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General Introduction

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General Introduction

Over the years there has been a significant social and political debate about the content and process of teacher education. In this debate the relation between theory and practice, and the role and nature of needed knowledge (academic and/or practical) have been recurring themes. Depending on the emphasis on one or the other, teacher education became organised, and ideas on by whom and the way in which new teachers should be educated changed over the years (Cochran-Smith, 2005; Menter, Hulme, Elliot, & Lewin, 2010).

In 1965 Goodlad (p. 263), advocated “professional laboratory experiences for student teachers [...] to achieve: the development of teaching techniques [...] and the understanding of principles of education upon which practice should be based.” Since student teachers’ learning in practice became increasingly important, the attention paid to mentors¹ also grew. New programs for preparing mentors emerged (e.g., Hobson, Ashby, Malderez, & Tomlinson, 2009; Howey, 1988, Vonk, 1993) and, next to ‘scientific understanding’ of teaching and learning, teachers’ practical knowledge became more important (Cochran-Smith & Lytle, 1990; Korthagen & Kessels, 1999).

The work of the Holmes group on professional development schools in the United States (Holmes Group, 1990) and, for instance, the work on the Oxford Internship Scheme in the UK (Benton, 1990) were inspiring attempts to enhance practical experiences in teacher education by putting into practice teacher education in both schools and universities. Furthermore, based on these developments in Dutch

teacher education, the attention for student teachers' and mentors' practice grew (see, for instance, Corporaal, 1988; De Jong, 1982; Hulshof & Verloop, 1994; Koetsier & Wubbels, 1995).

As a result, partnerships between schools and universities, based on shared responsibilities for student teachers' education, gradually started to come up. The importance of the practicum became more emphasised and the role of mentors at school as well as their activities while guiding student teachers slowly changed. As the embodiment of practical teaching knowledge, cooperating teachers² could become important sources for student teachers in need of developing their practical knowledge; knowledge on how to act and think as a teacher while learning and working in real practice. In order to realise this opportunity for student teachers, a pedagogy is needed for cooperating teachers, helping them to share their practical knowledge with student teachers who are learning teaching at school. The main aim of this study is to contribute to the development of a pedagogy of work-based teacher education by exploring *how cooperating teachers at school (can) guide student teachers' learning teaching and share their practical knowledge with them*. This qualitative study was executed at four schools, which were partners in a school-university partnership with both a research-based university and a university of applied sciences.

The need of a pedagogy in work-based teacher education

Until the end of the 19th century, experienced teachers, at least in the Netherlands, have been responsible for the education of novice teachers at schools (Swennen, 2012). In the late eighties of that century, however, a more theoretical preparation for teachers organised in special institutions began to develop. This development emanated from the wish to improve the quality of teachers and teaching, and to enhance the role of academic insights in teacher preparation. Halfway through the 20th century though, almost all over the (Anglo-American) world large amounts of dissatisfaction rose with the theoretical focus in teacher education. Problems related to the curricula in teacher education institutes (TEIs³) were, among other things, defined in terms of the absence of a relationship between educational content and used

teaching methods, inconsistencies in coaching, inadequate communication between teacher education institutes and schools, and a lack of relevance of teacher education for everyday teaching; the so-called gap between theory and practice (e.g., Bullough & Gitlin, 2010; Down, Hogan, & Madigan, 1995; Heitzmann & Messner, 2001; Zeichner, 1990).

One of the answers to the shortcomings mentioned was found in growing partnerships between schools and universities or teacher education institutes (see, for instance, Edwards, Tsui, & Stimpson, 2009; Korthagen, Loughran, & Russell, 2006; Verloop & Wubbels, 2000; White, Bloomfield, & Le Cornu, 2010; Zeichner, 1990). Although this development also was contested, especially in relation to the reducing the role of teacher education institutes and its consequences for the attention to educational theory and subject knowledge (e.g., Edwards, 2001; Furlong et al., 1996; Koster, Korthagen, & Wubbels, 1998). By organising teacher education in the form of partnerships, teacher education institutes forfeited their monopoly on teacher education in favour of the school (Coonen, 2005 in Verloop & Kessels, 2006) and schools had to take responsibility for the education and assessment of prospective teachers next to educating pupils. Although the role of cooperating teachers acting as educators of student teachers was still contested because of their (assumed) lack of substantial knowledge (see, for instance, Verloop, 1989), school internships became more and more acknowledged as an opportunity for student teachers to come into touch with the practical knowledge of experienced teachers under conditions in which this practical knowledge could be made explicit (Verloop, 1991) and shared with their student teachers (Thiessen, 2000). As a result, schools – being the workplace of teachers – became learning environments for students who became teachers by being a teacher (Klarus, 2003) and schoolteachers, again, got an important role in educating teachers, not only in primary but also in secondary and vocational education.

Instead of learning *to teach* Lampert (2010) prefers “learning *teaching*” because “the infinite form can suggest that the action is to occur in the future, after something is learned while the form *teaching* allows us to hold out the possibility that learning also occurs while doing the work” (p. 21, italics in original). Teaching, however, is far too

complex a profession for learning just by doing, and learning teaching demands pedagogical interventions (guidance) in the workplace or in its direct proximity: a pedagogy of work-based teacher education (PWBTE). Such guidance should go beyond providing experiences, and, by observing student teachers' teaching instead, helps them to reflect on their experiences and should aim at the formalisation of learning at work. Formalisation meaning here that learning is no longer seen as a by-product of work, but as an intentional process aimed at building capacities essential to engage in practice and the development of specific forms of knowledge required for particular practice settings (e.g., Billet, 2011a). This formalisation is the key stone of work-based teacher education in which learning and working can become integrated (Onstenk, 2001) – one of the aims of school-university partnerships.

