings referring to the encourager role. It appears that there are mentor teachers who can conduct a dialogue based on the concerns of the prospective teacher. The mentor teacher creates an environment which fosters reflection on the part of the prospective teacher and enables him or her to reflect on his or her behaviour both in and outside the classroom (Edwards & Collison, 1996) and to think about broader pedagogical topics with regard to his or her pupils (Harrison et al., 2005).

6 Conclusion and discussion

In this research review, we first of all created conceptual order to the various terms used in the context of mentoring in teacher education. In teacher education, three social positions can be identified from which supervisory activities can be undertaken. With these positions in mind it was possible to define and characterise our subject group as mentor teachers, which are teachers of pupils with an additional responsibility as mentors of prospective teachers. We referred to this (social) position from which supervisory activities can be undertaken as the first position. To express the formal two-way character of the conversations between one mentor teacher and one prospective teacher, the term mentoring dialogue was chosen.

The aim of this review study was to map key aspects of mentor teachers' supervisory behaviour in mentoring dialogues as a starting point for developing a conceptual framework to use in research and development in the context of mentoring. As an answer to the first research question, from the selected empirical studies five key aspects of mentoring dialogues emerged, which are often the focus of research: content of the dialogue, mentor teachers' style and supervisory skills, mentor teachers' input, time aspects of the dialogue and phases of the dialogue.

In answer to the second research question the selected studies reported several findings concerning the studied aspects of mentoring dialogues. The topics discussed during the dialogues are mainly about instructional and organisational aspects and to a lesser degree about individual pupils, the class or the subject matter. The mentor teachers' style and supervisory skills could be described as mainly directive. Mentor teachers are the ones who usually decide upon the topics (active input). As far as speaking time was concerned, it are mainly the mentor teachers who do most of the talking. In most mentoring dialogues, there is generally a division between a phase of referring back to the lesson (deconstruction) and a phase of looking ahead (construction).

In answer to the third research question empirical evidence in the selected studies indicated that three key aspects connect with distinctive mentor teachers' behaviour in mentoring dialogues: style/supervisory skills, input and time aspects. These three aspects are plausible candidates to constitute a conceptual framework. We connected two key aspects in

the MERID model, which shows four mentor teacher roles during mentoring dialogues: initiator, imperator, advisor and encourager.

We do not give a judgment on the best mentor teachers' role and agree with Williams et al. (1998) who state that a mentor teacher whose supervisory approach matches with the prospective teachers' needs is more effective. Moreover, prospective teachers report different preferences concerning the supervisory approach (Copeland, 1982; Glickman, 1985). Hence, we argue that prospective teachers' learning improves if mentor teachers are better at adapting to individual differences between prospective teachers and to different workplace situations in which several workplace features interact differently with specific characteristics of individual prospective teachers. Empirical evidence confirms the influence of personal and contextual (workplace) factors on (prospective) teachers' learning processes. Prospective teachers have different learning styles, which partially depend on their orientations towards learning (Korthagen, 1988; Oosterheert & Vermunt, 2001). Prospective teachers' professional development takes place at different speeds, and thus, their needs and concerns change over time (Furlong & Maynard, 1995). The quality of learning outcomes is also determined by the workplace (Eraut, 2007; Eraut, Alderton, Cole, & Senker, 1998). Holton and Baldwin (2000) identified several features of the workplace influencing transfer of knowledge and skills. In the context of teacher education Geldens (2007) identified four characteristics of a powerful learning environment on the workplace: competences, continuity, cooperation agreements, and mentoring and coaching.

All the above mentioned factors create a diversity of supervisory contexts and situations, which the mentor teacher has to anticipate on by developing a versatile repertoire of supervisory skills. This viewpoint is rooted in a situated constructivist perspective on (teachers') learning (Bereiter & Scardamalia, 1993; Eraut, 2000; Lave & Wenger, 1991; Schön, 1983). How a person learns a particular set of knowledge and skills is strongly intertwined with the situation in which this person learns.

In the last 15 years, a lot is published about mentoring and the required change in mentor teachers' behaviour and roles in dialogues. This study shows that in practice a change in mentor teachers' supervisory behaviour hardly takes place. Mentor teachers tend to work mostly from the imperator role. To be flexible in their approach mentor teachers should be

able to take several roles in dialogues as distinguished in the MERID model. To put these roles into practice mentor teachers need a versatile supervisory repertoire. This requires training of mentor teachers (Gallego, 2001; Geldens, 2007; Giebelhaus & Bowman, 2002; Odell et al., 2000). Effects of such trainings are reported to varying degrees (Edwards & Green, 1999; Evertson & Smithey, 2001; Harrison et al., 2005; Strong & Baron, 2004; Timperley, 2001; Veenman & Denessen, 2001). However, the available empirical evidence is still limited and too diverse to allow drawing definite conclusions about the influence of mentor teacher training on the use of supervisory skills.

The MERID model can provide conceptual coherence in studying mentor teachers' supervisory behaviour. It may contribute to a more conscious use and a better identification of mentor teachers' roles in dialogues. In this way the model may support further reflection on mentoring as well as the development of fruitful approaches for supporting mentor teachers in their work. After all, the mentor teachers seem to play a crucial role in the professional development of our future teachers.

3

Exploring a two-dimensional model of mentor teacher roles in mentoring dialogues

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Exploring a two-dimensional model of mentor teacher roles in
mentoring dialogues.

In the study reported in this chapter, a two-dimensional model of mentor teacher roles in mentoring dialogues, entitled MERID, is explored empirically. Data regarding five aspects of mentoring dialogues were collected, using a sample of 20 transcriptions of mentoring dialogues, in which 112 topics were discussed and 440 mentor teacher utterances emerged. Correlations between the five aspects were determined and a cluster analysis was conducted. There is empirical support for the model and it is a useful framework to promote reflection on mentor teachers' supervisory behaviour.

1 Introduction

The move towards school-based teacher education has made the role of the mentor teacher more important (e.g. Edwards & Protheroe, 2004). Mentor teachers are influential because of their close interaction with student teachers. They are usually the first to be consulted since they are physically near to the student teacher. Mentor teachers are seen as a valuable information source because of their experience as a teacher (Zanting, 2001). Roles that mentor teachers take during the mentoring process are to a great extent visible in the intentions, content and approach of their dialogues with student teachers (Edwards & Protheroe, 2004). These roles differ and, consequently, may have different effects on the student teachers' learning and professional development (Kremer-Hayon & Wubbels, 1993). A disparity between the learning needs of individual student teachers and the mentoring approach they experience, may lead to a student teacher's withdrawal from teacher education. Also, it may limit chances for student teachers to reach their best possible level of competence (Copeland, 1982; Williams et al., 1998). For these reasons, investigating mentor teacher roles in mentoring dialogues is relevant.

Hence, the focus of the present study is to explore empirically a two-dimensional conceptual model of mentor teacher roles in mentoring dialogues, developed by Hennissen, Crasborn, Brouwer, Korthagen, and Bergen (2008) and entitled MEntor (teacher) Roles In Dialogues (MERID). The model can be helpful in providing a language which enables educators and researchers to observe, describe, analyse and compare mentor teacher supervisory behaviour in mentoring dialogues. This model may offer a basis for the development of instruments for collecting data about and encouraging reflection on mentor teachers' supervisory behaviour in mentoring dialogues.

For the purpose of this study, we define *mentoring* as the one-to-one support of a student teacher by a more experienced teacher. We use the word *mentor teacher* for a teacher of pupils with an additional responsibility as a mentor of student teachers. We use the term *student teacher* for teachers who are participating in an initial teacher education programme. The expression *mentoring dialogue* refers to a formal two-way conversation between mentor teacher and student teacher.

1.1 Overt aspects of mentoring dialogues

In the context of training and supervising teachers, quite some research has been done on how mentor teachers function (Hawkey, 1998a). In particular, to describe and analyse mentor teachers' supervisory behaviour, separate overt aspects of mentoring dialogues have been studied in a variety of circumstances and from various perspectives. In empirical research on mentor teachers' supervisory behaviour in mentoring dialogues, five distinct research objects can be identified: degree of input, degree of directiveness, time aspects, nature of the content, phasing of the dialogue (Hennissen et al., 2008).

With respect to mentor teachers' *degree of input*, research results indicate that mentor teachers are the ones who generally take the most initiative in mentoring dialogues and usually decide upon the topics to be discussed (Feiman-Nemser et al., 1992; Geldens, 2007; Haggarty, 1995; Hughes, 1998). Regarding mentor teachers' *degree of directiveness*, Blumberg (1970, 1980) made a main distinction between a direct and an indirect supervisory style, indicated by supervisory skills *telling and criticising* and *asking and listening*, respectively. Generally, it can be concluded from the literature that mentor teachers who use their conversational turns mainly to *bring in* information (ideas, perspectives, suggestions, feedback, views, instructions) have a more directive supervisory style than mentor teachers who use their conversational turns to *bring out* information from student teachers, for example by asking questions, summarising and active listening (Ben-Peretz & Rumney, 1991; Evertson & Smithey, 2001; Franke & Dahlgren, 1996; Harrison et al. 2005; Williams et al., 1998). In general, mentor teachers' supervisory style and/or use of supervisory skills can be described as for the most part directive (Strong & Baron, 2004), and they tend to use their own knowledge and experience as a teacher as the source for the dialogue (Edwards & Protheroe, 2004; Haggarty, 1995).

As regards *time aspects*, the duration of mentoring dialogues differs a lot (Edwards & Collison, 1996; Strong & Baron, 2004). According to Dunne and Bennett (1997) and Hughes (1998), mentor teachers use more speaking time during the dialogue than student teachers. Hawkey (1998b) concludes from research that mentor teachers who are directive in style may use more speaking time than a more non-directive mentor teacher. Consequently, there may be a correlation between mentor

teachers' speaking time and the degree of directiveness of the mentor teachers.

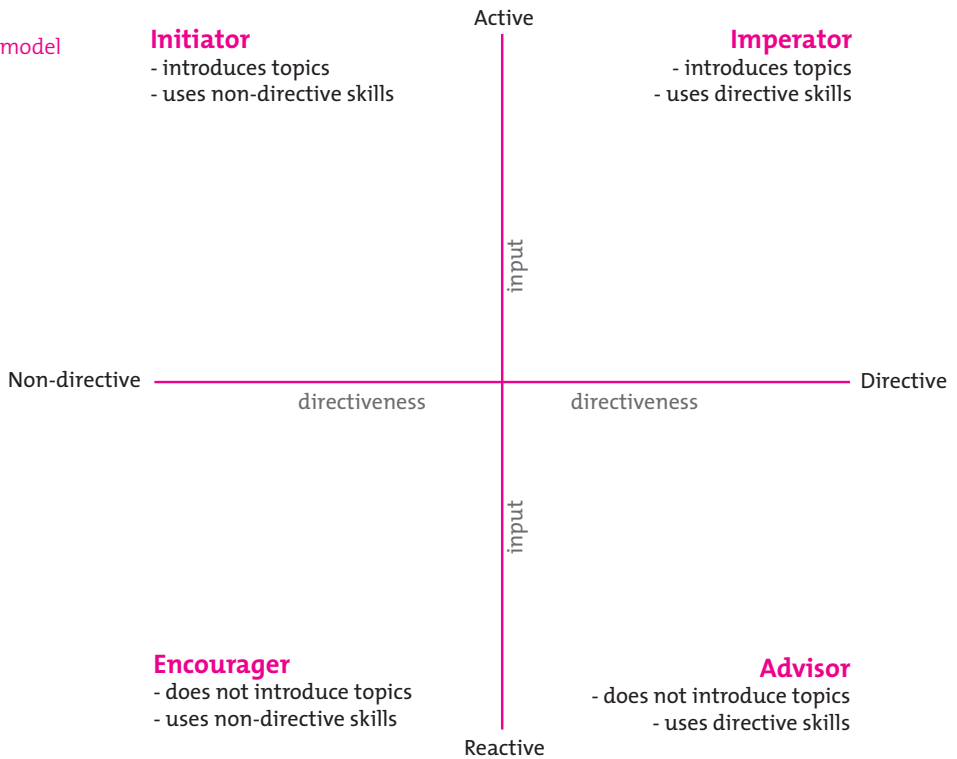
Concerning the *nature of the content*, four main categories can be derived from the literature: instruction and organisation, the pupils and the class, subject matter and a category various (Borko & Mayfield, 1995; Coulon, 1994; Edwards & Collison, 1996; Hawkey, 1998a; Orland-Barak & Klein, 2005; Strong & Baron, 2004). Topics discussed during mentoring dialogues are mainly about instructional and organisational situations and to a lesser degree about individual pupils, the class or the subject matter (Coulon, 1994; Edwards & Protheroe, 2004).

With regard to the *phasing of dialogues*, research results seem point at a twofold division: looking back on what happened in (a) previous lesson(s) and/or looking ahead how to conduct (the) future lesson(s) (Ben-Peretz & Rumney, 1991; Evertson & Smithey, 2001; Korthagen, 2001b; Wang et al., 2004). Harrison et al. (2005) term these categories deconstructing and/or constructing practice, respectively.

1.2 The MERID model

A difficulty with previous empirical research efforts is that they resulted in descriptions of separate aspects of mentoring dialogues and/or mentor teachers' supervisory behaviour. To our knowledge, the above mentioned five overt aspects of mentoring dialogues only have been investigated as more or less separate entities. However, mentor teachers' supervisory behaviour in mentoring dialogues is not one-dimensional. It is a combination of several aspects, which taken together, produces a predominant mentor teacher role. Hence, a more integrated conceptualisation and a research based description of mentor teachers' roles in mentoring dialogues, would produce a sharper picture and a more differentiated analysis and description of mentor teachers' supervisory behaviour in mentoring dialogues.

Figure 3.1
The MERID model



For this reason, based on a review study, Hennissen et al. (2008) proposed a conceptual model connecting two overt aspects of mentoring dialogues. The model is entitled MEntor (teacher) Roles In Dialogues (MERID). The empirical data from the investigations included in the review study indicated that overt differences between mentor teachers were only reported with regard to the aspects 'input' and 'directiveness'. This is why the authors of the review study selected these aspects as relevant to constitute the model and, subsequently, to conceptualise mentor teacher roles in mentoring dialogues. Combining both aspects in the MERID model may be helpful in discriminating empirically mentor teachers roles in mentoring dialogues in an explicit and specific way.

The vertical axis of the MERID model (Figure 3.1) represents the dimension input, indicated by the degree to which topics are introduced into the dialogue by the mentor teacher. This dimension is a continuum with two poles: active and reactive. The horizontal axis represents the dimension directiveness, which indicates the degree to which the mentor teacher steers the course of the dialogue. This dimension is a continuum with two poles: directive and non-directive. Hawkey (1998b) established that a mentor teacher who has a directive style talks the most in the dialogue. Hennissen et al. (2008) hypothesised that there is a positive correlation between the MERID model's dimension directiveness and speaking time. A mentor teacher who is directive in style may use more speaking time than a non-directive mentor teacher and vice versa.

The dimensions 'input' and 'directiveness' are assumed to be independent of each other. The combination of both dimensions results in the conception of four different mentor teacher roles in mentoring dialogues: imperator, initiator, advisor and encourager. The four quadrants in the MERID model will now be illustrated with transcribed excerpts from four distinct mentoring dialogues.

- 1 Initiator** The role in the upper left quadrant is referred to as initiator. The mentor teacher (MT) introduces the topic *first impressions of the school* and subsequently uses non-directive supervisory skills to encourage the student teacher (ST) to further reflect on the topic:

MT: *Okay Ella, you've been here now for several days. What are your first impressions of the school?*

ST: *Well, I immediately felt welcome in the team. As soon as I introduced myself I felt at home. Also, considering it's an old building it's very nice and convenient.*

MT: *So, you feel at home as a member of the team, and you like the school building.*

ST: *Yes...*

MT: *What made you feel welcome in the team?*

ST: *Well, the colleagues invited me to sit with them during lunch and offered me their help when I should need it. They also asked me if I would like to come to the school party next weekend.*

2 Imperator The role in the upper right quadrant is referred to as imperator. In the example, the mentor teacher introduces the topic *use of notebook* and subsequently uses directive supervisory skills to guide the dialogue:

MT: *Ella, in the reading comprehension lesson you carried out, I saw you had a correct diagram on the blackboard. Very good!*

ST: *Yes.*

MT: *But, I saw that Paula wrote on a small piece of paper. You know, the agreement is that she must use her notebook. You should have told her to do so.*

ST: *Yes, I wanted her to write it in her notebook, but I forgot to give special attention to her, because a few other pupils were asking questions.*

3 Advisor The role in the lower right quadrant is referred to as advisor. The mentor teacher reacts to the topic introduced by the student teacher of *involving pupils in the lessons*, and subsequently uses a directive supervisory skill by giving direct advice on what to do:

ST: *Hello Albert, I have a question. When I am sitting in a circle with these young pupils, how can I ensure that they are involved in the story I am telling? There always seem to be some children who just look around and don't respond to me.*

MT: *Yes Ella, I understand your problem. Everyone of course has different interests and some pupils are more interested than others. Personally, I think that it very much depends on you to make the topic interesting and attractive by how expressive you are and by your own body language. Constantly warning pupils doesn't help. Just saying "pay attention" will get you nowhere. You can involve pupils by maintaining eye contact, by making a gesture such as a wink, by asking questions, and by walking up to them to correct them.*

4 Encourager

The role in the lower left quadrant is referred to as encourager. The mentor teacher reacts to the topic introduced by the student teacher of *dealing with pupil* and subsequently uses non-directive supervisory skills (for example, summarising content, summarising feeling [showing empathy], and asking open questions) to induce the student teacher to explore her concern:

MT: *Hello Ella. How are things going?*

ST: *Well, the new pupil Yvonne is talking about leaving school. She is always saying things like "I want to leave school and I am going to talk to my mother about it." And then I am unsure of how to react. She is constantly asking for attention, but there are more children who need that too. I can't give her all the attention she seems to need. If I ignore her, she just carries on talking. I really don't know anymore how to react. May be I should arrange a talk with her and her mother.*

MT: *You are confused because you don't know how to deal with Yvonne, who is constantly asking for your attention.*

ST: *That's right. I don't like it when she says these things, but it is a sign. I want to know why she's acting like that.*

MT: *Yes. Can you think of a specific situation in which this kind of behaviour occurs?*

Although the dimensions and the roles of the MERID model may provide greater specificity in describing mentor teachers' roles in mentoring dialogues, the model has resulted from a theoretical analysis of the literature and has not yet been explored empirically and subsequently utilised in research. The scientific and practical relevance of the model can be enhanced by empirical evidence supporting the model. To achieve this, in the present study the MERID model will be explored empirically in a three-fold way. Firstly, by exploring the degree to which each dimension of the model contributes to the model separately. Such an exploration is important to establish initially if both dimensions of the MERID model can be helpful in producing a sharper picture and a more differentiated description of mentor teachers' supervisory behaviour in mentoring dialogues. Secondly, by exploring if the three other overt aspects of mentoring dialogues, namely speaking time, content and phasing, which

also emerged from the research review, are linked to the dimensions of the MERID model. Finally, by investigating if the four conceptual mentor teacher roles, as distinguished by the MERID model, can also be established empirically and, consequently, may enhance the relevance of the model.

1.3 Research questions

The research questions guiding this study were:

1. Are the dimensions input and directiveness of the MERID model independent of each other?
2. To what extent do the aspects speaking time, content and phrasing correlate with any of the dimensions of the MERID model?
3. How can the extracted key aspects be connected to build a conceptual framework for studying mentor teachers' supervisory behaviour in mentoring dialogues?

2 Method

2.1 Context and participants

This study was carried out previously to the implementation of a training programme for mentor teachers, entitled Supervision Skills for Mentor teachers to Activate Reflection in Teachers, abbreviated as SMART. The participants in the present study were 20 mentor teachers from primary education in the Netherlands who applied to participate in the SMART programme. Eight mentor teachers participated in 2000 and twelve mentor teachers took part in 2001. On characteristics as sex, age, education and experience as a (mentor) teacher both groups are comparable. In the total group of participants, there were ten women and ten men, all of whom had a student teacher under their guidance. The participants' ages ranged from 26 to 55 and averaged 48. As a group, on average the participants had 16 years of teaching experience and an average of eight years of experience in mentoring student teachers. Not one of them had been trained in mentoring skills before.

2.2 Data collection

One month before the SMART training, each mentor teacher was asked to carry out a mentoring dialogue with a student teacher after the student teacher had given a lesson. The dialogue had to be conducted within 24 hours after the lesson and the student teacher needed to give his or her permission for the dialogue to be audio-taped. The form of assessment used was a work sample test (Straetmans, 1993). In such an assessment, participants have to perform tasks in real settings, which are considered to be a sample of similar tasks in the work situation. The mentor teachers carried out a mentoring dialogue with a student teacher, in the last half year of a pre-service teacher education programme, whom they were already mentoring at the time of recording. All mentor teachers had one student teacher under their guidance. Hence, the audio recording of the mentoring dialogue had to be made with this specific student teacher. The mentor teachers had explicit instructions to conduct the dialogue as they were used to do in their normal mentoring practice.

2.3 Transcription, coding and analysis

As an empirical basis for the exploration of the MERID model, data regarding the five key aspects of mentoring dialogues were collected. To realise this, all 20 recorded mentoring dialogues were transcribed literally from audiotapes. Table 3.1 shows an example of a transcription. The time in minutes is noted in column 1. Utterances were marked as separate using the principle of turn taking (Table 3.1, column 3). The moment when a mentor teacher commences speaking, marks the beginning of a mentor teacher's conversational turn. A mentor teacher's turn ends the moment the student teacher commences speaking. In total, 440 utterances of the mentor teachers were registered. Three raters were prepared and trained for the task of labelling four aspects of the recorded mentoring dialogues, namely *introduction of the topic* (Table 3.1, column 4), *directiveness of mentor teachers' utterance* (Table 3.1, column 5), *content of the discussed topic* (Table 3.1, column 6) and *type of dialogue phasing* (Table 3.1, column 7). For these coding tasks a written scoring procedure was developed. The aspect *mentor teachers' speaking time* was established by using the time codes (Table 2, column 1).

Table 3.1
Example of coded transcription

Time (min)	Interlocutor	Utterances of mentor teacher and student teacher	Codes			
			(4)	(5)	(6)	(7)
			Input Topic	Directive-ness	Content Topic	Phasing Dialogue
Topic 4: stop or continue			Active			
4.03	Mentor teacher	I thought that the lesson on the whole went very well. It was well structured. You looked at me a couple of times as if you wanted to say: "What should I do now?". Did you want me to tell you whether to continue or not?		BOT		
4.08	Student teacher	Yes, I wasn't sure. Normally your math lesson goes till half past nine, but it was already a quarter to ten and we weren't finished with the exercise. The children were working well on the sums with the measurements of volume. But if we had gone on too long with the exercise I may not have had time to begin the project <i>Bullying at school</i> .			I	B
4.20	Mentor teacher	Well I think you made the right decision to go on with the math exercise. If you had stopped, you might have had to explain more the next lesson and that would have taken up more time.		BIT		

The fourth column shows the code assigned to the introduction of the topic by the mentor teacher. The fifth column shows the codes assigned to the degree of directiveness: BOT = Bringing Out Turn, BIT = Bringing In Turn. The sixth column shows the code assigned to the content of the topic: I = Instruction and organisation. The seventh column shows the codes assigned to the phasing of the dialogue: B = looking Back.

- Input** The degree to which the mentor teachers' input is *active* or *reactive* (vertical dimension of the MERID model) was examined by looking at the dialogue and deciding who of the interlocutors introduced a topic. Firstly, the number of discussed topics was determined by two researchers who both read all the transcripts several times and independently recognised the number of topics covered. Then after consultation, the final number of topics was established on the basis of consensus. In total, 112 separate topics were recognised in the 20 dialogues in the sample. Within one thematic context, various topics can be discussed. For example, in the situation of an arithmetic lesson, the topics could be *helping an individual pupil* and also *group instruction on working independently*. Also, if the

mentor teacher gives feedback or makes suggestions, this can cover various topics. For example a mentor teacher may say, “Your voice is loud and clear, but your intonation could do with some improvement” (Topic 1), following with “Pupils started working immediately without further questions because your instructions were clear” (Topic 2).

Secondly, three raters read the transcripts and decided independently how each topic was introduced into the dialogue. To label the introduction of a topic into a dialogue, three coding categories were used: *active*, *reactive* and *active-reactive* (see Table 3.1, column 4). When a mentor teacher introduced the topic, this was labeled as active. A mentor teacher introducing a topic may say: “Can you explain to me the diagram you drew on the blackboard?” When a mentor teacher reacted on a topic which was introduced into the dialogue by the student teacher, the label reactive was assigned. A student teacher introducing a topic may say: “What do you think about the difficulty of the assignment the pupils had to complete in my lesson?” When a mentor teacher and a student teacher introduced a topic in collaboration, this was coded with the label active-reactive. For example, the mentor teacher may say: “I would like to discuss the arithmetic lesson”. The student teacher subsequently could utter: “Yes, the pupils were very unruly during that lesson. I would like to discuss how to deal with that”. In this last example, the mentor teacher first delineates a context (arithmetic lesson), and subsequently, the student teacher focuses on how to deal with unruly pupils in that lesson. On average, for each of the three combinations of two raters, Cohen’s kappa (Cohen, 1988) of the aspect input was .80, the lowest kappa being .75.

2 Directiveness

The degree of directiveness of a mentor teacher (the horizontal dimension of the MERID model) was examined by categorising all mentor teachers’ utterances from the transcripts. In the present study, a viable twofold category system was used which is based on the distinction between direct and indirect supervisory behaviour (Blumberg, 1970, 1980). As explained in Section 1.1, mentor teachers who use their conversational turns mainly to *bring in* information (ideas, perspectives, suggestions, feedback, views, instructions) have a more directive supervisory style than mentor teachers who use their turns to *bring out* information, for example by asking questions, summarising and active listening. We named these types of conversational turns as bring in turn (BIT) and bring out turn (BOT), respectively.

In order to assess mentor teachers' supervisory style, each conversational turn was labeled as BIT or BOT. Three raters independently read the transcripts of all 440 conversational turns of the group participants and assigned one of the two codes to each turn (Table 3.1, column 5). When, in some cases, both types of supervisory skills were performed during one turn, only the last type was coded, because in almost all cases this was the trigger for the student teacher's reaction. On average, for each of the three combinations of two raters Cohen's kappa of the aspect directiveness was .84, the lowest kappa being .78.

3 Speaking time, content and phasing

The total duration time of each of the recorded and transcribed mentoring dialogue, as well as how long the mentor teacher contributed to the dialogue, was determined with the help of the time codes (Table 3.1, column 1). To investigate the content of the dialogues, all 112 topics established in the dialogues were coded, using four main categories of contents: *instruction and organisation* (I), *the pupils and the class* (P), *subject matter* (S) and a category *various* (V). Three raters independently read the transcripts of all 112 topics from the dialogues, and then placed the topics in one of the four categories (Table 3.1, column 6). On average, for each of the three combinations of two raters, Cohen's kappa of the aspect content was .79, the lowest kappa being .76.

To label the phasing of recorded mentoring dialogues, three main categories were utilised: *looking Ahead to a future teaching activity* (A), *looking Back on a previous teaching activity* (B) and *looking Back and looking Ahead to a teaching activity* (BA). The coding task consisted of determining which type of phasing occurred during each separate topic that was discussed in the dialogues. Three raters independently read the transcripts of all 112 topics and assigned a code to each separate topic discussed in the dialogues (Table 3.1, column 7). On average, for each of the three combinations of two raters, the Cohen's kappa of the aspect phasing was .89, the lowest kappa being .85.

4 Data analysis

For each of the five investigated aspects descriptive statistics were used. These are presented in Table 3.2. To answer the first research question about the independence of the MERID model's dimensions, two codes were assigned to each of the 440 mentor teacher turns. Firstly, the label bring in turn (BIT) or bring out turn (BOT) was given to each turn, representing the MERID model's dimension directiveness. Secondly, also the label active, reactive or active-reactive, representing the dimension

input, was assigned to mentor teachers' conversational turns. Throughout the discussion of one distinct topic, all mentor teachers' conversational turns were classified with one identical label. For example, when a mentor teacher introduced the topic and made use of six turns in discussing this with the student teacher, all these six mentor teacher turns were labelled as active. Subsequently, a chi-square test, using Cramér's V (Cramer, 1998) and a log linear analysis (Agresti, 2007), were carried out on the scores, in order to assess the existence and extent of a possible association between the two dimensions of the MERID model.

To answer the second research question, to what extent other variables link to the dimensions of the MERID model, Pearson correlations (two-tailed) were used to determine whether, and to what extent, the aspects speaking time, content and phasing are related to the dimensions of the MERID model, respectively input and directiveness.

Research question 3, aiming at empirical identification of homogeneous groups of mentor teachers, was answered by conducting a cluster analysis (Everitt, 1980) in an attempt to identify relatively homogeneous groups of cases in the sample, based on a combination of the aspects input and directiveness. The percentages in column 5 and column 9 (Table 3.2) were used to conduct the cluster analysis, in which the number of cluster divisions was varied from 2 to 6 groups. This was done through a procedure of composing groups being diametrically opposed on the two dimensions of the MERID model (input and directiveness), while at same time being maximally homogenous as a group, by means of the algorithm of squared Euclidean distances.

In addition, by means of the Ward estimation procedure, the criterion was applied that the group composition had to be such as to provide an optimal explanation for the variance on the two dimensions. Subsequently, an analysis of variance was carried out to determine for each of the cluster divisions (2, 3, 4, 5 and 6 groups) the means and standard deviations for each of the types within the clustering and to determine how much variance the clustering explained in total. To determine the optimal number of clusters it is essential to meet a balance between two criteria. The group size should be sufficiently large so as to prevent individuals from having too much effect on the group division. At the same time, the percentage of variance explained should be as high as possible, i.e. when the percentage no longer goes up, the limit for the number of clusters is reached.

3 Findings

3.1 Observations of five aspects

The data with regard to the vertical dimension *input* of the MERID model show that the group of mentor teachers is for the most part active: on average they introduced 73% of the total of 112 discussed topics (Table 3.2, column 3). The standard deviations point to individual differences between mentor teachers. In some of the recorded dialogues (number 10, 15 and 17) mentor teachers for the most part are reactive, 67% and 75% respectively. They react on topics introduced by student teachers. As regards the horizontal dimension *directiveness* of the MERID model, the data show that on average 49% of the conversational turns of the group of mentor teachers fall in the directive category BIT (Table 3.2, column 7) and 51% of the mentor teacher turns are fall in the non-directive category BOT (Table 3.2, column 8). For this variable too, there are individual differences. For example mentor teachers 6 and 7 used more BITs than BOTs as opposed to mentor teachers 11 and 12 who used more BOTs than BITs.

Table 3.2
Five observed aspects of mentoring dialogues

(1) No. Dialogue	Input				Directiveness			
	(2) No. initiated topics	(3) Active	(4) Reactive	(5) Active minus Reactive	(6) No. Turns MT	(7) BITs	(8) BOTs	(9) BITs minus BOTs
	Abs.	%	%	%	Abs.	%	%	%
01	06	83	17	67	16	56	44	13
02	09	78	22	56	34	59	41	18
03	10	90	10	80	19	58	42	16
04	07	86	14	71	44	50	50	0
05	09	78	22	56	27	56	44	11
06	06	58	42	17	42	71	29	43
07	01	50	50	0	12	67	33	33
08	07	79	21	57	26	46	54	-08
09	07	100	0	100	16	25	75	-50
10	04	25	75	-50	12	50	50	0
11	03	67	33	33	12	08	92	-83
12	08	69	31	38	25	20	80	-60
13	06	92	08	83	24	17	83	-67
14	01	100	0	100	20	25	75	-50
15	03	33	67	-33	18	72	28	44
16	13	92	08	85	48	73	27	46
17	03	33	67	-33	10	30	70	-40
18	03	100	0	100	11	73	27	45
19	05	90	10	80	15	53	47	07
20	01	50	50	0	09	78	22	56
Total	112				440			
Mean	5.6	73	27		22	49	51	
SD	3.27				11.79			
Kappa		0.80				0.84		

* Column 3: To calculate the percentage of topics the MT introduces into the mentoring dialogue, each instance an interlocutor (MT or ST) introduces a topic (s)he acquires (half) a point. For example, when of a total of seven topics discussed during a dialogue, the MT introduces four topics, the ST two topics and together they initiate one topic, the proportion input for the MT is calculated as $4.5 : 7 = 65\%$. Automatically, it becomes clear that 35% of the input of the MT is reactive, in the sense that (s)he is reacting on a topic that has been introduced by the ST (column 4).

3 Exploring a two-dimensional model of mentor teacher roles in mentoring dialogues

Speaking time		Content				Phasing		
(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Total	MT	I	P	S	V	B	A	BA
Min.	%	%	%	%	%	%	%	%
03.50	57	83	17	0	0	67	33	0
15.41	75	78	11	0	11	67	0	33
17.00	40	60	20	0	20	60	20	20
13.58	71	43	14	43	0	71	0	29
24.33	58	56	22	0	22	56	33	11
25.20	42	67	33	0	0	67	0	33
05.35	20	0	100	0	0	100	0	0
07.15	43	57	14	0	29	86	0	14
07.30	40	57	0	0	43	86	14	0
06.12	31	0	50	50	0	100	0	0
03.00	51	100	0	0	0	100	0	0
10.55	43	38	0	0	63	38	12	50
09.17	46	0	67	17	17	83	17	0
04.32	67	0	100	0	0	0	0	100
09.39	57	33	67	0	0	0	33	67
14.40	75	92	08	0	0	54	15	31
04.17	11	33	67	0	0	100	0	0
03.24	60	33	33	33	0	67	0	33
07.29	45	60	20	0	20	50	50	0
01.45	57	100	0	0	0	100	0	0
195.34								
9.46	52	50	32	07	11	68	11	21
6.49								
0.79						0.89		

* Column 5: MT is actively introducing topics minus MT is reacting on input topics by ST; rounded results of detracton of one-decimal %.

* Column 9: BITs - BOTs = Bringing In Turns minus Bringing Out Turns (rounded results of detracton of one-decimal %).

* Column 12 (Instruction & organisation); Column 13 (Pupils & class); Column 14 (Subject matter); Column 15 (Various),

* Column 16 (B= looking Back); Column 17 (A= looking Ahead); Column 18 (BA= looking Back & Ahead).

* % in columns 12, 13, 14, 15, 16, 17 and 18 are calculated as a proportion of the total number of initiated topics (column 2) in the dialogue.

Regarding the time aspect *speaking time* of the mentor teacher, the data show that the recorded dialogues lasted 10 minutes on average (Table 3.2, column 10). The total time of the dialogues, however, varied considerably, from nearly 2 minutes (mentor teacher 20) to more than 25 minutes (mentor teacher 6).

