

School-based teacher educators in the Netherlands and the opportunities of the school as a learning place

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Introduction

In the 1990s there was a great deal of dissatisfaction with the education of teachers. Researchers pointed out the lack of relationship between the educational content and methods, the inconsistencies in coaching, and the inadequate communication between the teacher education institutes and the schools (see e.g. Down, Hogan & Madigan, 1995; Korthagen, Loughran & Russell, 2006). In addition there was a growing desire in schools to be responsible for training their staff themselves. The threatened shortage of teachers in the Netherlands was an extra reason for the government to stimulate co-operation between schools and teacher education institutes (Lunenbergh, Snoek & Swennen, 2000; Snoek & Wielenga, 2001). These influences have resulted in a form of teacher education that is known in the Netherlands as 'Opleiden in de school' (School-based Teacher Education). It is characterized by the school and teacher education institute partnerships holding joint responsibility for the education and assessment of teachers and organizing teacher education according to the principle of 'learning through participation in real, meaningful practices' (Ten Dam & Blom, 2006 p. 649).

The co-operation between schools and institutes varies greatly (Deinum, Maandag, Hofman & Buitink, 2005) but two important influences can be recognized. On the one hand, we find characteristics from the school-based teacher education movement (SBTE) in the UK, in which the emphasis is on practical questions and problems (Furlong, Whitty, Whiting, Miles, Barton & Barrett, 1996). On the other hand there are similarities to the professional development school movement (PDS) in the USA. Here the emphasis is on the development of the school as a result of the co-operation between school and teacher education institute, as well as on teacher education (Holmes Group, 1990; Ten Dam & Blom, 2006; Verloop & Wubbels, 2000).

Despite the prevalence of practices of School-based Teacher Education in the Netherlands, we still know very little about how teacher educators in the school shape a learning environment which promotes the workplace learning of student teachers. In this article we aim to particularize this. We present a theoretical framework and a case study on the way in which four school teachers fulfil their role as teacher educators in two partnership schools of the Onderwijscentrum VU in Amsterdam. In this partnership a collective aim was formulated: realizing a substantial part of the teacher education curriculum in school with attention paid to mentoring and substantive understanding of general pedagogical aspects (Onderwijscentrum VU, confidential memo, 2004).

Section 2 of this paper describes the theoretical framework. 'Learning to be a teacher' is seen here as slowly growing into a *community of practice*, a community that acts as a living curriculum for the apprentice (Lave & Wenger, 1991). Student teachers' learning in school-based teacher education is a form of participating in a complex social practice. This complexity (of both the profession and the workplace) makes coaching and instruction absolutely essential (Fuller, Hodkinson, Hodkinson & Unwin, 2005; Guile & Young, 1998). The activities of the school-based teacher educators are grounded in the community of practice of the school which is seen as an activity system firstly aimed at the learning of pupils, but which is also developing as a learning place for (student) teachers next to being a workplace for them (e.g. Engeström, 1994; Lambert, 2003). This system in which student teachers learn to become teachers can be represented by an 'activity triangle', revealing the social and material resources that are salient in activity, and which contains the theoretical terms *subject*, *object*,

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means of production (tools), division of labor, community, and rules (Roth & Lee, 2007, p. 197). School-based teacher educators (as subjects), while educating student teachers (the object), have to find ways to relate to these rules, the division of labour in school and to the community of teachers. Because of the collaborative partnership (e.g Ten Dam & Blom, 2006) with the teacher education institute they also have to come to an understanding with the community of teacher educators by crossing the boundaries of the activity system of the school and of that of the institute. To support the learning of their student teachers in school the school-based teacher educators need (new) tools which enable them to realize the second order teaching typical of teacher education (Murray & Male, 2005).

In this paper we look at the elements of the activity triangle (the rules, the division of labour and the community of practice) in order to position these school-based teacher educators in the school activity system. Our main focus, however, is on the tools these teacher educators can use in order to teach their student teachers at school. In section 2 we develop our theoretical framework, starting out with an activity system approach. This approach, however, does not offer specific handles for understanding the tools school-based teacher educators use. Therefore we also introduce the *Cognitive Apprenticeship Model* (Collins, Brown & Newman, 1989; Collins, Brown & Holum, 1991) and substantiate this model as a framework for describing these tools, on the basis of insights into teacher education and workplace learning.

We conducted a case study addressing the question, ‘*What light do the Activity System Approach and the specified Cognitive Apprenticeship Model throw on the way school-based teacher educators fulfil their role as teacher educators?*’ Section 3 explains the methods used in this case study. In section 4 we describe the results of the case study on the way four school-based teacher educators fulfil their role in school. The last section, gives some conclusions and points for discussion.

1 School-based teacher education: teacher education and learning in the workplace

School-based teacher education prompts the question how the learning of student teachers in school can be conceptualized. In this article we follow Hodkinson and Hodkinson (2005) who see becoming a teacher as an example of learning in the workplace, and therefore argue for combining insights from the literature on that field with insights from the literature about the development of (prospective) teachers.

1.1 Learning in the workplace, legitimate peripheral participation in a community of practice?

School-based teacher education is a form of learning in the workplace, which is directed at ‘becoming a teacher through being a teacher’ (Klarus, 2003). One day a week student teachers attend classes at the teacher education institute. The rest of the week they participate in schoolpractice in a way which can be described as legitimate peripheral participation in a *community of practice*, a community that acts as a living curriculum for the apprentice (Lave & Wenger, 1991). In this apprenticeship approach, the traditional accent on the relationship between the apprentices and their mentors is expanded into an accent on participation and identity transformation in a community of practice (Lave & Wenger, 1991). During their time at school students develop into teachers and they grow a new (professional) identity by participation in the social-cultural system of the school. The ways student teachers act and think are formed by participating in the school as is necessary and customary within that system and by the discourses based on dynamic interrelationships with the other members of the community (Guile & Young, 1998).

Participation alone, however, is not sufficient to become a teacher who fulfils the requirements laid down in the law on Occupations in Education (Ministerie van OC&W, 2004). Teaching, one of the core activities of a teacher, is a complex task. The knowledge that is needed to perform this task is not visible when the task itself is actually being performed. Moreover, the teacher is increasingly seen as an ‘extended’ professional, who not only functions in the classroom but also in the school as a community (Shulman, 1998). This also involves complex tasks in which relationships with managers and colleagues and ideas about co-operation, (often implicit) ideas, play a role. The complexity of the profession and of the school makes it impossible to learn to be a teacher by merely participating in professional practice and being coached by experienced professional practitioners on daily problems

within that practice (see also Ten Dam & Blom, 2006). Participation alone (even when guided) is therefore not an adequate basis for actually becoming a teacher who meets the requirements of the profession. School-based teacher education demands pedagogical interventions in the workplace or its direct proximity and thus a curriculum of its own (Billett, 2006; Fuller, Hodkinson, Hodkinson & Unwin, 2005; Guile & Young, 2003). This makes clear the necessity for a 'teacher educator', who is responsible for realizing a learning environment in the workplace.