Based on Billett (2001a) we distinguished three elements that realise a PWBTE. The first element is what he called, the *affordance* or invitational quality of the workplace. The extent to which student teachers have access to workplace activities and guidance provided. The second is *agency*, which is related to how student teachers elect to engage in workplace activities and use the guidance that is afforded by the workplace. The third element is the intentional *structuring* of practice and the provision of *guidance* aimed at developing vocational expertise.

Timmermans (2012) studied the affordance of partner schools and the agency of student teachers in those partner schools⁴ in a school-university partnership in primary education. In the present study the emphasis is on the third element: the structuring of practice and the guidance provided by cooperating teachers. Following Billett (2002a) we argue that this guidance must be aimed at (a) developing the competences related to acting and thinking as a teacher and (b) extending student teachers' knowledge, making it useful in novel tasks and different circumstances. Furthermore, these pedagogical practices of structuring and guidance should be enacted synchronously, provided they are enacted in a balanced way as part of everyday work activities.

Changing roles of schools and cooperating teachers in teacher education

Also discussed, adopted and adapted in the Netherlands were ideas on how teacher education could be organised and enacted⁵ in school-university partnerships (Korthagen, et al., 2006; Snoek & Wielenga, 2001; Swennen, 1995; Verloop & Wubbels, 2000; Verloop & Kessels, 2006; Vonk, 1993). In addition to these scientific contributions, the Dutch government also advocated and subsidised the development of partnerships (for an overview, see Education Inspectorate & NVAO, 2007).

Schools became more and more responsible for student teachers' learning and assessment and, since 2002, educating student teachers within partnerships has become one of the avenues in teacher education. This avenue in the Netherlands is called 'opleiden in de school' and school-university partnerships are 'Opleidingscholen' whereas schools for primary or secondary education are named partner schools⁶.

Support at school: teachers becoming teacher educators. The extended responsibility for student teachers' learning teaching obliged schools to set up supportive systems and to pay attention to the professional development of cooperating teachers (De Groot, 2008). Next to being a schoolteacher for pupils these cooperating teachers had to become teachers of teachers, hence teacher educators (e.g., Edwards, 2001; Furlong, Barton, Miles, Whiting & Whitty, 2000; Yau, 1995). To distinguish school-based teacher educators from regular institute-based teacher educators (IBTEs) working at a TEI, Murray (2000) characterised them as second order teachers (teachers of (student) teachers) working in a first order context (in this case a school for secondary education) instead of the second order context of a teacher education institute (and part of higher education).

Over the years in partnership schools, some teachers developed themselves into 'school-based teacher educators' (SBTEs). SBTEs are responsible for both the professional development of student teachers at school and of the school staff (teachers, student teachers' mentors

and supervising coaches). SBTEs are the linking pin with the teacher education institute and are now acknowledged both by the Dutch government and the professional group as 'teacher educators'.

Like in traditional practicum arrangements, subject teachers in partner schools support student teachers on a daily basis. In this study they are named 'mentors'. Their role as teacher educator is still disputed and less obvious, and their education lagged behind, compared to school-based teacher educators (Van Neygen & Belmans, 2011; Van Velzen, 2012).

Workplace learning, a 'new' practicum. In school-university partnerships supportive activities at school are meant to contribute to the improvement of the school practicum (which more and more frequently became indicated as 'workplace learning'). The practicum always had been a place where pedagogical skills and transmission of subject matter could be practised with a focus on immediate practical use (Gardner et al., 2005), an approach based on the traditional application-of-theory model. Now the practicum had to be developed into an authentic learning environment for student teachers situated in the workplace (Timmermans, 2012), an environment in which learning and working were integrated (Onstenk, 2001) and student teachers could participate in all activities related to teaching (Ten Dam & Blom, 2006). To denote teacher education enacted in schools we prefer the term 'work-based teacher education' (Streumer & Kho, 2006) instead of the conventional term 'school-based teacher education' that refers to taking practical problems as guiding principle in curriculum development in teacher education as such (Van Velzen, Bezinna, & Lorist, 2009)⁷. Therefore, we prefer 'work-based learning' instead of workplace learning for student teachers' learning processes at school.

Since 1970 (Metzner, 1970) an abundance of international literature on school-university partnerships from all kinds of perspectives concerning the advantages and challenges, as well as the tensions and dilemmas associated with the role of schools and teachers in educating a new educational workforce can be found. In the Dutch context, the amount of research on school-based teacher education, the way it is enacted and the way guidance is provided, is slowly growing. Examples of Dutch research are the work of Buitink (2009), Crasborn

and Hennissen (2010), Geerdink and van Uum (2009, 2011), Geldens (2007), Maandag, Deinum, Hofman, and Buitink (2007), Teune (2004), Van de Ven and Oolbekkink, (2008) along with, most recently, the work of Akkerman, Bruining, and Van den Eijnden (2012), Timmermans (2012) and, Vrijnsen-de Corte (2012).

The assessment of partnerships by the NVAO revealed that the legally required 'shared curriculum' in almost all partnerships was firmly rooted in the institutes' curricula with little attention for learning opportunities at the schools (Van Neygen & Belmans, 2011). Attention for the development of practical knowledge received little emphasis and connecting theory and practice did not seem to be a real concern (e.g., De Jong, Ledoux, Emmelot, & Roeleveld, 2009; Krol & Geijsel, 2008). Based on this, we may cautiously conclude that hardly any specific work-based curricula were developed and that the attention for the affordance of partner schools, other than through pedagogical activities known from the traditional practicum guidance, is rather scarce (Timmermans, 2012).