The mentor teachers on average used almost one half (49%) of the speaking time (Table 3.2, column 11), but there are huge individual differences between mentor teachers with regard to this aspect. Mentor teacher 17, for example, led the dialogues for 11% of the time, while mentor teacher 2 led 75% of the time. As regards the aspect *content*, the data show that on average 50% of the total of 112 discussed topics fall in the category instruction and organisation (column 12), 32% in the category the pupils and the class (Table 3.2, column 13), 7% in the category subject matter (Table 3.2, column 14) and 11% in the category various (Table 3.2, column 15). With regard to the aspect *phasing*, the data demonstrate that in the group of mentor teachers the discussion of a topic in 68% of the cases only consisted of looking Back on previous teaching activities. Looking Ahead to a future teaching activity occurred significantly less frequently, i.e. in only 11% of the topics. In 21% of the topics discussed during the dialogues, looking Back and looking Ahead occurred.

3.2 The status of the MERID model's dimensions

Table 3.3
Crosstabulation
Directiveness and Input

		Input			Total
		Active	Active-Reactive	Reactive	
Directiveness	BOT	131	53	22	206
	BIT	168	44	22	234
	Total	299	97	44	440

Concerning research question 1, a chi-square test carried out on the data of Table 3.3, using Cramér's V, shows that on the basis of this sample, the null hypothesis, assuming independence of both variables, could not be rejected (chi-square = 3.65; df = 2; p = .16; V = .09). In addition, to investigate whether the relation between the dimensions directiveness and input differs over the 20 dialogues, we carried out a hierarchical log linear analysis on the table of 20 (dialogues) x 2 (labels directiveness) x 3 (labels input). The model without three-factor interaction fits the data well

(Pearson chi square = 15.8, $df = 38$, $p = .999$), showing that there is no evidence for a different relation between directiveness and input over the dialogues. Based on these statistical analyses, we cannot conclude that the dimensions of the MERID model are dependent.

3.3 Other relationships

Table 3.4
Pearson correlation between five observed aspects of mentoring dialogues

	Content				Phrasing			MT Speaking time
	I	P	S	V	B	A	BA	
Dimensions MERID								
Input	0.16	-0.28	-0.09	0.29	-0.26	0.21	0.17	0.52*
Directiveness	0.23	-0.03	0.04	-0.43	-0.09	0.11	0.03	0.24

*I = Instruction and organisation; P = Pupils & class; S = Subject matter; V = Various
B = looking Back; A = looking Ahead; BA = looking Back & Ahead*

Concerning research question 2, we found that the model's dimension input correlates significantly with mentor teacher's speaking time (Pearson $r = .52$, $p = .02$, see Table 3.4). This result suggests that an increase in the number of topics introduced by the mentor teacher goes hand in hand with an increase of the mentor teachers' speaking time and/or vice versa. The suggestion of other researchers that there might be a positive correlation between the variable 'directiveness' and the variable 'mentor teacher's speaking time' could not be confirmed in the sample of the present study.

3.4 Four empirical clusters

The answer to research question 3 is given by the cluster analysis, which showed a subdivision in four empirical groups. The subdivision in four groups resulted in the most optimal balance between on the one hand explained (additional) variance and on the other hand groups which can be interpreted reasonably. With this subdivision the explained variance of both dimensions (variables) of the MERID model is high: input (Eta squared = .82) and directiveness (Eta squared = .87). A subdivision into more than four groups does not explain constructive additional variance

and a subdivision into less than four leads to groups being hard to interpret. In Figure 3.2 the four clusters are visualised in the MERID model. In Table 3.5 the means and standard deviations of the four empirical clusters in Figure 3.2 are given. Results indicate that the four mentor teacher roles distinguished by the MERID model are to a large extent supported by empirical data in the sample. For each mentor teacher, the percentage in column 5 (Table 3.2) is the position on the vertical axis of the MERID model and the percentage in column 9 (Table 3.2) is the position on the horizontal axis.

Figure 3.2
Four empirical clusters
of mentor teacher
roles visualised in the
MERID model

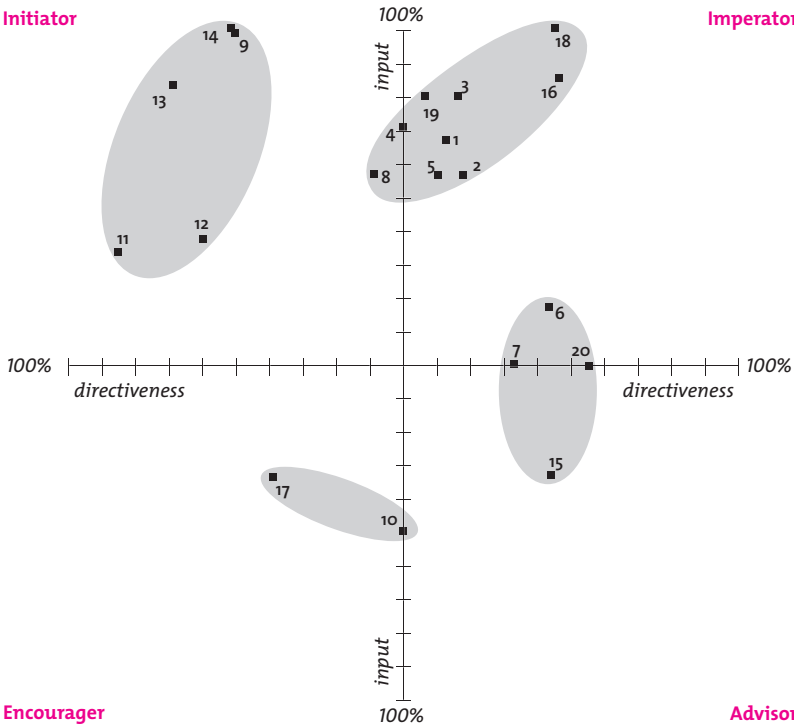


Table 3.5
Means and standard deviations of the four empirical clusters in Figure 3.2

	Input		Directiveness	
	Mean	SD	Mean	SD
Upper right cluster	72.4	15.2	16.4	18.3
Lower right cluster	4.0	20.9	44.0	5.4
Lower left cluster	41.5	12.0	20.0	28.3
Upper left cluster	70.8	33.0	62.0	13.8

In cluster 1, nine mentor teachers (number 1, 2, 3, 4, 5, 8, 16, 18 and 19) come together in the part of the MERID model that largely concurs with the imperator role (45%). This group of mentor teachers introduced the majority of the topics into the dialogues and used directive supervisory skills more frequently than non-directive skills. In cluster 2, four mentor teachers (number 6, 7, 15 and 20) are grouped in and near the quadrant which coincides with the advisor role (20%). These mentor teachers, for the most part, reacted on topics introduced by student teachers. Also, they largely used supervisory skills of a directive nature. In cluster 3, two mentor teachers (number 10 and 17) come together in the part of the model which partially overlaps with the encourager role (10%). In this group, mentor teachers for the most part reacted on topics introduced by the student teacher, using mainly non-directive supervisory skills. In cluster 4, five mentor teachers (no. 9, 11, 12, 13 and 14) group in an area of the model which primarily overlaps with the initiator role (25%). This group of mentor teachers introduced most of the discussed topics and their conversational turns for the most part had a non-directive character.

3.5 Dominance of the imperator role

In the present study, the exploration of the MERID model was based on empirical data with regard to five overt aspects of mentoring dialogues. The data concerning the five investigated aspects show that mentor teachers are the ones who introduce the majority of topics discussed. In terms of the MERID model, this implies that mentor teachers' degree of input (vertical axis of the model) is relatively high. Also, most of mentor teachers' utterances are of a directive nature. In terms of the MERID model, this means that mentor teachers' degree of directiveness

(horizontal axis of the model) is relatively high. Furthermore, as regards the three other overt aspects, data indicate that the amount of speaking time during dialogues differs a lot between individual mentor teachers, the content of the dialogues in most cases refers to instructional and/or organisational situations or problems with pupils in the classroom, and during the dialogues the greater part of the topics is discussed in a retrospective way.

Taken together, in terms of the MERID model, these results indicate that many mentor teachers conduct their mentoring dialogues mainly as an *imperator*. They focus on teaching performance by pointing out as right or wrong elements in what student teachers do during their lessons and that they provide them with tips and suggestions to make improvements.

4 Conclusion and discussion

4.1 Conclusions

The focus of this study was to explore empirically the two-dimensional MERID model, which distinguishes four mentor teacher roles in mentoring dialogues. The study is based on the assumption that the extent to which mentor teachers are able to address mentees' individual needs is an important factor in the success of mentoring. There is no single approach to mentoring that will work in the same way for every student teacher in every context. The findings indicate a beginning of empirical support for the model and its distinction of four mentor teacher roles. As an answer to the first two research questions, the different analyses performed on the data allow for the possibility that the dimensions input and directiveness are independent of each other, although further, more extensive research is needed. In addition, the model's dimension input correlates positively with the aspect speaking time. As an answer to the third research question, empirical support was found for the viability of the four mentor teacher roles as distinguished in the MERID model for studying and discussing mentor teacher roles in mentoring dialogues.

Most mentor teachers in the sample were clustered in the *imperator* group. This finding is consistent with the outcomes of previous research (Crasborn, Hennissen, Brouwer, Korthagen, & Bergen, 2008; Elliot & Calderhead, 1994; Franke & Dahlgren, 1996; Martin, 1996; Timperley, 2001; Williams et al., 1998). One explanation for the prevalence of the *imperator*

role is that mentor teachers are inclined to resort to their expertise as a teacher of children, because they are first of all concerned with effective instruction and pupils' progress, more so than with the learning process of student teachers (cf. Orland-Barak, 2005). Consequently, during mentoring dialogues, mentor teachers' focus is less on student teachers as learners than on the pace at which student teachers cover the prescribed curriculum and on how effectively they manage the children in the classroom while doing so (Edwards & Protheroe, 2004).

4.2 Limitations and further research

In this study, the dimensions input and directiveness could be used to constitute the MERID model. However, this result is based on analyses of a relatively small sample of mentoring dialogues. Further research should ascertain whether independence between these dimensions of the model may be assumed more generally. It should also be borne in mind that, because conversational turns during mentoring dialogues were used to distinguish utterances, the measurements were not entirely independent of each other.

The clusters of mentor teacher roles that were empirically established in this study show a strong overlap with the roles previously derived from a conceptual analysis as visualised in the MERID model, although this overlap was not 100%. Even though the subdivision in four clusters applies to our sample, the stability of these clusters needs to be confirmed for a larger group of mentor teachers. Follow-up research is needed to further elaborate and validate the MERID model. Further research could focus on developing procedures for assessing role profiles of mentor teachers, for example by designing survey questionnaires for mentor teachers and/or student teachers to assess (perceptions of) mentor teacher roles in mentoring dialogues in a viable way and on a larger scale.

Finally, the four mentor teacher roles of the MERID model are based on frequencies of overt supervisory skills related to two behavioural dimensions, namely input and directiveness. However, mentor teachers' supervisory behaviour is not merely an undifferentiated use of skill but also includes contextual understanding. From a socio-cultural point of view, the objective, content, and process of interaction that occur in a mentoring dialogue are shaped by the discourses embedded in the particular cultural and political context within which mentor teachers

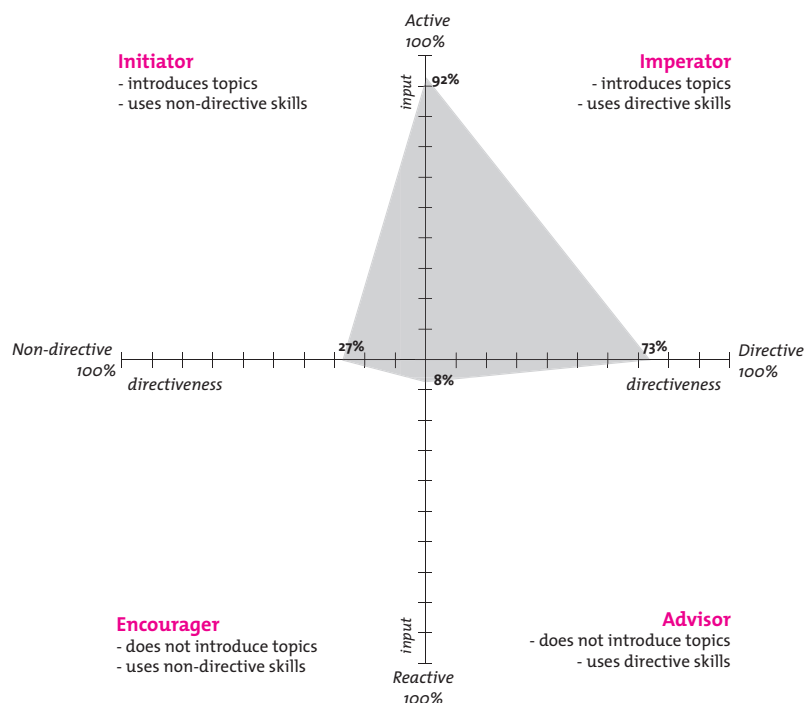
function (Luke, 1996). Mentor teachers constantly have to make decisions about which supervisory skills must be invoked with each student teacher in each context at different times and for different purposes throughout the mentoring process. Hence, roles of mentor teachers' in mentoring dialogues must also be understood as being embedded in mentor teachers' work context (Gee, 1996), and as being shaped by contextual, curricular, population, and school culture factors (Wang, 2001). In addition, Helman (2006) mentions five other factors that were not taken into account in our study: relationship with the mentee, emotional state of the mentee, level of knowledge base of the mentee, goal of the dialogues and external expectations.

4.3 Practical implications

There is widespread agreement in the literature that mentoring is a multifaceted phenomenon and that no straightforward description or guidelines for success can be given (Harrison et al., 2005). Diversity in mentoring situations is the result of several workplace features (Eraut, Alderton, Cole, & Senker, 1998; Holton & Baldwin, 2000) which interact differently with specific characteristics of individual student teachers (Bullough & Draper, 2004; Furlong & Maynard, 1995; Kagan, 1992; Oosterheert & Vermunt, 2001). An essential condition for good mentoring is balancing support with challenging student teachers to learn new things (Dalo, 1986; Rajuan, Beijgaard, & Verloop, 2007; Tang, 2003). Both these arguments call for flexibility in mentor teachers' supervisory behaviour. However, the reality is that most mentor teachers hardly vary their supervisory roles in response to student teachers' changing needs and, either consciously or subconsciously, stick to one typical approach (Williams et al., 1998).

In terms of the MERID model, this means that effective mentor teachers are those who are flexible in using the four roles in mentoring dialogues. As a first step in broadening their repertoires of supervisory roles, it is important that mentor teachers reflect on their prevalent supervisory roles (Kremer-Hayon & Wubbels, 1993). This reflection can be promoted, when feedback about their prevalent roles in mentoring dialogues is presented in various ways. Apart from written or oral information, images or profiles are alternative ways of presenting such feedback. For every mentor teacher, an individual role profile can be drawn, based on empirical data found in this study with regard to the model's dimensions input and directiveness (see Figures 3.3 and 3.4).

Figure 3.3
Profile of mentor
teacher 16 conducting
the mentoring
dialogue primarily as
an *imperator*

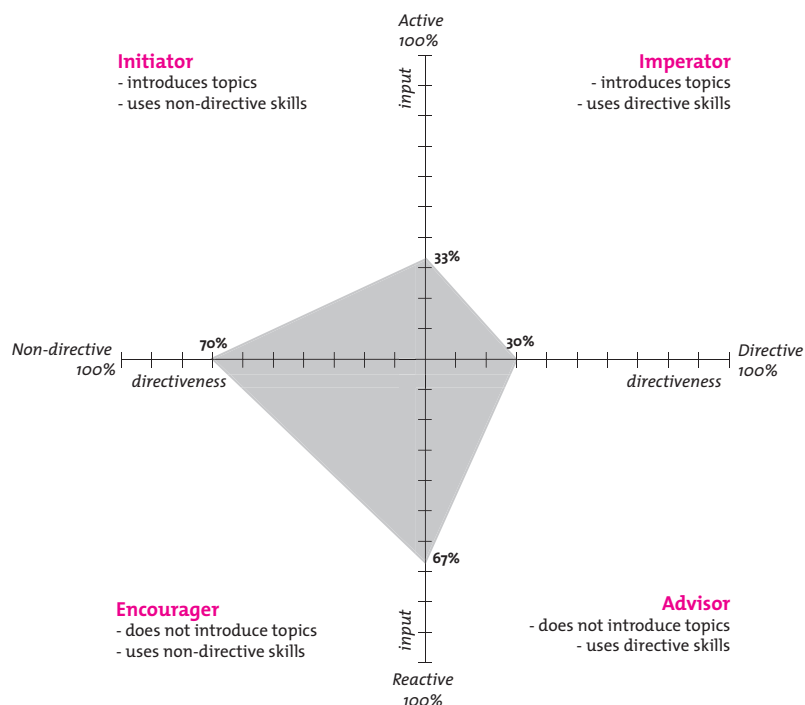


On the upper half of the vertical axis (input), the number of topics introduced by the mentor teacher is given. On the bottom half of this axis, the number of topics introduced by the student teacher (reacted on by the mentor teacher) is presented, both as a percentage of the total of the discussed topics. On the horizontal axis (directiveness), the number of bringing in turns (BITs) of the mentor teacher is given on the right and the number of bringing out turns (BOTs) of the mentor teacher is given on the left, both as a percentage of the total number of mentor teachers' conversational turns. By drawing lines which connect four points on the axes of the MERID model, a role profile of a mentor teacher during specific mentoring dialogues becomes visible in a shaded graph. The greater the shaded part in each quadrant of the MERID model, the more the pattern of mentor teacher's supervisory roles can be characterised by this sector of the model.

For example, Figure 3.3 visualises the role profile of mentor teacher number 16, who can be considered an *imperator*, clearly taking the lead in

initiating topics (92%) and practicing more directive (73%) than non-directive (27%) supervisory skills. Figure 3.4 exemplifies a role profile of a mentor teacher who can be characterised as an *encourager* because topics were for the most part introduced by the student teacher (67%) and the conversational turns of the mentor teacher were mostly non-directive (70%).

Figure 3.4
Profile of mentor
teacher 17 conducting
the mentoring
dialogue primarily as
an *encourager*



Such profiles can be effective tools for reflection because they can be used to conceptualise and summarise complex and interrelated information in a way that can be easily comprehended and, subsequently, can stimulate links within a person's own knowledge (Copeland, Birmingham, de la Cruz, & Lewin, 1993; Korthagen, 1993; Weber & Mitchell, 1996; Wubbels, 1992). Hence, drawing out (combinations of) individual mentor teachers' roles in a profile based on the MERID model, may provide clues for reflection and, subsequently, for changes in and enlargement of mentor teachers' role repertoires.

In order, to provide mentor teachers with feedback about their own supervisory behaviour, not only the observer's perception can be taken into account, but also the student teacher's perception. According to Martin (1996), the effectiveness of mentor teachers' supervisory behaviour is largely determined by the perceptions of student teachers. Blumberg (1980) in his research on mentor teachers' styles in mentoring dialogues stated that "How a person perceives the behaviour of another is much more important than the behaviour itself" (p. 63). This viewpoint implies that it is important to strive for a successful match between a mentor teacher's supervisory approach and a student teacher's learning needs during the mentoring process. To help mentor teachers and their mentees to understand how their stances and interactions may contribute to the mentoring process, mentee-mentor pairs might, on a regular basis, talk explicitly about their perceptions and expectations regarding their roles and contributions in mentoring dialogues. Drawings of role profiles based on the MERID model may be helpful to set the stage for a reflective conversation.

A sequence of three steps could be used to structure this joined reflection. Firstly, the student teacher and the mentor teacher may together look back on a series of mentoring dialogues by independently making a drawing of the mentor teacher's role profile based on the MERID-model, indicating their current individual perception of the mentor teacher's prevalent supervisory role(s) in the mentoring process until that moment. Guiding questions to facilitate the drawing of the profile could be: To what extent did the student teacher or the mentor teacher introduce the discussed topics in the previous mentoring dialogues? To what extent is the mentor teacher *telling and criticising*? To what extent is the mentor teacher *asking and listening*?

Next, to become aware of latent discrepancies and/or mismatches regarding their mutual expectations of roles and behaviour in the mentoring process, the student teacher and the mentor teacher can discuss similarities and differences between their perceived role profiles. During this exchange, it would be important that both the student teacher and the mentor teacher express their perceived and any desired role profiles concretely in terms of both dimensions of the MERID model: the degree of input and the degree of directiveness. For example, a student teacher perceives the role of the mentor teacher to be mainly that of *encourager*, because in most mentoring dialogues, the mentor

teacher invites her to bring classroom experiences into the dialogue. After that, the mentor teacher listens and asks questions about what happened, what is essential, and what would be more effective to do a next time in similar circumstances. Nevertheless, the student teacher would prefer the mentor teacher to give more feedback and direct advice, because (s)he feels insecure about her/his classroom behaviour.

Finally, the mentor teacher and the student teacher may discuss any mismatches occurring and how to deal with potential mismatches in future mentoring dialogues. For example, the mentor teacher may recognise that, apart from activating this student teacher to reflect on specific classroom situations by asking questions, for this particular student it is important to balance his supervisory strategy by giving more feedback and advice.

This type of learning conversation, based on drawings of perceived mentor teacher role profiles, could also take place during seminars with fellow mentor teachers related to the practice of mentoring. In the company of fellow mentor teachers, a mentor teacher can be encouraged to reflect on the degree to which his/her prevalent supervisory role(s) match(es) the learning need(s) of a specific student teacher. In general, such a community of practice could be helpful in facilitating and enhancing mentor teachers' skill development through conversations about mentoring practice and pedagogy (Carroll, 2005; Orland, 2001).

In summary, the present study is based on the assumption that the extent to which mentor teachers are able to address mentees' individual needs is an important factor in the success of mentoring. We believe that there is no single approach to mentoring that will work in the same way for every student teacher in every context. Hence, developing versatility in conducting mentoring dialogues is an important challenge. The mentor teacher's ability to vary approaches regularly and to continually and actively choose suitable behaviour will offer optimal learning opportunities to each individual student teacher. As a prerequisite, mentor teachers will need to reflect on their supervisory approach in order to develop awareness about how their mentoring behaviour affects individual student teachers, and to make conscious decisions about their supervisory behaviour in relation to the student, the context, and the purposes of the mentoring process. We believe that the MERID model provides a viable tool for mentor teachers' reflections and, subsequently, for changes in and enhancement of mentor teachers' role repertoires.



Part II: Mentor teachers' supervisory behaviour

4

Promoting versatility in mentor teachers' use of supervisory skills

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Mentor teachers need versatile supervisory skill repertoires. Besides taking the prevalent roles of advisor and/or imperator, mentor teachers should also be able to stimulate reflection in student teachers. In the study reported in this chapter, video recordings of 60 mentoring dialogues were analysed, both before and after a mentor teacher training aimed at developing the encourager role. Mentor teachers' repertoires of supervisory skills were found to consist of an average of seven supervisory skills. After training, a shift was observed in the frequencies and duration with which supervisory skills were used. Although considerable inter-individual variability existed between mentor teachers, training positively affected the use of supervisory skills for stimulating reflection in student teachers.

1 Introduction

One essential condition for student teachers to learn in the workplace is the availability of effective guidance by and cooperation with a mentor teacher whose approach matches the learning needs of the prospective teacher (Williams et al., 1998). This places great demand on the professionalism of mentor teachers in encouraging student teachers to learn from their practical experiences in the school setting. In practice, mentor teachers' supervisory styles are manifested in large part in the intentions, the approach and the contents of their dialogues with student teachers. In these respects, mentor teachers have a considerable influence on how and what student teachers learn (Feiman-Nemser, 2000).

Mentor teachers are usually inclined to take the role of daily advisor and instructor to the student teacher (Dunn & Taylor, 1993; Field & Field, 1994; Franke & Dahlgren, 1996; Haggarty, 1995; Timperley, 2001). Apart from this mentor teacher role, which emphasises situational adjustment, technical advice and emotional support, mentoring in the nineties gradually also came to include the encouragement of the student teacher to grow professionally through reflection on his or her own practice (Feiman-Nemser, 2001; McLennan, 1995; Pajak, 1993). Teacher training institutes and schools nowadays want mentor teachers to be capable also of promoting reflection and personal development in prospective teachers entrusted to their responsibility (Gore & Zeichner, 1991; Rodgers, 2002). Combining the advisor and instructor role with the role of encourager of reflection, however, often requires special training in less familiar supervisory skills.

In order to develop mentor teachers' supervisory skills, which activate reflection in student teachers, many teacher education institutions and schools have introduced training programmes (Strong & Baron, 2004). So far, little is known about the practical impact of such training programmes (Riggs, 2000). The main incentive for the research reported on here was to broaden the body of knowledge concerning the contribution of supervisory skills training to the professional development of expert teachers in their position as mentor teachers. In the context of the developmental-reflective paradigm in mentoring, we investigated whether and how training in supervisory skills for promoting reflection affects the supervisory behaviour of mentor teachers during dialogues with student teachers.

1.1 Wanted: A versatile repertoire of supervisory skills

Several researchers have drawn attention to the multiplicity and complexity of the position as a mentor teacher and to the potential conflicts between several roles within this position (Dart & Drake, 1995; Martin, 1996). "...Of general agreement is the reality that mentoring is multi-faceted and has no simple prescription or recipe for success..." (Harrison et al., p. 425). One important aspect of the complexity of the mentor teacher position is the need to achieve a good match between his or her approach on the one hand, and learning characteristics of the student teacher on the other. Mentor teachers therefore need to develop a versatile repertoire of supervisory skills to use in mentoring dialogues (Veenman & Denessen, 2001; Vonk, 1993) for a number of reasons. Student teachers have different learning styles, which partially depend on their orientations towards learning (Korthagen, 1988; Oosterheert & Vermunt, 2001). It is also known from research that student teachers' professional development takes place at differing speeds, and thus their needs and concerns change over time. This is true for student teachers (Furlong & Maynard, 1995) and also for teachers at the start of their professional careers (Kagan, 1992). Finally, it is vital that mentor teachers have broad supervisory skill repertoires as the nature of the relationship between the mentor teacher and the mentee is fluid and liable to change (Martin, 1994).

Despite this call for flexibility in the mentoring approach, many mentor teachers see and practise their position more as an advisor and imperator, who gives instructions, suggestions and moral support, than as an encourager of reflection on concrete thoughts and actions in the classroom (Borko & Mayfield, 1995; Feiman-Nemser, 2000; Franke & Dahlgren, 1996; Van Ginkel, Vermunt, Verloop, & Beijaard, 2005). Research by Copeland (1982) and Williams et al. (1998) suggest that mentor teachers hardly change their supervisory styles in response to the changing needs of students. This indicates that mentor teachers, either consciously or subconsciously, stick to a certain supervisory style, notably the advisor role.

As student teachers' behaviour in the school is to be shaped and influenced, it is not enough for them to receive instruction, to obtain feedback, to be given suggestions and to be shown examples of good practice. In order to develop as a professional, it is necessary to be able to

reflect on your own behaviour (Borko & Putnam, 1995; De Jong, 2004; Korthagen, 1998, 2001b; Licklider, 1995; Veenman & Denessen, 2001; Vonk, 1996). This means that in addition to the prevalent role of advisor and imperator, mentor teachers have to develop knowledge of and supervisory skills in being effective in stimulating the student teacher towards reflection (Boydell, 1991; Giebelhaus & Bowman, 2002). Mentor teachers therefore need versatile supervisory skills repertoires. Because of the individual differences in development between student teachers mentioned earlier, setting a norm for the required mix of existing supervisory skills and newly learned skills during supervisory skills for mentor teachers to activate reflection in teachers (SMART) training is not useful. The right combination of *old* and *new* supervisory skills depends on the specific mentoring situation.

1.2 Supervisory skills in the developmental-reflective paradigm

The aspect of reflection in supervising student teachers is seen by Pajak (1993) as characteristic of the most recent of four consecutive generations of approaches in clinical supervision. In chronological order he describes *original clinical models* (Goldhammer, 1969), *humanistic-artistic models* (Blumberg, 1980), *technical-didactic models* (Joyce & Showers, 1982) and *developmental reflective models* (Costa & Garmston, 1994). The latter is still current. A shift has taken place from a technical, rationalistic view of teaching as mastery of subject knowledge and discrete pedagogical skills to one which recognises that teaching is a relatively unpredictable and cognitively complex activity, characterised by decision making, negotiation for meaning and reflection in action. Also, there is increasing scientific recognition of the value of learning in the workplace (Eraut, 2000). In addition, the relevance of theory in teacher education programmes as a preparation for practice has been criticised (Koetsier & Wubbels, 1995). Finally, we are faced with growing teacher shortages in the industrialised world, where teachers are trained within shorter time span to become independent practising teachers. All the trends place great demand on student teachers being able to reflect on and learn from their practical experiences.

The assumption behind the prevalent developmental-reflective paradigm in mentoring (student) teachers is that teachers who are able to complete reflective cycles by themselves are empowered to learn from their own practice, to cope with change and to give direction to their learning

(Korthagen, 2001b; Laboskey, 1994). This type of reflection does not come about by itself. In order to stimulate reflection in student teachers, mentor teachers need to put into practice a number of specific supervisory skills. Situated within the reflective-developmental paradigm, qualities and skills that have to do with the mentor teacher role of encourager of reflection are often based on literature about training for supervision and therapy (Brammer, 1973; Carkhuff, 1969; Egan, 1975; Rogers, 1969).

On this basis, Korthagen (1985, 2001b) distinguishes overt supervisory skills to stimulate reflection in student teachers: *asking for concreteness*, *summarising feeling* (showing empathy), *showing genuineness*, *generalising* (asking for similar situations), *helping in making things explicit*, *confronting* (giving feedback, summarising inconsistencies, utilising the here and now) and *helping to find and to choose alternatives*. These skills can be used to encourage a cyclical sequence of five steps (ALACT model), which together constitute a complete reflection process: 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. Combining supervisory skills distinguished and described by Blumberg (1980), Glickman (1981) and Vrolijk (1991) resulted in the following descriptions of overt supervisory skills associated with the mentor teacher role of advisor and instructor: asking for something new, giving information, giving opinion/assessing and giving advice/instruction.

All in all, to be able to label all supervisory behaviour of mentor teachers in mentoring dialogues, we distinguished the following repertoire of 15 supervisory 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, utilising 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).

1.3 Scarcity of effect studies

In the context of training and supervising teachers, quite some research has been done on how mentor teachers function (Hawkey, 1998a). In these studies, the form, the content and the procedure of the mentoring dialogues have been analysed. However, very few studies are available concerning the observable effects of training on the use of supervisory skills by mentor teachers in authentic mentoring dialogues with student teachers. Veenman and Denessen (2001) summarise findings of five studies evaluating the effects of training programmes focusing on supervisory skills for teacher coaches. Significant effects were found for supervisory skills concerned with the development of autonomy (empowerment), feedback and encouragement of self-reflection. Koster, Wubbels, Korthagen, and Somers (1996) report limited positive effects of a training programme on the supervisory behaviour of mentor teachers. The measures used in this study were restricted to self reports. Also, learning effects on the level of attitude changes and self-perceptions have been demonstrated, although limited in size.

Research by Evertson and Smithey (2001) showed that trained mentor teachers demonstrated better conferencing skills, including more awareness of student teachers' needs to analyse their own teaching before being offered solutions. They found that trained mentor teachers guided their protégés more to use self-inquiry or self-discovery in reflecting on a lesson as opposed to evaluating or giving advice for improvement. Trained mentor teachers also used more active listening skills as opposed to a passive listening and trained mentor teachers elicited more reflection through probing or using follow-up questions. Timperley (2001) concluded that after training mentor teachers were able to improve the quality of their dialogues with their student teachers. Analysis of audio-taped transcripts of mentoring dialogues revealed that before training a common pattern for mentor teachers was to give direct advice about how to overcome undisclosed concerns about student teachers' practice. After training, mentor teachers were able to promote more the student teachers' professional development: they more frequently disclosed their concerns, checked to see whether their concerns were shared and engaged the student teachers' personal theories about their reasons for practising in the way they did before developing joint solutions. Strong and Baron (2004) analysed how mentor teachers make pedagogical suggestions to beginning teachers during mentoring

dialogues. They concluded that mentor teachers made extreme efforts to avoid giving direct advice to novice teachers and used a corpus of interventions that include many indirect suggestions, about one-third of which produce elaborate responses from the novice teachers. This finding was mainly attributed to the training programme that all mentor teachers received based largely on the cognitive coaching model (Costa & Garmston, 1994). Research by Harrison et al. (2005) illustrated that mentor teacher training that focuses on the processes concerned with the types of questioning by the mentor teacher which enables the mentee to begin to open themselves up for scrutiny, can begin to create different ways of working. The mentee is then able to become autonomous in analysing situations arising in practice, and also in thinking of alternative ways of dealing with them.

Edwards and Green (1999) conclude in a study that cognitive coaching training can stimulate growth in the supervisory skills and in the reflection level of teachers because mentor teachers were talking less, were less directive, gave the teacher the opportunity to open the dialogue and sought to draw out the answers from the teachers. There were also individual differences. Not all mentor teachers showed growth in their skills and neither did all the teachers in their level of reflection. Hence, the results of this last study emphasise the fact that all participants do not experience the same effects from a training. This may be caused by the fact that the training content and approach is often the same for all participants, while their needs and skill level were possibly different. Training is not working out the same for every participant. There is a potential influence of personal characteristics of each trainee and also of features and facilities of the workplace (Holton & Baldwin, 2000). Studies into the effects of training on the supervisory repertoire of mentor teachers should therefore also map individual differences, in addition to the average effects on the whole group.

1.4 Capturing supervisory behaviour

In the cited studies, effects of training are reported to varying degrees. However, the available empirical evidence is still limited and too diverse to allow drawing definite conclusions about the influence of mentor teacher training on the use of supervisory skills activating reflection in student teachers. The available studies are diverse with regard to focus and approach of the evaluated training programmes, the concepts

employed, the type and size of respondent groups as well as the operationalisation and observation methods of the studied supervisory skills. Therefore, more effect evaluation studies, specifically in the field of teacher mentoring, are needed.

From a methodological point of view, it is interesting to note that in most studies only a restricted range of supervisory skills, notably those practised during training, are observed. The nature of the relationship of the trained skills with those not specifically trained is not taken into account. It is known from Gestalt psychology that we cannot regard new behaviour as really present until new Gestalts are sufficiently linked to it and can for that reason compete with those Gestalts that are linked to the old behaviour. A Gestalt denotes a behaviour tendency, with the associated subconscious needs, values, experiences and concepts, which are called up when faced with a certain situation (Dolk, 1997).

In order to achieve insight into the impact of training in the use of supervisory skills, not only a selection of skills practised in particular training programmes should be observed, but also a broader repertoire of supervisory skills usable in mentoring dialogues should be investigated. This is what was attempted in this study. In addition, to observe how supervisory behaviour may develop in mentor teachers, we need to look at any changes between pre- and post-training measurements of behaviour in mentoring dialogues.