Although the teacher educator in the school is the most important link in integrating the possibilities for learning in the working place and the learning process of the student teacher, surprisingly, hardly any research has been done on the way educators do this. Billett (2004) points out that research on coaching is mainly about the impact on the person being coached rather than on what the coach does exactly. Verloop and Kessels observe that, '*we must not only look at the organizational conditions but also at what actually happens in the interaction between coach and aspiring teacher*' (Verloop & Kessels, 2006, p. 308).

1.2 School: a working and learning place for student teachers and the consequences for school-based teacher educators

The focus of this paper is how school-based teacher educators involve their students in the community of practice by means of a 'modern' apprenticeship, that is, how they can support them in order to become 'knowledgeable': to acquire the combination of knowledge and skills which permits them to operate within a community of practice (Lave & Wenger, 1991). This community (or context of learning) is the school which is the institutionalised place for supporting pupil learning and which is now developing as a place for (student) teacher learning. The activity theory of Engeström and its representation in the 'activity triangle' is helpful to understand the role of teachers as school-based teacher.

School seen as a work or a learning place is more than just a space like a classroom or staffroom. It is a system, grown and formed in the cultural history, in which all activities are directed at the learning of pupils. These teacher activities are mediated by all kind of tools and take place against the background of the rules, the way work is distributed within school and the community in and around the school (Engeström, 1994). When this system also becomes a learning place for student teachers, new tools, new rules and another labour distribution have to be developed in order to meet the needs of these new learners in school. School-based teacher educators especially play an important role in the development of these new tools and rules. Because they have to work together with other professionals in school - teachers like the mentor or subject teacher, who as well are supporting the student teacher - a new division of labour (and the responsibilities which go with that division) is also developing.

So for the school-based teacher educator as well as for the student teacher school can be represented by two activity triangles (Roth & Lee, 2007), one for the school as a working place for teachers (and teacher students) and one for the school as a learning place for student teachers. Due to the (collaborative) partnership with the teacher education institute - which is a hallmark of school-based teacher education - school-based teacher educators also have to relate with this activity system. In this system the school-based teacher educators meet the community of teacher educators, the tools and rules and labour division of the teacher education institute. Figure 1 shows the three activity triangles of the school as a learning place for the student teacher, a working place for the (student) teacher and of the teacher education institute.

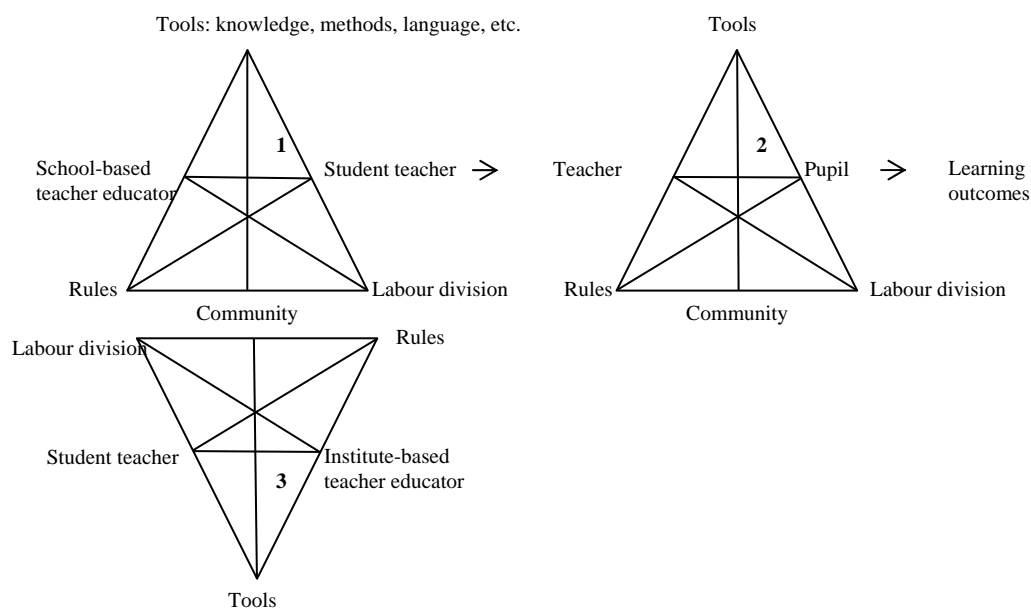


Fig. 1 The activity triangles of school as a learning place for student teachers (1), as a working place (2) and of the teacher education institute (3).

The intertwining of these three systems – the system aimed at pupil learning, the system aimed at student teacher learning at school and the system aimed at student teacher learning at the institute- are part of the complex situation school-based teacher educators have to deal with. The boundary crossing between those three systems (see figure 2) can be seen as regular activities for school-based teacher educators, which distinguish them from institute-based teacher educators (e.g Lambert, 2003, Le Maistre, 2005).

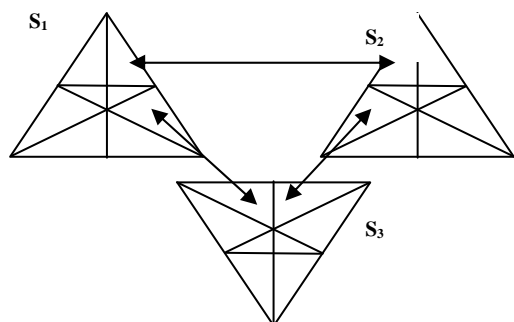


Fig. 2 The intertwining of the three activity systems by the school-based teacher educator. Each arrow represents the boundary crossing activity of the school-based teacher educator.

In this paper we focus on the tools which are used by school-based teacher educators when guiding and supporting the learning of their student teachers. Next to this we pay attention to the possible tensions that can appear due to the different background (institution-based or school-based) of the rules they have to deal with and to the relation with the community of institute-based teacher educators.

1.3 The ‘Cognitive Apprenticeship Model’, mediating tools for the school-based teacher educator

The activity triangles can help us to better understand the complex situation of school-based teacher educators when educating student teachers at school. It is the setting in which they support learning mediated by educational tools and resources. What tools can be helpful? The activity system as such

does not give an answer to that, so we need to develop a framework to describe the way these teacher educators fulfil their role: their actions and behaviour while supporting the student teachers' learning. We follow the approach of Guile and Young (1998) who reconceptualise 'apprenticeship' in such a way that it can help us to develop new pedagogic criteria for inclusive learning at the workplace. Apprenticeship as a pedagogical metaphor for professional preparation, which 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). In our view the Cognitive Apprenticeship Model of Collins, Brown and Newman (1989) can be used as the basis of a framework to help to describe the way such apprenticeship can be supported by school-based teacher educators.