Consequently, we asked whether and how cooperating teachers, were able and willing to provide the guidance required. Guidance that is aimed at sharing practical knowledge in order to support student teachers' acting and thinking as a teacher and to extend their knowledge in view of novel tasks and other circumstances. Insights into this guidance is seen as a contribution to the development of a PWBTE and knowledge is needed on by which activities and under what conditions such guidance is and can be realised.

Guided structured practice at school. Next to the unguided participation of student teachers in partner schools, three⁸ different types of guided, structured practice can be distinguished:

- A. Sessions modelled on the institutional curriculum, enacted by SBTEs (and institute-based teacher educators (IBTEs) placed at school) including special assignments aimed at learning while working as a teacher.
- B. Teaching pupils while being supervised by a mentor through observation and lesson-based conversations. Other activities not directly related to teaching pupils, as attending staff meetings,

meetings with other professionals in school, talks with parents, supervised by a mentor.

C. Individual and group reflective conversations with the SBTE.

In this research project we focus on two types of guidance: guidance during sessions situated at school, near actual practice (mentioned as A) and during actual teaching practice (mentioned as an aspect of B). Guidance by reflective conversations (C), which also forms an important key stone in work-based learning, is studied rather intensively by, for instance, Crasborn and Hennissen (2010).

We selected partner schools as the context for this study because we assumed that in schools involved in school-university partnerships the affordance and hence the access of student teachers to school activities and guidance provided will be better realised than in other schools. Important conditions that contribute to this affordance are (a) the shared responsibility for the education of student teachers and (b) the related changes in the school organisation (setting up a supportive system for teacher learning) and the professional development of educated SBTEs and mentors (Education Inspectorate & NVAO, 2007). The perceived and shared responsibility is seen as a prerequisite for the participation of student teachers in all aspects of teaching. The supportive system realises guidance on all these aspects. The professional development of cooperating teachers can guarantee SBTEs and mentors are willing and able to develop and provide the guidance required.

Theoretical framework

This study on teacher education is situated in schools that have taken a responsibility for educating student teachers. Work-based teacher education asks for a re-conceptualisation of teacher education and in particular attention for the activities of experienced practitioners as teacher educators is needed.

Key concepts

In addition to realising opportunities to participate in actual practice, mentors and SBTEs provide guidance in actual practice that we consider a contribution to a PWBTE. This guidance must intentionally be based on realising opportunities to share practical teaching knowledge with student teachers. Sharing as a means of making visible teaching behaviour and the related thinking refers to both distributing practical knowledge among each other as well as experiencing practical knowledge together (Merriam-Webster Dictionary, 2012). This means guidance is provided both by talking about teaching in lesson-based conversations as well as during actual enactment of teaching, and results in shared knowledge developed in situated, reciprocal inter-relations between mentors and student teachers (Glazer & Hannafin, 2006; Leinonen & Bluemink, 2008).

Mentoring is a well-known way of providing guidance. Being mentored can be seen as a learning process at or near the workplace (Eraut, 2011) and as a means of encountering practical knowledge by student teachers. Methods mentors can use to show and discuss teaching performance and the pedagogical reasoning behind this performance are *modelling* and *scaffolding* (e.g., Billett, 2002b; Collins, 2006; Loughran, 2006). Modelling – critically discussing teaching and the related pedagogical thinking – and scaffolding – supporting teaching while teaching – are seen as tools mediating the practical knowledge of the mentor as an experienced teacher and the knowledge the student teachers have to develop.

Guidance should also be aimed at extending student teachers' knowledge by helping them to reflect on their experiences from the perspective of new tasks and/or different circumstances. In order to realise this, the nature of actual workplace practices and the different forms of knowledge involved must be taken into account (e.g., Guile & Young, 1998). Hence, in sessions as enacted by SBTEs at school, instruction must be combined with activities that make deliberate use of the social and physical school context to overcome the de-contextualised character of institutional teaching. Pertaining to the complexity of learning teaching and the complexity of the school as a workplace, the

cognitive apprenticeship model (CAM) by Collins, Brown, and Newman (1989) – a model of instruction that aims at making thinking visible (Collins, Brown, & Holum, 1991) – can function as a global, heuristic framework for considering which aspects should become part of this instruction aimed at developing knowledge and shared understanding of teaching (e.g., Seezink & Van der Sanden, 2005; Van der Klink, 2004; Wilson, Jonassen, & Cole, 1993).

Perspectives on student teachers' work-based learning and guidance needed

A PWBTE must be related to learning teaching in practice itself. This learning process at the workplace is seen as a powerful component in teacher education (Wilson, Floden, & Ferrini-Mundy, 2002) although it is also contested. Most studies on workplace learning are performed in other domains (such as adult education, human resource development and business and management studies) and usually address the ongoing (professional) development of workers who have finished their initial education (see, for instance, Billett, 2001b; Eraut, 2007; Hodkinson & Hodkinson, 2005; Retallick, 1999) instead of novices entering a profession before the end of their formal education. An example of research on novices entering a profession is the work of Bleakly (2002). In this study on pre-registration house officers (PRHO) – prospective doctors in their preparative year at a hospital before subsequent specialisation – Bleakly contested the idea that PRHOs' learning could be completely explained by psychological models of knowledge and skill transmission from one individual to another. This year of 'ward-based learning' is seen instead as constituting an apprenticeship into professional roles and framing learning as a cultural act of participation, and knowledge and skills are seen as distributed within a working group and framing work-based learning (Bleakly, 2002, p. 10).