An important aspect of the operationalisations used in the available studies on mentor teachers' dialogues with prospective teachers is that in most research, only the type of observable behaviour is recorded. Corresponding quantitative features, notably the exact frequency and the time used in speaking, are not taken into account. However, the number of turns taken and the amount of speaking time used by mentor teachers may also be relevant indicators of mentor teachers' supervisory behaviour. Already in the 1970s Blumberg (1970, 1980) concluded this from research describing characteristics of mentor teachers' supervisory behaviour. More recently, Dunne and Bennett (1997) found that in terms of opportunity and time given to the student teachers to talk during mentoring dialogues, there is a definite pattern of differentiation between three types of mentors: class teachers, co-tutors and supervisors. Class teachers (mentor teachers) all contributed the greater part of verbal interaction in dialogues with student teachers. The speaking time of co-

tutors tended to be more balanced with that of the student. Supervisors allowed the greater part of the speaking time to come from the student. In a study, Hughes (1998) found that on average mentor teachers' part of the verbal interaction in mentoring dialogues was 69%. Hawkey (1998a) concluded that the type and length of the supervisor's interventions - asking questions, advising and informing or telling - gave a clear indication of the supervisor's approach: "A mentor who showed characteristics of a directive advisory approach, more typically tended towards fairly lengthy descriptions of telling the student what to do in lessons" (p. 662). Consequently, a more detailed and more realistic analysis of the use of different types of supervisory skills before and after training could be achieved when data are also collected about the frequencies and durations with which mentor teachers' use each of the supervisory skills distinguished.

Finally, the lack of information in the cited studies about the frequency and duration of the observed supervisory behaviour is aggravated by the use of relatively high-inference rating methods in coding the data. In most studies, questionnaires and assessment scales were used for coding relatively large chunks of supervisory behaviour. This increases the risk of subjectivity on the part of the raters. To avoid this, low-inference ratings applied to relatively small fragments of discourse were preferred in this study.

1.5 Research questions

The above considerations have led us to use a research design involving fine-grained measurement of the use of supervisory skills during mentoring dialogues. Based on the outlined argumentation, the following research question guided this study: Does the SMART training affect the use of supervisory skills for stimulating reflection by mentor teachers in mentoring dialogues with student teachers? This main research question was specified in three sub questions: What are, for the whole group and on an individual level, after training:

1. Shifts in frequency of use of specific supervisory skills?
2. Shifts in time spent on specific supervisory skills?
3. Relations between shifts in frequencies of use and time spent on distinct supervisory skills?

2 Method

2.1 Design

In this section, we describe the research method using the third of the four levels of evaluation introduced by Kirkpatrick (1959, 1998) for evaluating training programmes. The four levels he distinguishes are (1) reaction, (2) learning, (3) behaviour, and (4) results. The question to what degree and how such learning affects trainees' behaviour in the workplace is the basic issue to be evaluated on level three and the focus of this study.

The study was based on a pre- and post-test design with one group (Cook & Campbell, 1979). Video recordings were made of mentoring dialogues, which the participating mentor teachers carried with the student teacher at that time under their guidance. Two recordings were made of each mentor teacher, one within a month before the training, the other within 1 month afterwards. The form of assessment used was a work sample test (Straetmans, 1993). In such an assessment, participants have to perform tasks in real settings, which are considered to be a sample of similar tasks in the work situation. For our respondents, this meant that they carried out a mentoring dialogue with a student teacher whom they were mentoring at the time of the study. The advantage of this setting was that the participating mentor teachers demonstrated their command of supervisory skills in a realistic situation.

2.2 Training programme

To answer the research question, a specific training programme focusing on teaching mentor teachers to stimulate reflection in student teachers during mentoring dialogues was evaluated. Since 1999, a training programme entitled Supervision Skills for Mentor teachers to Activate Reflection in Teachers (SMART) has been developed and conducted at the Department of Teacher Education of the Fontys University of Applied Sciences in the Netherlands. The focus of the SMART programme is to develop mentor teachers' supervisory skill repertoires to activate reflection in (student) teachers in addition to the already (in most mentor teachers) existing supervisory skills relevant to the advisor and imperator role. The following overt supervisory skills to stimulate reflection (Korthagen, 1985, 2001b) were trained: asking for concreteness, summarising feeling (showing empathy), showing genuineness,

generalising (asking for similar situations), helping in making things explicit, confronting (giving feedback, summarising inconsistencies, utilising the here and now), helping to find and to choose alternatives.

The planning and structure of the SMART programme has three main components: training, peer consultation and personal coaching. In total, the training consists of 9 sessions spread over a period of 3 months. After the introductory meeting, a series of five training sessions follows, in which the supervisory skills are practised. The two subsequent meetings are devoted to peer consultation. Here, colleagues follow a structured procedure in advising each other on situations arising from practice. In these meetings, the participants present a video of one of their own mentoring dialogues to their fellow participants and include an individual aspect that they wish to develop. After this, trainers coach the participants in their work settings, where they observe at least one mentoring dialogue and give feedback on their dialogue(s) as mentor teacher. The programme concludes with a final session with the whole group, in which the assessment results were presented and used as a basis for evaluation and certification.

The pedagogy used in the SMART programme for training mentor teachers was derived from two sources. Firstly, it draws on Koster and Korthagen (2001), who put forward the following principles of *realistic teacher education*. A connection should be established between the training programme and participants' individual learning needs and questions. Using experiences from the participants' own practice, trainers can make sure that the programme's contents and exercises deal with real problems. When these problems are linked with theory, analysing them can encourage participants to develop effective interventions. In this way, the contents of the exercises become relevant for all participants. Having the participants practise the skills in between training sessions helps to produce an alternation between contributing practical experiences, reflecting on them, connecting them to relevant theory and applying them to fresh situations. The same applies to systematically having participants record their own progress. Creating a safe learning environment will help participants not to be afraid of experimenting with different behaviours, both in and outside the training sessions. In this respect, mentor teacher trainers fulfil a modelling function, for example, by seeing to it that in the beginning, positive feedback is given both by themselves and by the participants among each other. The

application of these principles helps in promoting constant and self-directed professional development.

Secondly, in the training programme micro counselling principles (Ivey, 1971) were used. According to this approach, skills can be learned when the following sequence of activities is used: a verbal or visual model giving instruction and information about a skill, practice with the aim of achieving the greatest possible similarity with the target behaviour associated with the particular skill (as described in the instruction phase) and feedback providing information and suggestions from trainer(s) on the basis of observations (coaching on the job).

2.3 Participants

The participants in the main study were 30 mentor teachers from primary education who participated voluntarily in the SMART training programme, 13 of the respondent group in the spring of 2002 and 17 in the spring of 2003. In total, there were 18 women and 12 men, all of whom were facilitated within their main job of teaching to guide and support student teachers in their final year of teacher training and to participate in the mentor teacher training. The student teachers were under the guidance of the participating mentor teachers between October and May. The respondents' ages ranged from 25 to 54 and averaged 44. On average, the participants had almost 20 years of teaching experience. Not one of them had been trained in supervisory skills before. As a group, they had an average of almost 10 years of experience in mentoring student teachers.

2.4 Instrumentation and data collection

In the pilot phase of the project, instruments for gathering, transcribing and coding data were developed by asking 12 mentor teachers (six men and six women) in primary education who participated in the spring of 2001 in the SMART training programme to make audio recordings of two mentoring dialogues which they conducted in the workplace with student teachers under their care. The first took place at the latest one week before the start of training. The second took place at the latest two weeks after the end of training. All 24 recorded dialogues were transcribed literally from audiotape. Utterances were marked as separate using the principle of turn-taking. Then the mentor teachers' utterances were

categorised from the audio verbatim using the spectrum of 15 supervisory skills described in Section 1.2. Two judges scored all 784 interventions of the mentor teachers, resulting in Cohen's kappa of .64. On the basis of this pilot study, a number of improvements to the instrumentation of the main study were made.

Just as in the pilot study, in the main study we sought to standardise the setting for data collection by giving all 30 participants instructions in advance, both orally and in written form. As a first result of the recommendations from the pilot study, the mentor teachers were instructed to discuss a student teachers' concern which had arisen in the previous week and which had not been on the agenda earlier. This excluded other topics from the dialogue and allowed the mentor teachers to concentrate on those supervisory skills that they had trained in order to stimulate student teachers to reflect on their concerns. Secondly, the mentor teachers had to conduct the dialogue with their 'own' student teachers, with whom they already have an established rapport. This was the case in the pilot study and is, in perspective of creating a natural setting, also important to do in the main study. Thirdly, the mentor teachers had to come to the teacher education building to carry out the mentoring dialogue, both before and after training. This could be done at a moment which suited them and which fitted maximally with the regular meetings they had in their school. This arrangement was made in order to increase the comparability of the physical environment in which the dialogues took place. This also enabled the researchers to achieve video registrations of uniform and sufficient quality. Fourthly, in the main study instead of audio recordings used in the pilot study, video recordings were used, so that in coding the mentor teachers' interventions, non-verbal aspects also could be considered. Finally, in order to increase comparability of the data, recordings of the dialogues were restricted to a maximum of 15 min. In almost all recorded dialogues this was enough time to discuss the student teacher's concern. Geldens et al. (2005) produced empirical evidence that analysing longer periods of time does not improve the assessment of the quality of a mentoring dialogue.

2.5 Transcription, coding and analysis

All recorded 60 dialogues in the main study were transcribed literally (Table 4.1). Utterances were marked as separate using the principle of turn-taking. The moment a mentor teacher commences speaking marks

the beginning of a conversational turn and the end of the student teachers' reaction. A mentor teacher's turn ends at the moment the student teacher commences speaking. A particular observation instrument was used in order to research each utterance of the mentor teacher in the supervisory dialogues with the student teacher. Against the background of the comments in the introduction of this article, we have chosen to use a category system consisting of 15 overt supervisory skills, in our descriptions of the supervisory behaviour of the mentor teachers. This entails noting each behaviour as it occurs (Veenman, 1978). This ensures that in addition to a record of the type of supervisory skill, data about the frequency and duration of the behaviour are also collected. The observation task consisted of determining when and how long the mentor teacher contributed to the dialogue and to which category the utterances belonged. The observers were prepared and trained for their task with the help of a written scoring procedure.

Table 4.1
Example of coded
transcription

Time (min)	Interlocutor	Utterances of mentor teacher and student teacher	Turn Number	Skill code
3.39	Student teacher	Well, you know, he was turning around all the time and talking, while there wasn't anything to laugh at really, because it's quite serious.		
3.48	Mentor teacher	Yes.	9	1
3.49	Student teacher	The other kids are participating very seriously and then it's just like he's playing the clown by joking and attracting the other kids' attention. I don't know. It irritated me quite a lot.		
4.04	Mentor teacher	What did you do with Ralph?	10	3
4.11	Student teacher	I just continued the lesson. On the one hand, I thought, I might send him off now, yes that kind of negative thing. I think that would have influenced the group. Maybe on the other hand, it wasn't right that I ignored him. After all, it wasn't all right what he did. Perhaps I should have pointed it out to him more often, but at the time I felt: well, then you don't join in, so what.		
4.41	Mentor teacher	I think it's correct what you've done.	11	14

*The fifth column shows the code numbers assigned to the supervisory skills that were used in the example:
1 = showing attentive behaviour; 3 = asking for concreteness; 14 = giving opinion.*

As a result of the experiences in the pilot study, the reliability in scoring the utterances was firstly improved by delineating the scoring protocol more sharply. In the pilot study, two (or more) types of supervisory skills were sometimes performed during one turn. If this occurred in the main study, only the last type was coded, because in almost all cases this was the trigger for the student teachers' reaction. Secondly, by using a rating procedure the raters read the transcript, then viewed the video recording to consider the non-verbal aspects, and finally assigned their codes to the mentor teacher's utterances. Thirdly, three raters were used instead of two in the pilot study. All raters scored the 2,274 supervisory skills the mentor teachers used in 60 dialogues that were videotaped. Cohen's kappas were raised to .73 between raters 1 and 2, to .76 between raters 2 and 3 and to .79 between raters 1 and 3.

Descriptive statistics and two-tailed *t* tests for paired observations were calculated on the data generated in this way in order to analyse the changes that occurred between the first and second measurement. In order to make a comparison between these two measurements, the metric used was the standardised mean difference (*d*-index) effect size (ES). This metric is appropriate when the means of two groups are being compared. The *d*-index expresses the distance between two group means in terms of their common standard deviation (Cohen, 1988).

3 Findings

3.1 Shifts in frequency of use of supervisory skills

1 Results for the whole group

In Table 4.2 an overview of the results is presented. Based on the frequencies in columns 3 and 5, Figure 4.1 shows the differences in frequency of use of each supervisory skill for the whole group. Before training, the mentor teachers' skills repertoire consisted largely (81%) of the following seven skills: showing attentive behaviour (9%), asking for concreteness (16%), summarising content (10%), asking for something new (9%), giving information (14%), giving opinion (10%) and giving advice/instruction (13%). After training, these same seven skills still accounted for most of the mentor teacher behaviour (78%).

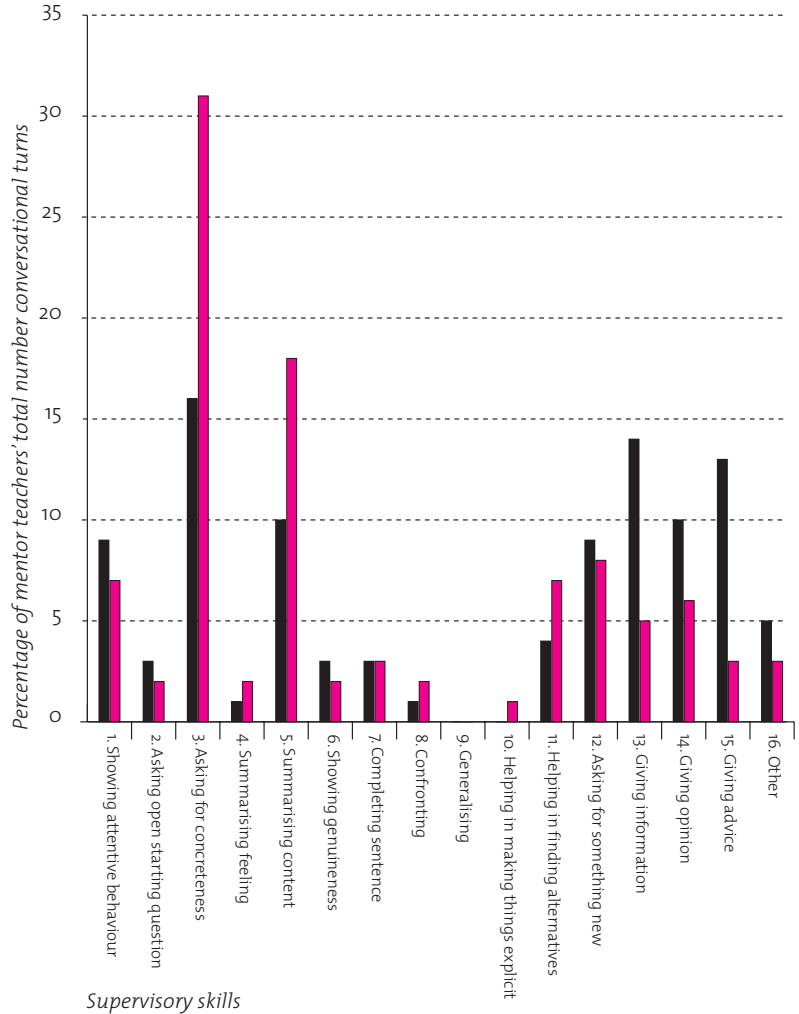
Table 4.2

Frequencies of use of supervisory skills and amount of time spent on distinct supervisory skills, before and after the SMART training in absolute (abs.) and relative (%) numbers

Supervisory skills		Frequencies of use				Time spent (in seconds)			
		Before SMART training		After SMART training		Before SMART training		After SMART training	
		Abs.	%	Abs.	%	Abs.	%	Abs.	%
01	Showing attentive behaviour	90	9	90	7	133	1	129	1
02	Asking open starting question	28	3	31	2	177	1	226	2
03	Asking for concreteness	154	16	399	31	1,040	8	2,669	25
04	Summarising feeling	6	1	24	2	55	0	279	3
05	Summarising content	100	10	234	18	857	7	1,715	16
06	Showing genuineness	28	3	30	2	362	3	207	2
07	Completing sentence	26	3	36	3	110	1	122	1
08	Confronting	8	1	23	2	83	1	307	3
09	Generalising	4	0	6	0	73	1	71	1
10	Helping in making things explicit	1	0	15	1	11	0	306	3
11	Helping in finding alternatives	39	4	87	7	554	4	1,308	12
12	Asking for something new	85	9	99	8	1,090	9	949	9
13	Giving information	141	14	59	5	2,786	22	847	8
14	Giving opinion	99	10	76	6	1,411	11	601	6
15	Giving advice	126	13	38	3	3,406	27	750	7
16	Other	54	5	38	3	418	3	255	2
		989	100	1,285	100	12,566	100	10,741	100

Figure 4.1
Shifts in frequency
of use of specific
supervisory skills

■ Before training
■ After training



The horizontal axis indicates the 15 supervisory skills distinguished in this study. The rest category includes conversational turns unable to be assessed. The vertical axis denotes the frequency of use of distinct supervisory skills as a percentage of the total number of conversational turns on group level. The black bar denotes the frequency of use of the skills before training, while the pink bar denotes this frequency after training.

However, a change was found in the frequencies with which these skills were used. Taken together, the supervisory skills characterising the advisor and imperator role (numbers 12-15) show a decrease from 46% before training to 22% after training. Supervisory skills characteristic of the advisor and imperator role, notably asking for something new (8%), giving information (5%), giving opinion (6%) and giving advice/instruction (3%), gave way to reactions characteristic of the encourager role, notably asking for concreteness (31%) and summarising content (18%). Frequencies in summarising feeling (empathy) hardly changed after training (1%), while this was an important topic during the training programme. Similarly, supervisory skills like confronting, generalising and helping in making things explicit occurred relatively infrequently in the pre- and post-test (max 2%).

In order to test if the most important differences found were significant, those skills were selected which accounted for 10% or more of the frequency in pre- or post-test, i.e. asking for concreteness, summarising content, giving information, giving opinion and giving advice/instruction. The (two-tailed) paired samples *t* tests ($p < .05$) showed that the frequencies of all five above-mentioned skills on group level differed significantly between pre- and post-test. The frequency of asking for concreteness ($ES = 2.00$) and summarising content ($ES = 0.96$) increased and the frequency of giving information ($ES = 1.09$), giving opinion ($ES = 0.56$), and giving advice/instruction ($ES = 0.89$) decreased. These are all large *ES*s (Cohen, 1988).

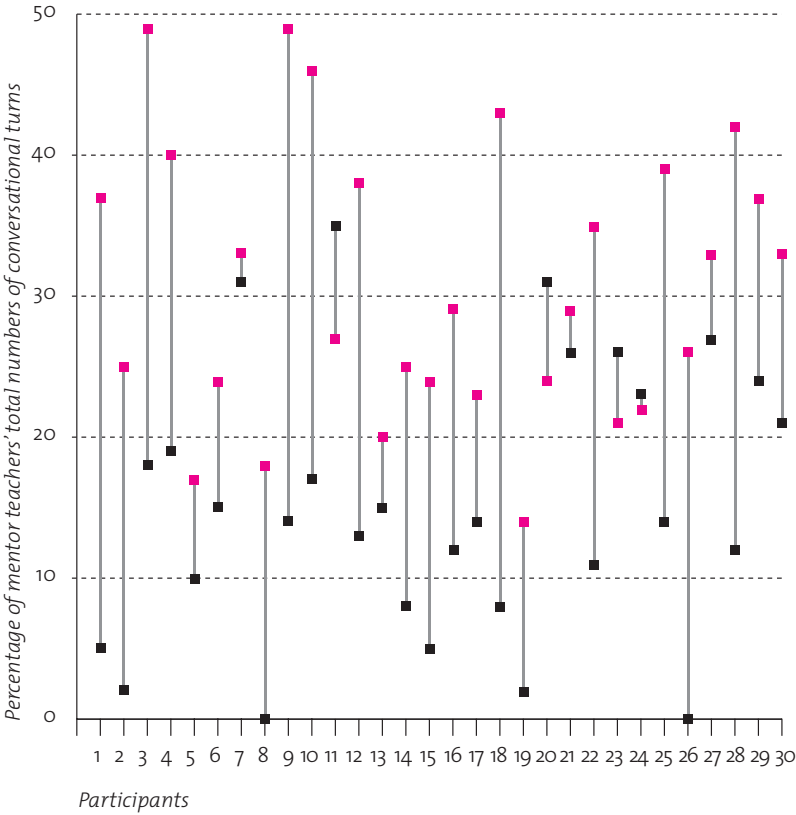
2 Differences on the individual level

Figure 4.2 shows that there are definite individual differences between the mentor teachers. To illustrate this, we zoom in on *asking for concreteness*. On group level, this supervisory skill shows the highest frequency of use, both before and after the SMART training.

An extreme example of individual differences is that of participants 11 and 26. The pink squares indicate that in measurements taken after the training in both participants, more than 25% of the supervisory skills consist of asking for concreteness. The black squares show that there are large individual differences in the use of this skill, as measured before training. After training we can see that there is a relatively small decrease in this use in participant 11, and in participant 26 there is actually a relatively large increase.

Figure 4.2
Shifts in frequencies of
the supervisory skill
Asking for concreteness

■ Before training
■ After training



All the mentor teachers are shown on the horizontal axis. The vertical axis shows the frequency of the supervisory skill *Asking for concreteness*, calculated as a percentage of the total number of conversational turns used by one participant. The black squares denote the frequency of use before and the pink squares refer to use after training. The length of the line indicates the changes in frequency.

Another notable example of individual differences can be seen between participants 7 and 9. In participant 7, we can see that in the measurements before the training there is a high frequency in asking for concreteness, which increases slightly after training. In participant 9, there is a lower frequency, which increases substantially after the training.

3.2 Shifts in time spent on specific supervisory skills

1 Results for the whole group

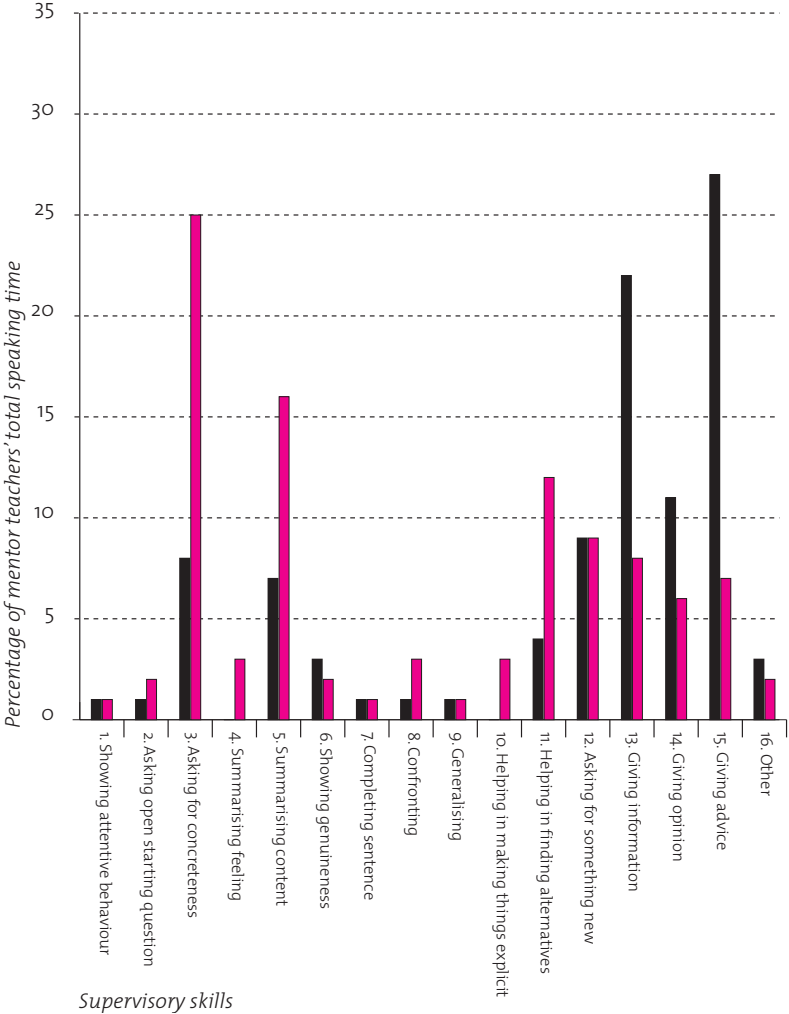
Figure 4.3 shows the differences in total time spent on distinct supervisory skills for the whole group. Before training, the group of mentor teachers spent 88% of their speaking time on a repertoire of seven distinct supervisory skills: asking for concreteness (8%), summarising content (7%), helping in finding and choosing alternatives (4%), asking for something new (9%), giving information (22%), giving opinion (11%) and giving advice/instruction (27%). After training, these seven skills still accounted for most of the mentor teachers' speaking time (83%).

However, a change was found in the time spent using these skills. Taken together, the supervisory skills characterising the advisor and imperator role (numbers 12-15) show a decrease from 69% before training to 30% after training. Supervisory skills characteristic of the advisor and imperator role, notably asking for something new (9%), giving information (8%), giving opinion (6%) and giving advice/instruction (7%), gave way to reactions characteristic of the encourager role, notably asking for concreteness (25%), summarising content (16%) and helping in finding and choosing alternatives (12%).

In order to test if the most important differences found were statistically significant, those skills were selected which accounted for 10% or more of the time spent in pre- or post-test, i.e. asking for concreteness, summarising content, helping to find and to choose alternatives, giving information, giving opinion and giving advice/instruction. The (two-tailed) paired sampled *t* tests ($p = .05$) showed that the time spent on five of the above mentioned skills on group level differed significantly between pre- and post-test. The shift in time spent on giving opinion was not statistically significant. The time spent on asking for concreteness ($ES = 1.61$), summarising content ($ES = 0.81$) and helping in finding and choosing alternatives ($ES = 1.14$) increased significantly. The time spent on giving information ($ES = 0.99$) and giving advice/instruction decreased significantly ($ES = 1.5$). These are all large *ES*s (Cohen, 1988).

Figure 4.3
Shifts in total time
spent on specific
supervisory skills

■ Before training
■ After training



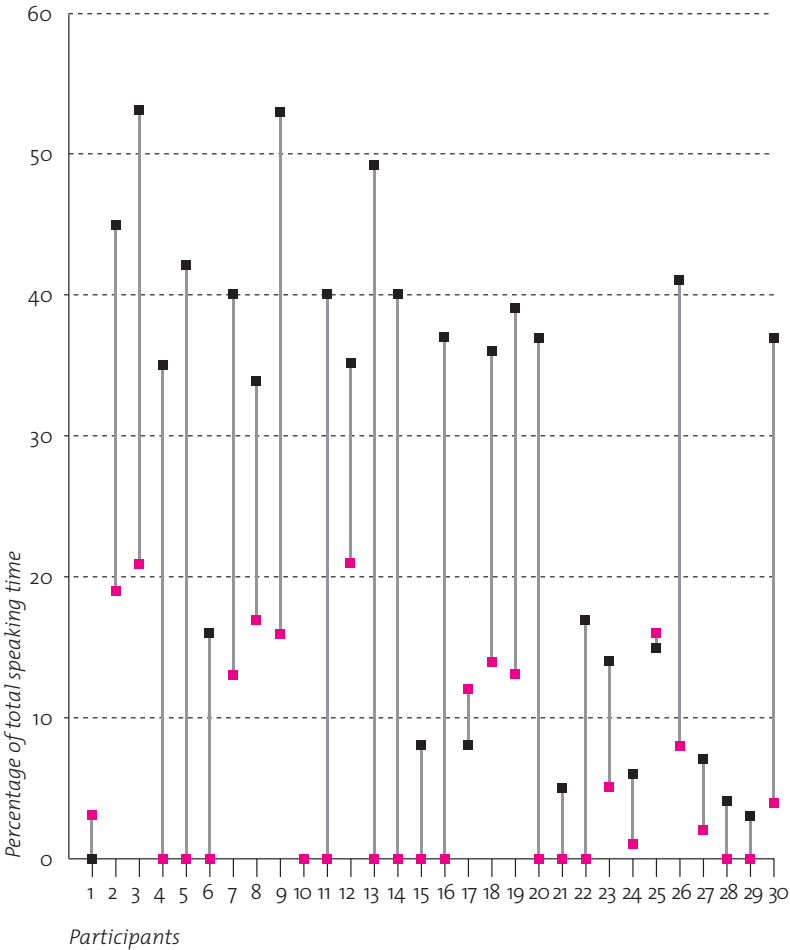
The horizontal axis indicates the 15 supervisory skills distinguished in this study. The vertical axis denotes the time the whole group mentor teachers spent on distinct skills as a percentage of the total speaking time of the group mentor teachers. The black bar denotes the situation before the training and the pink bar denotes the situation after the training.

2 Differences on the individual level

Figure 4.4 shows that there are also individual differences between mentor teachers with reference to changes in the amount of time devoted to specific supervisory skills. To illustrate this, we zoom in on *giving advice/instruction*, the skill which the group spent a lot of time on in their mentoring dialogues. It was interesting to note that there is a subgroup that scores very highly in the use of this skill in measurements

Figure 4.4
Shifts in total time
spent on the
supervisory skill
Giving advice

■ Before training
■ After training



All the mentor teachers are shown on the horizontal axis. The vertical line denotes the amount of time spent by each mentor teacher on the supervisory skill *Giving advice* and is given as a percentage of the total speaking time. The black squares denote the time spent before training and the pink squares refer to the time spent after training. The length of the line indicates the changes in the time spent.

taken before the training, but that this dramatically decreased after the training. Also, there are clear differences between the members of this subgroup. This can be illustrated by participants 12 and 13. A second subgroup consists of mentor teachers who before training spent relatively little time on giving advice/instruction. Overall in this group, we see in the post-training measurements a limited decrease. Only 3 participants (1, 17 and 25) show an increase in the time spent on giving advice/instruction.

3.3 Relations between shifts in frequencies and time spent

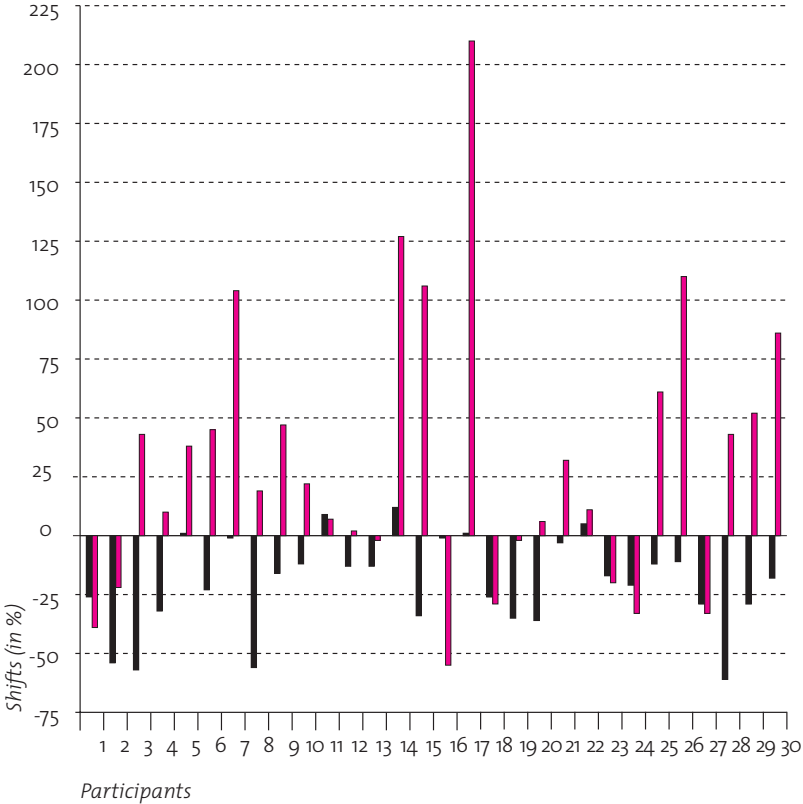
Figure 4.5 shows how the mentor teachers' total speaking time and their frequency of conversational turns changed. The shift concerning the frequency of conversational turns was calculated by dividing the total number of turns taken after training minus the total number of turns taken before training by the total number of turns taken before training. For example, before training participant 3 uses 40 turns and after training 57. The percentile change according to the formula is $(57\% - 40\%) / 40\% = 43\%$. In Figure 4.5, this increase is represented by the grey bar above the 0% line.³

Figure 4.5 also shows the changes observed in the mentor teachers' total speaking time. The shift concerning the total speaking time was calculated by dividing the total speaking time after training (in %) minus the total speaking time before training (in %) by the total speaking time before training (in %). For example, before training participant 3 was speaking for 52% of the time and after training this went down to 22%. The percentile change in the speaking time of this mentor teacher has been calculated using the above formula: $(22\% - 52\%) / 52\% = 57\%$. In Figure 4.5, this decrease is represented by the third black bar (participant 3).

3. In order to compare data on the frequency of turn-taking of the 30 mentor teachers in the pre-and post-test, we have extrapolated from the results. Regarding 20 mentor teachers, the mentoring dialogues were shorter than the suggested 15 min: on average 12 min with a range from 7 to 14 min. After training, 10 mentor teachers used less than the suggested 15 min: on average of 14 min with a range from 11 to 14 min. With all mentoring dialogues that lasted shorter than 15 min, a certain number of turns have been added. This took place using the same percentage necessary to fill the actual time taken and increased it to the allocated 15 min. The assumption for this calculation is that there is a linear connection between the total time and the number of turns. Hence, for example, if a dialogue actually took 12 min, then 3 min (25%) have been added in order to come to the full 15 min. This means that if the mentor teacher used 32 turns in 12 min, this would be increased by 25% to 40 turns.

Figure 4.5
Shifts in speaking time
and frequency of
turn-taking before and
after the training

Turns
■ Total time
■ Frequency



All mentor teachers are shown on the horizontal axis. The vertical axis shows two changes. The black bars represent for each participant the shifts in speaking time as percentage of the total speaking time. The pink bars represent for each participant the shifts in frequency of turn taking as percentage of the total number of turns.

1 Results for the whole group

After training, in most of the mentor teachers, an increase in the number of turns, on the one hand, and a decrease in speaking time, on the other hand, was observed. The frequency of turn-taking increased on average from 37 to 44 turns. This is a statistically significant increase of 19% for the whole group ($p = .05$, $ES = 0.63$). The pink bars in Figure 4.5 show that 21 mentor teachers showed an increase with a range between 2% and 210% and nine mentor teachers showed a decrease of turn-taking with a range between 2% and 55%. At the same time, mentor teachers' total speaking

time decreased on average from 53% to 41%. This is a statistically significant percentile change of 23% ($p = .05$, $ES = 1.02$). The black bars in Figure 4.5 show that the total speaking time of 25 mentor teachers decreased (range between 1% and 61%) and that the total speaking time of 5 mentor teachers increased (range between 1% and 12%).