Collins et al. based their Cognitive Apprenticeship Model on the classic apprenticeship model, which describes the development of the apprentice via journeyman to master. In the classical model, knowledge, as a condition for effective actions and behaviour, is explained and recognized in the current context of use. This traditional model is not adequate, however, when complex tasks are being learned that the apprentice must be able to perform in varied and changeable contexts. Cognitive refers to the focus on cognitive skills which are important in knowledge-intensive and complex work environments. The model therefore gives room not only to observe actions and behaviour but also asks the experts 'to make the thinking visible' (Collins, Brown, & Holum, 1991). The coaching of the beginner is not only directed at acquiring professional skills but also at the associated cognitive development: knowing and doing go together and are connected. Developing a professional identity and getting to know the values of the profession are also supported in this process (Collins et al., 1989; Guile & Young, 2003; Onstenk, 1997; Seezink & van der Sanden, 2005).

The model includes interventions that have proved to be effective from the traditional *apprenticeship* model. These have been supplemented by Collins et al. with elements from formal education: strategies that make it possible to gain insight into the whys and wherefores of actions and behaviour, to develop the ability to adapt these actions and behaviour when changing conditions require and, to increase selfdirected learning (Collins et al., 1991; Wilson, Jonassen & Cole, 1991). This model thereby fits in with the task school-based teacher educators are confronted with: designing a high-quality learning environment in the workplace for student teachers. An environment in which they have to focus attention on the type of learning outcomes that are necessary to become able to work as a teacher in this and future school contexts.

1.4 The CAM as a descriptive model for the actions and behaviour of the teacher educator

The CAM is in fact not a 'model' but rather a global, heuristic framework for thinking; it does not give instructions on how a learning environment should actually be designed for learning complex tasks in a working organization (Van der Klink, 2004). It is possible, however, to specify the model further, so that it can function as a design model (see also Seezink & Van der Sanden, 2005).

In this research the CAM is used to describe the actions and behaviour of teacher educators and determine which elements of the model are evident in their practices and in what way. In the original model four dimensions, relevant when designing a learning environment are distinguished: content, methods, sequence of learning activities and social context. The first two columns in Table 1 are the original model by Collins et al. In this paper 'content' refers to all kind of things the school-based teacher educator can speak about. The other categories are described as possible interventions by the educators: what can they do? These interventions can be directed at the student teacher (methods), at diverting a work task into learning task or vice versa (sequencing) or directed at the 'sociology', that is the social context in which the learning is situated. These categories do not exclude each other. Reflection (one of the possible methods) may be focused on a specific content, articulation (another method) on a specific task the student teacher performed during work.

For the purpose of this research, we have further specified the CAM to the situation of teacher educators in the school. To do this, we searched for notions and descriptions in the literature about teacher education and in the knowledge domain of learning in the workplace for each of the four categories (see Table 1). The result is a model, a tool helping us to analyse and interpret the activities of a school-based teacher educator while educating student teachers at school.

The first category 'Content' not only pertains to the content of the *subject knowledge* in question, but also to the *pedagogical knowledge* that helps to make it possible for the student teacher to teach pupils. Knowledge, for instance, about pupils and their learning and development, but also knowledge that makes reflection and research on the functioning of teachers possible (Guile & Young, 2003; Loughran, 2006). Cochran-Smith and Lytle (1999) defined this as knowledge for practice. In addition to this conceptual and factual knowledge, the *heuristic (or practical knowledge)* of the teacher educator as a teacher plays an important role (Korthagen & Kessels, 1999; Verloop, Van Driel & Meijer, 2001). Following Clandinin and others, Black and Halliwell (2000, p. 104) describe this knowledge as: '*personal practical knowledge that is assembled in forms that makes it possible to manage teaching practicalities*'. It is knowledge about what is needed to be able to function as a teacher and in what way that knowledge can be deployed (Loewenberg Ball, 2000). In terms of Cochran-Smith and Lytle: knowledge in practice and knowledge of practice.

The *learning and control strategies* must be attuned to the learning styles and needs of the student teachers (Oosterheert, 2001). The school as a learning environment is typified by the presence of many experts (such as teacher colleagues). Student teachers must learn to make adequate use of the coaching provided by both their direct coaches and other role models and experts. Lastly, paying attention to learning and control strategies concerns an approach whereby student teachers learn to acknowledge and recognize their own learning while they are teaching and to be able to safeguard the quality of that learning as well as the quality of their work itself (Guile & Young, 2003; De Jong, 2004; Zanting, 2001).

The second category of the CAM is 'Methods', different ways to promote the development of expertise. *Modelling* in particular is an intervention which is described in the literature about teacher education. This principle is strongly coloured by the idea that the teacher educator is an important role model for his student teachers (Loughran & Berry, 2005; Loughran, 2006; Swennen, Korthagen & Lunenberg, 2004). 'Explicit modelling' (Lunenberg, Korthagen & Swennen, 2007) means more than the traditional imitation of the master, although that can play a role in the student teachers' development. As a role model the teacher educator must particularize and validate the knowledge he has and the choices he makes. Moreover, he must put forward these choices for discussion so that student teachers learn to understand and discuss the whys and wherefores of his actions and behaviour (Guile & Young, 2003; Loughran, 2006; Lunenberg et al., 2007). This critical discussion is also important to overcome the one-way movement from the expert to the novice, a possible restriction of the situated learning approach, by questioning authority, criticism and initiation of change (Engeström & Miettinen in Lambert, 2003).

The descriptions used here of *articulating, coaching and scaffolding* are derived from Seezink and Van der Sanden (2005). In addition, the importance of transfer-oriented *reflection*, as a means of permanent learning is discussed at length in the literature about teacher education (Billett, 2004; Kelchtermans, 2001; Korthagen, 1999; Loughran, 2005). This involves student teachers comparing their experiences, and linking them with theoretical knowledge and the knowledge that exists in the school (Guile & Young, 2003). Transfer-oriented reflection helps student teachers to develop the capacity to think beyond their immediate situation and to understand why and how it is necessary to generate new knowledge (Guile & Young, 1998). With the help of the didactic measures mentioned, the teacher educator can support the student teachers in the acquisition of knowledge and in explaining their practical experiences and in discussing this. (Loughran, 2006)

The third category 'Sequence of learning activities' refers to the order in terms of the *diversity* and *complexity* of the content of the activities (sub-tasks), which student teachers become involved in when growing into the community of teachers, and the relationship of these sub-tasks with the *task as a whole* that is to be learned. The importance of carefully structuring the sequence of learning activities raises the question of how working as a teacher can actually provide an adequate learning situation for the student teacher (Billett, 2004): how can the questions and problems emanating from the dynamics of the work of the teacher educator be used so that such a structure is created? (Billett, 2006; Moore, 2004).