Based on constructivist and socio-cultural perspectives, the learning processes of student teachers at schools are also seen as anchored in guided participation in communities of practice (e.g., Barab & Duffy, 2000; Lave, 1996; Lave & Wenger, 1991/2002; Simons & Bolhuis, 2004; Ten Dam & Blom, 2006). As emphasised by Edwards (2005), participa-

tion is more than merely looking at behaviour of experienced teachers and how it is shaped by context. Instead it is about the constant situated (re)negotiating of meanings: the circulation of 'knowledgeability'. Meanings (such as, for instance, the interpretation of class events) is hence not defined by the cooperating teacher nor by the student teacher but participation and negotiation leads to shared definitions and understanding. This negotiation contributes toward a transformation of ideas and behaviours of student teachers resulting in an increased understanding of context and its demands (Edwards, Gilroy, & Hartley, 2002; Guile & Young 1998) with changing participation as a result (e.g., Billett, 2001b; Edwards, 2005; Lave & Wenger, 1991/2002).

Opportunities for learning teaching are provided when student teachers can participate in practice in a way that can be described as legitimate peripheral participation (Lave & Wenger, 1991; Edwards, et al., 2002). To realise legitimacy, student teachers have to be considered colleagues, and not merely 'guests' (Ragonis & Hazzan, 2009). Peripheral participation can be realised by pedagogical guidance at the workplace or in its direct proximity by experienced members of the community (Billett, 2006a; Fuller et al., 2005; Guile & Young, 2003; Roth & Tobin, 2002).

As in the case of the PHROs, the idea of learning as legitimate peripheral participation is connected to the notion of 'modern apprenticeship' (Guile & Young, 1998). Apprenticeship here is seen as a pedagogical metaphor for professional preparation that enables the student teacher "to acquire the knowledge and skill, both conceptual and practical, which the community of practitioners has built up over time" (Sullivan, 2004, p 7).

To sum up, a contribution to a pedagogy of work-based teacher education must include:

1. opportunities for student teachers to participate in real practice in a legitimate and peripheral way, and;
2. guidance, near and at work, aimed at:
 - a. coming into contact with teaching knowledge and skill built up over time (practical knowledge), and;
 - b. broadening the knowledge of student teachers aimed at re-thinking its use in novel tasks and new circumstances.

Guidance near the workplace. The complexity of teaching and the knowledge and skills required demand for instruction in addition to opportunities to participate in real practice. Meaningful learning based on this instruction must, however, be embedded in the social and physical context in which the knowledge and skills must be used. Important characteristics of such situated learning environments, next to providing an authentic context and activities are (amongst others) the access to the expertise of experienced practitioners by modelling and scaffolding, and opportunities for collaborative knowledge construction (e.g., Herrington, 2006).

According to, for instance, Van der Klink (2004) the Cognitive Apprentice Model (CAM) by Collins et al. (1989) can be a helpful heuristic tool to design an authentic learning environment based on student teachers' activities aimed at providing insight in performing teaching tasks and the pedagogical thinking related to teaching. As such CAM may function as a contribution to the pedagogy needed. The model connects academic and vocational education and its aim is to initiate the novice into a community of practice (Collins et al., 1989). CAM pays attention to both conceptual and factual knowledge and practical (or heuristic) knowledge related to *teaching*. Furthermore, important aspects of *learning* should be noticed. These aspects are not only related to individual learning, but should also focus on social processes, relationships and resources at the workplace that can support learning.

A variety of methods directed at ways to promote the development of expertise, such as modelling and scaffolding, can be used by the teacher educator. Moreover, methods are aimed to encourage student teachers to think beyond the immediate circumstances (Billett, 2006b; Guile & Young, 1998). Reflective practices, questioning dialogues and group interactions are helpful to extend the knowledge of student teachers and help them to rethink the scope and limits of their existing knowledge related to acting on new tasks and/or circumstances (Billett, 2001a).

Guidance during actual teaching. During actual teaching, student teachers participate in the social and physical context of the school and are hence provided with an authentic learning environment and

authentic tasks. *Mentoring* is a well-known way through which the guidance of newcomers is organised at schools.

Different perspectives on learning, however, lead to different perspectives on mentoring activities and the related objectives. Wang and Odell (2002, p. 492), in their review of mentored learning teaching, distinguished three such perspectives: (a) humanistic, (b) situated apprentice, and (c) critical constructivist. The humanistic assumption (a) emphasises the importance of emotional support and the development of self-esteem by student teachers. This kind of support is very important for student teachers because it helps them to emotionally adjust to teaching and solves their personal problems, but research also showed that student teachers did not learn how to improve their teaching or how to critically examine their own practice. It was suggested that mentors, prepared for this role, lacked expertise in the kind of learning needed or were unable (or unwilling) to make their expertise accessible to novices (Wang & Odell, 2006, p. 493). Therefore, this mentoring approach does not contribute to the opportunities for student teachers to encounter practical teaching knowledge.

The critical constructivist approach (c) is based on the dissatisfaction with existing teacher knowledge, school culture and teaching practice. Mentoring activities should be focused on critiquing existing knowledge and practice and on developing a strong commitment toward dispositions. Engaging student teachers together with their mentors in inquiry about teaching, aimed at learning skills and constructing knowledge that is new for both the mentor and the student teacher, lies at the heart of this mentoring approach (Wang & Odell, 2002, pp. 497-498). The development of teacher research in collaboration with student teachers, such as now developed in, for instance, Dutch 'Academische Opleidingscholen' is grounded in this idea. The work by, for instance, Hiebert and Morris (2012) on lesson study provide an inspiring example of this approach.

The situated apprentice perspective in mentoring (b) is built on the assumption that student teachers' problems are related to "their lack of practical knowledge, including the contextualized and event-structured knowledge about classroom instruction that marks the important qualitative differences between novice and expert

teachers” (Wang & Odell, 2002, pp. 495-496). Mentor activities should be aimed at ‘offering practical teaching knowledge, demonstrate and model teaching, provide advice and suggestions. Mentors should also know how to fade as student teachers can and want to function independently as teachers’ (Wang & Odell, 2002, pp. 495-496). We choose for this approach because before student teachers can start with constructing new knowledge based on practical inquiries, they must get to know (although in a critical way) the knowledge base, existing within the profession. Furthermore, this situated apprentice perspective on mentoring activity at the workplace is in line with the situated cognition approach and fits in with the CAM that we considered a helpful tool in designing guidance near the workplace, as well as a contribution to the pedagogy required.