In order to better understand the relationship between the shifts observed in frequency and duration of distinct supervisory skills in the group of mentor teachers, we took the average as a measurement. The overall average time the group mentor teachers used separately for each turn decreased from 14 seconds before to 9 seconds in the post-test. This is a statistically significant percentile decrease of 35% ($p = .01$, $ES = 1.07$). In order to ascertain which specific skills underlay the decrease, average times were calculated for those supervisory skills whose variation in frequency and time spent between the pre- and the post-test proved statistically significant. This calculation of the averages gave the following results: giving opinion (from 15 to 9 seconds), giving information (from 20 to 15 seconds) and giving advice/instruction (from 28 to 19 seconds) both before and after training took longer per turn than asking for concreteness (7 and 7 seconds) and summarising content (from 7 to 8 seconds).

The use of asking for concreteness and summarising content changes dramatically as far as the total number of turns is concerned (see Figure 4.1), but not as far as the duration of each turn is concerned. The supervisory skills of giving information and giving advice/instruction change in both the total number of turns (see Figure 4.1) and the average speaking time per turn. The fact that after the training the mentor teachers were on average using less speaking time and yet more turns is linked to the length of duration of both asking for concreteness and summarising content remaining constant while the frequency increased. The skills giving information and giving advice/instruction meanwhile decreased in frequency and also in length of duration.

2 Differences on the individual level

On average, after training mentor teachers use more turns but less speaking time in the mentoring dialogues. There were some mentor teachers for whom this is not the case (1, 2 and 27). The majority of the group fits in the above mentioned trend, although there are individual differences in intensity of the increase and decrease of speaking time and number of turns.

4 Conclusion and discussion

4.1 Conclusions

This study adds to our knowledge about the effects of training programmes to increase supervisory skills for the benefit of student teachers. It shows the effect of the SMART training programme on the use of mentor teachers' supervisory skills in mentoring dialogues. The study has produced evidence that it is possible to increase the use of supervisory skills for promoting reflection in student teachers, even though there were substantial differences between participants. The observed change in mentor teachers' supervisory behaviour provides opportunities for mentor teachers to practise not only the advisor and imperator role, but also the encourager role. For student teachers, this may create opportunities to introduce and explore their concerns in a more reflective manner in dialogues with their mentor teachers.

Specifically, the breadth of mentor teachers' supervisory skills repertoires hardly changed after the training. However, in their basic repertoires, a shift was found in the frequencies with which they used the supervisory skills. In mentoring dialogues held after training, the number of distinct supervisory skills taking the mentor teacher's perspective as a starting point (advisor and imperator role) decreased in favour of interventions taking the student teacher's perspective as a starting point (encourager role). This result was confirmed by the fact that after training, less time was spent on supervisory skills characteristic for the advisor and imperator role, while the time spent on skills characteristic for the encourager role increased.

After the SMART training, mentor teachers on average used less of the dialogue time as well as taking more conversational turns. Those types of supervisory skills whose frequencies decreased require relatively much time, because in using these the mentor teacher is often elaborating and explaining. Those types of interventions whose frequencies increased take relatively less speaking time, because here brief questions and reactions are involved. For example, asking for concreteness does not take as much time as giving advice/instruction. Using asking for concreteness more than logically leads to a decrease in the average duration of interventions. All in all, these shifts show that after the SMART training mentor teachers created more opportunities for the student teachers to participate more actively in the mentoring dialogue.

4.2 Limitations

This study involved precise quantitative ratings of small units of mentor teachers' supervisory behaviour during mentoring dialogues. Admittedly, this is a reduction, but this reduction enabled us to identify shifts in supervisory behaviour as observed before and after training. At the same time, there are probably other factors than the training programme that influenced the presence or absence of differences in mentor teachers' supervisory behaviour as measured before and after mentor teachers were trained as well as between mentor teachers.

Firstly, the fact that mentor teachers scored better in relation to the training goals after training may have to do with diminished tension. At that time, they were more familiar with the test conditions, the researchers and the trainers. This is a possible reason as to why some mentor teachers experienced fewer negative effects on their performance. Secondly, the individual differences in supervisory skills found between mentor teachers may have been caused by the fact that the training content and approach is the same for all participants, whilst their needs and skill levels were possibly different. One participant could learn more than another, or less, which means that the effects of training as measured would be reduced in size. Thirdly, the fact that not all trained supervisory skills were observed in the behaviour of the mentor teachers could have to do with the different levels of difficulty, with the timing and execution of the trained supervisory skills. For example, most mentor teachers seem to find it easier to pick up the supervisory skill asking for concreteness than to use summarising inconsistencies or helping in making things explicit. Fourthly, limited effects seen on some of the trained supervisory skills could be due to the fact that only mentor teachers who were experienced in mentoring student teachers took part in the training programme. They have already developed particular behaviours in supervising, which in general are those of an advisory nature, and which are difficult to change. Finally, it could be that supervisory skills which were trained but were not observed after the training programme were not always appropriate for use in the mentoring dialogues that were recorded.

Despite these limitations, the conclusion of this study that effects of the SMART programme on mentor teachers' supervisory repertoires occur, seems justified. This is supported by earlier effect studies, as described in

Section 1.3, where some effects, although sometimes limited and diverse, are reported. The conclusion is also supported by reviews of effect studies in other contexts. These reviews, covering over 300 (quasi-) experimental studies into the effects of training on interpersonal and communication skills - related to supervisory skills used by mentor teachers - in the mental, social and physical health sectors, all conclude that effect of training on behaviour can be established to some degree (Baker & Daniels, 1989; Baker, Daniels, & Greeley, 1990; Carol & Monroe, 1980; Ford, 1979; Hulsman, Ros, Winnubst, & Bensing, 1999; Kruijver, Kerkstra, Francke, Bensing, & Van de Wiel, 2000; Kurtz, Marshall, & Banspach, 1985; Van der Molen, Smit, Hommes, & Lang, 1995).

4.3 Directions for future research

In concluding this chapter, we suggest directions for future research. First, an interesting finding was that some mentor teachers spontaneously reported that after training they paid more conscious attention to their own supervisory behaviour during mentoring dialogues. More specifically, mentor teachers reported that they experienced something like a dual cognitive task during dialogues: following the student teachers' input and at the same time considering how to align their own use of supervisory skills to this input. This could amount to an effect of training on mentor teachers' (meta-) cognitions during mentoring dialogues as a mediating factor in the transfer of training in supervisory skills. To get more insight into the process of transfer, it would be interesting to try and capture effects of a training programme for mentor teachers that occur in the minds of the mentor teachers during the mentoring dialogue. Secondly, it should be noted that follow-up studies are so far lacking. We consider it important to ascertain whether training can positively affect mentor teachers' use of supervisory skills and if and how skills can be retained in the longer run. Thirdly, the recorded differences in effects of training among the mentor teachers beg the question of how much influence variables outside the training have on the results. Holton and Baldwin (2000) developed a model in which the potential influences of characteristics of trainees and features of the workplace are identified. Research incorporating such variables may consider whether it makes sense to select candidates for training programmes on the basis of personal characteristics and/or opportunities and facilities in the work setting for using the acquired skills in daily practice. Fourthly, if, as this study shows, training in supervisory skills can influence the behaviour of

mentor teachers, this leads to the next question whether and how student teachers perceive this change in behaviour during the mentoring dialogues. Follow-up research could consider the effects of training from the point of view of the student teachers. After all, the final goal of developing versatile repertoires of mentor teachers' supervisory skills is that it serves the learning of their student teachers.

5

Clarifying student teacher perceptions of mentor teachers' use of supervisory skills

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Clarifying student teacher perceptions of mentor teachers' use of
supervisory skills.

The aim of the study reported in this chapter is to clarify how student teachers perceive mentor teachers' use of supervisory skills during mentoring dialogues. Sixty stimulated-recall interviews were conducted, each in connection with a previously recorded mentoring dialogue. Six types of supervisory skills appeared to be perceived by student teachers as offering *emotional support* and five others as offering *task assistance*. After mentor teachers were trained in supervisory skills, shifts in their frequencies of use of distinct supervisory skills, as observed by independent raters, corresponded to a considerable extent with shifts in frequencies of student teacher perceptions of mentor teachers' supervisory behaviour.

1 Introduction

The availability of effective guidance by a mentor teacher is an essential condition for (student) teachers' learning in the workplace (Bullough & Draper, 2004). Hence, in teacher education, mentoring is seen as an important component of structured learning experiences provided for student teachers (Bartell, 2005; Geldens, 2007). Through mentoring dialogues, mentor teachers can have a considerable influence on how and what student teachers learn (Edwards & Portheroe, 2004; Helman, 2006). 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' supervisory behaviour is co-determined by student 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 kind of notion about learning goes back to 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 means that in order to better understand the impact of mentor teachers' supervisory behaviour on student teachers, research is needed into student 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 student teachers perceive mentor teachers' use of specific supervisory skills during mentoring dialogues, before and after mentor teachers were trained in the use of supervisory skills. Investigating student 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 supervisory skills may have on student teachers. Research in this area may be helpful to better understand the intricacies of interactions in mentoring dialogues. It may provide clues for improving mentor teachers' awareness of the impact of distinct supervisory skills they put into practice. In addition, investigating

student teacher perceptions, both before and after mentor teachers were trained, is a relevant endeavour, as shifts in mentor teachers' supervisory repertoires will gain in significance, if they are perceived by student teachers. Hopefully such research will provide clues for selecting skills to design training programmes aiming at improving mentor teachers' repertoires of supervisory skills.

In this study, we define *mentoring* as the one-to-one support of a student 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 student teacher. We define the term *mentor teacher* as a teacher of pupils with an additional responsibility as a mentor of student teachers.

1.1 Two main areas of perceived assistance

Until now, in the context of teacher education most research on mentee perceptions of mentoring take into account the full range of mentor teachers' supervisory activities. Generally, this research often deals explicitly with the issue which areas of assistance student or beginning teachers perceive as relevant to their learning. For example, Booth (1993) found among 45 student teachers in secondary education three such areas: *general support*, which includes accessibility of the mentor, sympathetic and positive support and time spent on mentoring; *practical support* in the form of knowledge that student teachers could immediately use in their classrooms; and 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 student teachers in secondary education, Rajuan et al. (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 supervisory skills like asking questions and giving feedback. Analysing 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 supervisory skills like 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, student 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, student 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 student 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 student teacher in a collaborative context, were not taken up adequately. Hobson (2002), on the contrary, concluded that student 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 mentors did not appear to provide a safe and supportive learning environment.

In sum, from a student 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).

1.2 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 student or beginning teachers' learning in the workplace. In the particular educational context of the mentoring dialogue, student and beginning teachers' perceptions of both types of mentor behaviour play their own roles. From the student teachers' perspective, there is hardly any research investigating to what extent these two types of assistance are manifest within mentoring dialogues, except a very few. In a study by Kagan and Albertson (1987) among 24 undergraduate student teachers in their first semester of field teaching, mentees showed themselves hypersensitive to mentor teachers' supervisory behaviour during dialogues expressing criticism of their performance and 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 supervisory skills like 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' supervisory styles during dialogues: *directive informational*, *collaborative*, *nondirective* and *directive control*. The types found differ in the degree of power and control exerted by mentor teachers, in particular with regard to who formulates the future plan and who decides to follow this plan.

The research into student and beginning teacher perceptions of mentor teachers' supervisory behaviour during mentoring dialogues led mainly to descriptions of mentoring styles and 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 specific supervisory skills during mentoring dialogues.

1.3 Impact of training on the use of supervisory skills

From previous research we know that learning needs of student and beginning teachers differ (Oosterheert & Vermunt, 2001), that their professional learning develops at different speeds (Furlong & Maynard, 1995), and that from the student 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 student teachers and the mentoring approach they experience may limit chances for student teachers to reach their best possible levels of competence and may even lead to a student teacher's withdrawal from teacher education (Williams et al., 1998). Hence, training in supervisory skills is important for improving mentor teachers' awareness of and proficiency in the use of those supervisory 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 supervisory behaviour during mentoring dialogues (Edwards & Green, 1999; Evertson & Smithey, 2001; Harrison et al., 2005; Timperley, 2001). Changes established in mentor teachers' use of supervisory skills may gain in significance, if they are also perceived by student teachers. Therefore, it is a relevant question to investigate whether and how during authentic mentoring dialogues, shifts in mentor teachers' supervisory behaviour as observed by independent observers correspond with shifts in student teacher perceptions of supervisory 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 and correlation between shifts in the frequencies of mentor teachers' use of supervisory skills as observed by independent raters and shifts in the frequencies of student teacher perceptions of mentor teachers' use of supervisory 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 student teachers* are used respectively.

1.4 Research questions

The above considerations have led to the following two research questions:

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

2 Method

2.1 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 student Teachers (SMART)*. The programme focused on the development of supervisory skills which encourage reflection in student teachers. The trained skills were derived from the literature about training for supervision, psychotherapy and the promotion of reflection in student teachers (Brammer, 1973; Egan, 1975; Korthagen, 2001b; Rogers, 1969). In the SMART training, the supervisory skills were linked to and practiced with the help of the ALACT model (Korthagen, 2001b), which describes a cyclical sequence of steps constituting a complete reflection process within a mentoring dialogue. For more information on the elaboration of this framework within the context of the SMART training, see Chapter 4 Section 2.2. 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* (Koster & Korthagen, 2001; Korthagen, Loughran, & Russell, 2006) and *micro-counseling* (Ivey, 1971).

2.2 Participants

Thirty student-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 student 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. 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 student teachers. None of the mentor teachers had been trained in supervisory skills before they took part in the present study.

2.3 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. Mentor teachers conducted the dialogues with their student teachers, with whom they had already established rapport. Student 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. 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. In order to ensure comparability of the data, the recordings of the dialogues were restricted to the first fifteen minutes. Geldens (2007) produced empirical evidence that analysing longer periods of time does not improve the assessment of the quality of a mentoring dialogue.

The second step in the data collection was to record student teacher perceptions of mentor teachers' use of supervisory skills, using stimulated

recall (Bloom, 1954). Immediately after each mentoring dialogue, a stimulated-recall interview with the student 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 student teacher to recollect and to report his or her perceptions of specific supervisory behaviour used by the mentor teacher. Two stimulated-recall interviews were carried out with each of the 30 student 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 student teachers, we operationalised 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 student 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 student 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 student teachers reported during the stops of the video recordings were audio-taped and transcribed.

2.4 Transcription and coding

All 60 mentoring dialogues were transcribed literally (see the example of coded transcription in Table 5.1). 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 student teacher commences speaking. The student teacher reactions registered during the stimulated-recall interviews were transcribed in immediate adjacency to the mentor teachers' utterances and summarised with the codes E, used for *Emotional support*, or T, used for *Task assistance*.

Table 5.1
Example of coded transcription

Time (min)	Interlocutor	Utterances of mentor teacher (MT) and student teacher (ST)	Code of MT's utterance	ST's reactions during stimulated-recall interview	Code of ST's perception of MT's utterance
(1)	(2)	(3)	(4)	(5)	(6)
10.28	Mentor teacher	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	Student teacher	Yes.			
10.38	Mentor teacher	So what would you like her to do?	3		
10.41	Student teacher	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	Mentor teacher	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	Student teacher	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	Mentor teacher	Yes, I think that is a very good idea.	14a	I felt emotionally supported (E) because the MT agrees with me.	14a

E = Emotional support; T = Task assistance. The code numbers assigned to the supervisory 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.

1 Coding mentor teachers' utterances

For coding the mentor teachers' utterances (see column 4 in Table 5.1), a category system developed by Crasborn et al. (2008) was used by three independent raters. This system distinguishes 15 overt supervisory 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, utilising 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 can not 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 student teacher perceptions of specific supervisory 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 student 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 student 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 student 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 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 videorecording to consider also the non-verbal aspects, and finally assigned their codes to the mentor teacher's utterances. When two (or more) types of supervisory skills were performed during one turn, only the last type was coded, because in almost all cases this was the trigger for the student teacher's reaction. Examples of code numbers assigned to mentor teachers' utterances are noted in column 4 of Table 5.1. The three raters scored all the 2,274 mentor teachers' utterances. Cohen's kappas, indicating the paired inter-rater reliabilities were on average .76. The lowest was .73 and the highest .79.

2 Coding triggers for emotional support and task assistance

Using the transcriptions of the student teachers' reactions during the stimulated-recall interviews, three raters also coded which types of mentor teacher utterances triggered, according to the student teachers, emotional support or task assistance (Table 5.1, columns 5 and 6). The same coding system of 15 supervisory skills as described before was applied. In total, all three raters scored 668 reported student teacher reactions, registered before and after mentor teachers were trained in supervisory 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 student teachers as triggers for emotional support. For example, one student teacher said: "I felt emotionally supported by the mentor teacher's summary of the problem." As a trigger for the student teacher's perception of emotional support (E), the student 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 student teachers as triggering task assistance. For example, one student 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 student 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 student teacher perceptions of distinct supervisory skills as offering emotional support were on average .82, the lowest being .78, while for those perceived as offering task assistance kappas were on average also .82, the lowest being .80.

2.5 Data analysis

Data analysis proceeded in the following steps. To begin with, descriptive statistics were used. In addition, with regard to each supervisory skill, two-tailed *t* tests for paired observations ($p < .05$) were calculated on the shifts in frequencies observed by independent raters and on the shifts perceived by student teachers, between the measurements before and after mentor teachers were trained in supervisory 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 student teachers we first inspected for which supervisory skills these shifts occurred in parallel patterns. We speak of a parallel pattern, when the frequencies observed by independent raters and those perceived by student 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 student teachers increased or decreased. These percentages were calculated for each supervisory skill. Finally, a one-tailed Pearson correlation between the shifts as observed by the independent raters and the shifts as perceived by the student teacher was calculated.

3 Findings

3.1 Offering emotional support and task assistance

Table 5.2 contains an overview of the results concerning the first research question, about student teacher perceptions of mentor teachers' use of supervisory 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 student teachers perceived predominantly the supervisory 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 supervisory 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 student teachers as offering task assistance. More specifically, with regard to the supervisory 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 supervisory 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%). Student teachers perceived the supervisory skill giving information as offering emotional support when the information given matched with student teachers' actions and/or ideas. An example of this is when after a very clear instruction by the student teacher, the mentor teacher said: "These pupils find it difficult to understand which steps are needed to work in a structured way." Student teachers perceived the skill giving information as offering task assistance, when the information

provided by the mentor teacher opened a new perspective to the student teacher. For example, when a mentor teacher said “This boy doesn’t speak English at home, we have to think about alternative approaches.”

Table 5.2

Frequencies of supervisory skills perceived by student teachers as offering *emotional support* or *task assistance* in absolute (abs.) and relative (%) numbers

Supervisory skills		Perceived as <i>Emotional support</i>				Perceived as <i>Task assistance</i>			
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		Abs.		Total	%	Abs.		Total	%
		Before training	After training			Before training	After training		
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 in making things explicit	0	0	0	0	2	9	11	3
11	Helping in 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	0	2	2	1	28	8	36	9
16	Other	0	1	1	0	2	1	3	1
Total		112	171	283	100	147	238	385	100

3.2 Shifts as observed by independent raters and as perceived by student teachers

Table 5.3

Relative frequencies of the use of supervisory skills before and after the SMART training as observed by independent raters and as perceived by student teachers

Supervisory skills		Observed by independent raters				Perceived by student teachers as							
						Emotional support				Task assistance			
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
		Before %	After %	Sign. $p < .05$	d-index	Before %	After %	Sign. $p < .05$	d-index	Before %	After %	Sign. $p < .05$	d-index
01	Showing attentive behaviour	9	7	.33		21	19	.92		0	0		
02	Asking open starting question	3	2			0	1			1	0		
03	Asking for concreteness	16	31	.00	2.00	1	2			24	45	.00	0.87
04	Summarising feeling	1	2			3	9	.08		0	1		
05	Summarising content	10	18	.00	0.96	18	34	.01	0.7	1	1		
06	Showing genuineness	3	2			13	6	.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 in making things explicit	0	1			0	0			1	3		
11	Helping in finding alternatives	4	7	.06		2	2			16	28	.02	0.78
12	Asking for something new	9	8	.76		0	1			23	15	.02	-0.65
13	Giving information	14	5	.00	-1.09	7	4	.38		9	1	.17	
14	Giving opinion	10	6	.04	-0.56	32	19	.18		2	1		
15	Giving advice	13	3	.00	-0.89	0	1			19	3	.00	-0.90
16	Other	5	3			0	1			1	0		
Total pink cells		85	85			94	91			91	92		
N=		989 (100%)	1,285 (100%)			112 (100%)	171 (100%)			147 (100%)	238 (100%)		

1 Shifts as observed by independent raters

Table 5.3 contains an overview of the data regarding the second research question. The data in columns 2 and 3 show the frequencies of mentor teachers' use of supervisory skills, before and after they were trained in supervisory skills, as observed by independent raters. Before training, mentor teachers' supervisory skills repertoires consisted largely (85%) of the following eight skills (see the pink cells in Table 5.3): 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' supervisory behaviour (85%). However, after training, a statistically significant shift was found in the frequencies of use of five supervisory skills. The frequencies of use of two supervisory skills show a statistically significant increase: asking for concreteness (from 16% to 31%; $p < .05$, $ES = 2.00$), and summarising content (from 10% to 18%; $p < .05$, $ES = 0.96$). Three supervisory skills show a statistically significant decrease in frequencies of use: giving information (from 14% to 5%; $p < .05$, $ES = 1.09$), giving opinion / assessing (from 10% to 6%; $p < .05$, $ES = 0.56$), and giving advice / instruction (from 13% to 3%; $p < .05$, $ES = 0.89$). The effect sizes found are medium to large (Cohen, 1988).

2 Shifts as perceived by student teachers

The data in columns 6 and 7 of Table 5.3 show the shifts in frequencies of student teacher perceptions of supervisory skills as offering emotional support. Before mentor teachers were trained in supervisory skills, student teachers reported that emotional support was mainly triggered (94%) by the following six supervisory skills (see the pink cells in Table 5.3): showing attentive behaviour (21%), summarising feeling (3%), summarising content (18%), showing genuineness (13%), giving information (7%) and giving opinion (32%). After mentor teachers were trained, the same six skills for the most part (91%) still accounted for student teacher perceptions of supervisory skills as offering emotional support. However, after training a statistically significant shift was found in frequencies of one supervisory skill perceived by student teachers as a trigger for emotional support, i.e. summarising content. Student teacher perception of the use of this skill as trigger of emotional support increased to a statistically significant extent from 18% to 34% ($p < .05$, $ES = 0.70$).

The data in columns 10 and 11 of Table 5.3 show the shifts found in frequencies of student teacher perceptions of supervisory skills as offering task assistance. Before mentor teachers were trained in supervisory skills, student teachers reported that *task assistance* was mainly triggered (91%) by the following five skills (see the pink cells in Table 5.3): 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%) student teacher perceptions of task assistance. However, after training, a

statistically significant shift was found in frequencies of use of four supervisory skills perceived by student teachers as triggers for task assistance. The frequencies of use of *asking for concreteness* and *helping in finding and choosing alternatives*, perceived by student teachers as offering task assistance, increased to a statistically significant extent, from 24% to 45% ($p < .05$, $ES = 0.87$) and from 16% to 28% ($p < .05$, $ES = 0.78$), respectively. The frequencies of use of *giving advice / instruction* and *asking for something new*, perceived by student teachers as offering task assistance, decreased to a statistically significant extent, from 23% to 15% ($p < .05$, $ES = 0.65$) and from 19% to 3% ($p < .05$, $ES = 0.90$), respectively. All effect sizes found are medium to large (Cohen, 1988).

3 Correspondences between shifts

To answer the second research question, about the correspondence between shifts in frequencies based on observations of independent raters and shifts in frequencies based on perceptions by student teachers, two steps were taken. As a first step, we identified with regard to which supervisory skill shifts in frequencies occurred in parallel patterns as observed by independent raters and as perceived by student teachers. Increasing or decreasing patterns were found for 10 out of 15 supervisory 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 supervisory skills (see in Table 5.3 the cells in pink type) all went in the same directions for independent raters and student teachers, so these shifts ran in parallel. After mentor teachers were trained in supervisory skills, the independent raters and student teachers noted parallel *increases* in four supervisory skills (see in Table 5.3 those numbered 3, 4, 5 and 11). For *asking for concreteness*, there was a parallel increase of the frequencies as observed by independent raters (from 16% to 31%, $p < .05$, $ES = 2.00$), and the frequencies as perceived by student teachers (from 24% to 45%, $p < .05$, $ES = 0.87$). Regarding *summarising feeling*, there was a parallel increase of the frequencies as observed by independent raters (from 1% to 2%), and the frequencies as perceived by student teachers (from 3% to 9%). As regards *summarising content*, there was a parallel increase of the frequencies as observed by independent raters (from 10% to 18%, $p < .05$, $ES = 0.96$), and the frequencies as perceived by student teachers (from 18% to 34%, $p < .05$, $ES = 0.7$).

Concerning *helping in finding and choosing alternatives*, there was a parallel increase of the frequencies as observed by independent raters (from 4% to 7%), and the frequencies as perceived by student teachers (from 16% to 28%, $p < .05$, $ES = 0.78$). In sum, for two supervisory skills, i.e. *asking for concreteness* and *summarising content*, the shifts were statistically significant for both the independent raters and the student teachers.

Also, after mentor teacher training, a parallel *decrease* of frequencies was found with regard to six supervisory skills (see in Table 3 those numbered 1, 6, 12 through 15). For *showing attentive behaviour*, there was a parallel decrease of the frequencies as observed by independent raters (from 9% to 7%), and the frequencies as perceived by student teachers (from 21% to 19%). As regards *showing genuineness*, there was a parallel decrease of the frequencies as observed by independent raters (from 3% to 2%), and the frequencies as perceived by student teachers (from 13% to 6%). Regarding *asking for something new*, there was a parallel decrease of the frequencies as observed by independent raters (from 9% to 8%), and the frequencies as perceived by student teachers (from 23% to 15%, $p < .05$, $ES = 0.65$). As regards *giving information*, there was a parallel decrease of the frequencies as observed by independent raters (from 14% to 5%, $p < .05$, $ES = 1.09$), and the frequencies as perceived by student teachers (from 7% to 4% as offering emotional support and from 9% to 1% as offering task assistance). Concerning *giving opinion/assessing*, there was a parallel decrease of the frequencies as observed by independent raters (from 10% to 6%, $p < .05$, $ES = 0.56$), and the frequencies as perceived by student teachers (from 32% to 19%). Regarding *giving advice/instruction*, there was a parallel decrease of the frequencies as observed by independent raters (from 13% to 3%, $p < .05$, $ES = 0.89$), and the frequencies as perceived by student teachers (from 19% to 3%, $p < .05$, $ES = 0.90$). In sum, for one supervisory skill, i.e. giving advice/instruction, the shifts were statistically significant for both the independent raters and the student teachers.

As a second step, in establishing the correspondence, we calculated a one-tailed Pearson correlation between the above mentioned 10 parallel shifts as observed by independent raters and as perceived by student teachers. The resulting significant Pearson r of .96 ($p = .00$) confirms the parallel patterns presented in Table 5.3.

4 Conclusion and discussion

4.1 Conclusions

In this study, mentor teachers' use of supervisory skills in mentoring dialogues is considered from the perspective of student teachers. Our aim was to clarify how student teachers perceive mentor teachers' use of supervisory skills during mentoring dialogues, before and after mentor teachers were trained in supervisory skills. A central notion underlying this study is that effective supervisory behaviour provides both *emotional support* and *task assistance*. Based on precise quantitative ratings of student teacher perceptions of specific supervisory skills put into practice by mentor teachers during mentoring dialogues, this study has identified two sets of observable supervisory skills, which offer either emotional support or task assistance in mentoring dialogues.

Student teachers predominantly perceived six distinct supervisory skills as offering emotional support: summarising content, showing attentive behaviour, giving positive opinion, showing genuineness, summarising feeling and giving information. Five specific supervisory skills were perceived by student teachers as offering task assistance: asking for concreteness, helping in finding and choosing alternatives, asking for something new, giving advice and giving information. Both before and after mentor teachers were trained in supervisory skills, the same set of supervisory skills triggered emotional support and task assistance.

These findings indicate that after training mentor teachers, shifts in the frequencies of their use of distinct supervisory skills can occur, which are perceived by student teachers as triggers for emotional support or task assistance. 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 student teachers developed according to quite similar patterns.

4.2 Implications

Our study highlights the relevance and potential of specific supervisory skills for offering emotional support and task assistance in mentoring dialogues. From the findings three major implications emerge: two theoretical and one practical. First, as they demonstrate the impact of

distinct supervisory skills on student teachers in terms of offering emotional support or task assistance, they add to our knowledge about mentoring student teachers. When mentor teachers put these supervisory skills into practice, they do have an impact on student teachers. Moreover, the findings illustrate how differentiated the impact of mentor teachers' supervisory behaviour may be on student teachers. Second, alongside research studies showing the effects of training programmes on mentor teachers' supervisory behaviour, the findings of this study provide empirical evidence from the student teacher's perspective. As shifts in the use of supervisory skills as observed by independent raters correspond to a large degree with student 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 supervisory skills for incorporation in training programmes for mentor teachers. The supervisory skills included in this study can be characterised 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 supervisory skills. Through training, supervisory skills such as those studied here can be targeted and developed explicitly.

4.3 Limitations and further research

The measurements in this study involved precise quantitative ratings of small units of supervisory behaviour and related student 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 supervisory skills and shifts in student teacher perceptions of those supervisory skills as offering emotional support or task assistance. In view of the pre-test post-test design with one group, another limitation is that probably other factors outside the SMART training, such as individual characteristics of participating mentor teachers and student teachers as well as features of the workplace can have influenced the presence or absence of the shifts registered. Finally, a limitation of this study is that despite the advantages of the stimulated-recall method mentioned in Section 2.3, it remains a retrospective method (Veenman, 2005), which relies on student teachers' ability to recognise their own perceptions of mentor teachers' use of supervisory 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, student teachers not only perceive mentor teachers' use of supervisory skills consciously, but also at subconscious levels. Stimulated recall elicits exclusively student teachers' conscious cognitions.

These limitations notwithstanding, our findings that student teacher perceptions of mentor teachers' supervisory behaviour covary with this behaviour itself as observed by independent raters raises the question to what extent student teacher perceptions might be used as valid indicators of mentor teachers' supervisory behaviour. If both groups are observing supervisory behaviours to roughly equal extents, this emphasises the relevance of using student teacher perceptions as a source of feedback for mentor teachers that may enhance their reflection on their supervisory behaviour. To establish if student teacher perceptions could be used as valid indicators of mentor teachers' supervisory behaviour, more research would be needed on larger data sets for each skill separately, in which student teacher perceptions are compared with independent raters' observations. This type of research could elucidate the possible value of using student teacher perceptions as a source of feedback to mentor teachers on the impact of their supervisory behaviour.

In this study, we clarified how student teachers can perceive their mentor teachers' use of supervisory skills in mentoring dialogues. The findings suggest that student 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 supervising student teachers that the assistance they provide to their mentees can contribute to their professional development.

Part III: Mentor teachers' interactive cognitions

6

Capturing mentor teachers' reflective moments during mentoring dialogues

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The main goal of the study reported in this chapter is to capture differential frequencies of mentor teachers' reflective moments, as indicators of different levels of consciousness in mentor teachers' use and acquisition of supervisory skills. For each of the 30 participants, two mentoring dialogues were analysed: one before and one after they were trained in supervisory skills. To capture the frequency of reflective moments, the stimulated-recall technique and a specially developed push-button device were combined in a two-method approach. The data of the study suggest the existence of different levels of consciousness in acquiring and using supervisory skills, the possibility of measuring reflectivity using concurrent and retrospective methods simultaneously, and the potential of such measurements to inform and improve professional development opportunities for mentor teachers.

1 Introduction

Today, increasing emphasis is placed on the significance of school practice as a learning environment for student teachers (Brouwer, 2007; Mantle-Bromley, 2003; Smith, 2003). As a consequence, the importance of field experience as a proportion of the overall time invested in initial teacher education has increased in the past several years in both 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), the criticism of the practical relevance of theory in teacher education programmes (Darling-Hammond, 2000; Korthagen, 2001b), the teacher shortages many countries are faced with (Buchberger, Campos, Kallos, & Stephenson, 2000; Villani, 2002), and the idea that teacher education is less expensive if it is done in the workplace (Caldwell & Carter, 1993).

The move towards school-based teacher education has made the role of the mentor teacher, a classroom teacher with the additional responsibility of supervising student teachers, more important than ever before (Wang, Odell, & Schwillie, 2008). Through their dialogues with student teachers, mentor teachers have a considerable influence on how and what student teachers learn (Edwards & Protheroe, 2004; Feiman-Nemser, 2000; Glickman & Bey, 1990). An essential condition for good mentoring is a balance of support in the interpersonal relationship in conjunction with adequate opportunities for challenging student teachers to learn new things (Daloz, 1986; Rajuan et al., 2007; Tang, 2003). To match the different needs and learning styles of student teachers (Bullough & Draper, 2004; Furlong & Maynard, 1995; Kagan, 1992; Oosterheert & Vermunt, 2001), it is important that mentor teachers are able to vary their supervisory approach (Hennissen et al., 2008). A disparity between the mentoring style and the learning needs of individual student teachers may lead to the withdrawal of a student teacher from initial teacher education. Additionally, such a disparity may limit chances for student teachers to reach their best possible level of competence (Williams et al., 1998).

Despite the call for flexibility in the mentoring approach, most mentor teachers hardly vary their supervisory behaviour in response to the changing needs of student teachers and, either consciously or subconsciously, stick to a certain supervisory approach (Wang et al., 2006; Williams et al., 1998). Developing versatility in mentor teachers'

supervisory skills repertoire appears to be an important challenge. Hence, many teacher education institutions and schools are addressing this challenge by providing mentor teachers with professional development aimed at enhancing their supervisory skills during mentoring dialogues (Strong & Baron, 2004). After all, for a mentor teacher, the ultimate goal is to serve the learning of each individual student teacher.

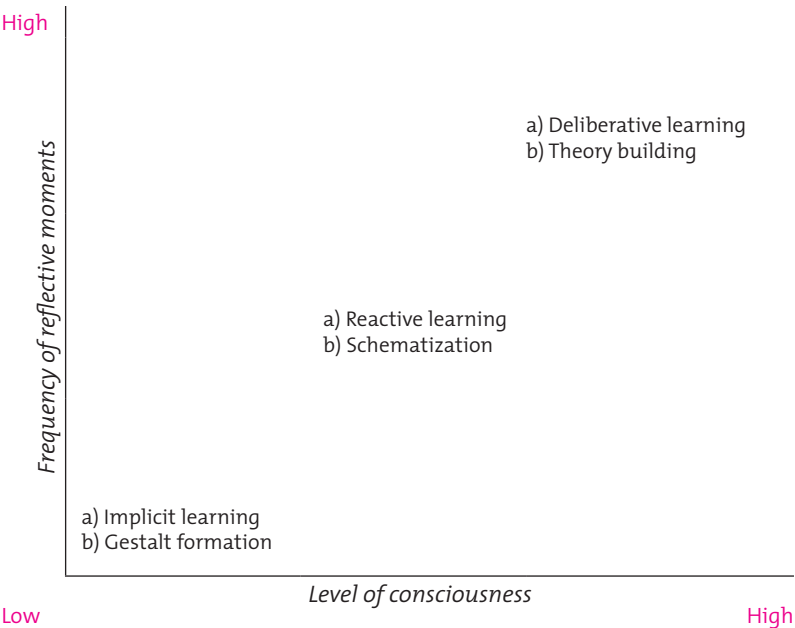
Research shows that development of mentor teachers' use of supervisory skills can be observed in terms of changes in supervisory behaviour (Evertson & Smithey, 2001; Harrison et al., 2005; Timperley, 2001; Veenman & Denessen, 2001). Studies of expertise in any domain indicate that professional growth is reflected not only in overt behaviour but also in changes in those cognitions that guide and mediate behaviour (Berliner, 2001; Chi, Glaser, & Farr, 1988; Sakai & Nasserbahkt, 1997). The relationship between cognitions and a person's own actions is reciprocal, interactive, and cyclic (Clarke & Hollingsworth, 2002). Cognitions related to a person's behaviour can occur either consciously or subconsciously (Dixon, 1981; Greenwald, 1992). After cognitions are processed consciously, changes to new and maneuverable behaviours can come about (Bonke, Jelici, & Bonebakker, 1994; Lombardi, Higgins, & Bargh, 1987). Models of expertise development depict stages in which the degree to which knowledge and skills are internalised into the personal working style is used as a criterion (e.g. Benner, 1984; Dreyfus & Dreyfus, 1986; Feldon, 2007; Stoltenberg, McNeil, & Crethan, 1994; Sweller, 1994; Vrolijk, 1991).