The last category is 'Sociology', the school as a learning environment, the social context for the student teacher to learn and the teacher educator to educate. In this school context the student teacher can interpret and share the knowledge and expertise of experienced teachers by working with them and talking to them (Eteläpelto & Collin, 2004). The learning of the student teacher is emphatically *situated* in and supported by the *community*. The community indeed acts as a living curriculum for the student teacher as stated by Wenger (1991).

The *exploitation of collaboration* between student teachers *and competition* by confronting them with different forms of task performance is extended in the model with communal evaluation and reflection, with a view to critically questioning experiences, the choices that have been made and possibilities for change and development (Stephenson, 2005).

2 Research methods

2.1 Research design

This paper studies the actions and behaviour of the teacher educator in the school in a concrete, everyday context with the help of an instrumental case study (Stake, 1995; Yin, 2003). The case study is descriptive, the activity triangle and the specified CAM functioning as descriptive frameworks (Huberman & Miles, 1994; Yin, 2003).

The case study is on how four school-based teacher educators fulfil their role, their actions and what they take into consideration in sessions with student teachers (Yin, 2003). The basis of the sessions is an 'apprenticeship assignment', which is a large assignment on a specific theme to be carried out by the student teachers. These assignments are derived from the institute's curriculum. For this study, four sessions were chosen that can be considered representative of the other sessions. These sessions were held at two different schools and involved four teacher educators. Student teachers from both schools were always present during the sessions. The subject of the two sessions at school 1 was about mentoring pupils. The school-based teacher educators involved are Peter and Frits¹. Next to them the school psychologist attended the first session. Both of the sessions at school 2 were on the subject of lesson design (by educator Arend), with specific attention to preparing direct instruction and co-operative learning as a method of activating the learning of pupils (by educator Maaïke).

2.2 Research context and setting

The Onderwijscentrum of VU University Amsterdam, a university-based institute for teacher education in Amsterdam since 2003, is involved in partnerships with nine secondary schools. This teacher education concerns a 1-year postmaster study in which a subject expert has to develop professional teaching competencies. In addition to the regular 30 ec practical time, 9 ec of the total teacher education programme (60 ec) are taught by teacher educators in the school where they also teach.

School-based teacher educators educate student teachers in school in sessions which are based on apprenticeship assignments. These assignments are developed in order to actually realise a part of the institutional curriculum in schools. Themes of these assignments are: preparing and evaluating classes, communication and interaction with pupils, pupil mentoring, classroom management and methods to activate pupil learning. Student teachers are three days at school practising and one morning each week at the institute. Next to the school-based teacher educator a subject teacher supervises the student teacher during lessons. Teacher educators in the school deal with general pedagogical themes in the sessions on the apprenticeship assignments mentioned above. Student teachers based in a school have fewer sessions on these themes than those based at the institute. The school-based students are given extra assignments and suggestions for reading for the apprenticeship assignments to compensate for this.

In addition the school-based teacher educators hold individual coaching sessions and supervise intervision groups. They are responsible with the institute-based teacher educator for assessing the student teacher's competence at the end of the course, partly on the basis of the student's portfolio. The requirements are the same as those for the 'regular' student teachers.

The school-based teacher educators form a network and work together (in various combinations) in preparing and holding the sessions with student teachers. They are autonomous in the way they organize their teacher education and supervisory activities. Professionalization sessions for them are held six times a year at the VU. These are a follow-up to the programme which prepared the teacher educators in the schools for their new role. Moreover, a dedicated Blackboard site provides support for both the students and educators. (See Van Velzen, Bezinna & Loris, in press).

2.3 The data collection

The database was compiled using different ways of data collection (triangulation). Direct observation, different types of interviews and written materials were used. The sessions were observed and striking moments related to the research question were registered (Miles & Huberman, 1994). Next to this crucial moments were identified for the use in the cued interview. The school-based teacher educators' actions and behaviour during the sessions were recorded on video, and their written preparations and evaluations were studied.

After one of the sessions, a cued interview was held at each school with one of the teacher educators involved, on the basis of the video recording (Seezink & Van der Sanden, 2005). The objective of this was to gain insight into the reflections of the teacher educators on their actions and behaviour (Raingruber, 2003; Zanting, 2001). The researcher chose, on the basis of the fore mentioned observation, moments in which it was clear, either verbally or non-verbally, that the teacher educator had made a choice. The teacher educator was also asked to indicate when this occurred. The interviews centred on the following questions: *What did you do here? Why did you do that? What did you think of the intervention?* Finally a meeting at the institute with their colleague teacher educators, (including some institute-based teacher educators) in which the school-based teacher educators discussed their sessions was used as verification for the aims and purposes of the school-based teacher educators with these sessions.

Next to the data collection related to the meetings two semi-structured interview were held with one of the participants of each school. These interviews were based on written preparatory and reflective material of the sessions mentioned and other mentoring practices. In these interviews data were collected related to the other elements (the rules, the division of labour and the community of practice) involved in order to position these school-based teacher educators in the school activity system. Also their relations with the institute-based teacher educators and the institute itself was a topic.

2.4 Analysis

The school-based teacher educators' activities were systematically analysed during and after the data collection. A global description of how the teacher educator organized and held these sessions was always made first on the basis of the material collected. The written material was analysed to understand the aims and basis of their choices before and during the sessions. All the audio tapes were written out and analysed. The video tapes were used to complete the observations.

Next to this a matrix was made of the activities of each school-based teacher educator with the help of the specified CAM categories (Huberman & Miles, 1994; Yin, 2003). Then the statements from the cued interviews were involved in the analysis whereby these statements were related to their behaviour and were interpreted as sayings about the motives behind their choices during the session. In this way a matrix was build for each school-based teacher educator involving their actions and their statements about the actions for each CAM category (vertical analysis). Next to this a horizontal analyses was carried out in order to find the similarities and differences between them (Miles & Huberman, 1994). The last step was to find in the material statements linked with the notions of rules, labour division and the community.

Several quality safeguards were built in the project. The theoretical notions were presented to senior researchers from the field of teacher education as well as workplace learning and, the specified CAM also to experienced teacher educators. Based on a first member check (Merriam, 1998) with one of the school-based teacher educators the interview scheme was adapted. The analysis and results were submitted to the teacher educators for comments. A research group of 'critical friends' (commendably)

discussed the data gathering, the data itself, the successive analysis and interpretation and the concept paper. Based on the collaborative analysis of the first session by Frits and Peter additional material has been collected on preparation and evaluation of the sessions.