Guidance aimed at sharing practical knowledge. The by Wang and Odell (2002) mentioned ‘offering practical knowledge’ cannot simply be performed by ‘telling teaching’, but must be based on interrogation and sharing in an active interaction between teachers and student teachers (e.g., Martin & Russell, 2009). This ‘sharing practical knowledge’ is considered to be an important tool in supporting student teachers’ learning in a work-based context (e.g., Hagger & MacIntyre, 2006). *Practical knowledge* – teaching knowledge in use – is situated in the context of making pedagogical decisions based on the teacher’s definition of the situation at hand (Cochran-Smith & Lytle, 1999; Gholami & Husu, 2010). Practical knowledge is firmly linked with teaching practice, includes all domains of professional insights relevant to teaching, and is organised in intertwined and interconnected ways related to teaching problems (e.g., Hiebert, Gallimore, & Stigler, 2002; Verloop, Van Driel, & Meijer, 2001).

Although mentoring activities can help student teachers to practice, understand, and discuss teaching alongside experienced practitioners (Loughran, 2006), these activities are not always aimed toward knowledge construction with student teachers or developing shared conceptions of knowledge in use (Wang & Odell, 2002). Besides, the nature of practical knowledge, being partly tacit and implicit, makes it hard for mentors to make their knowledge explicit and share it

with student teachers (Billett, 2006a; Edwards & Protheroe, 2003; Loughran, 2006). The work of Hagger and McIntyre (2006); Meijer et al., (2002); Zanting (2001) and Zanting et al., (1998, 2003) made clear that empowering student teachers to 'mine their mentors' mind' is not enough. Mentors must be provided with special tools that help them to share their knowledge with student teachers.

As mentioned before, these tools can be derived from the cognitive apprenticeship model (CAM) adapted with insights from studies in teacher education and workplace learning on mentoring. In this study we suggest *modelling* and *scaffolding* as means for intentional workplace learning strategies in guided workplace learning (e.g., Billett, 2002b), in particular when aimed at sharing practical knowledge as support for student teachers' growing participation and the development of their vocational expertise.

Modelling – showing experienced teaching behaviour followed by critical discussion of shared experiences (Loughran, 2006) – can be considered a form of conscious deliberation of practice that is at the heart of professional work (Eraut, 1994). As such, mentors, student teachers and SBTEs can become involved in a kind of reflective practice in which student teachers become increasingly competent and learn how to develop the habit of evaluating their own teaching against a wide range of criteria and to draw from a wide range of knowledge (Hagger & McIntyre, 2006, pp. 169-170), one of the aspects of the needed pedagogy.

Research on (explicit or cognitive) modelling which goes beyond simple showing of teaching (simple modelling) has been mostly executed with institute-based teacher educators (e.g., Lunenberg & Korthagen, 2003; Lunenberg, Korthagen, & Swennen, 2007; White, 2011). This modelling, however, takes place in the teacher education institute, a 'second order' context (Murray, 2000). In this context, modelling is restricted to discussions and reflections on teaching, based on approximations of actual classroom teaching, and modelling practical knowledge is therefore difficult (Boyd & Harris, 2010). Actual teaching practice and the related lesson-based conversations at the school provide a first order context in which the activity of mentors aimed at modelling of practical teaching knowledge – by showing and

critically discussing teacher behaviour and teacher thinking – can contribute to a PWBTE.

While teaching subject matter to pupils in real classrooms, student teachers are confronted with important teaching characteristics such as the lack of (total) control, which for instance expresses itself in the ever-present difference between the planned and the enacted lesson (Tobin & Roth, 2006, p. 55). Without effective assistance, student teachers' experiences often leave them behind confused, rather than helping them to learn teaching (Hagger & McIntyre, 2006, p. 52). Legitimate peripheral participation realises an approximation of real practice, providing opportunities to get involved in teaching, helping student teachers to derive meaning on what it is to be a teacher from the inside out (Wilson & Madser Myers, 2000). Co-teaching, based on role division (being more or less peripheral) by mentors and student teachers can support student teachers' interpretations and responses (Edwards, et al., 2002; Hobson et al., 2007; Tobin & Roth, 2006; Eick, Ware, & Williams, 2003; Eick & Diaz, 2005). This guidance offered by mentors while the student teacher is actually teaching is specifically aimed at difficult aspects of their task and in CAM it is named '*scaffolding*' (Collins, 2006). This guidance is given by mentors while the student teacher is actually teaching and the guidance should be adapted to the learning needs of the student teacher (Van de Pol, 2012). It provides student teachers with opportunities to immediately gain the practical knowledge of these mentors. Hence, this guidance helps student teachers to act not only in ways they have already mastered, but also on a proximal level they are not yet able to reach on their own (Warford, 2011; Wood, Bruner, & Ross, 1976) and, in this study, guidance is seen as an additional mentoring tool in guided work-based learning alongside modelling.

The present study

We know that much of what student teachers have to learn can only be learned in practice. However, despite a lively discussion on the benefits of partnerships in teacher education, we do not really know whether and how cooperating teachers in partner schools share their knowledge with student teachers. Student teachers need opportunities to develop practical teaching knowledge, knowledge embedded in practice that, as Cochran-Smith and Lytle (1999, p. 250) stated, is "the most essential knowledge for teaching." School is the place where student teachers can find and develop practical knowledge (Feiman-Nemser, 2001). Sharing practical knowledge is, however, not obvious and intentional pedagogical activities by cooperating teachers, a PWBTE, is needed.