In this study, we define cognitions as mental representations and constructs present in the mind of the mentor teacher at a specific moment. We assume that levels of consciousness (Eraut, 2004; Korthagen & Lagerwerf, 2001) can be indicated by different frequencies of reflective moments, that is, specific episodes during mentoring dialogues in which mentor teachers' cognitions related to the use of supervisory skills are manifested consciously. The aim of this study is twofold. First, to capture differential frequencies of mentor teachers' reflective moments, as indicators of different levels of consciousness in mentor teachers' use and acquisition of supervisory skills during mentoring dialogues. Second, we explore methods for registering mentor teachers' reflective moments in mentoring dialogues. The outcome of such investigations can add to our knowledge about relations between mentor teachers' thinking and doing during mentoring dialogues and provide clues for designing training programmes for mentor teachers.

1.1 Levels of consciousness in learning

Related to the degree to which behaviour and learning results from conscious or subconscious processes in the context of learning in the workplace, Eraut (2004) introduced a *typology of informal learning* based on three levels of consciousness: implicit learning, reactive learning, and deliberative learning. In the context of teacher learning, analogous to Eraut’s typology, Korthagen and Lagerwerf (2001) elaborated a *three-level theory* that describes three interrelated consecutive levels of learning: Gestalt formation, schematisation, and theory building. Both Eraut’s and Korthagen and Lagerwerf’s theories (see Figure 6.1) describe processes of informal learning that can be defined as learning in and from involvement in work activities, thus, as learning that is not overtly organised by external actors. As theoretical frameworks guiding this study, we have looked to both theories to help us interpret the data we have gathered regarding mentor teachers’ frequencies of reflective moments during mentoring dialogues.

Figure 6.1
Frequency of reflective moments indicating levels of consciousness in learning



a) *Typology of informal Learning* (Eraut, 2004);
b) *Three-Level-Theory* (Korthagen & Lagerwerf, 2001)

1 First level

In both theories, the first level of learning is characterised by low consciousness. Eraut (2004) describes the subconscious process of acquiring new knowledge and skills without recognising what has been learned as *implicit learning*. Behaviour in this type of learning is guided by an instant-reflex mode of cognition, in which there is no time for conscious considerations (Eraut, 2000). Acquisition of knowledge and skills takes place for the most part independently of conscious attempts to learn and in the absence of explicit knowledge acquired earlier. Knowledge used on this level of learning cannot easily be articulated and is called tacit knowledge (Polanyi, 1967). However, it might not only be tacit knowledge that is stored in memory, but also emotional and motivational ways of knowing (Miltenburg & Singer, 1999).

Korthagen and Lagerwerf (2001) describe the first level of learning as *Gestalt formation*, based on principles of Gestalt psychology (Koehler, 1947) which is defined in ways comparable with Eraut's implicit learning. At this level, subconscious learning processes taking place including not only (tacit) knowledge rudiments, but also feelings, similar past experiences, values, role conceptions, and needs or concerns. They form a conglomerate called Gestalt, which comes to operate automatically in situations similar to the situation in which it was acquired. Routines may play a large role. For example, if a mentor teacher experiences disappointment during mentoring dialogues with student teachers who constantly are asking for feedback and advice, the mentor teacher may acquire a tacit belief that student teachers are not willing to reflect on their actions. This understanding may be accompanied by an automatic trigger of disappointment and a behavioural tendency to approach student teachers in mentoring dialogues in a reproachful way and/or respond to questions from student teachers by giving direct advice. On this (first) level of learning, mentor teachers' interventions in mentoring dialogues are automatic and remain at an extremely low level of consciousness. Hence, the frequency of reflective moments in this type of learning is (almost) zero.

2 Second level

In many situations, however, implicit learning or Gestalt formation is not the only learning process that occurs. Eraut (2004) uses the term *reactive learning* to characterise behaviour and learning on a higher level of consciousness than implicit learning. Reactive learning involves near-spontaneous reflection on past experience, noting facts, maybe asking questions, and observing the effects of actions. At this level, a person's

actions are guided by a rapid-intuitive mode of cognition, indicating a greater consciousness of what one is doing and often characterised by rapid decision-making during semi-routine action (Eraut, 2000). Schön (1983) refers to this process as reflection-in-action, which is immediately bound up with action, and has a critical function of questioning the structure of tacit knowledge.

The process towards a more conscious and manoeuvrable use of specific knowledge and skills often occurs through the recognition that a situation in which action is called for is, in some respects, unusual. Korthagen and Lagerwerf (2001) refer to this type of thinking as *schematisation*. A person examines elements of his or her understanding of a situation on a higher level of consciousness than in the process of Gestalt formation. During the schematisation process, a mental structure (schema) is formed consisting of elements and relations between the rudiments. The resulting schema describes the Gestalt in more detail and in a more generalised way, that is, more separate from the concrete experiences that elicited it. For example, a mentor teacher realises during a mentoring dialogue that (s)he is worried that a student teacher doesn't manage the class of pupils effectively and as a result will not cover essential curriculum contents thoroughly. The mentor teacher realises that his or her behavioural tendency is to give feedback and advice instead of asking questions and that this tendency is triggering passive student teacher responses. Along with the increased level of consciousness during reactive learning or schematisation, we assume that frequencies of reflective moments are also likely to increase.

After some time, the schematised knowledge accompanying action can become self-evident and the schema can be used in a less conscious, intuitive way. This is called level reduction, meaning that the schema starts to function as a Gestalt (Korthagen & Lagerwerf, 2001). The result is that intentional behaviour evolves into automatic behaviour, and the level of consciousness and the frequency of reflective moments accompanying action are expected to decrease.

3 Third level

In everyday mentoring situations, reactive learning or even implicit learning are generally sufficient to guide and mediate (supervisory) behaviour. But when, for example, mentor teachers want to become proficient in supervising student teachers, they are likely to feel a need to better understand the impact of specific supervisory skills on student

teachers' learning. Hence, implicit and reactive learning processes have to be extended and deepened. In order of apprehension, this involves discussion and review of past actions and experiences, engagement in decision-making, and problem-solving. Eraut (2004) terms this third type of learning as *deliberative learning*. It requires a type of learning on a relatively high level of consciousness and refers to situations in which there is a clear work-based goal with learning as a by-product. Schön (1983) calls this process reflection-on-action, that is, the process of making sense of an action after it has occurred and possibly learning something from the experience that extends one's knowledge base. Deliberative learning or reflection-on-action may influence future action but cannot have an effect on the action being reflected upon because the time of action and the action itself have already passed.

The parallel (third) level of learning in Korthagen and Lagerwerf's (2001) three-level theory is described by them as *theory building*. The term theory refers to a logical and consistent network of axioms and definitions that lead to certain consequences, for example, regarding the use of specific supervisory skills in mentoring dialogues to encourage student teachers to reflect on their experiences in school practice. On this level of learning, a transition is made from schemata to theory. Connections between the schemata become more established. Relations developed in earlier networks become the nodes of new ones.

Both deliberative learning and theory building require a relatively high level of consciousness. A difference between both concepts seems to be that knowledge construction as a result of theory building is more detached from concrete situations and experiences than knowledge creation as a result of deliberative learning. It could be hypothesised that to reach the level of theory building as a prerequisite, deliberative learning has to be set in motion. This distinction, notwithstanding, we may expect that both involve a relatively high level of conscious use of (prior) knowledge, which might be indicated by a high frequency of reflective moments.

Taken together, Eraut's types of learning and analogous levels of learning described by Korthagen and Lagerwerf (2001) portray three levels of consciousness in learning and lead us to assume that during mentoring dialogues, frequencies of mentor teachers' reflective moments can indicate a specific level of consciousness during the acquisition and use

of supervisory skills (Figure 6.1). Hence, we also assume that shifts, a neutral term used in this study to describe changes in behaviour and cognition that do not necessarily indicate an improvement in terms of educational norms, in the use of distinct supervisory skills may go hand in hand with shifts in the frequency of reflective moments or vice versa.

1.2 Methods for capturing the frequencies of reflective moments

An important methodological question is what methods might capture reflective moments during authentic mentoring dialogues. To achieve a genuine and valid record of what happens, registering the frequency of reflective moments in authentic settings requires, on the one hand, not disrupting the ongoing mentoring dialogue, and, on the other hand, capturing reflective moments on the spot, at the specific moments when they occur.

1 Overview of existing methods

In other research contexts, various instruments and procedures have been developed, which can be used to capture the frequencies of mentor teachers' reflective moments. Veenman (2005) distinguishes prospective, concurrent, and retrospective methods to register cognitions. Prospective and retrospective methods are designed to record cognitions before or after the task or activity. Concurrent methods are designed to record during a task. Before or after a mentoring dialogue, *paper-and-pencil questionnaires* (Thomas, 2003; Van Hout-Wolters, 2000) can be used to gain insight into mentor teachers' cognitions during dialogues with student teachers.

Another possibility is to use oral methods. The first is *free recall* (Kahana, 1996), where after a dialogue, the mentor teacher is asked to describe explicitly what and when he or she was thinking during a dialogue. The second method is the *post-hoc explanation*, in which the mentor teacher is asked after the dialogue to explain why he or she chose a particular approach and to elaborate on what happened during the dialogue. A third oral method is *stimulated recall* (Kagan, Krathwohl, & Miller, 1963), originally used by Bloom (1954). This technique consists of replaying a videotape of an episode of action to enable the viewer to recollect and report on his or her thoughts and decisions. It is assumed that when a video of a mentoring dialogue is shown, mentor teachers are able to recall their experience accurately and to describe in retrospect what they thought during a specific action (Calderhead, 1981; Kagan & Kagan, 1991).

A fourth oral method is the use of a *thinking-aloud protocol* (Clark & Peterson, 1986; Fang, 1996), which implies measuring during the activity. Applying this method means that, the mentor teacher is stopped during particular parts of the dialogue and is asked to describe his or her thoughts.

2 Inventory of limitations

Considered from a validity point of view, each method listed above has one or more limitations (see Table 6.1). When answering questionnaires, respondents tend to know or do more (or less) than they are able or willing to fully describe (Dominowski, 1998; Garner & Alexander, 1989; Nisbett & Wilson, 1977). Moreover, in answering questions about cognitive activities after the action, it is difficult to be completely clear about what one was thinking at the specific moments of their occurrence (Van Hout-Wolters, 2000). Thus, as Veenman (2005) has noted, self-report questionnaires could be read as assessing participants’ opinions concerning the occurrence of cognitive activities.

Table 6.1
Inventory of limitations of existing methods

	Prospective	Retrospective	Retrospective	Retrospective	Concurrent
	Retrospective				
	Written Questionnaire	Oral Free recall	Oral Post-hoc explanation	Oral Stimulated-recall	Oral Thinking aloud
It is not exactly evident when cognitions occur during action(s).	•	•	•		
Often only cognitions or actions right before the interruption are remembered.	•	•	•		•
The natural flow of the action(s) is disturbed and this influences original subsequent behaviour.					•
There is no necessity to consider the next action. Hence, after the action more reflections can occur than during the action.	•	•	•	•	
Arguments or general cognitions arise instead of descriptions of specific cognitions occurring during action.	•	•	•	•	

A limitation applying to a method is marked with •

Oral methods also have weaknesses. When using free recall, for example, it is not exactly clear when thoughts occur. In addition, there is the possibility that mentor teachers will only recall reflective moments that occurred at the end of dialogues and will not recall earlier experiences (McLennan, Twigg, & Bezant, 1993). A disadvantage of post-hoc explanation is that it focuses on arguments for choosing an approach instead of describing frequencies and types of cognitions and thought processes as they actually occur during dialogue. Concerning the stimulated-recall method, Calderhead (1981) and Yinger (1986) have noted that it is difficult to check to what degree the recall is an accurate description of what actually happened. The presentation of a video to encourage recall may not lead to recall of the original situation but to the production of a renewed version, containing elements of the original situation but lacking the need for any action. Subjects are often inclined to talk in more general terms about their cognitions or train of thought, as there is no longer the necessity of considering specifically what the next step should be. For this reason, reflective moments may be reported more frequently than would normally occur in the original situation. The thinking-aloud method also has some disadvantages. It affects the mentoring dialogue by breaking up its natural flow. The mentor teacher can be influenced to change his or her subsequent behaviour due to the thinking aloud about his or her performance. As in the case of the free recall method, thinking aloud also leaves open the possibility that the mentor teacher will only recall reflective moments occurring immediately before the interruption.

3 Desirability of a two-method approach

Because existing methods all have their strengths and weaknesses, several authors suggest a multi-method approach for measuring cognitions (Kagan, 1990; Van Hout-Wolters, 2000; Veenman, 2005). A look at Table 6.1 suggests that stimulated recall seems to be the most adequate method to register mentor teachers' reflective moments during mentoring dialogues. The authenticity of the dialogues can be assured because the ongoing dialogue is not disrupted and replaying the video of the dialogue helps the mentor teacher more than other methods to recollect the instances in which reflective moments are manifested. Despite these advantages, stimulated recall remains a retrospective method (Veenman, 2005) because it relies on the respondents' ability to recognise the reflective moments after the event, and it does not register these moments *on the spot*. Thus, in the best of all possible worlds, it would be desirable to combine the major advantage of stimulated recall,

that is, not disrupting the authentic dialogue, with registering reflective moments accompanying the use of supervisory skills on the spot. To achieve this balanced approach, a complementary method is needed, one that enables mentor teachers to simply acknowledge the presence of reflective moments. We figured this could be done by asking the mentor teacher to push a button registering a sound signal at the very instances when reflective moments emerge. The possibility of using a push button was pointed out by Hilgard (1980) in research on human consciousness. Once in a blue moon, the push-button technique was applied in other research contexts, for example, in studies for measuring cognitive effort while subjects are studying texts (e.g. Van Hout-Wolters, 1990).

1.3 Research questions

As discussed earlier, we have theorised that differential frequencies of mentor teachers' reflective moments during mentoring dialogues may indicate different levels of consciousness in the use and acquisition of supervisory skills. As a consequence, we have posited that shifts in the use of supervisory skills may go hand in hand with shifts in frequencies of reflective moments during mentoring dialogues. Proceeding from the theoretical background outlined earlier and to empirically assess the assumptions underlying this study, a two-method approach was chosen, in which stimulated recall and a push-button technique complement each other. The research questions are as follows:

1. What is the frequency of reflective moments experienced by mentor teachers during mentoring dialogues before and after training in supervisory skills?
2. If shifts in the frequency of mentor teachers' reflective moments during mentoring dialogues occur, are they related to shifts in the use of supervisory skills?
3. Does concurrent application of stimulated recall and a push-button technique produce evidence relevant for questioning and/or refining results generated by each method separately?

2 Method

2.1 Context of the study

This study was carried out in the context of the implementation of a training programme for mentor teachers (Crasborn et al., 2008) entitled *Supervision Skills for Mentor teachers to Activate Reflection in Teachers (SMART)*. The programme was developed in 1999 in cooperation with partner primary and secondary schools and, since then, has been in steady use in the Department of Teacher Education of Fontys University of Applied Sciences in the Netherlands. The SMART training is situated within the reflective-developmental paradigm (Pajak, 1993) and focuses on the development of the following supervisory skills that, according to Korthagen (2001b), encourage reflection in student teachers: asking for concreteness, summarising feeling (showing empathy), showing genuineness, confronting (giving feedback, summarising inconsistencies, utilising the here and now), generalising (asking for similar situations), helping in making things explicit, and helping in finding and choosing alternatives. These skills can be used to encourage a cyclical sequence of five steps (ALACT model) that together constitute a complete reflection process: (1) Action, (2) Looking back on the action, (3) becoming Aware of essential aspects, (4) Creating alternative methods of action, and (5) engaging in a new Trial. The last step of one cycle is the first step of the following cycle (Korthagen, 2001b).

The SMART programme consists of three main components: training, peer consultation, and personal coaching. In total, the training consists of nine sessions of half a day each, spread over a period of almost three months. The pedagogy used in the SMART programme was derived from two sources. The first source is the work of Koster and Korthagen (2001) who put forward the following principles of *realistic teacher education*: a connection should be established between the training programme and participants' individual learning needs and questions. Using experiences from the participants' own practice, trainers can make sure that the programme's contents and exercises deal with real problems. When these problems are linked with theory, analysing them can encourage participants to develop effective interventions. In this way, the contents of the exercises become relevant for all participants. Having the participants practice the skills in between training sessions helps to produce an alternation between contributing practical experiences,

reflecting on them, connecting them to relevant theory, and applying them to new situations. The same applies to systematically having participants record their own progress. Creating a safe learning environment will help participants not to be afraid of experimenting with different behaviours, both in and outside the training sessions. In this respect, mentor teacher trainers fulfill a modeling function, for example, by seeing to it that in the beginning, positive feedback is given both by themselves and by the participants among each other. The application of these principles helps in promoting constant and self-directed professional development.

The second source is Ivey's (1971) micro-training approach. Micro-training is a model of instruction that subdivides complex interpersonal human behaviour into discrete behavioural units. According to this approach, skills can be learned when the following sequence of activities is used: a verbal or visual model giving instruction and information about a skill, practice with the aim of achieving the greatest possible similarity with the target behaviour associated with the particular skill (as described in the instruction phase), and feedback providing information and suggestions from trainer(s) on the basis of observations (in training and in authentic situations).

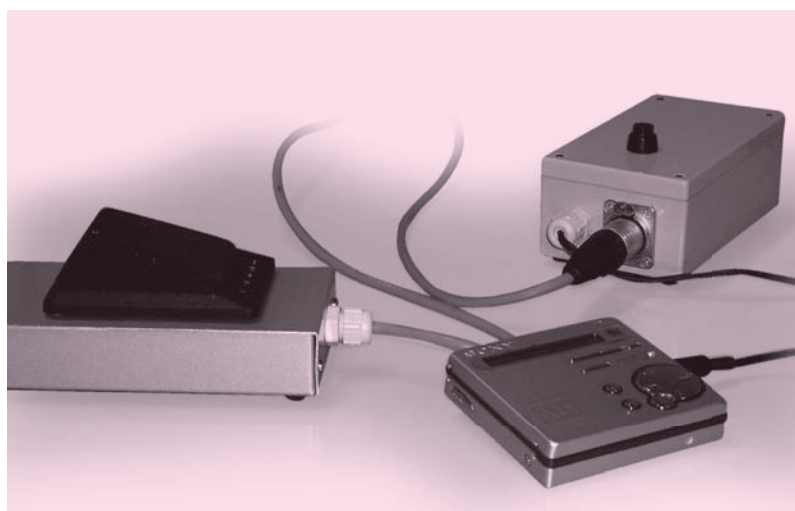
2.2 Participants

Mentor teachers who took part in the SMART training also participated in the research project. A total of 30 mentor teachers from primary education were involved: 13 participants in the spring of 2002 and 17 participants in the spring of 2003. The whole group of participants included 18 women and 12 men. In combination with their primary teaching tasks, all mentor teachers guided and supported a student teacher in their final year of teacher education. During their involvement in the SMART training, they were all given half a day release time per week. The participants' ages ranged from 25 to 54 with an average age of 44. On average, each participant had almost 20 years of teaching experience. None of them had been trained in supervisory skills before, and they each had an average of almost 10 years experience in mentoring student teachers.

2.3 Instrumentation

To capture mentor teachers' reflective moments without disrupting the ongoing dialogue and at the moment they occur, that is, complementary to the *retrospective* stimulated-recall method, a new *concurrent* method was developed by using a push-button device. Figure 6.2 shows the device: a microphone (left), the push button (above right), both connected with the mini-disk recorder. Figure 6.3 shows a mentor teacher (left) using the black button to mark reflective moments during a mentoring dialogue with a student teacher (right).

Figure 6.2
Microphone (left)
and push button
(above right),
both connected
with the mini-
disc recorder.



The purpose of the push-button method is to have mentor teachers acknowledge the presence of reflective moments by pushing on the spot a black button to indicate their occurrence. The mentoring dialogues are recorded on a mini-disk recorder. To ensure a flawless recording, an additional, highly sensitive microphone is attached to the recorder. Whenever the mentor teacher presses the black button, the recorder registers not only his or her speech but also a short beep, which is inaudible to the interlocutors. Only when the recording of a dialogue is played back afterwards the beeps can be heard.

Figure 6.3
A mentor teacher (left) using the push button to register in action reflective moments during a mentoring dialogue.



2.4 Data collection

Audio and video recordings were made of 60 mentoring dialogues which 30 participating mentor teachers carried out in authentic settings with the student teachers under their guidance. Two recordings were made of each mentor teacher: the first, one month before the SMART training; the second, one month after training. The mentor teachers were asked to discuss during the mentoring dialogue a student teacher's concern related to a situation that had occurred in the previous week during their teaching activities in schools. To achieve ecological validity (Straetmans, 1993), the mentor teachers conducted the dialogues with their own student teachers, that is, with student teachers with whom they had already established rapport and in authentic settings, that is, settings considered to be representative of this kind of work.

Based on Geldens (2007) research that demonstrated that analysing more than 15 minutes of recording does not improve the assessment of the quality of a mentoring dialogue and to ensure comparability of the data, the recordings of the dialogues were restricted to the first 15 minutes. Mentor teachers were instructed to press the button during the dialogue each time they experienced a reflective moment. Immediately after the dialogue, in a stimulated-recall interview, the mentor teachers were asked to watch the video recording of the dialogue and to stop the video whenever they recalled a reflective moment. To avoid confusion

about the term reflective moment, ordinary language was used to instruct the participants: "Push the button/stop the video when, during the mentoring dialogue, you had a conscious thought accompanying your conversational turns."

2.5 Transcription, coding and analysis

All 60 recorded dialogues in the main study were transcribed word for word. Table 6.2 shows an example of a transcription. Utterances 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 the moment the student teacher commences speaking. In the transcriptions, reflective moments were connected to the accompanying conversational turns of the mentor teachers. From the overview in Table 6.2, it becomes clear that there are four options with regard to the registration of the frequency of reflective moments: (A) registration by both push button and stimulated recall, (B) registration by the push-button method only, (C) registration by the stimulated-recall method only, and (D) no registration of reflective moments at all.

To label the mentor teachers' conversational turns, a category system was implemented which draws on research literature about training for supervision, therapy, and promotion of reflection in student teachers (Brammer, 1973; Egan, 1975; Korthagen, 2001b; Rogers, 1969) as well as the work of Blumberg (1980), Glickman (1981), and Vrolijk (1991). This work enabled us to distinguish the following repertoire of 15 supervisory skills: (1) showing attentive behaviour, (2) asking an open starting question, (3) asking for concreteness, (4) summarising feeling (showing empathy), (5) summarising content, (6) showing genuineness, (7) completing sentence/clarifying question, (8) confronting (giving feedback, summarising inconsistencies, utilising the here and now), (9) generalising (asking for similar situations), (10) helping in making things explicit, (11) helping in finding and choosing alternatives, (12) asking for something new, (13) giving information, (14) giving opinion/assessing, and (15) giving advice/instruction. For utterances which cannot be labeled, a category other was used.

Table 6.2
Example of coded transcription and registered reflective moments

Time (min)	Interlocutor	Utterances of mentor teacher and student teacher	Video stop stimulated recall ▲	Push button Beep ●	Sup. Skill code
3.39	Student teacher	Well, you know, Ralph was turning about all the time and talking, while there wasn't anything to laugh at really, because it's quite serious.			
3.48	Mentor teacher	Yes, and the other kids, what did they do?	▲ (A)	●	3
3.49	Student teacher	The other kids were participating very seriously and then it's just like Ralph is playing the clown by joking and attracting everyone's attention. I don't know. It irritated me quite a lot.			
3.59	Mentor teacher	I can imagine Ralph's behaviour was disturbing and irritating.		● (B)	4
4.04	Student teacher	Yes, you can say that.			
4.07	Mentor teacher	What did you do when Ralph was talking and laughing?	▲ (C)		3
4.11	Student teacher	I just continued the lesson. On the one hand, I thought I might send him off now. That kind of negative thing. I think that would have influenced the group. Maybe on the other hand, it wasn't right that I ignored him. After all, it wasn't all right what he did. Perhaps I should have pointed it out to him more often.			
4.41	Mentor teacher	I think it's correct what you've done. I probably would have done the same.		(D)	14

Reflective moments mentioned in the stimulated-recall interview are marked with ▲. The beeps generated by the button push indicating reflective moments are marked with ●. The code numbers assigned to the supervisory skills that were used in the example: 3 = asking for concreteness, 4 = summarizing feeling, 14 = giving opinion.

Three raters independently categorised all mentor teachers' utterances. For each mentoring dialogue they read the transcript, viewed the video recording to consider the non-verbal aspects, and finally assigned their codes to the mentor teacher's utterance. When, in some cases, two (or more) types of supervisory skills were performed during one turn, only the last type was coded, because, in almost all cases, this was the trigger for the student teacher's reaction. All raters scored all the 2,274 conversational turns of the mentor teachers made in the 60 dialogues. On average, the Cohen's kappa for each combination of two raters was .76, the lowest kappa being .73. In order to analyse which shifts occurred, we used the standardised mean difference (*d*-index) effect size (ES) to make a comparison between the pre-training and post-training measurements, which expresses the distance between two group means in terms of their standard deviation (Cohen, 1988).

3 Findings

3.1 Frequencies of reflective moments

Table 6.3 presents the registered frequencies of reflective moments of individual mentor teachers before and after training. The results described in Table 6.3 answer the first research question concerning the manifestation of reflective moments. In addition, in Table 6.4 the numbers of reflective moments of the whole group are shown. Before training, the whole group of mentor teachers used 989 (100%) conversational turns. In the stimulated-recall interviews 20% of these turns were identified as being accompanied by a reflective moment, whereas the push button showed 9% identification of reflective moments by the mentor teachers.

Table 6.3
Frequencies of reflective moments of 30 mentor teachers

Mentor teachers	Before SMART training				After SMART training			
	Push button	Stimulated recall	Overlap PB & SR	CT	Push button	Stimulated recall	Overlap PB & SR	CT
	Reflective moments in full numbers and in (%) of total number of conversational turns				Reflective moments in full numbers and in (%) of total number of conversational turns			
01	00 (00)	07 (16)	00 (00)	44	18 (67)	13 (48)	10 (37)	27
02	01 (02)	07 (14)	00 (00)	51	04 (10)	08 (20)	03 (08)	40
03	02 (05)	10 (25)	01 (03)	40	08 (14)	17 (30)	04 (07)	57
04	04 (12)	04 (12)	01 (03)	29	01 (03)	09 (24)	01 (03)	38
05	00 (00)	02 (07)	00 (00)	29	03 (07)	09 (20)	00 (00)	46
06	09 (33)	09 (33)	07 (26)	27	23 (50)	28 (61)	22 (48)	46
07	03 (12)	03 (12)	03 (12)	26	02 (04)	11 (19)	02 (04)	57
08	01 (04)	12 (33)	04 (14)	36	07 (16)	18 (41)	06 (14)	43
09	10 (28)	13 (36)	06 (17)	36	13 (25)	27 (51)	08 (15)	53
10	00 (00)	05 (17)	00 (00)	30	04 (10)	11 (28)	03 (08)	39
11	03 (08)	09 (24)	04 (11)	37	17 (35)	11 (22)	06 (12)	49
12	00 (00)	01 (03)	00 (00)	39	16 (32)	23 (46)	10 (20)	50
13	01 (03)	04 (12)	02 (06)	34	00 (00)	08 (20)	00 (00)	40
14	02 (08)	03 (25)	01 (08)	13	09 (19)	19 (40)	06 (13)	48
15	02 (09)	11 (50)	02 (09)	22	03 (06)	08 (16)	03 (06)	49
16	06 (18)	10 (30)	06 (18)	33	02 (12)	10 (71)	01 (06)	17
17	05 (24)	07 (33)	03 (14)	21	05 (08)	12 (18)	04 (06)	65
18	03 (06)	02 (04)	00 (00)	49	14 (40)	07 (20)	04 (11)	35
19	02 (04)	03 (07)	02 (04)	46	00 (00)	09 (21)	00 (00)	42
20	00 (00)	03 (08)	00 (00)	36	06 (16)	13 (34)	05 (13)	38
21	02 (09)	06 (26)	02 (09)	23	10 (32)	17 (55)	09 (29)	31
22	05 (26)	05 (26)	03 (16)	19	05 (16)	12 (39)	03 (10)	31
23	00 (00)	02 (06)	00 (00)	31	07 (21)	10 (30)	06 (18)	33
24	00 (00)	07 (10)	00 (00)	69	00 (00)	08 (17)	00 (00)	46
25	03 (09)	14 (40)	03 (09)	35	03 (05)	18 (30)	03 (05)	61
26	00 (00)	06 (60)	00 (00)	11	08 (18)	21 (48)	06 (14)	43
27	00 (00)	02 (04)	00 (00)	48	04 (12)	09 (27)	03 (09)	33
28	01 (03)	08 (26)	01 (03)	31	20 (40)	21 (42)	18 (36)	50
29	12 (48)	10 (40)	09 (36)	25	08 (21)	15 (39)	08 (21)	38
30	10 (53)	11 (58)	10 (53)	19	19 (48)	25 (63)	16 (40)	40
Total	87 (09)	196 (20)	70 (07)	989 (100%)	239 (19)	427 (33)	170 (13)	1,285 (100%)
SD fn	3.35	3.71			6.63	6.13		
SD %	13.94	16.13			16.74	15.54		

PB = frequencies registered with the push button; SR = frequencies registered with stimulating-recall interview; Overlap PB & SR = frequencies recorded with PB and SR simultaneously, at the same instances of time. CT = full numbers of conversational turns by each mentor teacher; SD fn = standard deviation full numbers.

After the SMART training, the mentor teachers made 1,285 (100%) conversational turns. In the stimulated-recall interviews 33% of these turns were identified as being accompanied by a reflective moment, whereas this was 19% on the basis of the push-button device. Two-tailed t tests show that after training, both methods produced a significant increase in the identification of the number of reflective moments (stimulated recall: $p < .01$, $ES = 0.58$; push button: $p < .01$, $ES = 0.71$). The frequencies and calculated standard deviations in the columns 2, 3, 6, and 7 of Table 6.3 indicate that there are considerable individual differences within the group.

Table 6.4
Frequencies of registered reflective moments for the whole group of mentor teachers

Before SMART training					After SMART training				
Push button	Stimulated recall				Push button	Stimulated recall			
	Yes		No	87 (09%)		Yes		No	239 (19%)
	Yes	A (70)	B (17)			Yes	A (170)	B (69)	
	No	C (126)	D (776)			No	C (257)	D (789)	
	196 (20%)		793 (80%)			427 (33%)		858 (67%)	
989 turns (100%)			1,285 turns (100%)						

Sections A = frequencies of reflective moments recorded with both the stimulated-recall (SR) method and the push-button device (overlap). Sections B = frequencies of reflective moments recorded with the push button only. Sections C = frequencies of reflective moments recorded with stimulated-recall only. Sections D = frequencies of conversational turns where no reflective moments were registered. Added up, the sections A, B and C give the total number of registered reflective moments.

3.2 Linking reflective moments to the use of supervisory skills

The second research question concerned the relationship between shifts in the use of specific supervisory skills and shifts in the frequencies of reflective moments. An average of two-thirds (before training) to three-quarters (after training) of the total number of reflective moments was related to six supervisory skills. Table 6.5 depicts the frequency of use of these skills and/or the frequency of accompanying reflective moments before and after the SMART training. The (two-tailed) paired samples t tests ($p < .05$) showed that on the group level, the frequencies of use of five skills differed significantly before and after training. The frequencies

of asking for concreteness ($ES = 2.00$) and summarising content ($ES = 0.96$) increased and the frequencies of giving opinion ($ES = 0.56$), giving information ($ES = 0.89$), and giving advice/instruction ($ES = 1.09$) decreased. The ES s found are medium to large (Cohen, 1988).

The frequencies of the reflective moments altered also after the SMART training, varying with the type of supervisory skill. Based on data gathered through the stimulated-recall method, there were statistically significant measurable differences in the frequencies of reflective moments, related to the use of four supervisory skills: asking for concreteness ($ES = 1.32$), summarising content ($ES = 0.62$), and helping in finding and choosing alternatives ($ES = 0.92$) showed an increase, whereas giving information ($ES = 0.60$) decreased. Based on the data gathered through the push-button method, there was only a significant increase in the number of reflective moments after training related to the use of asking for concreteness ($ES = 0.96$).

Table 6.5
Frequencies of use
of supervisory skills
and related
frequencies of
reflective moments
(both in %)

Frequency of use of supervisory skills				
(1)	(2)	(3)	(4)	(5)
Supervisory skill (code number)	Before training	After training	Sign. $p < 0.05$	d -index
03 Asking for concreteness	16	31	0.00	2.00
05 Summarising content	10	18	0.00	0.96
13 Giving Information	14	5	0.00	-1.09
14 Giving opinion/assessing	10	6	0.04	-0.56
15 Giving advice/instruction	13	3	0.00	-0.89
11 Helping finding alternatives	4	7	0.06	
Total %	67	70		
	N=989	N=1,285		

The first column shows those supervisory skills of which either the frequency of use and/or the frequency of accompanying reflective moments changed significantly after training in supervisory skills. Columns 2 and 3 show the percentage of the frequency of use before the training and after the training, respectively. Columns 4 and 5 show the significance and the difference measured in Cohen's d , respectively. The frequency of reflective moments accompanying supervisory skills is shown in columns 6 and 7 (using stimulated recall) and in columns 10 and 11 (using the push button). Columns 8 and 12 show any significant change. Columns 9 and 13 give the equivalent in Cohen's d .