3 Results

In the sessions observed, practical questions were worked on through role plays, short assignments and follow-up discussions. In the sessions on pupil mentoring the two teacher educators (Frits and Peter) formulated the questions and problems for the role plays during the sessions on mentoring. One of the role plays was about a pupil with behavioural problems, whose parents are divorced and who was caught smoking cannabis. In another one there was a pupil in the sixth year of pre-university education that has problems with a teacher. In addition the student teachers practised 'positive labelling' by reformulating their own 'bad' characteristics with a positive twist. The second session centred on the situations observed by the student teachers. Student teachers' lesson preparations were the subject of the sessions on designing lessons led by Maaïke and Arend. These sessions were linked to the themes of direct instruction and collaborative learning.

In the first section we will analyse whether and in what way the categories of the CAM model were evident in the actions and behaviour of the teacher educators which gave us an idea of the tools actually used. In section 4.2 we go into the other elements (the rules, the division of labour and the community of practice) involved in order to position these school-based teacher educators in the school activity system.

3.1 Cognitive apprenticeship model, the mediating tools of the school-based teacher educator

Category 1: content, types of knowledge required for expertise

In the CAM model, domain knowledge, heuristic knowledge, control strategies and learning strategies are differentiated regarding content (the types of knowledge required for expertise). The content of the two sessions on mentoring can mainly be interpreted as *heuristic knowledge*. Peter introduced approaches that have proved to be effective in his own practice as a teacher. When *domain knowledge* in the field of pupil mentoring was dealt with, this was fragmentary and without a clear context. Peter briefly described a quiet, withdrawn pupil and asked the student teachers what they thought. They reacted with possible diagnoses and suggestions on what the teacher should do. The psychologist supplemented the diagnoses and gave the teacher concrete tips on alternative ways of dealing with this.

Peter gave references to the sources named in the apprenticeship assignment but the student teachers had to consult these themselves depending on their interest. They had to refer to the literature in their portfolio when justifying their choices regarding the mentoring activities they had undertaken. Maaïke also was of the opinion that the student teachers must study and digest the literature themselves because there was not time for this in the sessions.

In the first session on designing lessons, conceptual and factual knowledge was evident in the form of questions asked by Arend on the compulsory literature. Both Maaïke and Arend used heuristic knowledge in the form of examples from their own personal practice to help the students to understand this literature. Brief references were regularly made to items in the compulsory literature when the student teachers contributed something from their own practice. For example, after one of the student teachers had presented her lesson preparations, Maaïke asked: "*Are the characteristics of collaborative learning sufficiently represented? Have another look at page..*".

Learning strategies were dealt with indirectly, in the form of a short, almost passing comment or tip on how the student teachers should tackle something: "*How are you going to make sure that you also actually see those children? If necessary, make a sort of game of it and ask the mentor of a difficult class some of the symptoms of children without knowing their names. Then try and pick them out when you're in that class.*" (Frits) References were also made to the help student teachers can request from their subject teachers and they also think and talk about what they can do in their apprenticeship assignment with them. Frits made the student teachers responsible themselves for their own learning and organizing it: "*Then it will actually be on your curriculum: how are you going to make sure that you are in fact confronted with those things you want to learn?*"

None of the teacher educators dealt with *control strategies*, for example strategies that enable student teachers to ascertain whether their interventions in discussions were adequate or whether their lesson plans supported pupils' learning in practice. Nor did they mention strategies with which the students can monitor their own learning.

Category 2: methods, the pedagogical interventions to promote the development of expertise

The didactic measures differentiated in the CAM model are modelling, scaffolding and fading, coaching, articulation, reflection and exploration. All of the teacher educators used a range of measures. During the sessions on mentoring the teacher educators used many methods to simulate the student teachers' practice. Discussions were held and the student teachers practised role plays which both educators observed, stimulated and gave feedback. Here the teacher educators were mainly acting as coaches. They asked lots of questions, inviting the student teachers to explore and to a certain extent articulate. This was about exploring knowledge aspects, useful skills, and emotions in their actions and behaviour in the class, as well as what the student teachers want to learn: "*John can you tell us what is stimulating or helpful in Anna's approach?*" (Frits). Articulation was used, for example, when the student teachers were asked to explain different types of questions to each other and how they can be used. In the sessions on designing lessons the teacher educators mainly asked their students about their approach and, to a far lesser degree, about the reasons for choosing that approach (articulation): "*Did you completely design your lesson round the organisation? Which elements should you use in order to make the lesson helpful in activating pupil learning?*" (Maaike).

When we specified the model we pointed out that the literature on educating teachers pays a lot of attention to modelling and reflection, yet very little, particularly modelling, was apparent in the actions and behaviour of the teacher educators. 'Explicit modelling', whereby educators validate and give arguments to support what they are doing or demonstrating, did not occur at all. In the sessions on mentoring, Peter acted and behaved as he wanted the student teachers to. In the second session he explicitly demonstrated the actions and behaviour of a mentor. During a learning activity, an exercise in guiding a discussion as mentor, Peter stopped the student teacher who was playing the role of the mentor. He was not satisfied with the type of questions being asked and how the discussion was progressing, and temporarily took over the role of mentor (modelling). He briefly explained his approach by giving tips but did not discuss it with the student teachers. Peter seems aware of the risk of 'mimicry': do as I (Gay, 1994). However, with the example he gave, he did give the student teachers the opportunity to tackle the situation themselves. So they were not deliberately encouraged to be 'clones'. In the cued interview after this session he even wondered: "*am I not showing too clearly how I think it should be done?*". We did not encounter this form of modelling in the other teacher educators. All of them did indicate that they act and behave in the sessions how they hope the student teachers will act and behave, but without giving any explanation. They all also gave examples, both positive and negative, from their own professional practice. As with Peter, these examples were not discussed.

The teacher educators regularly prompted *reflection* in the sessions and in different ways. Peter and Frits wanted to stimulate the student teachers in the sessions to reflect on their own approach and to develop an approach themselves. They did this by helping the student teachers to ask critical questions about their own experiences: "*The aim of the session is to work on learning to be a mentor. If you keep that in mind and compare it with the type of questions that you ask, what do you notice then?*" (Peter). In the sessions on mentoring Peter stimulated reflection in advance by emphasizing that the student teachers must first think about what they want to learn and only then to look for suitable activities. At the end of the session he asked them to reflect on the effect of what they had done in the session on the plans they had already made to start working on their apprenticeship assignment and also on the outcome of both sessions. The student teachers said that they had gained more insight into their role as mentor but none of them mentioned specific points that they were going to work on.