The work of Timmermans (2012) revealed that mentoring practices in partner schools (as an important aspect of school's affordance) were not very different from the traditional ones. In her study this affordance is seen as opportunities for student teachers to participate in all aspects of actual teaching practice. However, how and which guidance is provided during this participation, also an important aspect of a PWBTE (Billett, 2002a), was not studied.

This study is meant to contribute to the knowledge needed to the (further) development of a PWBTE and the conditions under which it can be realised, with an emphasis on guidance aimed at sharing practical knowledge. As such, the study is part of the epistemological debate about teacher education. Epistemological in the sense that it is about the changing conceptions and underlying assumptions in teacher education and the role and nature of knowledge (academic and/or practical) related to the teaching profession. A debate that can be recognised in the debate on school-based teacher education and the consequences for a work-based PWBTE (e.g., Stuart & Tatto, 2000). To contribute to such pedagogy the knowledge base of teacher education in this study will be broadened by implementing insights from the domain of workplace learning (Hodkinson & Hodkinson, 2005). The research further builds on earlier studies on eliciting the practical teaching knowledge of mentors (as Hagger & McIntyre, 2006; Meijer, Zanting, & Verloop,

2002; Zanting, 2001; Zanting, Verloop, & Vermunt, 2003; Zanting, Verloop, Vermunt, & Van Driel, 1998). In the present study knowledge on sharing practical knowledge will be expanded because of its focus on the activities of the cooperating teachers, instead of those of the student teachers.

The development of the traditional practicum into opportunities for work-based learning necessitates guided learning activities which are seen as 'pathways of participation in social practice' (Billett, 2011b). The structuring of practice and guidance provided by cooperating teachers near the workplace and during actual teaching is seen as aspects of a PWBTE. Based on the outlined insights, guidance can be developed, enacted and evaluated within structured practice.

The main question of the present study is: *Whether and how guidance aimed at sharing practical knowledge is and can be realised (a) near the workplace during formal sessions at school enacted by school-based teacher educators and (b) in mentoring activities related to actual teaching practice through modelling and scaffolding.*

Outline of the study

The study was performed in two parts. The first part (Chapter 2 in this thesis) is about guidance near practice, during sessions enacted by SBTEs. The second part (Chapters 3, 4 and 5) is about guidance in actual practice through a mentoring approach developed by the researcher. Chapter 1 is the general introduction to the empirical part, and in Chapter 6 conclusions are drawn and discussed. Furthermore, the scientific and practical implications are presented.

The first part of the study. We looked into ways schoolteachers fulfil their role as teacher educators in sessions near actual practice. These sessions were especially interesting because, while enacted at school, the themes taught were no longer part of the institutional curriculum. Thus the monopoly of the university was actually forfeited in favour of the school, and we investigated whether guidance provided contributed to realising an authentic learning environment near practice, one of the affordances of school and an aspect of a work-based PWBTE.

Next to this aim, we were interested in ways SBTEs established sharing practical knowledge and widened student teachers' teaching knowledge, a second aspect of a PWBTE.

In two schools, four sessions enacted by four SBTEs were followed, particularly on whether and how the teaching knowledge of the SBTEs was reflected in these sessions. The cognitive apprenticeship model of Collins et al. (1989) provided a heuristic framework for analysing these sessions (Van der Klink, 2004). The original CAM was extended by Seezink and Van der Sanden (2005), and further specified with insights into teacher education and learning in the workplace in this study. This extended CAM was used as a framework for describing the way the school-based teacher educators give shape to guidance during the sessions. In CAM 'practical knowledge' is an important content to share next to other knowledge components, and modelling and scaffolding are key methods, as is reflection. Reflection here is related to the support student teachers need to develop the capacity to think beyond their immediate situation and understand why and how it is necessary to generate new knowledge (e.g., Guile, 2003; Kelchtermans, 2001). Both this content as this kind of reflection we consider an important aspect of a PWBTE. Furthermore, the social context and the sequence of learning activities are important features.

The leading question in this study is *How do school-based teacher educators shape their guidance in institute-based sessions enacted at school?* This guidance was analysed with the help of the CAM categories. The study will be presented in **Chapter 2**.

The second part of the study. This part consists of three studies, all related to the guidance of student teachers provided by mentors and school-based teacher educators in actual daily practice. In order to realise opportunities for sharing practical knowledge, which is not obvious in the case of mentoring, the researcher developed a mentoring approach that was enacted and evaluated by teams of mentors, student teachers and SBTEs. This collaborative mentoring approach is based on the collaborative apprenticeship model of Glazer and Hannafin (2006).

The collaborative mentoring approach is built on cycles of collaborative lesson preparation, lesson enactment (by the mentor, co-teach-

ing by the student teacher) and lesson evaluation. Important ways of sharing are modelling and scaffolding practical knowledge in lesson-based conversations and in (co-)taught lessons. Showing teaching behaviour (during the first and second lesson) that can be observed by the student teacher is part of modelling. Observing student teachers' teaching by the mentor teacher during co-teaching and the third lesson functions as a means of diagnosing student teachers' teaching.

This developed collaborative mentoring approach can be seen as an elaboration of the aspect of a PWBTE related to an intentionally structured practice aimed at sharing knowledge between experienced teachers and student teachers. The approach was enacted and evaluated in two schools for secondary education by five different teams each consisting of a mentor teacher, a student teacher and a SBTE.

In addition to the ways the mentoring approach is enacted, we are also interested in its meaning for participants, who have legitimate professional or personal interests in the matter at hand. Hence, we incorporated the perspectives and appreciation of the participants into our evaluations to determine which social benefits are at issue (House, 2005).