In sum, when we combine the data gathered by means of both push-button device and stimulated-recall method, it appears that the highest frequency of reflective moments for the group mentor teachers occurred for the supervisory skill asking for concreteness. The significant increase in the frequency of asking for concreteness from 16% to 31% proved nearly proportional to the increase in the number of parallel reflective moments. The stimulated-recall method measured an increase from 22% to 40% and the push-button method measured one from 25% to 49%. Parallel to the increase of the use of the supervisory skill summarising content from 10% to 18%, there is an increase of accompanying reflective moments from 12% to 16%, although this is only shown by the stimulated-recall method. Parallel to the decrease in the use of the supervisory skill giving information (from 14% to 5%), the related number of reflective moments also decreased significantly (from 13% to 2%), although this too was only the case in the data collected by the stimulated-recall method.

Frequency of reflective moments

Stimulated recall				Push button			
(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Before training	After training	Sign. $p < 0.05$	d -index	Before training	After training	Sign. $p < 0.05$	d -index
22	40	0.00	1.32	25	49	0.00	0.96
12	16	0.00	0.62	13	11	0.22	
13	2	0.02	-0.60	10	3	0.17	
5	4	0.93		3	3	0.31	
17	4	0.27		8	2	0.34	
6	9	0.002	0.92	7	10	0.06	
75	75			66	78		
N=196	N=427			N=87	N=239		

3.3 Refinements in the results

The third research question focused on refinements in the results through simultaneous application of both methods. Tables 6.3 and 6.4 show that on the individual level and on the group level, the methods used registered different frequencies of reflective moments. For the whole group, higher frequencies of reflective moments were measured by the stimulated-recall method (20% and 33%) in comparison with the push-button method (9% and 19%). The results registered using the two methods differ significantly, both before training [(PB) 9% versus (SR) 20%, $p < .01$, $ES = 0.85$] and after training [(PB) 19% versus (SR) 33%, $p < .01$, $ES = 0.94$].

Examination of the results produced by each method separately (see Table 6.4) leads to consideration of two issues. First, the *quantity* of the registered reflective moments differs between both methods. The total number of all registered reflective moments is the summation of the frequencies in Sections A (overlap), B (push button only), and C (stimulated recall only). To compensate for possible weaknesses of each method, the total number of reflected moments (A + B + C) may be used as a basis for calculating a more optimal estimation of the frequency of reflective moments, namely with the formula $[A + 1/2(B + C)]/n$. The number of reflective moments both methods registered simultaneously (A) is added with the mean of the number each method registered separately $1/2(B + C)$. The result of this addition is then divided by the total number of conversational turns. This results in the frequency of reflective moments

as a percentage of the total of mentor teachers' conversational turns. In our study, this ratio before training was $[70 + 1/2(17 + 126)]/989 = 14\%$. After the training, this value rose to $[170 + 1/2(69 + 257)]/1285 = 26\%$.

The second issue that emerges from the two-method approach concerns the *quality* of the recorded reflective moments. As the data of Table 6.4 shows, in some cases, both methods simultaneously register reflective moments during mentoring dialogues; more often, however, the individual methods register reflective moments occurring at different points in time. The push-button method appears to report reflective moments that go unnoticed by the stimulated-recall method (Section B, Table 6.4) and vice versa (Section C, Table 6.4). To calculate the percentage of overlap, we applied the formula $[A / (A + B + C)] \times 100$. The number in Section 'A' divided by the sum of the numbers in Sections 'A', 'B', and 'C' (all registered reflective moments) multiplied by 100 was used to get a percentage. From this calculation emerges the finding that before training there was an overlap between the two methods in 33% of the total number of registered reflective moments (Sections A + B + C, Table 6.4) and after training in 34%. In other words, in one-third of the cases, both before and after training, reflective moments were registered at the same points in time, while, in the other two-thirds of the cases, they were registered at different points of time.

4 Conclusion and discussion

4.1 Conclusions

Against the background of improving mentor teachers' use of supervisory skills, this study aimed at capturing frequencies of reflective moments, which are specific instances of time during mentoring dialogues in which mentor teachers' cognitions related to the use of supervisory skills are manifested consciously. Taken together, as an answer to the first research question, results show that before mentor teachers were trained in supervisory skills, their use of distinct supervisory skills entails, on average in one-seventh of the conversational turns, a reflective moment. The frequency of reflective moments increased significantly after training, up to a quarter of the mentor teachers' conversational turns. In answer to the second question, the findings to some extent point towards a synchronisation of mentor teachers' thinking and doing during the mentoring dialogue. Shifts in frequency of use of the skills asking for

concreteness, summarising content, and giving information harmonise with shifts in the number of reflective moments. Concerning the answer to the third question, the application of the two-method approach showed that each method registered a different number of reflective moments. Also both methods for a large part captured reflective moments at different points of time.

To conclude, based on the assumption that the level of consciousness in a learning process is displayed by the frequency of mentor teachers' reflective moments during mentoring dialogues, the data of the study suggest the existence of different levels of consciousness in acquiring and using supervisory skills, the possibility of measuring reflectivity using concurrent and retrospective methods simultaneously and the potential of such measurements to inform and improve professional development opportunities for mentor teachers.

4.2 Interpretation

The results of this study suggest that in this instance, mentor teachers' training in supervisory skills was followed by greater awareness of their own use of supervisory skills during mentoring dialogues. Using Eraut's (2004) typology of learning and the Korthagen and Lagerwerf's (2001) three-level theory as a frame for this study, it appears that supervisory behaviour of the group mentor teachers takes place implicitly rather than explicitly. After training, higher frequencies of reflective moments accompanying the use of supervisory skills indicate that *reactive leaning* (Eraut, 2004) or learning on *schema level* (Korthagen & Lagerwerf, 2001) has been triggered. This change could have been prompted by the introduction of new knowledge and skills during the SMART training programme. While using supervisory skills during mentoring dialogues, it seems that mentor teachers consciously examine their underlying (new) knowledge base more often and may, as in the case of Gestalts, also examine subconscious emotional and motivational rudiments of their own specific interventions in the dialogue. Accordingly, as evidenced by the dissimilar frequencies of reflective moments, it now appears that shifts in mentor teachers' use of supervisory skills are accompanied by changes in levels of consciousness in the use of supervisory skills.

The finding that the frequency of reflective moments after training on average did not exceed one-quarter of all mentor teachers' conversational

turns may be due to the fact that implementing a new behaviour demands more effort on the part of the individual's working memory. It is likely that because of the restricted availability of cognitive schemata, those mentor teachers who participated in the supervisory skills training for the first time did not yet have as many cognitions during dialogues as experts in the field. This may be especially true for novices who have been shown to have more difficulty holding on to cognitions in their working memory while they are taking action (Chi et al., 1988; Feldon, 2007; Sweller, 1994).

4.3 Limitations and further research

One limitation of this study is that changes in the frequencies of reflective moments are reported on the basis of a quasi-experimental design with one group. For practical reasons implementing a design with a control group was not feasible. Hence, it is difficult to exclude entirely alternative hypotheses about increases of reflective moments. Registered individual differences in the number of reflective moments before and after training in supervisory skills could be influenced by variables outside the training such as individual characteristics of the participating mentor teachers and specific features of the workplace. Another limitation is that both methods that were employed in this study registered different quantities of reflective moments. On the one hand, during stimulated recall, participants no longer need to act and consequently have more time for reflections. Hence, the registered number of reflective moments could be higher than it was in the reality of the mentoring dialogues. On the other hand, registration with the push button could be biased by the so-called dual-task problem (Pashler & Johnston, 1998). Button pushing during mentoring dialogues does not come for free. It is a secondary task that can, even if only briefly, elevate cognitive load. By carrying out multiple cognitive tasks concurrently in a mentoring dialogue – paying attention to the content of the dialogue, performing newly acquired supervisory skills, and pushing the button – a row of tasks, as it were, is lined up in working memory. Due to limited capacity, working memory can only deal with one task at a time, so others can interfere. This may have led to a higher probability that mistakes were made (Feldon, 2007).

Predominantly throughout the study, both methods registered reflective moments at different points of time. This finding suggests that each of the two methods records reflective moments in which different cognitions

have different contents. To shed some light on this issue, research into the contents of mentor teachers' cognitions, manifested during reflective moments, could be helpful. This type of follow-up research would be interesting also because it might establish the extent to which frequencies of reflective moments may help to indicate not only different levels of consciousness but also whether mentor teachers did (not) achieve one or another developmental stage of expertise in the use of supervisory skills. After all, developmental stages in a specific expertise domain are reflected in distinctive cognitions during professional action (Berliner, 2001; Chi et al., 1988). To further investigate mentor teachers' reflective moments in connection with the use and acquisition of supervisory skills, a follow-up study will be conducted, aiming at uncovering contents of mentor teachers' cognitions manifested during these instances.

4.4 Implications

Despite the limitations mentioned above, this study provides data about three aspects of mentor teachers' use and acquisition of supervisory skills that have not been well studied: first, the relationship between mentor teachers' reflective moments as they relate to the use of supervisory skills in mentoring dialogues; second, practical support for theoretical models such as Korthagen and Lagerwerf's (2001) three-level model and Eraut's (2000) distinction between types of learning; and third, exploration of new methods and approaches to studying the occurrence of the so-called interactive cognitions (Clark & Peterson, 1986) that are in operation during a person's actions and are manifested consciously during reflective moments. The push-button device can be applied by other practitioners, also in other professional domains. It has produced empirical evidence for the limitations of the stimulated-recall method, although the combined use of the push button and the stimulated recall seems to contribute to our understanding of the relation between the frequency of reflective moments and mentor teachers' levels of consciousness in learning to use specific supervisory skills.

Given that a broad repertoire of supervisory skills is a powerful and complex instrument for mentor teachers when carrying out mentoring dialogues, it is clear that to make the most of its use, mentor teachers will need many opportunities to try out, discuss, and reflect upon how these skills are put into practice. As a model of instruction, mentor teachers' supervisory behaviour is often subdivided in discrete supervisory skills

and consequently teaches those skills through explicit instruction, behavioural practice, observation, and immediate feedback. Such an approach concentrates mainly on distinct and overt supervisory skills. However, expertise in the use of supervisory skills is not merely an undifferentiated use of skill but also includes contextual understanding. Therefore, mentor teachers constantly have to make decisions about which supervisory skills must be invoked to encourage the learning of each mentee in each mentoring dialogue (Helman, 2006).

Hence, to increase the impact of training, exercises should not only focus on behavioural aspects of learning to use distinct supervisory skills. In addition, during behavioural practice mentor teachers have to be encouraged to talk about and reflect on cognitions mediating their use of supervisory skills during the dialogues, because cognitions can point to a specific perspective or frame of reference that is guiding person's actions (Meijer, Verloop, & Beijaard, 2002). Eliciting cognitions, which make up reflective moments related to the use of supervisory skills, may provide clues for improving and speeding up the development of mentor teachers' supervisory repertoire and, subsequently, may enhance the effectiveness of training. After all, the ultimate goal of promoting mentor teachers' reflectivity during mentoring dialogues is to contribute to the development of versatility in their use of supervisory skills, and consequently to serve the learning of each individual student teacher.

7

Uncovering contents of mentor teachers' interactive cognitions during mentoring dialogues

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The aim of the studies reported in this chapter is to uncover contents of mentor teachers' interactive cognitions during mentoring dialogues, before and after training in supervisory skills. Two consecutive studies were conducted, using stimulated recall. Firstly, with eight mentor teachers, an instrument was developed to categorise contents of interactive cognitions. Secondly, with 30 mentor teachers, the instrument was applied to uncover contents of mentor teachers' interactive cognitions, before and after training in supervisory skills. After training, mentor teachers demonstrated an increased awareness of their use of supervisory skills. This indicates that mentor teachers not only seem to emphasise pupil learning and needs when conducting a mentoring dialogue, but simultaneously focus on their own supervisory behaviour.

1 Introduction

In teacher education, the availability of effective guidance by and cooperation with a mentor teacher is an essential condition for student teachers' learning at the workplace (Bullough & Draper, 2004). This is especially true for teacher education programmes that rely strongly on practical experience in schools. Central to the practice of mentoring are mentoring dialogues (Orland-Barak & Klein, 2005; Sullivan & Glanz, 2000). Through their dialogues with student teachers, mentor teachers have a considerable influence on how and what student teachers learn (Feiman-Nemser, 2000; Glickman & Bey, 1990). During mentoring dialogues, mentor teachers' focus is less on student teachers as learners, than on the pace at which student teachers covered the curriculum content and with how effectively the student teachers managed the children in the class whilst covering the curriculum (Edwards & Protheroe, 2004). This can be explained by the fact that most mentor teachers generally are selected on the basis of their expertise as a teacher (Riggs, 2000). Because expertise is domain-specific (Berliner, 2001), good teachers are not automatically good mentor teachers (Zanting, 2001).

Apart from expertise as a teacher, it is important that mentor teachers develop attitudes, knowledge and skills in the specific domain of mentoring. Especially, to promote the learning of student teachers, mentor teachers have to perceive student teachers as learners too (Paris & Gespass, 2001). In fact, mentor teachers need a bifocal perspective in which both pupils and student teachers are seen as learners (Achinstein & Athanases, 2005). To achieve this, a conscious and gradual learning process is required: "...although the passage from being a teacher of children to becoming a teacher of teachers is shaped by strong emotional, and motivational dispositions, it is also a highly conscious and gradual process of developing communicative competencies, whereby the mentor learns to redefine his/her context of teaching in order to make sense of his/her context of mentoring" (Orland-Barak, 2001, p. 53).

To facilitate mentor teachers' communicative competencies, many schools often in cooperation with teacher education institutions implement training programmes (Strong & Baron, 2004). Focusing on student teachers as learners, requires expertise in using supervisory skills to elicit student teachers concerns and to encourage reflection during mentoring dialogues (Norman & Feiman-Nemser, 2005). Training

programmes for mentor teachers often aim at developing such skills (Timperley, 2001). The research reported here was conducted in the context of the development and implementation of such a training programme, entitled Supervision skills for Mentors teachers to Activate Reflection in Teachers (SMART).

Development of mentor teachers' supervisory skills can be observed in terms of changing supervisory behaviour (Crasborn et al., 2008), but also in terms of changing cognitions, while they accompany an action or mediate behaviour (Chi, Glaser, & Farr, 1988; Sakai & Nasserbahkt, 1997). In research on teacher thinking, cognitions accompanying an action are called *interactive cognitions* (Clark & Peterson, 1986; Meijer, 1999). In the research reported here, specifically mentor teachers' cognitions are investigated because developmental stages in a specific expertise domain are reflected in distinctive cognitions during professional action (Berliner, 2001). In addition, cognitions can also point to a specific perspective or frame of reference that is guiding persons' actions (Meijer et al., 2002). Because of their strong interaction with actual behaviour (Clarke & Hollingsworth, 2002) interactive cognitions have a dynamic character. Consequently, they can be used to explore cognitive changes within a short period of time (Schepens, Aelterman, & Van Keer, 2007).

In an effort to add to our knowledge about how interactive cognitions (may) mediate the conscious use and acquisition of supervisory skills, two interrelated consecutive studies were conducted. In both studies, interactive cognitions are defined as mentor teachers' cognitions accompanying the use of supervisory skills during mentoring dialogues. Descriptions of contents of mentor teachers' interactive cognitions are required to observe and depict the development of mentor teachers' supervisory skills over short periods of time. Contents of interactive cognitions on the one hand can refer to a person's own actions and on the other hand to the actions of other people, events, topics, issues or situations (Mathijssen, 2006). As there is no empirical research on the contents of mentor teachers' interactive cognitions as indicators of conscious use and acquisition of supervisory skills, the aim of the present studies is to uncover contents of mentor teachers' interactive cognitions during mentoring dialogues, before and after training in supervisory skills.

1.1 Interactive cognitions as a linking-pin

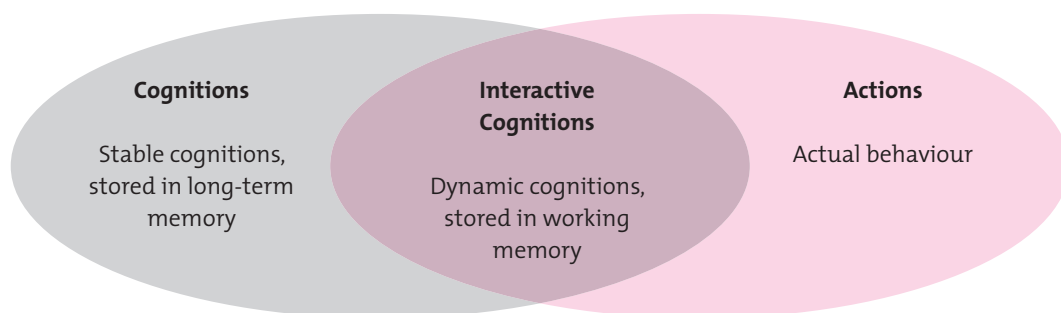


Figure 7.1
Interactive cognitions
as a linking-pin

To theoretically frame the two studies reported here, a model is presented which describes the linking-pin function of interactive cognitions. This model builds on theory about human memory (Baddeley, 1997) as well as about the relationship between human actions and interactive cognitions (Clarke & Hollingsworth, 2002; Vallacher & Wegner, 1987). The model's basic premise is visualised in Figure 7.1 by means of two overlapping ellipses. Interactive cognitions form a link between mentor teachers' cognitions and their immediate actions. The left hand ellipse represents the relationship between two kinds of cognitions. In the right hand ellipse, the relationship between interactive cognitions and actions is visualised.

1.2 Stable and dynamic cognitions

The relationship between two kinds of cognitions, visualised in the left hand ellipse can be explained with the help of theory about human memory in which the connection with two types of memory is explicated (Baddeley, 1997). Cognitions are stored in memory. In long-term memory, cognitions such as beliefs, knowledge, notions, concerns, ideas, perspectives, attitudes are stored (Kagan, 1992; Thompson, 1992). Cognitions in long-term memory are rather stable. Interactive cognitions can be located in working memory, which consists of cognitions from long-term memory, called up to deal with specific situations. Interactive cognitions are more dynamic because of their direct relation with actions. Handling complex situations, for example conducting a mentoring dialogue, triggers cognitions from long-term memory and makes these

temporarily active in working memory, which directly informs actual behaviour. Following this theory, it is assumed that mentor teachers' interactive cognitions in working memory on the one hand, and their cognitions in long-term memory on the other, are different in nature, but closely linked to each other. Dynamic interactive cognitions in working memory and stable cognitions in long-term memory are often seen as the two parts of teachers' *practical knowledge*, accompanying teacher's actions (Meijer et al., 2002; Schepens et al., 2007; Shulman, 1987; Zanting, 2001).

For example, a mentor teacher has a relatively stable *belief* that the main purpose of a mentoring dialogue is to activate a student teacher to reflect and learn from teaching experiences. To meet with this belief, the mentor teacher tries to pose open questions during mentoring dialogues. Brief answers on behalf of the student teacher may then trigger an interactive cognition in the mentor teacher. For example, "Did my question start with how, when, where, or what?", indicating his or her knowledge about rules for formulating open questions. The knowledge about open questions, stored in long-term memory, is activated temporarily in working memory.

1.3 Interactive cognitions and actions

The relationship between interactive cognitions and a person's own actions, visualised in the right hand ellipse, is reciprocal interactive and cyclic (Clarke & Hollingsworth, 2002; Eraut, 2004). An action may be an enactment of a previous interactive cognition. At the same time, an interactive cognition may be a reflection on a previous action. Interactive cognitions and behaviour mutually influence each other as they unfold and evolve over time. During this process, shifts in contents of interactive cognitions are reflected in shifts in overt behaviour and vice-versa. Interactive cognitions and behaviour are constantly attempting to get 'in agreement' with each other (Vallacher & Wegner, 1987).

Following Vallacher and Wegner (1987), contents of interactive cognitions regarding a person's own actions, can be subdivided into a relatively abstract and a relatively concrete level of *act identification*. More abstract identifications convey a more general understanding of the action, indicating why the action is done or what its effects and implications are. For example, conducting a mentoring dialogue could be identified by a mentor teacher as *instructing student teachers how to work to cover the*

curriculum, or as *discussing student teachers concerns to stimulate reflection*. These are both relatively abstract identifications. More concrete identifications convey the details of the action and thus indicate how the action is done. For example, *structuring the dialogue in three phases or asking open questions*. Thinking about an act in a concrete manner is typical for novices in a particular knowledge and skill domain. In initial stages of acquiring expertise in a specific domain, a person is conscious of his or her behaviour and actions are divided in recognisable components (Dreyfuss & Dreyfuss, 1986; Vrolijk, 1991). It may be assumed that, within initial stages of acquiring expertise in using supervisory skills, the number of contents of interactive cognitions referring to one's own actions will increase as a result of training.

1.4 Research questions

Proceeding from the theoretical background outlined above, the following research questions concerning contents of mentor teachers' interactive cognitions during mentoring dialogues, guided both studies:

- 1 What are the contents of mentor teachers' interactive cognitions?
- 2 Do contents of mentor teachers' interactive cognitions differ before and after training in supervisory skills and if so, in which respects?

2 Method

2.1 Context of the studies

Both studies were 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 Teachers (SMART). The programme has been developed and conducted since 1999 in cooperation with schools in primary and secondary education and is situated within the reflective-developmental paradigm (Pajak, 1993). The programme focuses on the development of supervisory skills which encourage reflection in student teachers. In the SMART training, the skills were linked to and practiced with help of the ALACT model (Korthagen, 2001b), which describes a cyclical sequence of five steps constituting a complete reflection process. The steps were used to structure the mentoring dialogue. The programme consists of three main components; training, peer consultation and personal coaching. In total, the SMART training

consists of nine sessions 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 (Koster & Korthagen, 2001) and micro-counselling (Ivey, 1971).

2.2 Stimulated recall

Achieving a genuine and valid registration of contents of mentor teachers' interactive cognitions during mentoring dialogues requires on the one hand the continuation of the ongoing mentoring dialogue, and on the other hand the registration of contents of interactive cognitions at the specific moments when they occur. To solve this dilemma, in both studies the stimulated-recall method was used. This method was originally used by Bloom (1954) and consists of replaying a video or audio recording of an episode of action to enable the viewer to recollect and to report on his or her cognitions. In the present studies, this means that during the stimulated-recall interview, mentor teachers had to verbalise the contents of their interactive cognitions in response to watching video recordings of their mentoring dialogues. Although the validity of stimulated recall has been questioned (Yinger, 1986), as has that of other retrospective methods (Veenman, 2005), the idea is that the cues provided by the tape can help a mentor to relive and remember thoughts during action. It is assumed that when a video of the mentoring dialogue is shown, mentor teachers are able to recall accurately their experience and to describe what they thought during the action (Calderhead, 1981; Ericsson & Simon, 1984; Kagan & Kagan, 1991).

2.3 Study 1: Deriving content categories

- 1 Participants** The first study was set up to develop content categories of mentor teachers' interactive cognitions. A group of eight mentor teachers from colleges in secondary vocational education in the south of the Netherlands who took part in the SMART training in the autumn of 2001 also participated in this study. All these mentor teachers - three women and five men - were mentoring a student teacher in the context of pre-service teacher education. The participants' ages ranged from 30 to 56, and averaged 45. On average, they had slightly over 17 years of teaching experience and had not been trained as a mentor teacher in supervisory skills before. As a group, they had an average of eight years experience in mentoring student teachers.

2 Data collection

To derive distinct content categories of mentor teachers' interactive cognitions during mentoring dialogues, sixteen mentoring dialogues - two of each participating mentor teacher - were recorded on video, one before the SMART training and one after this training. To realise a mentoring dialogue in an authentic setting, the mentor teachers were instructed to conduct the dialogue with their own student teachers, with whom they already had established rapport. The mentor teachers were asked to discuss a student teachers' concern which had arisen in the previous week and which had not been on the agenda earlier.

To register contents of mentor teachers' interactive cognitions, immediately after each mentoring dialogue a stimulated-recall interview was conducted. All interviews were recorded on audio minidisk. During the interview, the mentor teachers were instructed to watch the video recording of the dialogue and to stop the video whenever they recalled an interactive cognition. To avoid confusion about the term *interactive cognition* the following sentence was used to instruct the participants: "Stop the video when during the dialogue, you had a conscious thought accompanying your conversational turn." Each time the mentor teacher stopped the video, the reported verbalised content of an interactive cognition was literally noted by the interviewer. The verbalised contents were transcribed literally and checked on by listening to the recorded interview on the minidisk.

3 Open coding process

In total, 168 verbalised contents of mentor teachers' interactive cognitions were registered, 63 during the stimulated-recall interviews conducted before the SMART training and 105 during the interviews after the training. All transcribed contents were mixed and printed in such a way that it was not possible to determine whether cognitions were registered before or after the SMART training. Subsequently, all contents were categorised using steps of open coding (Strauss & Corbin, 1998). Firstly, two researchers separately read the complete list of contents of mentor teachers' interactive cognitions several times. Independent of each other, both researchers formulated a number of possible content categories.

Secondly, both researchers exchanged and discussed their suggested categories. To place the verbalised contents of interactive cognitions in one of the content categories, the most important consideration was the *object* (the what) of the verbalisation, which is expressed by a noun. For example, in the interactive cognition "I want to stick to my role as

encourager”, the object aspect is *my role as encourager*. When it was not possible to place the content of an interactive cognition in one of the preliminary categories with certainty, action aspects in the verbalised contents of interactive cognitions were considered to help determine the placement in a content category. Verbalisations of contents of mentor teachers' interactive cognitions often include various types of action aspects. For example, in the interactive cognition “I want to stick to my role of encourager”, the action aspect is *want to stick to*.

Thirdly, using the object aspect of a verbalisation as a criterion, both researchers formulated on the basis of consensus four major content categories: *discussed topic* (1), *use of supervisory skills* (2), *mentor teacher's role* (3) and *strategy during the dialogue* (4). Within each of these four content categories, five subcategories were defined, based on the action aspect of a verbalisation as a criterion and typified by one of the following verbs: name (a), want (b), doubt (c), account for (d) and evaluate (e).

4 Scoring guidelines

From the open coding process, three scoring guidelines emerged. The first guideline to categorise contents is to read the *object* (the what) of a verbalisation and place it in one of the four content categories. The second guideline involves that, when it is not possible to place the contents of interactive cognitions in one of the content categories with certainty, the *action aspect* of the verbalisation should be taken into consideration to help determine the placement in one of the four categories. For those situations in which the content category for the interactive cognition could still not be determined, a third scoring guideline is formulated. This guideline is based on the assumption that the (part of an) interactive cognition in which a mentor teacher explicitly accounts for his or her action, is an important key to identify the content. Hence, in cases of doubt, the action aspect *account for* is considered to determine the placement in a content category. When it is not possible with these three guidelines to place the interactive cognition in any of the four categories, the content of an interactive cognition is placed in a fifth category called other.

An example can illustrate the use of the scoring guidelines. A mentor teacher reported the following interactive cognition, which had to be categorised in one of the four content categories: “I summarise that the student teacher is good at keeping order in his class, because summarising is important to me in order to be able to follow the conversation.”

Following the first guideline, the content of this interactive cognition could be assigned to two categories, namely *discussed topic* ("keeping order in his class") and *use of supervisory skills* ("I summarise"). Following the second guideline, the action aspect in this example is *account for* ("because"). We need the third guideline to categorise the interactive cognition definitely. The mentor teacher's own account ("because summarising is important for me to be able to follow the conversation") best fits the category *use of supervisory skills*, so in this case the interactive cognition is assigned to that category.

5 Inter-rater reliability

To avoid that the researchers remembered the cognitions from their previous reading, the transcribed contents of interactive cognitions were mixed and printed. Subsequently, the two researchers, independently of each other, placed the contents in one of the defined content categories. The inter-rater reliability appeared to be amply sufficient (Cohen's kappa = .85). The entire instrument 'Content Categories for MEntor Teachers' Interactive Cognitions' (CCMETIC) developed in study 1 is presented in the findings Section 3.1.

2.4 Study 2: Shifts in contents of interactive cognitions

1 Participants

In the second study, a group of 30 mentor teachers from schools in primary education in the south of the Netherlands was involved. They were mentoring student teachers in the context of pre-service teacher education. All these 30 mentor teachers – 18 women and 12 men – took part in the SMART training. There were 13 participants in the spring of 2002 and 17 participants in the spring of 2003. In combination with their primary teaching tasks, they were all given sufficient release time to guide and support student teachers in their final year of teacher education and to participate in the SMART training, which is described in Section 2.1. The participants' ages ranged from 25 to 54 with an average age of 44. On average, they had slightly over 20 years of teaching experience and had not been trained as a mentor teacher in supervisory skills before. They had an average of almost 10 years of experience in mentoring student teachers.

2 Data collection

The second study is based on a pre-test post-test design with one group (Cook & Campbell, 1979). Audio and video recordings were made of 60 mentoring dialogues, which 30 participating mentor teachers carried out in authentic settings with student teachers under their guidance. Two

recordings were made of each mentor teacher. The first was one month before the SMART training and the second one month after the training. Mentor teachers conducted the dialogues with their student teachers, with whom they had already established rapport. Analogous to the first study, mentor teachers were asked to discuss during the mentoring dialogue a student teacher's concern related to a situation that had occurred in the previous week during their teaching activities in school. 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.

In order to ensure comparability of the data, the recordings of the dialogues were restricted to the first fifteen minutes. Geldens (2007) produced empirical evidence that analysing longer periods of time does not improve the assessment of the quality of a mentoring dialogue. Immediately after the dialogue, in a stimulated-recall interview, the mentor teacher was asked to watch the video recording of the dialogue and to stop the video whenever he or she recalled an interactive cognition. To avoid confusion about the term 'interactive cognition', the following sentence was used to instruct the participants: "Stop the video when during the dialogue, you had a conscious thought accompanying your conversational turn." The reported contents of interactive cognitions were taped on audio minidisk and registered on a form by the interviewer.

3 Transcription, coding and analysis

All 60-recorded dialogues in the second study were transcribed literally. Table 7.1 shows an example of a transcription. Utterances 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 the student teacher commences speaking. In the transcriptions, contents of the interactive cognitions of the mentor teacher were literally visualised next to the utterances of the accompanying conversational turns of the mentor teacher.

Table 7.1
Example of coded transcription

Time (min)	Interlocutor	Utterances of mentor teacher and student teacher	Contents of MT's interactive cognitions	Content IC code
10.28	Mentor teacher	So actually you find it difficult to deal with her and her feelings of inferiority?	I am summarising, because that is how I grasp the core aspect.	2
10.37	Student teacher	Yes.		
10.38	Mentor teacher	So what would you like her to do?		
10.41	Student teacher	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	Mentor teacher	How would you deal with that, eh, negative self-image?	I am now in the phase of thinking of alternatives, but I think it is too early.	4
11.04	Student teacher	Yes, if she has a good mark, then I will encourage her extra by saying: "See, you can do it" or "Well done". I will tell her this every time. I want to show her 'you can do this'.		
11.19	Mentor teacher	Yes, that will give this pupil a positive feeling. Are there more options?	I want to encourage the student teacher.	3
11.27	Student teacher	And when I say that, you can see she is happy. But that does not last very long and then she will start moaning again.		
11.35	Mentor teacher	Yes, yes. I am wondering what else you could do to help her? Look, you say, she does not shout so much, and that she is more positive. How else could you tackle that negative self-image? How could you influence her in a positive way?	In the case of this child, I thought it would be a good idea to draw up a plan and to work with rewards when things go well.	1

The fifth column shows the code numbers assigned to the contents of the mentor teacher's interactive cognitions (IC), in the example: 1 = discussed topic, 2 = use of supervisory skills, 3 = mentor teacher's role, 4 = strategy during the dialogue.

The content of each interactive cognition was coded using the CCMETIC instrument developed in Study 1 (see Table 7.2). In order to analyse which shifts in contents occurred between the first and the second measurement, two-tailed *t* tests for paired observations were calculated and the standardised mean difference (*d*-index) effect size (ES) was used, which expresses the distance between two group means in terms of their standard deviation (Cohen, 1988).

3 Findings

3.1 Study 1: Contents of interactive cognitions

Table 7.2
Scoring Instrument
Content Categories
for MEntor Teacher's
Interactive Cognitions
(CCMETIC)

1. Discussed topic	
Action aspect	Example
a. Name	I note the student teacher talking about an unruly pupil.
b. Want	I would do such and such in this teaching situation.
c. Doubt	I don't know the right way to act in this situation.
d. Account for	I am summarising, because that is how I can analyse the topic.
e. Evaluate	In the case of this child, I thought it would be a good idea to draw up a plan and to work with rewards when things go well.
2. Use of supervisory skills	
Action aspect	Example
a. Name	I am asking what the student teacher is feeling.
b. Want	I want to summarise.
c. Doubt	I do not know which supervisory skill to use here.
d. Account for	I am summarising, because that is how I grasp the core aspect.
e. Evaluate	I am putting my question the wrong way.
3. Mentor teacher's role	
Action aspect	Example
a. Name	I am directive, the student teacher does not say much.
b. Want	I want to encourage the student teacher.
c. Doubt	I do not know if I should encourage or advice.
d. Account for	I am acting like this to encourage the student teacher to learn to do this himself.
e. Evaluate	I am to dominant in the dialogue.
4. Strategy during the dialogue	
Action aspect	Example
a. Name	I am in the phase of looking back at what happened.
b. Want	I want to get to aspect X.
c. Doubt	I do not know how to go on from here in the dialogue.
d. Account for	I am going to the phase of thinking of alternatives, because we need to get a solution
e. Evaluate	I am now in the phase of thinking of alternatives, but I think it is too early.

The result of the first study, a category system and scoring instrument (CCMETIC), can be found in Table 7.2. The contents of mentor teachers' interactive cognitions can be subdivided in four main categories. The first category regards contents of mentor teachers' interactive cognitions that involve aspects of situations or problems discussed during the dialogue, such as organisation and instruction in the class, pupils behaviour or subject matter. This category is entitled *discussed topic*. For example, "In the case of this child, I thought it would be a good idea to draw up a plan and to work with rewards when things go well." The second category includes contents of interactive cognitions about the use of specific supervisory skills during the mentoring dialogue. The category is labelled as *use of supervisory skills*. For example, "I am summarising, because that is how I grasp the core aspect". The third category holds contents of mentor teachers' interactive cognitions about his or her role, degree of directivity or input, during the mentoring dialogue. This category is entitled *mentor teacher's role*. For example, "I want to encourage the student teacher." The fourth category includes contents of interactive cognitions about the sequencing and/or strategy during the mentoring dialogue. This category is named *strategy during the dialogue*. For example, "I am now in the phase of thinking of alternatives, but I think it is too early."

Within each of the four main content categories, five subcategories concerning the action aspects in the verbalised contents are derived. The first action aspect is entitled *name*. For example, "I am asking ...", when the mentor teacher appoints what he is doing. The second action aspect is entitled *want*. For example, "I want to ...", when the mentor teacher tells what he wants or would like. The third action aspect is entitled *doubt*. For example, "I do not know ...", when the mentor teacher shows his uncertainty. The fourth action aspect is entitled *account for*. For example, "I am going to ..., because I think ...", when the mentor teacher explains why he or she is doing or going to do something. The fifth action aspect is entitled *evaluate*. For example, "I am putting the question the wrong way", when the mentor teacher assesses his or her action.