During the sessions on lesson planning the student teachers used their own material. They were more successful in these sessions in linking insights from the literature they had studied with their own experiences. But here too, the school-based teacher educators did not extend this to the theory on the learning of pupils and various possibilities for stimulating and supporting this. Making a lesson plan, however, was linked to learning to work with three key questions in teaching: what must pupils learn, how do I gauge what they already know and can do, and how do I organize the learning

process? The answers, however, were found in the discussions about the student teachers' experiences. They were indeed stimulated to reflect on their approach in relation to the literature they had read. Via articulation and exploration they were challenged to think about how they would have liked to have started their lessons and the way in which they in fact had. The student teachers' experiences were always central. These were reinterpreted, for example, by exploring other possibilities when the starting situation of the pupils changes. In the second session Maaike asked the student teachers to discuss their lesson plans with each other. They were challenged by her and by each other in the resultant discussion to reflect on the relationship between what they really wanted and the forms they had chosen.

In all of the sessions 'how' questions were always asked but not the 'why'. The practical knowledge of the teacher educator played a role in this but theoretical insight did not. So there was little evidence of transfer-directed reflection.

Category 3: the sequence of the programme, keys to ordering learning

The CAM model specifies three desirable forms of sequence: the opportunity to orientate on the task as a whole before dealing with parts of the task, increasing complexity and increasing diversity.

At the beginning of the sessions on mentoring Peter and Frits paused for a moment to think about these tasks of the teacher without explicitly dealing with the sub-tasks student teachers may be confronted with and what demands these would make on them. Both sessions on mentoring focused on practising a specific type of discussion, namely exploratory discussions with pupils. There was no evidence of increasing complexity or diversity of the sessions.

In the sessions on designing lessons there was increasing complexity. The starting point for learning to design a learning environment was making a lesson plan. They started with the general objective and then focused on the beginning of the lesson. The lesson objectives were then dealt with and the student teachers discussed the structure of the lesson with each other. At the end they returned to the lesson plan as a whole, paying attention to the difference between the learning process of pupils and the desired learning outcomes, a difference that is difficult for student teachers to grasp. Maaike asked the student teachers about the relationship between the lesson plans they had made and implementing them in the class. In that discussion there was increasing complexity and diversity. One student teacher wondered whether a particular assignment was too difficult for her class. Together they discussed the different aspects that can play a role and how they could adapt the assignment for that class. These were aspects that had not been dealt with before and the solutions demanded more and more of the student teachers. A sequence is evident in the series of sessions on lesson design; direct instruction was dealt with first, followed by forms of co-operative/collaborative learning.

Category 4: Sociology, the social characteristics of the learning context

Under the heading 'sociology', the CAM model specifies a number of possibilities for learning in an authentic social context. Situated learning exists within a community of practitioners; it promotes the intrinsic motivation to learn and learning is possible via collaboration of and the competition with others.

In the sessions on mentoring a general analysis was made of the role division in mentoring in the different schools and the accompanying responsibilities. Peter then paid attention to one of the mentoring tasks of the teacher: spotting possible problems that pupils may have and looking for possible causes. In this way he linked the individual thinking of the student teacher about his role with his actions and behaviour in relation to the school context. The presence of the school psychologist during the first session is an example of utilizing the expertise available in the school. Other teachers were referred to for possible exercises: "*Your subject teacher may not be a mentor but there are a lot of mentors here in the school. Ask them if you can see children in the class. There are really difficult classes here but also some really easy classes*" (Frits). In role plays the authentic context was simulated but, in the second session an assignment executed within school was the central source for learning.

In the sessions on lesson planning, in principal student teachers worked with their own material. Nevertheless, this material was not always suitable for the activities during the session. In the presentations on teaching methods aimed at co-operative learning, Maaike really wanted them to simulate an authentic situation. She asked them to give the explanation as they would in the class but

because the student teachers had not prepared for this, they did not want to. She explained why she thinks it is important and said: “*then do it in your own way*” (*Maaike*). The students then gave an explanation of the teaching method. A form was developed for the lesson observations by the subject teacher or the student teacher while teaching. The form gave the student teacher the opportunity to observe the subject teacher and to discuss his approach. However, it played no role in the session. The student teachers collaborated in all the sessions, owing to the teaching methods chosen. In the session on lesson planning and activating didactics this occurred, for example, by means of the expert-group approach. In all of the sessions the student teachers were regularly asked to add to the contribution of other students and give each other feedback. Once or twice a student teacher was specifically asked to demonstrate something. The competition between the student teachers was not used.

3.2 The social context of the school-based teacher educator’s work

Next to the tools used by the school-based teacher educators we also looked for indications of the ways the teacher educators experienced their own social context: the rules they follow, the way the division of labour is perceived by them and their position in the community of the school and the community of teacher educators.

All school-based teacher educators basically fulfilled their role by following the approach (rules) known from the institute. They chose to hold sessions with their students and these sessions were held in a school classroom but, like in the institute, the tables were rearranged in a U shape. The cases and methods used were developed at the institute, and were part of the school-based teacher educators’ training at the institute, but they were not obliged to use these assignments or methods.

In the collaborative partnership with the teacher education institute, the institute still remains responsible for teacher certification. So school-based teacher educators felt ‘safe’ when using the apprentice assignments which were developed in order to realise a part of the institutional curriculum. They were actually obliged to use other supportive instruments, like a set of competences and a portfolio, in order to meet the same standards set by the institute at the end of the year. The school-based teacher educators were not involved in the process of developing the competence matrix, the portfolio or the criteria. In developing the apprentice assignments only one of them (being a teacher educator at school and at the institute) was involved. Peter told that he found it very hard to work with these instruments. He thought some choices were not in accordance with the ones from his school. For example he valued learning how to build good relationships with children (the pedagogical approach as a teacher) more than the subject-related learning tasks: ‘*when this relation is good, the content will run smoothly by itself*’. Making a digital portfolio (a lot of work for the student teachers) was seen as *time not spend in the classroom or at school*. Both school-based teacher educators expressed that this obligation to work with materials which they did not develop ‘*makes it hard to find new and more school-based ways to support their students*’.

The content they raised in the sessions on the other hand is based on school-related beliefs on teaching. They focused far more on their own heuristical knowledge than on conceptual and factual knowledge that could be under discussion. The support of the school psychologist was also quite practical. The intervention he brought into the session was merely based on his own experiences during his own education and practice.

Although the division of labour between the school-based teacher educator and the mentor is formally arranged, in practice their activities were not geared to another. No specific arrangements about the labour division were made at forehand. The mentors were not involved in the activities of the school-based teacher educator and there were no regular meetings between them. So when the school-based teacher educator gave suggestions on how to use the experiences of the other experts in school it was not clear whether and how other teachers would respond to this. Student teachers’ initiatives and the willingness of the mentor or other experts seemed decisive whether and how fruitful discussions could and would happen.