Leading questions of this part of the study are:

1. *How do mentors shape their guidance in the developed collaborative mentoring approach?*
2. *How do participants appreciate the collaborative mentoring approach as means for providing guidance.*

Chapter 3, 4 and 5 each discuss a particular aspect of the approach. In **Chapter 3** the designed mentoring approach is theoretically underpinned and the appreciation of four teams of mentors, student teachers and school-based educators with the effectiveness of the collaborative mentoring approach is evaluated. **Chapter 4** focuses on two teams, each existing of a student teacher and a mentor. These teams differed in their appreciation of the effectiveness of the collaborative mentoring approach in terms of the improvement of learning opportunities as perceived by mentors and student teachers. The central point here is whether these differences can be related to the quality of the implementation of the approach by the two teams. This implementation

is based on how and to which extent practical knowledge is actually shared through different modelling actions by the mentors during lesson-based conversations. **Chapter 5** details guidance by mentors during actual lesson enactment in the form of co-teaching. This co-teaching is part of the designed collaborative mentoring approach. The principal objective was to learn more about how the enactment, preparation and evaluation of co-teaching are experienced by mentors and student teachers. In particular the modelling and scaffolding actions during lesson enactment by the student teacher were studied.

Finally, in **Chapter 6** the main results of the studies are integrated and discussed. Implications for future research and practice are presented.

Table 1 presents an overview of separate studies and the appurtenant leading research questions.

Methods

The study is performed with the help of a case study approach in order to increase our understanding of the phenomenon: guidance provided by the experienced practitioners near or at the workplace (Stake, 2008). The case study is conceptualised as a holistic inquiry that investigates a contemporary phenomenon within its natural setting. Both setting and phenomenon are a bound system and boundaries are set in terms of time, place and events (Harling, 2002, pp. 1-2).

The four case studies, provide a better understanding of student teachers' guidance at school (Yin, 2003). Understanding here is connected to naturalistic generalisation, which is helpful in recognising similarities in and out of context. Being particularistic, descriptive and heuristic (Merriam, 1998, p. 29), case studies do not aim for generalisation. In this study we aimed at research which is useful in two ways. First in rethinking the theoretical foundations of teacher education and the related work-based part in particular. Second in the actual development of the guidance of work-based learning, especially in school-university

Table 1
Schematic of the Study's Outline

Chapter	Title	Research questions
1	General introduction	
Part 1: Guidance in sessions near the workplace		
2	The activities of a school-based teacher educator: A theoretical and empirical exploration	<ul style="list-style-type: none"> • <i>How do school-based teacher educators shape their guidance in institute-based sessions enacted at school?</i>
Part 2: Guidance during actual teaching		
3	Guided work-based learning: Sharing practical teaching knowledge with student teachers	<ul style="list-style-type: none"> • <i>How do mentors shape their guidance in the collaborative mentoring approach?</i> • <i>How do participants appreciate the collaborative mentoring approach as means for providing guidance?</i>
4	Work-based modelling in teacher education: Show, tell and discuss	<ul style="list-style-type: none"> • <i>How is the appreciation offered by the collaborative mentoring approach related to:</i> <ul style="list-style-type: none"> - <i>the extent and diversity of practical knowledge</i> - <i>shared by mentors and/or</i> - <i>the diversity of the modelling actions used by the mentors in the lesson-based conversations?</i>
5	Modelling and scaffolding in co-teaching: Mentoring tools in guided work-based teacher education	<ul style="list-style-type: none"> • <i>Whether and how do mentors model experienced teaching behaviour and scaffold student teachers' teaching during co-teaching?</i>
6	General conclusion and discussion	

partnerships. The study is explorative because we have little knowledge, either on work-based teacher education in general or on guidance, aimed at sharing practical knowledge by experienced practitioners in the concrete and complex everyday context of learning teaching (Yin, 2003).

Local context

From 2000 onwards at the TEI of VU University in Amsterdam, school-teachers (already working as cooperating teachers) were educated to play an important role in realising supportive systems at schools and to become school-based teacher educators (SBTEs). The TEI and, at that time, nine participating schools decided that some parts of the institutional curriculum should be enacted at school by a SBTE, and that (final) assessment conversations, based on student teachers' portfolios, should become a shared responsibility (Van Velzen, Bezinna, & Lorient, 2009). In addition, subject teachers – in this study we use the term 'mentors' – still provided daily guidance close at actual teaching.

Participants

Four schools for secondary education were involved in this study. All schools were partners in a school-university partnership during this study, meaning they were willing to share responsibilities to educate student teachers (their affordance). In the first study, four school-based teacher educators in two schools were followed while enacting thematic sessions. Five to six student teachers participated in each of these sessions.

The other studies were performed in two other schools for secondary education. In school one, two school-based teacher educators, two mentors and two student teachers were involved. Because one of the student teachers left the school for personal reasons just before the study was concluded these data are not used in the analyses. In school two, three mentors, two school-based teacher educators and three student teachers were involved. This last school was up until now partner in a school-university partnership.

Data collection

In the four studies several procedures are used to realise multi data collection (Merriam, 1998). Data were collected during and after sessions. Lesson-based conversations and lesson enactment constitute of different forms of dialogues, statements, and teacher behaviour related to knowledge sharing with student teachers. It was not our intention to reveal the content of the practical knowledge shared by practitioners or to identify (causal) relations between sharing activities and student teachers learning. Though we make statements about conditions related to the approaches of mentors and school-based teacher educators, we do not provide prescriptions for their supporting practices. Practical implications and opportunities, however, will be discussed. Data collection is summarised in Table 2.