3.2 Study 2: Shifts in contents of interactive cognitions

The results of the second study can be found in Table 7.3. For each participant, the table shows the frequencies of content categories of interactive cognitions before and after the SMART training. Most

important are the frequencies of the group as a whole at the bottom of the table. Before training, 50% of the contents of interactive cognitions are allocated to the category discussed topic, 24% to the category use of supervisory skills, 17% to the category mentor teacher's role, 6% to the category strategy during the dialogue and 2% to other. After training in supervisory skills, the frequencies of contents of mentor teachers' interactive cognitions shifted to 21% in the category discussed topic, 54% in the category use of supervisory skills, 12% in the category mentor teacher's role, 11% in the category strategy during the dialogue and 2% in the category other.

The two-tailed t tests show that after the SMART training, there was a significant decrease in the number of interactive cognitions in the content category discussed topic ($p = .003$; $ES = 0.83$) and a significant increase in the content categories use of supervisory skills ($p = .000$, $ES = 1.61$) and strategy during the dialogue ($p = .046$, $ES = 0.63$). The effect sizes found are medium to large (Cohen, 1988).

Table 7.3
Frequencies of contents of mentor teachers' interactive cognitions (IC), before and after SMART training

Mentor teacher number	Before SMART training							
	Discussed topic	Use of supervisory skills	MT's role	Strategy during dialogue	Other	Total number IC	Total IC (in %)*	Total number conversational turns
01	5	1			1	7	16	44
02	5	2				7	14	51
03	4	2	3	1		10	25	40
04	4					4	11	29
05		1	1			2	07	29
06	4	4	1			9	33	27
07	3					3	12	26
08	5		6	1		12	41	36
09	5	1	5	2		13	36	36
10	4		1			5	17	30
11	6	1			2	9	24	37
12	1					1	03	39
13	2		1	1		4	12	34
14	3					3	25	13
15	1	3	7			11	50	22
16	0	8	0	2		10	30	33
17	4	3				7	33	21
18			2			2	04	49
19	1		2			3	07	46
20	2		1			3	08	36
21	3	1		2		6	26	23
22	5					5	26	19
23			1		1	2	06	31
24	4		1		2	7	10	69
25	2	12				14	40	35
26	2	4				6	60	11
27	1			1		2	04	48
28	6	2				8	26	31
29	9	1				10	40	25
30	7	2	2			11	58	19
Total	98	48	34	10	6	196		989
Total in %	50	24	17	6	2	100		
Total in %	10	5	3	1	1	20		100
SD						3.71	16.13	

* Total IC (in %) = Total number of interactive cognitions as a percentage of the total number of conversational turns during a dialogue

7 Uncovering contents of mentor teachers' interactive cognitions during mentoring dialogues

Mentor teacher number	After SMART training							
	Discussed topic	Use of supervisory skills	MT's role	Strategy during dialogue	Other	Total number IC	Total IC (in %)*	Total number conversational turns
01		8	3	1	1	13	48	27
02	2	2	4			08	20	40
03	4	13				17	30	57
04	1	5	2	1		09	24	38
05	4	0	4	1		09	20	46
06	1	25	1	1		28	61	46
07	4	5		2		11	19	57
08	1	10	5	2		18	41	43
09	7	16	1	3		27	51	53
10		7	1	3		11	28	39
11	3	7		1		11	22	49
12	3	10	3	5	2	23	46	50
13	4	1	2		1	08	20	40
14	6	3	5	5		19	40	48
15		4	2	2		08	16	49
16	1	3	3	3		10	59	17
17		11		1		12	18	65
18		5	1	1		07	20	35
19	1	6	1	1		09	21	42
20	3	3	2	3	2	13	34	38
21	10	5	2			17	55	31
22	3	6	1	2		12	39	31
23	2	5		1	2	10	30	33
24		7		1		08	17	46
25	5	7	2	3	1	18	30	61
26	4	14	1	2		21	48	43
27	3	4	2			09	27	33
28	5	15		1		21	42	50
29	7	5	1	2		15	39	38
30	6	17	1	1		25	63	40
Total	90	229	50	49	9	427		1,285
Total in %	21	54	12	11	2	100		
Total in %	7	18	4	4	1	33		100
SD						6.13	15.54	

4 Conclusion and discussion

4.1 Conclusions

In the context of developing mentor teachers' use of supervisory skills, two consecutive studies, both using stimulated recall, were conducted aiming at uncovering contents of mentor teachers' interactive cognitions during mentoring dialogues. In the first study, an instrument was developed to categorise contents of interactive cognitions. Four main content categories are distinguished, *discussed topic* (1), *use of supervisory skills* (2), *mentor teacher's role* (3), and *strategy during the dialogue* (4). In the second study, the instrument was applied to uncover contents of mentor teachers' interactive cognitions, before and after training in supervisory skills. We found a significant decrease of contents of interactive cognitions in the category discussed topic (1) and significant increases of contents in the categories use of supervisory skills (2) and strategy during the dialogue (4). After training in supervisory skills, mentor teachers developed an increased awareness of their use of supervisory skills. This indicates that mentor teachers' frame of reference guiding a mentoring dialogue has become twofold. They not only seem to hold the picture of pupil learning and needs when conducting a mentoring dialogue, but simultaneously focus more frequently on their own supervisory behaviour. This can be seen as an important first step towards professional development in specific communicative competencies, appropriate for mentor teachers to focus overtly on student teachers as learners during mentoring dialogues.

4.2 Interpretation

The assumption, stated in Section 1.3, that within initial stages of acquiring expertise in using supervisory skills, the number of contents of interactive cognitions referring to a person's own actions will increase as a result of training, appears to be confirmed by the outcome of the second study. After SMART training, mentor teachers were aware of their newly acquired supervisory skills and were trying to put them consciously into practice. This situation concurs with initial stages of acquiring expertise in a specific domain, where a person is concerned with his or her own performance and, as a result, may become more conscious of his or her own behaviour (Dreyfuss & Dreyfuss, 1986). In the domain of interviewing skills, closely related with supervisory skills, Vrolijk (1991) identifies several

developmental phases. The first phase is the *Technical Phase*, which occurs directly after skills training. In this phase, during dialogues, mentor teachers more often examine consciously their (new) knowledge base regarding the use of supervisory skills. This can be considered as a first step towards a development of a competence in revising (supervisory) behaviour (Bögels, 1994).

After cognitions are processed and reflected on consciously, changes to new and manoeuvrable behaviours can come about (e.g. Lombardi, Higgins, & Bargh, 1987). In line with theories about expertise development (e.g. Dreyfuss & Dreyfuss, 1986) it can be expected that, after some time, when the mentor teacher has mastered the supervisory skills, the focus on their own supervisory behaviour will decrease. From that moment on the mentor teacher may focus more and more on the learning process of the student teacher by using newly learned supervisory skills to activate concerns and reflection in student teachers.

The shifts found in contents of mentor teachers' interactive cognitions indicate that mentor teachers who took part in the SMART programme entered a new domain of expertise adding to their expertise as a teacher of pupils. Although the mentor teachers in the present study are novices in the use of supervisory skills which encourage reflection in student teachers, they are nevertheless experts as teachers. Entering the new mentoring expertise in the use of supervisory skills adding to their expertise as a teacher of pupils is typical for a professional learning process described by Orland-Barak and Yinon (2005) as the passage from teaching children to mentoring teachers. In this study, the SMART training was the catalyst to become aware of specific mentoring expertise within a short time, and in that way speeding up the passage from teaching to mentoring.

To be an effective mentor teacher, a mentor teacher needs knowledge about pupils and student teachers (Achinstein & Athanases, 2005). They identified four domains of knowledge and skills for mentor teachers: Pedagogy, Context, Learners and Self. These domains should be of a bi-level nature, targeting pupils and targeting (student) teachers. The results of the present studies indicate that the knowledge base within the Pedagogy domain on the level of 'targeting student teachers' has been extended and/or enacted. Also, as a basis for this enactment, mentor teachers seem to have developed a bifocal perspective on (student)

teachers and pupils: "Up close the mentor focuses on the new teacher, what (s)he knows and needs. The mentor simultaneously holds the big picture in view, which is the pupils, their learning, and their needs." (Achinstein & Athanases, 2005, p. 856).

4.3 Limitations and further research

The findings reported here are of a tentative nature. One limitation of these studies is that, in view of the pre-test post-test design with one group, other variables outside the SMART training, such as individual characteristics of the participating mentor teachers and features of the workplace, could have influenced the shifts in contents of mentor teachers' interactive cognitions (Holton & Baldwin, 2000). Secondly, despite the advantages of the stimulated-recall method mentioned in Section 2.2, it remains a retrospective method (Veenman, 2005) which relies on the respondents to recognise contents of interactive cognitions after the event, and it does not register these moments on the spot. Yinger (1986) has noted that it is difficult to check to what degree the recall is an accurate description of what actually happened. Thirdly, a person's behaviour is not only accompanied by conscious cognitions but also by cognitions on subconscious levels (Dixon, 1981; Greenwald, 1992). Stimulated recall elicits exclusively mentor teachers' conscious cognitions.

Cognitions and behaviour mutually influence each other as they unfold and evolve over time. The *ellipse model*, presented in Section 1.1 portrays this interactive process as constituted by three elements: stable cognitions, interactive cognitions and actions. In the present studies, one of these elements, namely *interactive cognitions*, was investigated separately. To explore the ways in which mentor teachers' interactive cognitions during mentoring dialogues interact with stable cognitions such as beliefs and knowledge (left ellipse Figure 7.1), in future research it would be relevant to study stable and interactive cognitions in an integrated manner, because together they constitute mentor teachers' *practical knowledge base* accompanying actions (Meijer et al., 2002).

Such an integrated approach could shed some light on domain knowledge used by mentor teachers in mentoring dialogues. This line of research could contribute to further development of a bi-level knowledge base for mentor teachers as formulated by Achinstein and Athanases (2005). The interaction between mentor teachers' interactive cognitions and actions

during mentoring dialogues (right ellipse of Figure 7.1) could be explored by studying interactive cognitions and actual behaviour simultaneously. This research could be theoretically framed by the *Act Identity Theory* (Vallacher & Wegner, 1987), which postulates that any action of a person can be identified by so called *act identities* specifying actions of a person on different levels of abstraction.

Taken together, despite the above mentioned limitations, this study created empirical findings in an area in which such findings have until now been scarce. It adds to our knowledge about the nature of mentor teachers' interactive cognitions while mastering new communicative competencies. The findings seem to underline Orland-Barak's (2001) opinion that becoming a mentor teacher does not emerge naturally of being a good teacher, but is a highly conscious and gradual process of developing communicative competencies. Insights gained from the present studies into contents of mentor teachers' interactive cognitions, are particularly relevant to the education of mentor teachers, because they illustrate cognitive activity that is involved in conducting mentoring dialogues and, as such, can help mentor teachers to better understand their own current as well as future supervisory behaviour. Knowledge about contents of mentor teachers' interactive cognitions and shifts occurring in these over time can be helpful in designing and implementing training programmes for mentor teachers.

8

General conclusion and discussion

1 Summary of findings

The main aim of the research project described in this book was to understand mentor teachers' use and acquisition of supervisory skills. In this final chapter, we highlight the main findings from each of the eight studies conducted in accordance with the three parts of the research project, followed by theoretical and practical implications, limitations of the research project as a whole and suggestions for further research.

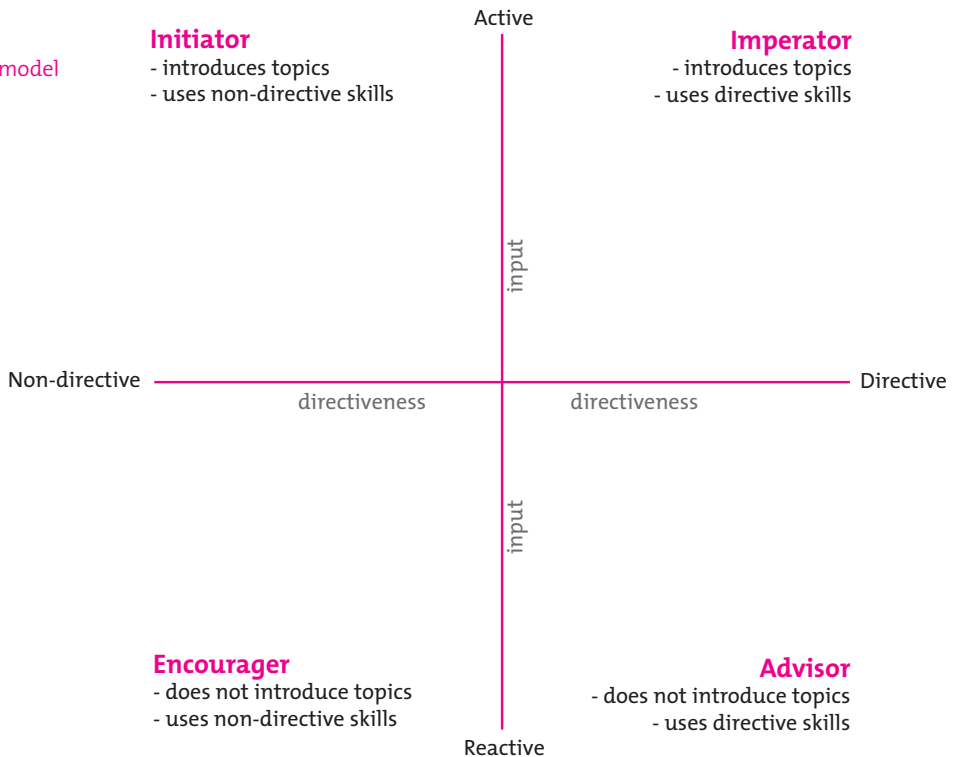
1.1 Part I: Mentor teacher roles

In Part I, we described two studies focusing on behavioural aspects of mentor teachers' use of supervisory skills. These studies contribute to the development of a model for identifying mentor teachers' supervisory roles in mentoring dialogues. The aim of the review study reported in *Chapter 2* was to map overt aspects of mentor teachers' supervisory behaviour in mentoring dialogues as a starting point for the development of a model, entitled MEntor teacher Roles In mentoring Dialogues (MERID). Some conceptual order to the various terms used in the literature about mentoring in teacher education was created.

From the 26 selected empirical studies in this review, five key aspects of mentoring dialogues emerged as frequent foci of empirical research, namely the *degree of input* from the mentor teacher, the *degree of directiveness* and *speaking time* of the mentor teacher, the *content* of the discussed topics, and the *phasing* of the mentoring dialogue. Measurements of these key aspects indicate that predominantly mentor teachers are the ones who initiate the majority of topics discussed. Also, most of mentor teachers' utterances were of a directive nature. Mentor teachers are the ones who are mainly talking, although the amount of speaking time during dialogues varies considerably between individual mentor teachers. In most cases, the content of the dialogues refers to instructional and organisational situations or problems with pupils in the classroom. Also, the greater part of the topics is discussed in a retrospective way, looking back on what has happened.

Empirical data from our research review indicated that overt differences between mentor teachers were reported regarding two overt aspects, namely *input* and *directiveness*. Based on this selection, a two-dimensional model (Figure 8.1), entitled MERID was constructed in which four basic

Figure 8.1
The MERID model



mentor teacher roles in mentoring dialogues are distinguished, i.e. the initiator, imperator, advisor and encourager role. The vertical axis of the MERID model represents the dimension input, indicated by the degree to which topics are introduced into the dialogue by the mentor teacher. The horizontal axis represents the dimension directiveness which indicates the degree to which the mentor teacher steers the course of the dialogue. From the review findings, a hypothesis was derived stating that there might be a positive correlation between the degree of directiveness and the mentor teacher's speaking time.

In the study reported in *Chapter 3*, the MERID model was put to a first empirical test. The findings indicate that there is a beginning of empirical support for the model and its distinction of four different mentor teacher roles. The results of a chi-square test and a log-linear analysis allow for the possibility that the dimensions input and directiveness are

independent of each other. Accordingly, each dimension seems to describe a specific part of mentor teachers' supervisory behaviour. Also, through a cluster analysis, empirical support was generated for the existence of four mentor teacher roles in mentoring dialogues as distinguished in the MERID model. Most mentor teachers in the sample were positioned in the imperator group. In our sample, no evidence was found for a positive correlation between the degree of directiveness and the mentor teacher's speaking time.

1.2 Part II: Mentor teachers' supervisory behaviour

In Part II, the reported studies focused on one behavioural aspect of mentor teachers' use of supervisory skills in mentoring dialogues, i.e. their degree of directiveness, visualised as the horizontal axis of the MERID model. The overall focus of these studies was to study mentor teachers' use of supervisory skills in mentoring dialogues, before and after mentor teachers were trained in supervisory skills from a twofold perspective: that of independent observers and that of student teachers.

The two empirical studies reported in *Chapter 4* portray mentor teachers' use of distinct supervisory skills in mentoring dialogues from the independent observers' perspective. In a pilot study, instruments for gathering, transcribing and coding data were developed and evaluated. This resulted in five recommendations for the data collection procedures in the main study, in which 60 audio and video recordings of mentoring dialogues were analysed. The data from the main study indicate that the breadth of the basic repertoires of mentor teachers' use of supervisory skills hardly changed after training. However, within their basic repertoires, statistically significant shifts were found in the frequencies with which they used specific supervisory skills during mentoring dialogues. Also, the findings indicate that after training, mentor teachers on average used less of the dialogue time and took less conversational turns. Definite individual differences were found regarding all investigated aspects.

In the empirical study reported in *Chapter 5*, mentor teachers' use of supervisory skills in mentoring dialogues is considered from the student teachers' perspective, using 60 stimulated-recall interviews. The aim of this study was to clarify to what extent student teachers perceived their mentor teachers' use of supervisory skills during mentoring dialogues as

offering emotional support and/or task assistance. The findings indicate that during mentoring dialogues, student teachers predominantly perceived six distinct supervisory skills as offering emotional support and five different supervisory skills were primarily perceived by student teachers as offering task assistance. Shifts in frequencies of mentor teachers' use of supervisory skills, as observed by independent raters, appeared to correspond to a great extent with shifts in student teacher perceptions of mentor teachers' use of supervisory skills.

1.3 Part III: Mentor teachers' interactive cognitions

In Part III, the focus of the reported studies was on cognitive aspects of mentor teachers' use and acquisition of supervisory skills. The aim of the study reported in *Chapter 6* was to capture frequencies of mentor teacher reflective moments before and after training in supervisory skills, as indicators of different levels of consciousness in mentor teachers' use and acquisition of supervisory skills. Reflective moments were defined as specific episodes during mentoring dialogues in which mentor teachers' cognitions related to their use of supervisory skills occur consciously. The data show that, on average, the frequencies of reflective moments increased significantly. Furthermore, the data point towards a close interaction of mentor teachers' thinking and doing during mentoring dialogues. Shifts in frequencies of use of some regularly used supervisory skills corresponded with shifts in the frequencies of reflective moments occurring during the use of these skills. To capture mentor teachers' reflective moments, the retrospective stimulated-recall technique was combined with another technique: a specially developed push-button device to register reflective moments during mentoring dialogues. The findings indicate that each method registers a different number of reflective moments and, for a large part, at different points in time.

In *Chapter 7*, two consecutive studies were reported aiming at uncovering contents of mentor teachers' interactive cognitions during mentoring dialogues. Interactive cognitions are in operation during a person's actions and are manifest during reflective moments. In both studies, the stimulated-recall method was used. In the first study, an instrument was developed to categorise contents of mentor teachers' interactive cognitions. Four main content categories of mentor teachers' interactive cognitions were distinguished, i.e. discussed topic, use of supervisory skills, mentor teacher's role, and strategy during the dialogue. In the

second study, this instrument was applied to uncover frequencies of specific contents of mentor teachers' interactive cognitions, before and after training in supervisory skills. After training, we found a statistically significant decrease of contents of interactive cognitions in the category discussed topic and a statistically significant increase of contents in the categories use of supervisory skills and strategy during the dialogue.

2 Theoretical implications

To begin with, improved conceptual order was introduced in the terminology used in the literature about mentoring. Regarding mentor teachers' supervisory behaviour in mentoring dialogues, terms and definitions were clarified. Also, taking into account five overt key aspects of mentor teachers' supervisory behaviour in mentoring dialogues, a coherent and two-dimensional conceptual framework for studying mentor teachers' supervisory behaviour was developed. For this purpose, four coding instruments were designed to operationalise the concepts *input*, *directiveness*, *content* and *phasing*. These instruments provide a language to achieve more nuanced conceptualisations in mentoring research. The instruments developed can help produce a sharper picture, i.e. differentiated descriptions and analyses of mentor teachers' supervisory behaviour in mentoring dialogues.

Second, our understanding of mentor teachers' supervisory behaviours in mentoring dialogues has been expanded and deepened. Mentor teachers' full range of overt supervisory behaviour in authentic mentoring dialogues is portrayed in a detailed way and from a twofold perspective: That of independent observers and that of student teachers. To observe and describe mentor teachers' use of supervisory skills, a category system covering 15 types of supervisory skills was developed. This instrument facilitated precise quantitative low-inference ratings of these skills, made concrete in frequencies and durations of mentor teachers' utterances. In addition, this instrument made it possible to identify those supervisory skills which, from the student teachers' perspective, offer emotional support and task assistance. These are two basic elements of mentoring.

Third, our research has disclosed mentor teachers' cognitions accompanying the use of supervisory skills during mentoring dialogues. Since a person's overt behaviour interacts strongly with cognitions, this type of knowledge is useful to analyse mentor teachers' degree of

competence in the use of supervisory skills. Most mentor teachers seem to have relatively low awareness of their own supervisory behaviour during mentoring dialogues. To study the nature of this awareness in more depth, we used a conceptual framework which describes interactive cognitions as a linking pin between a mentor teacher's cognitions and actions. To register frequencies and contents of mentor teachers' interactive cognitions we developed a two-method approach, i.e. a specially developed push-button device was used in combination with a stimulated-recall technique. To categorise contents of interactive cognitions, a scoring instrument, entitled *Content Categories for MEntor Teachers' Interactive Cognitions* (CCMETIC) was developed.

While the combined use of the push-button device and the retrospective stimulated-recall method contributes to our understanding of the relation between mentor teachers' cognitions and actions, it has also produced empirical evidence for the limitations of the stimulated-recall method. Our investigation provided evidence that during stimulated-recall, reflective moments may be reported more frequently and at different points of time than would actually occur in the original situation.

Fourth, our research contributes to the understanding of mentor teachers' acquisition of supervisory skills, set off by a training programme. In the context of mentoring, it clarified the initial stage in mastering supervisory skills. Our research provides empirical evidence for the impact and practical usefulness of training mentor teachers, from the perspectives of independent observers and student teachers. The shifts found in the frequencies of use of distinct supervisory skills and in the frequencies and contents of mentor teachers' interactive cognitions together indicate that trained mentor teachers add a new domain of expertise to their expertise as a teacher of pupils.

The findings also suggest the existence of different levels of awareness in mentor teachers of their use and acquisition of supervisory skills. In the introductory chapter, we quoted mentor teachers who after training in supervisory skills said: "I have learned a lot, but [I] cannot always apply it". This remark has now acquired more meaning. The first part of the statement refers to mentor teachers' increased awareness and capability to perceive their own actions in mentoring dialogues after participation in the SMART programme. During the programme, they acquire a frame

of reference and a professional language with which they can give more direction to their own supervisory behaviour. The second part of the statement (“but [I] cannot always apply it”) refers to supervisory skills which have been learned and are consciously being used or tried out, but whose application in daily practice is not yet fluent or without fault. In the wake of what was learned during the training, mentor teachers experience a heightened awareness of their partial competence in applying supervisory skills. From this perspective, our findings clarify the initial stage of acquiring expertise, during which mentor teachers are primarily concerned with their personal performance in applying supervisory skills. However, the transfer to their behaviour in actual supervisory practices is still not easy for the mentor teachers, a finding that concurs with other studies into the development of expertise (e.g. Dreyfus & Dreyfus, 1986).

3 Practical implications

Our research project has generated tools and guidelines for designing and improving training programmes for supporting mentor teachers’ professional development. Four practical implications have emerged, namely employment of the MERID model as an instrument for reflection, selection of pivotal supervisory skills for training, tools for reflection on mentor teachers’ cognitions accompanying to the use of distinct supervisory skills during behavioural practice, and the necessity of sustaining mentor teachers’ skills repertoires with follow-up learning activities after initial training. We elaborate on each of these four practical implications.

First, the MERID model can be helpful in the process of developing versatility in mentor teachers’ repertoires of supervisory roles. The model can be used as a tool for mentor teachers to reflect on their supervisory approach in order to develop awareness about how their mentoring behaviour affects individual student teachers. To help mentor teachers and their mentees understand how their stances and interactions may contribute to the mentoring process, mentee-mentor pairs might, on a regular basis, talk explicitly about their perceptions and expectations regarding their roles and contributions in mentoring dialogues. Drawing out (combinations of) individual mentor teachers’ roles in a profile based on the MERID model may be helpful to set the stage for a reflective conversation and, subsequently, for changes in and enhancement of

mentor teachers' roles. This type of learning conversation could also take place during seminars with fellow mentor teachers about the practice of mentoring. A mentor teacher might be encouraged to reflect on the degree to which his or her prevalent supervisory roles match a specific student teacher's learning needs.

Second, preparing mentor teachers for their mentoring duties through specific professional development programmes is an important task for those involved in school-based teacher education. The identification of a list of pivotal supervisory skills and student teachers' identification of two sets of overt supervisory skills offering either emotional support or task assistance can be helpful for choosing, designing and implementing effective training programmes. Distinct supervisory skills can be targeted and trained explicitly and efficiently. Our findings can direct the selection of 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 at a time to gradually develop a broad repertoire of supervisory skills.

Third, insights gained from the present studies into frequencies and contents of mentor teachers' interactive cognitions, are particularly relevant to mentor teacher training, because they can help mentor teachers to understand their own supervisory behaviour better, and subsequently, to further develop their competence in the use of supervisory skills. Mentor teachers have to make decisions in each mentoring dialogue about which supervisory skills should be invoked to encourage learning in each mentee, and they have to decide how to enact these skills. Hence, exercises for training supervisory skills should not only focus on behavioural aspects. We believe that during training programmes, mentor teachers should also be encouraged to reflect on their interactive cognitions, because these may point to specific perspectives or frames of reference guiding their actions. This type of reflection may provide clues for improving and speeding up the development of mentor teachers' repertoires of supervisory skills.

Fourth, developing versatility in mentor teachers' use of supervisory repertoires is important because most mentor teachers hardly vary their supervisory approach in response to varying student teachers' needs. The findings from our research underline the necessity and practical usefulness of training mentor teachers in the use of supervisory skills.

They also show, however, that training may bring most mentor teachers only into an initial stage of competence in this skill domain. This means that in order to achieve higher levels of competence, it is important to sustain practice in the newly learned skills with follow-up learning activities, for example by having mentor teachers take part in further training and coaching on the job (Joyce & Showers, 1995). Follow-up learning activities may also take place through conversations about mentoring practices in mentor teachers' communities of practice, as these are generally assumed to be helpful in facilitating and enhancing mentor teachers' skill development (Carroll, 2005; Orland, 2001). In the company of colleagues with the same role, mentor teacher can be encouraged to practice specific supervisory skills further and/or to reflect on their supervisory behaviour.

4 Methodological strengths and limitations

As in all research, there are both methodological strengths and limitations in our research project. The methodological strengths are threefold. Firstly, data collection took place in the context of authentic mentoring dialogues and generated a large quantity of fine-grained data. This contributed to the ecological validity of our findings. For example, almost 3500 mentor teacher utterances were registered and labelled on the basis of observations of 104 mentoring dialogues. Based on 60 stimulated-recall interviews, 623 contents of mentor teachers' interactive cognitions, and 668 student teacher perceptions of mentor teacher utterances were identified and categorised. Secondly, in several studies of the research project, two-method approaches were employed. For example, descriptions of mentor teachers' supervisory repertoires were based on a research review and on observations of authentic mentoring dialogues. Mentor teachers' use of specific supervisory skills was investigated using simultaneously observations of independent raters and stimulated-recall interviews with student teachers. Also, frequencies and contents of mentor teachers' interactive cognitions were registered by combining a stimulated-recall technique and a specially developed push-button device. Thirdly, we developed reliable category systems. In each empirical study, two or three independent raters labelled behavioural and/or cognitive aspects of mentor teachers' supervisory behaviour.

The methodological limitations were in large part already discussed in the previous chapters. In the present section, we will elaborate on three central limitations. One limitation has to do with the difficulty to observe supervisory skills in all their nuances and to develop a comprehensive observation system that is practically useful at the same time. Not all the distinguished skills are always functional and therefore perceptible in all dialogues. It is therefore possible that a mentor teacher does possess a specific supervisory skill, but that it is hard to perceive this skill. Moreover, our research was directed predominantly at verbal aspects of supervisory behaviour. There was no explicit focus on nonverbal aspects, which may limit the scope of our findings.

Another limitation has to do with the use of the stimulated-recall method in the studies reported in the Chapters 5, 6 and 7. We chose to employ the stimulated-recall method in the first place to assure authenticity of the mentoring dialogues. In spite of the advantage that the stimulated-recall method does not interrupt the ongoing mentoring dialogue, it remains a retrospective method which elicits exclusively conscious cognitions, although it is known that a person's behaviour is not only accompanied by conscious cognitions but also by cognitions at subconscious levels (Greenwald, 1992; Korthagen & Lagerwerf, 2001). Also, stimulated recall relies on the respondents' ability to recognise cognitions 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 happened. Video recordings often literally create a new look on one's own actions. The actor perspective, then, shifts to an observer perspective.

In addition to the stimulated-recall technique, we developed a complementary technique. A push-button device was used that enables mentor teachers to acknowledge the presence of cognitions during an ongoing mentoring dialogue. While the combined use of the push-button and the stimulated-recall techniques contributed to our understanding of the relation between the mentor teachers' interactive cognitions and their use of specific supervisory skills, the push-button method has identified the limitations of the stimulated-recall method more precisely. It became apparent that the quantity of the reflective moments registered differs between both methods. The push-button method appears capable of reporting reflective moments that go unnoticed by the stimulated-recall method and vice versa.

A final limitation with regard to the studies reported in the Chapters 4 to 7 is that differences in the use of supervisory skills and in the related interactive cognitions, before and after training, are reported on the basis of a quasi-experimental design with one experimental group. Implementing a design with a control group was not feasible for practical reasons. This makes it even harder than with stronger designs to exclude alternative hypotheses about changes in the use of skills and/or accompanying cognitions before and after mentor teachers were trained in supervisory skills. 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 and/or maturation.

5 Suggestions for further research

One suggestion for further research is to investigate relations between mentor teachers' stable and interactive cognitions. Cognitions and behaviour mutually influence each other as they unfold and evolve over time. This interactive process was portrayed in Figure 7.1 by means of an ellipse as constituted by three elements: stable cognitions, interactive cognitions and actions. One of these elements, contents of interactive cognitions, was investigated separately. To explore the ways in which mentor teachers' interactive cognitions during mentoring dialogues interact with stable cognitions such as beliefs and knowledge, in future research it would be relevant to study stable and interactive cognitions in an integrated manner. Together, they constitute mentor teachers' practical knowledge base accompanying their actions. Such an integrated approach could shed some further light on knowledge and beliefs used by mentor teachers in mentoring dialogues and possibly on domain-specific aspects of such knowledge and beliefs.

Another suggestion for further research pertains to the influence of individual and contextual factors on mentor teachers' supervisory behaviour. Our research shows considerable inter-individual variability between mentor teachers in their use of supervisory skills and the frequencies and contents of related cognitions. To trace determinants of these individual differences, it would be worthwhile to include specific individual characteristics and workplace factors in future studies of mentor teachers' use of supervisory skills. Such research could also seek to clarify to which extent these factors moderate changes in mentor teachers' behaviour and cognitions in relation to skills training.

A third suggestion for further research is directed at the long-term impact of training in supervisory skills. Time is an important factor, when one wants to register changes in mentoring behaviour and related cognitions. In our research project, mentor teachers' behaviour and cognitions were investigated immediately before and after training in supervisory skills. For this reason, we could not ascertain if after a while, changes are possibly extinguished or if any changes do not manifest themselves until after a certain period. It takes a while before newly learned skills are integrated in everyday routines. Longitudinal research may clarify if and how new supervisory behaviours, acquired during training, develop in the longer term.

Technological developments go rapidly. The push-button device that we used, could be replaced by newly developed audiovisual techniques and software for the purpose of capturing mentor teachers' reflective moments in action. Marking such moments in a timeline under video footage would be a feasible technique in research. This could form a suitable basis for identifying the contents of cognitions accompanying those moments marked. The same kind of usage could be incorporated in training programmes for mentor teachers.

6 Final remarks

We believe that there is no single approach to mentoring that will work in the same way for every student or beginning teacher in every context. Crucial to student teacher learning is mentor teachers' ability to vary their approaches regularly and to choose suitable supervisory behaviour continually and actively. Developing versatility in conducting mentoring dialogues is therefore an important challenge. If we are to facilitate the development of mentor teachers' supervisory repertoires, we need to understand mentor teachers' use of distinct supervisory skills constituting these repertoires as well as how these skills develop as a result of formal education and training. Our research has contributed to this aim.

At the same time, the research in this area has begun to highlight several other factors which may have an impact on the success of mentoring across a variety of contexts. This research suggests four main categories of contextual factors which should be taken into account to optimise mentoring in teacher education. Firstly, the success of mentoring improves when mentoring is an ingredient of a coherent teacher

education programme, which is not fragmented between different contributors such as schools and universities (Hascher, Cocard & Moser, 2004). Success is also more probable when mentor teachers are involved in the design and evaluation of and are committed to the broader teacher education programme of which their mentoring is an ingredient (Evans & Abbott, 1997). Secondly, mentoring is more powerful when it takes place in a collegial and learning-oriented school culture (Lee & Feng, 2007), which is relatively free from an excessive emphasis on externally determined goals and agendas (Edwards, 1998). Thirdly, adequate timetabling is crucial to allow mentor teachers and prospective teachers to meet together during the school day (Bullough, 2005). Also, mentor teachers should receive some kind of incentive, for example financially, for their work (Simpson et al., 2007). Additional release time for mentor teachers is vital for their undertaking mentoring activities (Lee & Feng, 2007). Finally, the quality of mentoring is improved when decisions about mentor–mentee pairings take account of mentees’ strengths and limitations (Abell, Dillon, Hopkins, McInerney, & O’Brien, 1995), when there is a possibility to initiate alternative pairing, in case the mentoring relationship might not be productive (Association for Supervision and Curriculum Development, 1999), when the mentor teacher’s motivation to do the job is taken into account (Lindgren, 2005), when mentor and mentee get along well both personally and professionally (Abell et al., 1995), and when both mentor teachers and mentees have access to support outside the mentoring relationship (Whisnant, Elliot & Pyncheon, 2005). All these factors illustrate that mentoring is a complex and multifaceted process.

The quality of mentoring in teacher education is an important component of a powerful learning environment for teachers. As such, it is a perennial issue. Understanding the process of mentoring and the factors influencing it, will optimise the effectiveness of mentoring student and beginning teaching. Through our research, we have generated new empirical evidence about mentor teachers’ use and acquisition of supervisory skills. We hope that our findings will contribute to the improvement of mentor teachers’ versatility in the use of supervisory skills in the educational context of mentoring dialogues. After all, guidance by a mentor teacher is an indispensable constituent for fostering any student teacher in becoming a professional teacher.