In the assessment and evaluation of student teachers the institute-based teacher educator also had a role. One of the school-based teacher educators had problems with the way his colleague from the institute judged the division of responsibilities: “*he gave me the impression that he, as an institute-based educator, had more to say about the quality of the student teacher than I did*”.

Meetings were arranged at the institute between school-based and institute-based educators. Almost all school-based teacher educators came to these meetings but, almost none of the institute-based educators did. Because of this school-based educators felt abandoned by the institute. They experienced a kind of distrust about their abilities and felt not understood as members of the same professional group. This made it hard for them to see school and the institute as linked communities of practice and to see themselves crossing borders. These experiences are also known from other school-based teacher projects and, more generally, can be interpreted in terms of Holland and Lave (2001) as the 'struggle' between two practices.

4 Conclusion and discussion

In this study the initial education of teachers in school-based teacher education is interpreted as a form of guided learning in the workplace. This form of learning is mainly described in the literature from the perspective of the further development of professional practitioners, and is predominantly found in other domains than teacher education. Research on learning in the workplace has identified problems that are related to the quality of learning and, in particular, the depth of learning (e.g. Billett, 2001; Van der Klink, 1999). Similar problems are found in school-based teacher education (Hodkinson & Hodkinson, 1999). The nature of the teaching profession demands a high-quality learning environment in which attention is paid to different types of learning, and interventions, making it possible to interpret practical experiences, and to broaden and deepen these experiences, so that the knowledge and insights acquired can be employed in other situations and contexts. As a framework for describing and analysing how this learning in the workplace can be supported we chose a specified Cognitive Apprenticeship Model. We used the Activity system approach to understand the complex social context in which school-based teacher educators do their work.

The central question in the case study was *what light do the Activity System Approach and the specified Cognitive Apprenticeship Model throw on the way school-based teacher educators fulfil their role as teacher educators*. We will first discuss our findings on the specified CAM and then we discuss the other elements of the activity triangle (the rules, the division of labour and the community of practice) in order to position these school-based teacher educators in the school activity system.

Summarizing, the analysis of the actions and behaviour of the teacher educators in the school, made with the help of the specified CAM, shows the following. The *content* (the different types of knowledge) was only dealt with in a limited way and was mainly directly related to the experiences of the student teachers. The teacher educators reacted to this with their own heuristic (practical) knowledge. Learning strategies were mainly visible in the form of tips and suggestions; control strategies were not dealt with.

The teacher educators used virtually all of the *methods*. They coached the student teachers by giving them a lot of varied feedback and suggestions. Questions were mainly aimed at encouraging students to articulate their ideas and approach, and at exploring problems. Student teachers were regularly asked to reflect on their experiences and to evaluate their approach. The teacher educators behaved in a way that they expected their students to behave but they did not explicitly explain this behaviour or validate it. Hence there was no opportunity to discuss these actions and behaviour with the student teachers or to reflect on them critically. This observation agrees with the finding of Swennen et al. (2004) that teacher educators put their methodological ideals into practice but do not explain and validate their actions and behaviour to their students.

No comment can be made on the *sequence* of the curriculum in the school, given that very few sessions were observed. In the sessions observed, brief attention was paid to the task in question as a whole before the different aspects of the tasks were dealt with. There was a limited degree of sequence in the complexity and diversity of what was dealt with. The level of complexity and diversity within the sessions was mainly determined by the nature of the student teachers' experiences that were dealt with.

The *social context* was used in various ways and 'the school' was recognizable in the assignments during the sessions, in the examples and in the comments of the teacher educators. Student teachers' actual practical problems and the way they can be solved with others in the school were not yet an integral part of the teacher educators' approach. This means that collaboration and competition with others could not be sufficiently utilized.

In the situations studied the teacher educators mainly functioned as coaches for their students. With the help of their own practical knowledge, they helped them to interpret their experiences and to seek new and different ways of behaving. ‘Cognitive apprenticeship’ however, had certainly not reached an optimal stage of development in the educational situations studied.

The case study especially shows what was not realized in these situations. To begin with, transfer-oriented reflection (Guile, 2003; Kelchtermans, 2001), whereby student teachers’ experiences are compared and linked to theoretical knowledge and to knowledge as it exists in the school, was not realized, possibly because the student teachers’ experience was still too limited. This is in line with McIntyre (in Hagger, Burn, Mutton & Brindley, 2007, p. 3) who stated that: “*the beginning teacher is more able to learn through deliberating about the nature of the expertise that he or she wants to develop than through reflecting on what is after all their very limited experience*”.

We also saw that teacher educators do indeed have a rich practical knowledge, which their student teachers have yet to acquire, but that the educators do not know enough about theories on the learning of pupils to be able to play a role in developing theoretical concepts. These concepts must become part of the student teachers’ ‘toolbox’ in order to realize the (by law) needed standard in teaching quality. The knowledge base of the teacher educators is that of an experienced teacher. Other studies also show that it is not easy for teachers to make this knowledge base explicit and share it with their students (Billett, 2006; Edwards & Protheroe, 2003). The underlying theoretical concepts, which are needed to make ‘thinking visible’, are mainly lacking.

This is one of the reasons why the modelling of the teacher educators remained strongly oriented on practical tips and advice, on dealing with direct requests for help and answering questions instead of revealing the underlying ideas and insights. All in all there was a large chance that the student teachers would in this way learn to function in a technically instrumental way and how to bring structure into their own experiences, but that the theoretical development would fall short (Korthagen, 1998) and they would not be educated as all-round professionals.

We also saw that the opportunities for learning offered by the social context of the school were not organised and so were not made sufficiently visible to student teachers. The aspects named by Fuller et al. (2005) that are important for learning in a work environment, such as through relationships between colleagues, by collaborating and exchanging experiences with ‘old’ and ‘newcomers’, scarcely played a role. Besides the apprenticeship and coaching sessions, there were no structural situations in which student teachers could enter into discussion with professional practitioners in the school and relate to their knowledge. Using the workplace as a learning environment seems to be very much left to the initiative of the individual student teacher, a situation that is no different to that of institute-based students who do teaching practice in schools. However, the researchers possibly did not witness such processes, as data was only collected during and in relation to the sessions.

The perspective of the school as an activity system helped us to better understand why it is difficult for the school-based teacher educators to realize a more school-specific learning environment, which can support student teachers in developing knowledgeability. Being obliged by the institute to use artefacts developed in the institute, which reflect the institute’s rules, made it difficult to do so. And, although they were free to choose the cases, the methods and the sequence of the sessions, they faithfully chose materials provided by the institute. As a consequence of this the school-based teacher educators positioned themselves outside the activity system of the school as a learning place. Instead they tried to realize the institute system in the schoolbuilding. It is partly because of this that part of the sessions did not really focus on the practical problems of the student teachers at that time and it was probably a matter of chance whether teacher students developed knowledge that they could actually apply in their classroom practice in order to experiment with new ways of solving teaching problems.