Quality assurance

In order to avoid ethical problems (Stake, 2005) and to ensure comprehensiveness and trustworthiness of our data sources and collection, findings and conclusions, we used in each study quality safeguards such as triangulation of data, sources and methods, and respondent validation or member check (Creswell, 2007, Merriam, 1998). Furthermore, peer review from several research and professional communities (Taylor & Bogdan, 1998; Kvale, 2007) in addition to auditing trails by experienced colleagues (Dey, 1993) were used. The framing of data performed by the researcher was discussed and reflected with experienced (both in research and in teacher education practice) peers (Goldman, 2007; Miles & Huberman, 1994).

Role of the researcher. From 2002 up until now I have been involved as a teacher educator and a researcher in the development of school-university partnerships in teacher education. This thesis not only reflects partly the history and development of this project, but also (and maybe even in particular) the development of my conceptualisation of work-based teacher education and the role teachers can play in this process. Some incongruence between the chapters is

Table 2
Data collection procedures

Study	Method	Unit of analysis	N cases	Multiple data collection
1	Descriptive, instrumental case study	School-based teacher educators' <i>'instruction' activities and thinking</i> at school	4 teams of school-based teacher educators ^a	Direct observation of sessions Observations of video-taped sessions Open and pre-structured interviews Written materials (session preparation and evaluations by SBTEs) Cued interview based on videotaped sessions
2	Comparative evaluative case study	Mentors, student teachers and school-based teacher educators <i>enacting and evaluating</i> the mentoring approach	3 teams of mentors, SBTEs and student teachers ^b	Semi-structured interviews Small questionnaires Individual logs Student teachers' digital portfolios Reflective conversations between SBTE, mentor and student teacher
3	Contrasting case study with a mixed methods approach	Differences in <i>implementing</i> the mentoring approach	2 teams of mentors and student teachers ^c	Audio taped pre- and post-lesson conversations by mentors and student teachers
4	Descriptive multiple case study	<i>Enacting</i> co-teaching	1 teams of mentors and student teachers ^d	Videotaped co-taught lessons Audio taped preparative and evaluative conversations of the co-taught lessons by mentors and student teachers Semi-structured interviews

Note.

Teams operated in different settings:

^ainstitute-based sessions enacted at school.

^bthe designed collaborative mentoring approach.

^cthe designed collaborative mentoring approach with an emphasis on the lesson-based conversations.

^dthe designed collaborative mentoring approach with an emphasis on co-taught lessons.

the inevitable but desirable result of this process of advancing understanding. Furthermore, this thesis is not written chronologically. The chapters consisting of the (published and submitted) articles preceded the other parts. This also is identifiable while reading. In chapters 2-5, which were published in or submitted to separate international journals, some repetition was unavoidable.

Societal relevance

In addition to the epistemological debate, the study also relates to the political debate on teacher education in school-university partnerships as an avenue in teacher education, and is embedded in the swing of politics and debates (Lagemann, 2000). In this case the debate related to the ideas about who can be considered a teacher educator (e.g., Cochran-Smith, 2003), which roles experienced teachers should be allowed to play in teacher education, and what the consequences for their pedagogical activities within the framework of school-university partnerships are.

With a growing contribution by schools to the education of teachers, attention for teacher educators at schools is not only of interest for the development of the profession and to professionals themselves, but also for the national debate on quality and control of teacher education aimed at providing 'better' teachers and teaching. Many scholars have pleaded for expanding capacity of research on and for teacher education, identifying it as a priority for educational research. However, especially the contributions of partnership schools are under researched (Menter et al., 2010), and the attention paid to teacher educators working at schools is even less (Clemans, Berry, & Loughran, 2010; Van Velzen, Van der Klink, Swennen, & Jaffe, 2010). As part of the required pedagogy we need to know more about the way in which and the extent to which SBTEs and mentors, as teacher educators in the first order context of work, can use modelling and scaffolding as tools to share practical knowledge with their student teachers during guidance provided both in and near the workplace.

Notes

- ¹ Here 'mentor' is the collective noun for all cooperating teachers supporting student teachers.
- ² In school-university partnerships different types of cooperating teachers participate (Liebrand, 2008). When 'cooperating teachers' is used in this study we refer to two types: school-based teacher educators, supervising the overall development of the student teachers and subject teachers who act as daily mentors.
- ³ TEIs can be both found in research universities as well as universities of applied sciences (UAS). Partnerships between TEIs and schools are indicated as school-university partnerships.
- ⁴ Snoek and Moens (2011) refer to these schools as 'training' schools. Due to the development of schools from places where student teachers are trained to places where student teachers are educated in an authentic learning environment, we prefer 'partner' school. In the literature partner schools are also indicated as *teaching schools*. However, in the UK these schools can solely be responsible for teacher education without being in a partnership with a TEI.
- ⁵ 'Enacted' is in this study used instead of 'acted' to "distinguish the translation of a belief or pedagogical model into action from simply acting" (Clarke & Hollingsworth, 2002 in Coenders, 2010, p. 17). Student teachers' guidance is seen as an educational experience jointly created by cooperating teachers and student teachers, hence based on the enactment view on realising learning pathways of student teachers (McKenney, Nieveen, and Van den Akker, 2006).
- ⁶ For an outline of the history of establishing subsidised school-university partnerships in teacher education see Timmermans, 2012.
- ⁷ However, in order to conform to conventions in the international educational literature, in the following chapters we sometimes use the term school-based teacher education ourselves when work-based teacher education is what we actually mean. Next to school-based teacher education, *practicum-based teacher* is also used in literature, especially in the United States.
- ⁸ Next to the mentioned activities also portfolio discussions and (final) assessments by the institute-based and school-based teacher educator, informed by the mentor, are held at school. Although these conversations are developmental by nature we do not include them here because of the important role of the IBTE.