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Appendix

Characteristics of the studies in the research review (see Chapter 2)

Studies/countries	Research questions*	Characteristics of the research methods				
		Number of mentor teachers	Number of prospective teachers	Number of analysed dialogues	Analytical framework: • Existing • New • Not reported	Taped: • Yes (audio/video) • No • Not reported
Ben-Peretz & Rumney (1991), Israel	Is the mentor teacher mainly supportive or evaluative? Is the mode of interaction mainly authoritative or cooperative?	35	31	31	Not reported	No
Borko & Mayfield (1995), USA	What are the characteristics of guided teaching conferences between student teachers and cooperating teachers?	12	4	9	Existing	Not reported
Crasborn et al. (2005), NL	Before and after training: which supervisory skills are used by mentor teachers with which frequencies; for how much of the time are mentor teachers speaking; and how many conversational turns are used?	13	13	26	New	Yes (video)
Coulon (1994), USA	Identifying the influence of cooperating teachers' post-teaching conference task statements on student teachers' interactive behaviours during subsequent lessons (objective).	2	2	Not reported	Not reported	Yes (audio)
Dunn & Taylor (1993), USA	What is the nature of advice that cooperating teachers give to student teachers? Are there differences between experienced and novice cooperating teachers?	8	8	25	New	Yes (audio)
Dunne & Bennett (1997), UK	Ascertain the nature, content and focus of the dialogues and assess whether the different role structure posited in the mentoring model was evident in practice. (aim)	4	4	8	Existing	Yes (audio)
Edwards & Collison (1996), UK	What is going on between mentors and students in the conversations before and after teaching?	11	21	21	Existing	Yes
Edwards & Protheroe (2004), UK	What do mentor teachers believe they offer and what do student teachers offer in post-observations interviews?	12	12	45	New	Yes

* For this research review study relevant (abstraction of the) research question(s). If there is no explicit research question formulated, the relevant (abstraction of the) the aim, intention or concern of the study is reported.

Appendix

Aspects of mentoring dialogues							
Transcription: • Yes • No • Not reported	Unit of analysis: Dialogue • As a whole • Part(s)	Content: • Number of categories	Style or Skills: • Number of categories	Input MT: a. Amount b. Type (initiation or participation)	Time: a. Duration dialogue b. Amount speaking time MT	Phases: • Number of phases	Other aspects
No, scored from observation protocols	As a whole (Likert scale)	10	Style (2)		a) 10-20	3	
Yes	Part	5			a) 5-30 min		
Yes	Part		Style (2) & skills (15)		a) max. 15 min. b) decreased by 19%		
Yes	Part	8					Realising task statements
Yes	Part		Skills (9)				
Yes	Part	7			a) 10-20 min b) more than 50%		
Not reported	Part	6	Style (1)		a) 5-20 min		
Not reported	Part	13	Skills (13)				

Appendix (continued)

Studies/countries	Research questions*	Characteristics of the research methods				
		Number of mentor teachers	Number of prospective teachers	Number of analysed dialogues	Analytical framework: • Existing • New • Not reported	Taped: • Yes (audio/video) • No • Not reported
Evertson & Smithey (2001), USA	Does a mentoring programme affect new teachers practice?	8 exp. gr 3 contr. gr	8 exp. gr 3 contr. gr	11	Existing	Yes (video)
Feiman-Nemser & Parker (1990), USA	How might issues about the teaching and learning of academic content figure in interactions between novice teachers and their mentors?	2 (only mentor teachers)	2	Not reported	Not reported	Not reported
Feiman-Nemser et al. (1992), USA	Learning more about what mentor teachers do when they work with beginning teachers. (aim)	3	3	Not reported	Not reported	Not reported
Franke & Dahlgren (1996), Sweden	Discovering and describing the meaning of mentors' conceptions of mentoring given in teaching practice. (aim)	10	10	30	Existing	Yes
Geldens et al. (2005), NL	Which elements from the analytic framework are visual in the dialogues? What are the central activities? Who has the initiative? Is there a relationship between the duration and quality? Which phases can be distinguished?	7	4	22	Existing	Yes (audio)
Haggarty (1995), UK	In what respect were mentors' implementing their expected role?	5	10	Not reported	New	Yes
Harrison et al. (2005), UK	Exploring how a mentor moves the beginning teacher to greater independence and professional autonomy. (aim)	8	8	38	Existing	Yes (audio and video)
Hawkey (1998a), UK	Influence of the mentoring relationship on mentors' conceptions of their role and on student teacher thinking. (aim)	2	3	8	New	Yes (audio)
Hawkey (1998b), UK	Understanding mentor processes as they operate in practice. (concern)	1	1	5	Existing and new	Yes (audio)

* For this research review study relevant (abstraction of the) research question(s). If there is no explicit research question formulated, the relevant (abstraction of the) the aim, intention or concern of the study is reported.

Appendix

Aspects of mentoring dialogues							
Transcription: • Yes • No • Not reported	Unit of analysis: Dialogue • As a whole • Part(s)	Content: • Number of categories	Style or Skills: • Number of categories	Input MT: a. Amount b. Type (initiation or participation)	Time: a. Duration dialogue b. Amount speaking time MT	Phases: • Number of phases	Other aspects
No, scored from videotape	As a whole (Likert scale)		Style (2) & skills (4)			2	
Not reported	As a whole (narrative)	1					
Yes	As a whole (narrative)	3	Skills (number not reported)	b) Participation		2	
Yes	Not reported		Style (2)				
Yes	Part (Analysed with Kwalitan software)	19	Skills (5)	b) Initiation	a) 15-45 min	5	
Not reported	Part		Skills (1)	b) Initiation and participation	a) total time all dialogues is 612,5 min		Sources, criteria referred to good practice, judgements
Yes	Part (analysed with QSR NVivo software)		Style (5)			2	
Yes	Part		Style (3)		b) reported, but not in %		
Yes	Part	4	Skills (5)		a) 60 min		

Appendix (continued)

Studies/countries	Research questions*	Characteristics of the research methods				
		Number of mentor teachers	Number of prospective teachers	Number of analysed dialogues	Analytical framework: • Existing • New • Not reported	Taped: • Yes (audio/video) • No • Not reported
Hughes (1998), UK	To see to what extent post-observational discourses encouraged students to reflect. (intention)	7	14	9	Existing	Yes (audio)
Martin (1997), Canada	How do teachers work with their mentees in the classroom? How do they challenge and support their mentees and how is their advice related to actual mentees' practice?	2	2	Not reported	New	Yes (audio)
Orland-Barak & Klein (2005), Israel	Exploring the nature, content and type of interactions that mentors attribute to their mentoring conversations and examining the way in which these attributions are actually realized in practice. (aim)	12	12	12	New	Yes
Stanulis (1995), USA	How do classroom teachers make sense of their role as mentors in support of novices as they learn to teach?	5	5	6	New	Yes (video)
Strong & Baron (2004), US	How do mentor teachers make pedagogical suggestions and how do beginning teachers respond?	16	16	64	New	Yes (audio)
Timperley (2001), New Zealand	Changing the preoccupation by school-based mentors with immediate issues of practical performance rather than inquiry into or expansion of a rationale of that performance. (aim)	11	11	22	New	Yes (audio)
Veenman & Denessen (2001), NL	Do the coaches who participated in the training program actually implement the target coaching skills?	35 exp. gr. 22 contr. gr.	35 exp. gr. 22 contr. gr.	114	Existing	Yes (audio)
Wang et al. (2004), USA & China	How vary the foci and forms of mentor-novice interactions about teaching from one context to another, and what might be the consequences of different interactions?	2 (only Chinese)	2	4	New and existing	Yes (audio and video)
Williams et al. (1998), UK	Improving our understanding of the mentoring process from the perspective of the mentor teacher. (aim)	8	15	24	Existing	Yes

* For this research review study relevant (abstraction of the) research question(s). If there is no explicit research question formulated, the relevant (abstraction of the) the aim, intention or concern of the study is reported.

Appendix

Aspects of mentoring dialogues							
Transcription: • Yes • No • Not reported	Unit of analysis: Dialogue • As a whole • Part(s)	Content: • Number of categories	Style or Skills: • Number of categories	Input MT: a. Amount b. Type (initiation or participation)	Time: a. Duration dialogue b. Amount speaking time MT	Phases: • Number of phases	Other aspects
Yes	Part (analysed with QST NUD*IST software)	6	Skills (4)	a) involvement in units	a) 15-45 min b) 69%		
Not reported	Not reported		Style (2)				Classroom tasks assigned to student teachers
Yes	As a whole (narrative) and part	4	Skills (2)				
Not reported	Not reported		Style (number not reported)				
Yes	Part	5	Skills (1)		a) 15-60 min		
Yes	As a whole (Likert scale)		Skills (6)				
No, scored from audiotape	As a whole (Likert scale)		Skills (3)				
Yes	Part	3	Skills (7)	a) 66-94% b) Initiation	a) 10-30 min	3	Degree of specificity of speech acts
Yes	Part		Style (3) Skills (14)				

Summary

Context, aim and method

In school-based teacher education, the ability of mentor teachers to vary their supervisory approaches regularly and to choose during mentoring dialogues appropriate supervisory skills continually and actively, is crucial for student teacher learning. There is no single approach to mentoring that will work in the same way for every student teacher in every context. Most mentor teachers hardly vary their supervisory behaviour in response to student teachers' varying needs and stick to a certain supervisory approach. Developing versatility in mentor teachers' use of supervisory skills therefore is an important challenge. If one wishes to facilitate the development of the supervisory repertoires of mentor teachers, it is important to understand their use of distinct supervisory skills constituting these repertoires as well as how these skills develop as a result of education and training. Therefore, the main aim of the research project was to understand the use and acquisition of supervisory skills by mentor teachers.

To deepen our understanding of mentor teachers' use and acquisition of supervisory skills, both behavioural and cognitive components are examined. Behavioural aspects of mentor teachers' use and acquisition of supervisory skills were investigated empirically by means of observations of audio and/or video recordings of authentic mentoring dialogues, before and after mentor teachers were trained in supervisory skills. Cognitive aspects were investigated using a stimulated-recall technique in combination with a specially developed push-button device. In total, 104 mentoring dialogues and 120 stimulated-recall interviews were recorded and analysed. The participants were four separate groups of mentor teachers and one group of student teachers in primary education. In total 100 participants were involved: 70 mentor teachers and 30 student teachers.

The research project was carried out in the context of the implementation of a training programme aiming at broadening mentor teachers' supervisory skills repertoires in mentoring dialogues. The entire research project sparked off a series of eight studies, reported in the three parts of this doctoral dissertation. The centre of attention in Part I and II were

behaviour aspects of mentor teachers' roles and their use of supervisory skills in mentoring dialogues. In Part III, the focus was on cognitive aspects of mentor teachers' use and acquisition of supervisory skills.

Part I: Mentor teacher roles

Based on overt aspects of mentor teachers' supervisory behaviour, the studies presented in Part I focus on developing a model to identify and analyse mentor teacher roles in mentoring dialogues.

The aim of the research review study reported in *Chapter 2* was to map overt aspects of mentor teachers' supervisory behaviour in mentoring dialogues as a starting point for the development of a conceptual model to describe mentor teachers' supervisory behaviour in mentoring dialogues. From the 26 selected empirical studies in this review, five key aspects of mentoring dialogues emerged as frequent foci of empirical research, namely the mentor teacher's degree of input, degree of directiveness, the content of the discussed topics, the phrasing of the mentoring dialogue, and the time used. Based on the aspect input, indicated by the degree to which topics are introduced into the dialogue by the mentor teacher, and the aspect directiveness, which indicates the degree to which the mentor teacher steers the course of the dialogue, a model, entitled MEntor teacher Roles In mentoring Dialogues (MERID) was constructed. The model distinguishes four basic mentor teacher roles in mentoring dialogues, i.e. initiator, imperator, advisor and encourager.

In the study reported in *Chapter 3*, the MERID model was put to a first empirical test, using a sample of 20 transcriptions of mentoring dialogues in which 112 topics were discussed and 440 mentor teacher utterances emerged. The results of the chi-square tests and the log linear analysis indicate that there is a beginning of empirical support for the model and the four different mentor teacher roles it distinguishes. In the model, accordingly, each dimension seems to describe a specific part of mentor teachers' supervisory behaviour. Through a cluster analysis, empirical support was generated for the existence of four mentor teacher roles in mentoring dialogues as distinguished in the MERID model. Most mentor teachers in the sample were positioned in the imperator group.

Part II: Mentor teachers' supervisory behaviour

In Part II, the reported studies focus on one behavioural aspect of mentor teachers' use of supervisory skills in mentoring dialogues, i.e. their degree of directiveness, visualised as the horizontal axis of the MERID model. The overall focus of these studies was to study the use of supervisory skills in mentoring dialogues by mentor teachers, before and after they were trained in supervisory skills from a twofold perspective: that of independent observers and that of student teachers.

The two empirical studies reported in *Chapter 4* portray mentor teachers' use of distinct supervisory skills in mentoring dialogues from the independent observers' perspective. In a pilot study based on audio recordings of 24 mentoring dialogues, instruments for gathering, transcribing and coding data were developed and tested. This resulted in five recommendations for data collection procedures in the main study, in which in total 60 video recordings of mentoring dialogues were analysed, 30 before and 30 after mentor teachers were trained in supervisory skills. In total, 2,274 mentor teachers' utterances were coded by three independent raters, using a category system covering 15 supervisory skills. The data from the main study indicate that the range of basic repertoires of mentor teachers' use of supervisory skills hardly changed after training. However, within their basic repertoires, statistically significant shifts were found in the duration of and in the frequencies with which they used specific supervisory skills during mentoring dialogues. Also, after training, mentor teachers on average used less of the dialogue time and took less conversational turns. Considerable inter-individual variability existed between mentor teachers.

In the empirical study reported in *Chapter 5*, mentor teachers' use of supervisory skills in mentoring dialogues is considered from the student teachers' perspective. The aim of this study was to clarify how student teachers perceive mentor teachers' use of supervisory skills during mentoring dialogues. The outcome of such an investigation can give insight into the impact of mentor teachers' use of supervisory skills on student teachers. In connection with a previously recorded mentoring dialogue, 60 stimulated-recall interviews with 30 student teachers were conducted, 30 before and 30 after mentor teachers were trained. In total 668 student teacher perceptions were coded. The findings indicate that

during mentoring dialogues, student teachers predominantly perceived six distinct supervisory skills as offering emotional support and five supervisory skills as offering task assistance. Shifts in frequencies of mentor teachers' use of distinct supervisory skills during mentoring dialogues, as observed by independent raters, correspond to a great extent with shifts in frequencies of student teacher perceptions of distinct supervisory skills as offering emotional support or task assistance.

Part III: Mentor teachers' interactive cognitions

In Part III, the focus of the reported studies was on investigating cognitive aspects of mentor teachers' use and acquisition of supervisory skills.

The aim of the study reported in *Chapter 6* was to capture differential frequencies of mentor teacher reflective moments before and after training in supervisory skills, as indicators of different levels of consciousness in mentor teachers' use and acquisition of supervisory skills. For each of the 30 mentor teachers, two mentoring dialogues and two stimulated-recall interviews were analysed, one before and one after training in supervisory skills. To capture mentor teachers' reflective moments, the stimulated-recall technique was combined with a specially developed push-button device to register reflective moments during mentoring dialogues. The findings indicate that each method registers a different number of reflective moments and, for a large part, at different points in time. The data of the study suggest the existence of different levels of consciousness in acquiring and using supervisory skills, the possibility of measuring reflectivity using concurrent and retrospective methods simultaneously, and the potential of such measurements to inform and improve professional development opportunities for mentor teachers.

The two consecutive studies reported in *Chapter 7* aimed at uncovering contents of mentor teachers' interactive cognitions during mentoring dialogues. In both studies, the stimulated-recall method was used, before and after training. In the first study, with eight mentor teachers, an instrument was developed to categorise contents of interactive cognitions. Four main content categories of mentor teachers' interactive cognitions were distinguished, i.e. discussed topic, use of supervisory skills, mentor teacher's role, and strategy during the dialogue. In the second study, with 30 mentor teachers, the instrument was applied to

uncover contents of mentor teachers' interactive cognitions, before and after training in supervisory skills. Based on 60 stimulated-recall interviews, 623 separate contents of interactive cognitions were coded. After training, we found a statistically significant decrease of contents of interactive cognitions in the category discussed topic and a statistically significant increase of contents in the categories use of supervisory skills and strategy during the dialogue. This indicates that after training in supervisory skills, mentor teachers demonstrated an increased awareness of their use of supervisory skills and were engaged in monitoring their own supervisory behaviour.

Theoretical and practical implications

The studies in this dissertation enlarge our understanding of mentor teachers' supervisory behaviour within mentoring dialogues. From our research, four theoretical implications emerge: improved conceptual order in the concepts used to describe supervisory behaviour in mentoring dialogues, detailed and fine-grained portrayal of pivotal supervisory skills, disclosure of cognitions accompanying mentor teachers' use of supervisory skills, and clarification of the initial stage in mastering supervisory skills.

The findings also offer tools and guidelines for designing and improving training programmes to support mentor teachers' professional development in the use of supervisory skills for the benefit of guiding student teachers' professional development. Four practical implications have emerged, namely use of the MERID model as an instrument for reflection, selection of pivotal supervisory skills for training, tools for reflection on mentor teachers' cognitions accompanying the use of supervisory skills during behavioural practice, and the necessity of training programmes for the development of mentor teachers' use of supervisory skills.

We hope that our findings will contribute to the improvement of the versatility of mentor teachers in the use of supervisory skills in the educational context of mentoring dialogues. After all, the availability of effective guidance by and cooperation with a mentor teacher is an essential condition for student teachers' learning in the workplace.

Samenvatting (Summary in Dutch)

Context, doelen en methoden

Bij het opleiden van leraren in de school is het vermogen van *mentor teachers*⁴ om te variëren in de begeleidingsaanpak cruciaal voor het leren van (aanstaande) leraren. Niet elke begeleidingsaanpak werkt immers hetzelfde voor elke leraar in opleiding en in elke schoolcontext. In de concrete context van begeleidingsgesprekken betekent dit dat een mentor teacher moet beschikken over een breed en flexibel repertoire aan begeleidingsvaardigheden dat, afhankelijk van de specifieke begeleidingssituatie, actief en bewust kan worden ingezet. Veel mentor teachers variëren echter nauwelijks in hun begeleidingsaanpak. Om mentor teachers effectief te kunnen professionaliseren, is het van belang om kennis te ontwikkelen over het gebruik van specifieke begeleidingsvaardigheden door mentor teachers in begeleidingsgesprekken en de invloed van vaardigheidstraining daarop.

Het hoofddoel van ons onderzoeksproject was om een bijdrage te leveren aan de kennisontwikkeling over het gebruik en het verwerven van begeleidingsvaardigheden door mentor teachers. We bestudeerden zowel gedrags- als cognitieve componenten van begeleidingsgedrag van mentor teachers. Gedragsaspecten werden onder de loep genomen door middel van analyses van audio- en video-opnamen van authentieke begeleidingsgesprekken en cognitieve aspecten via stimulated recall interviews in combinatie met een speciaal ontwikkeld drukknopapparaat. In totaal werden 104 begeleidingsgesprekken en 120 stimulated recall gesprekken opgenomen en geanalyseerd, de helft voordat en de helft nadat mentor teachers getraind waren in begeleidingsvaardigheden. De deelnemersgroep aan het onderzoeksproject bestond uit 70 mentor teachers in het basisonderwijs, verdeeld in 4 aparte maar vergelijkbare groepen, en 1 groep van 30 leraren in opleiding in het basisonderwijs. Het onderzoeksproject werd uitgevoerd in de context van de ontwikkeling en uitvoering van een trainingsprogramma gericht op verbreding van het begeleidingsvaardigheden-repertoire van mentor teachers.

4. Mentor teachers zijn leraren van leerlingen, die naast deze hoofdtaak ook leraren in opleiding en/of beginnende leraren begeleiden in de schoolpraktijk.

Het project omvatte in totaal acht studies. In deel I en II van dit proefschrift worden studies naar observeerbare aspecten van begeleidingsgedrag van mentor teachers in begeleidingsgesprekken gerapporteerd en in deel III staan studies naar interactieve cognities van mentor teachers centraal.

Deel I: Rollen van mentor teachers

Gebaseerd op observeerbare aspecten van begeleidingsgedrag richtten de in deel I gerapporteerde studies zich op de ontwikkeling van een model om begeleidingsrollen van mentor teachers in begeleidingsgesprekken te identificeren en te analyseren.

Het doel van de literatuurstudie in *hoofdstuk 2* was om observeerbare aspecten van begeleidingsgedrag van mentor teachers in kaart te brengen als startpunt voor het ontwikkelen van een conceptueel model om begeleidingsrollen in begeleidingsgesprekken te beschrijven. Uit de analyse van de 26 geselecteerde empirische studies kwamen vijf veel bestudeerde observeerbare aspecten naar voren: de mate van *inbreng* van gespreksthema's en *sturing* door de mentor teacher, de *aard* van de besproken onderwerpen, de *faserings* van het gesprek en verschillende aspecten van *tijd*. Op basis van het aspect *inbreng*, geïndiceerd door de mate waarin de onderwerpen van het gesprek door de mentor teacher worden geïntroduceerd, en het aspect *sturing*, geïndiceerd door de mate waarin de mentor teacher gebruik maakt van (non-)directieve gespreksvaardigheden, werd een conceptueel model geconstrueerd met de naam MEntor teacher Roles In mentoring Dialogues (MERID). Het model onderscheidt vier basisrollen van een mentor teacher in een begeleidingsgesprek: initiator, imperator, advisor en encourager.

In de studie in *hoofdstuk 3* werd het MERID-model empirisch geëxploreerd op basis van 20 transcripties van authentieke begeleidingsgesprekken. In totaal werden 112 gespreksonderwerpen en 440 interventies van mentor teachers gecodeerd en geanalyseerd. De resultaten van een chi-kwadraat toets, een loglineaire analyse en een clusteranalyse lijken het MERID model empirisch te ondersteunen. Ook bleek dat de meeste mentor teachers in de steekproef de imperatorrol praktiseerden.

Deel II: Begeleidingsgedrag van mentor teachers

De in deel II gerapporteerde studies richtten zich op specifieke begeleidingsvaardigheden die mentor teachers gebruiken in begeleidingsgesprekken. Het gebruik van bepaalde typen vaardigheden geeft een indicatie van de mate van (non-)directiviteit van de mentor teacher in een begeleidingsgesprek. Het aspect directiviteit is in ons onderzoek gevisualiseerd als de horizontale as van het MERID-model. Het begeleidingsgedrag van de groep mentor teachers werd onderzocht vanuit twee perspectieven: dat van onafhankelijke observatoren en dat van leraren in opleiding, voor- en nadat mentor teachers getraind waren in begeleidingsvaardigheden.

De twee empirische studies in *hoofdstuk 4* onderzochten het gebruik van begeleidingsvaardigheden door mentor teachers vanuit het perspectief van onafhankelijke observatoren. Op basis van een pilot studie, gebaseerd op audio-opnamen van in totaal 24 begeleidingsgesprekken, kwamen vijf aanbevelingen met betrekking tot de gegevensverzameling in de hoofdstudie tot stand. De hoofdstudie bestond uit het analyseren van in totaal 60 video-opnamen van begeleidingsgesprekken; 30 voor- en 30 nadat de groep mentor teachers was getraind in begeleidingsvaardigheden. Met behulp van een categorieënsysteem van 15 onderscheiden begeleidingsvaardigheden codeerden drie onafhankelijke beoordelaars in totaal 2274 gespreksinterventies van de deelnemende groep mentor teachers. De gegevens uit de hoofdstudie duiden erop dat er na de training nauwelijks verandering optrad in de breedte van het repertoire van begeleidingsvaardigheden van de groep mentor teachers. Wel werden binnen het gebruikte repertoire statistisch significante verschuivingen geconstateerd in zowel de frequentie en de duur waarmee specifieke vaardigheden werden ingezet, alhoewel er op beide punten, zowel voor als na de training, ook sprake was van aanzienlijke individuele verschillen tussen de mentor teachers.

Het doel van de empirische studie in *hoofdstuk 5* was om percepties van leraren in opleiding met betrekking tot het gebruik van specifieke begeleidingsvaardigheden door mentor teachers te onderzoeken. Naar aanleiding van een voorafgaand begeleidingsgesprek werden met 30 leraren in opleiding 60 stimulated recall interviews gevoerd, 30 voor- en 30 nadat de mentor teachers getraind waren. In totaal werden 668 studentpercepties van specifieke begeleidingsvaardigheden gecodeerd.

De resultaten laten zien dat leraren in opleiding tijdens begeleidingsgesprekken 6 typen begeleidingsvaardigheden als *emotioneel ondersteunend* ervaren en 5 typen als *taakondersteunend*. Verschuivingen in frequenties van het gebruik van verschillende begeleidingsvaardigheden door mentor teachers, zoals waargenomen door onafhankelijke observatoren, corresponderen in grote mate met verschuivingen in frequenties van percepties van leraren in opleiding van afzonderlijke begeleidingsvaardigheden, in termen van emotioneel ondersteunend of taakondersteunend,

Deel III: Interactieve cognities van mentor teachers

In de studies gerapporteerd in deel III staat onderzoek naar interactieve cognities gekoppeld aan het gebruik van begeleidingsvaardigheden door mentor teachers centraal.

Het doel van de studie in *hoofdstuk 6* was om, zowel voor als na een training in begeleidingsvaardigheden, het *aantal* reflectieve momenten van mentor teachers te registreren, als indicator van verschillende niveaus van bewustzijn in het gebruik van begeleidingsvaardigheden. Van 30 mentor teachers werden twee begeleidingsgesprekken en twee daaraan gekoppelde stimulated recall interviews opgenomen en geanalyseerd, een voor- en een nadat ze getraind waren in begeleidingsvaardigheden. De stimulated recall techniek werd gecombineerd met een speciaal ontwikkeld drukknopapparaat. Aanvullend op de registratie *achteraf* via stimulated recall konden via de drukknop reflectieve momenten ook *tijdens* de begeleidingsgesprekken geregistreerd worden. Na de training in begeleidingsvaardigheden nam het aantal reflectieve momenten, gemeten met beide methoden, significant toe, alhoewel de methoden een verschillend aantal, en grotendeels op verschillende tijdstippen, reflectieve momenten registreerden. De resultaten suggereren dat het gebruik van begeleidingsvaardigheden door mentor teachers op verschillende niveaus van bewustzijn plaatsvindt, dat methoden die *tijdens* of *na* het handelen reflectieve momenten registreren elkaars zwakheden blootleggen, maar voor een deel ook compenseren.

De twee opvolgende studies in *hoofdstuk 7* hadden tot doel inhouden van interactieve cognities van mentor teachers tijdens begeleidingsgesprekken bloot te leggen. In beide studies werd gebruik gemaakt van

de stimulated recall interviews, voor- en nadat de mentor teachers getraind waren in begeleidingsvaardigheden. In de eerste studie, met acht mentor teachers, werd een instrument ontwikkeld om de inhouden van de interactieve cognities te categoriseren. Er werden vier inhoudscategorieën onderscheiden: het onderwerp van gesprek, het gebruik van specifieke begeleidingsvaardigheden, de rol van de mentor teacher en de strategie tijdens het gesprek. In de tweede studie, met 30 mentor teachers, werd dit instrument toegepast. Op basis van 60 stimulated recall interviews werden inhouden van 623 afzonderlijke interactieve cognities gecodeerd, zowel voor- als nadat de mentor teachers waren getraind in begeleidingsvaardigheden. Na de training vonden we een statistisch significante afname van inhouden in de categorie onderwerp van gesprek en een statistisch significante toename van inhouden in de categorieën gebruik van begeleidingsvaardigheden en de categorie strategie tijdens het gesprek. Dit wijst er op dat mentor teachers na een training in begeleidingsvaardigheden blijf geven van een toegenomen bewustzijn ten aanzien van hun persoonlijk gebruik van begeleidingsvaardigheden.

Theoretische en praktische implicaties

De studies in dit proefschrift vergroten het inzicht in het begeleidingsgedrag van mentor teachers tijdens begeleidingsgesprekken. Ons onderzoek heeft vier theoretische implicaties: een ordening van concepten die gebruikt worden om begeleidingsgedrag in begeleidingsgesprekken te beschrijven, een fijnmazige beschrijving van concreet begeleidingsgedrag van mentor teachers, het blootleggen van cognities die gerelateerd zijn aan het gebruik van begeleidingsvaardigheden en explicitering van de eerste fase in het verwerven van (nieuwe) begeleidingsvaardigheden na een training. De resultaten leveren eveneens praktische aanwijzingen op voor het verbeteren van scholing in begeleidingsvaardigheden: het gebruik van het MERID-model als instrument voor reflectie op begeleidingsgedrag, het belang van reflectie op cognities die gerelateerd zijn aan het gebruik van concrete begeleidingsvaardigheden tijdens oefening en training om het leerproces te versnellen en te verdiepen, de noodzaak van vaardigheidstraining om bij mentor teachers (initiële) ontwikkeling in het gebruik van begeleidingsvaardigheden te entameren en het belang van aanvullende begeleiding en scholing van mentor teachers om hun begeleidingsvaardigheden naar hogere vaardigheidsniveaus te brengen.

We hopen dat de resultaten van ons onderzoek bijdragen aan de kennis over het gebruik en het verwerven van begeleidingsvaardigheden door mentor teachers en uiteindelijk, via training en scholing, aan de verbreding en flexibilisering van het repertoire aan begeleidingsvaardigheden van mentor teachers. Het kunnen inspelen op verschillende begeleidingssituaties en individuele leerprocessen van aanstaande leraren in de educatieve context van een begeleidingsgesprek is immers een belangrijke voorwaarde voor het leren van leraren in opleiding op de werkplek.

Curricula Vitae

Frank Crasborn

After his pre-university secondary education, Frank Crasborn (1958) completed his Master degrees in Pedagogical and Educational sciences, with a minor in Musicology, at the Radboud University Nijmegen (1984). Between 1983 and 1985 he worked successively as a research assistant in the Department of Educational Psychology at Radboud University, and as a researcher and test designer for the (Dutch) Open University. Since 1985 he has worked at Fontys Secondary Teacher Training College Sittard as a teacher educator and educational consultant. In this position he has been involved in the development and implementation of full-time and part-time teacher education programmes, in school-based educational development projects, and in-service courses and supervision programmes for teachers in secondary, vocational, and adult education. As a quality manager and project leader, he also has been engaged in organising and implementing the national accreditation procedures for Fontys Secondary Teacher Training College Sittard.

Alongside his position as a teacher educator, Frank Crasborn has worked as a lecturer at the Bachelor and Master degree programmes of the Fontys School of Pedagogical Studies (1988-2007), as a guest lecturer at Fontys Teacher Training College for Special Educational Needs (1997-1999), and as an assistant professor at Maastricht University Law Faculty (1999-2001). In the course of his career he has specialised in post-graduate in-service courses on school organisation development (IMTEC, Oslo), cooperative learning didactics (Georgian College, Ontario), practice-based teacher education, and supervision of teachers (Utrecht University). Since 2004 he has been enrolled in the Dutch National Register of Teacher Educators.

From 1996, Frank Crasborn has been actively involved in the development and implementation of training programmes for teacher educators and mentor teachers in primary and secondary education. The research based on this work led to several publications in international academic journals. For one of these publications Crasborn and his co-authors were awarded the *2009 Award for Distinguished Research in Teacher Education* by the American Association of Teacher Educators (ATE). In 2009 Frank Crasborn also received a *Dutch Royal Honour* for his many contributions to the development of the outstanding tradition in symphonic wind music in his place of birth, Thorn (NL).

Paul Hennissen

(Peter) Paul Hennissen (1958) graduated as primary education teacher and as secondary education teacher in history, economics, pedagogical and social studies. In 1987 he completed his Master degree in Education Science at Utrecht University. He has specialised further by taking post-graduate courses in school organisation development (IMTEC, Oslo), cooperative learning didactics (Georgian College, Ontario), practice-based teacher education and supervision of teachers (Utrecht University), and assessment training (STOAS). Since 2003 he has been enrolled in the Dutch National Register of Teacher Educators.


After his military service he taught, from 1979 till 1986, in a secondary vocational school in Heerlen, where he was also responsible for remedial teaching. From 1986 he has been working at Fontys Secondary Teaching Training College Sittard as a teacher educator specialised in education science and economic science teaching skill, as a lecturer in psychology at Fontys School of Pedagogical Studies (1987-1989), and as lecturer in economics at Fontys Secondary Teaching Training College Tilburg (1994-1996).

As a educational consultant he has worked in many schools in the southern part of the Netherlands and was involved as an assessor for the Dutch Association of Teacher Trainers (VELON). As a project leader he was responsible for various practice-based and competence-based training innovation projects at Fontys Teacher Training College Sittard and within Fontys University. In 2006, he was one of the authors of the *National Governance Charter* for teacher training colleges, *Kwaliteit maakt Keuzes*. Furthermore, from 1998 till 2004 he was chairman of the central representative advisory council of the non-denominational primary education schools in Weert (NL).

From 1996, Paul Hennissen has been actively involved in the development and implementation of training programmes for teacher educators and mentor teachers in primary and secondary education. The research based on this work led to several publications in international academic journals. For one of these publications the American Association of Teacher Educators (ATE) awarded Paul Hennissen and his co-authors the 2009 Award for Distinguished Research in Teacher Education.

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In schools all over the world experienced teachers are involved in the mentoring of student and beginning teachers. Most of these mentor teachers do this work alongside their main task as a teacher of pupils. There is no single approach to mentoring that will work in the same way for every student or beginning teacher. The ability of mentor teachers to regularly vary their mentoring approaches and to choose appropriate supervisory skills continually and actively during mentoring dialogues is crucial for the learning of student teachers.

To support mentor teachers in their important work, teacher education institutes, often in cooperation with schools, provide training programmes aiming at broadening mentor teachers' repertoires of supervisory skills. For Frank Crasborn and Paul Hennissen their extensive experience as teacher educators and trainers of mentor teachers was the inspiration to set up a research project that sparked off 8 studies.

Based on observations of 104 authentic mentoring dialogues and 120 stimulated-recall interviews with mentor teachers and student teachers, behavioural and cognitive aspects of mentor teachers' use and acquisition of supervisory skills were investigated. As a whole, the research project resulted in:

- An improved conceptual order in terminology used to describe supervisory behaviour
- A fine-grained portrayal of crucial supervisory skills in mentoring dialogues
- Disclosure of cognitions accompanying mentor teachers' use of supervisory skills
- Clarification of the initial stage in acquiring new supervisory skills
- Instruments for reflection on mentor teachers' supervisory behaviour
- Guidelines for improving training programmes for mentor teachers.

The studies constituting the research project reported in this book have also been published separately in international academic journals. For one of these publications, the *American Association of Teacher Educators (ATE)* awarded the authors with the *2009 Award for Distinguished Research in Teacher Education*.