CAM indeed offers a possibility to describe and analyze the way school-based teacher educators fulfil their role. However, it should be recognized that not all appropriate aspects involved are yet part of the specified model as such. For example, insights in how to use the social school context for learning and how to change a workplace into a learning place for (student) teachers are not explicitly mentioned (e.g. Fuller, Unwin, Felstead, Jewson, & Kakavelakis, 2007; Hodkinson & Hodkinson, 2005).

The study focused on the actions and ideas of a limited number of teacher educators. It is therefore not possible to make generalized statements about this form of teacher education. Nevertheless, the case study does provide insight into the way teachers shape their role of teacher educator, how they use their own experiences as a teacher and thereby demonstrate to student teachers what is important in their development as a teacher. The study has also provided a more precise picture of the limitations and problems associated with teacher education in the school, limitations which policy makers also express their concern about and are consistent with the problems found in the literature about learning in the workplace.

Another limitation of the study is that it mainly focused on one aspect of teacher education in the school, namely sessions about an apprenticeship assignment. This is, however, the part in which an explicit attempt was made to enact the curriculum of the teacher education institute in school by the school-based teacher educators. The sessions in the form chosen can be the quintessential moments for student teachers to link their own experiences with the knowledge that is present both in and outside the school, the moments in which 'guided learning in the workplace' can take shape.

In further research attention must be paid to the other mentors in school, especially the subject teachers who also play an important role in school-based teacher education. How can they, as role models, support the learning of student teachers? Can teacher educators and mentors together give form and content to educational activities that do more justice to learning by participation on the one hand and yet go further than giving direct instructions in response to the current problems and questions of student teachers on the other? Can school-based teacher educators and other professionals supporting student teachers' learning in school? Further research is needed on how school-based teacher educators and mentors can supplement their 'toolbox' and equip themselves to give better shape to aspects of the Cognitive Apprenticeship Model (content, methods, in particular modelling and reflection, and the utilization of the social school context), in order to develop a community which indeed acts as a living curriculum for their students. Next to this, the effect of their actions and ideas on the learning of student teachers must be studied. Lastly, improving the relations between school-based teacher educators and their colleagues within the institute and building communities of practice together will be an important issue in the years to come.

Notes

1 All names are pseudonyms.

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Table 1

Specification of the CAM concept. Based on Seezink & Van der Sanden, 2005 (extended).

Cognitive Apprenticeship Model		
Categories		What can the teacher educator talk about?
Content: types of knowledge required for expertise	Conceptual and factual knowledge	Conceptual, procedural and factual knowledge of the subject area in question (knowledge for practice): <ul style="list-style-type: none"> - Subject knowledge. - Knowledge about pupils, their learning and development. - Pedagogical knowledge aimed at supporting pupil learning. Knowledge on reflection and practical research. <ul style="list-style-type: none"> - Why this knowledge and for what purpose?
	Heuristic knowledge	Effective techniques and approaches that can be regarded as ‘the tricks of the trade’: <ul style="list-style-type: none"> - Approaches which are developed and/or used in the school. - Approaches that work for the teacher educator as teacher (knowledge based on my own actions and behaviour and reflection on these: knowledge in and of practice).
	Control strategies	Support strategies for student teachers to: <ul style="list-style-type: none"> - Plan, monitor and manage the implementation of their tasks. - Plan, monitor and manage its own (learning) objectives.
	Learning strategies	Support strategies that student teachers can use to acquire knowledge, learn strategies and tackle new problems: <ul style="list-style-type: none"> - Prior reflection on what is coming: what will this new situation possibly require? - Learn to utilize the coaching adequately. - Learn to utilize role models and experts adequately: observation of colleagues by the student teacher and learn to use these observations. - Extending tasks and experiment in an aware way? - How do I (student teacher) recognize that and what I learn as I go along?
		What can the teacher educator do?
Methods: interventions directed at ways to promote the development of expertise	Modelling	Show how an expert or a fellow student teacher can perform a task and justify that approaches: <ul style="list-style-type: none"> - Do what student teachers are supposed to do (teach how I teach). - Show and talk about how they think, what feelings play a role when they themselves are teaching and reflecting. - Make aspects of the student teachers’ actions and behaviour, both seen and unseen, visible. Evaluate and discuss shared experiences, paying attention to every practice, not just good practices. - Select aspects of performing the task that should be drawn to the attention of the student teacher(s). - Help student teachers to understand why these aspects are important even if they will not immediately be useful. - Discuss explanations and statements other than those of the student. - Present different perspectives on performing tasks.
	Scaffolding and fading	Offer specific help for difficult parts of a task. Only take over those parts of a task that a student teacher cannot perform independently. ²
	Coaching	Coach the student teacher in the acquisition and integration of knowledge and skills, for example, by using feedback and suggestions.
	Articulation	Justify each method used by the student teachers to acquire and consolidate their knowledge, their way of reasoning and solving problems.
	Reflection	Urge student teachers to compare their own learning process and approach to tasks with those of other student teachers, thereby making use of codified knowledge and linking this with the knowledge that exists in the school. This is possible, for example, by: <ul style="list-style-type: none"> - Inviting student teachers to reflect openly on the relationship between the objectives of teacher education and their own learning objectives, and between the objectives formulated and what they actually do. - Paying attention to the differences between what the student teachers do and what their original intentions were. Help make the resultant dilemmas visible, which shed new light on the practice. - Help student teachers to study and refine their own images and suppositions by means of systematic reflection on their own practical experiences, particularly the details. - Investigating with student teachers, via open questions, what significance they give to words, images and behaviour etc they encounter in the school. - Helping student teachers to reflect on literature (conceptual and factual knowledge). - Helping student teachers to link their experiences with conceptual/factual knowledge and/or heuristic knowledge, thereby broadening and deepening reflection and increasing the chance of transfer.
Exploration	Stimulate student teachers to orientate themselves and to recognize and solve problems.	
Sequence: keys to ordering	Increasing complexity	As far as possible, introduce a sequence into the tasks and task environments which demands more and more knowledge and skills of the student teacher.
	Increasing	Increase the diversity of tasks as carefully as possible.

² The subject teacher is the first person designated to provide help with task aspects in the class, particularly subject-related aspects.

Cognitive Apprenticeship Model		
learning: interventions directed at the workplace as a learning environment	diversity	
	Global before local skills	Place the task in the work process of the student teacher as teacher, in sessions or assignments that first give student teachers the chance to study what the complete task is and demands, before looking at it and tackling it in more detail.
Sociology: interventions aimed at using the social school context	Situated learning	Carrying out tasks and assignments in authentic environments that challenge student teachers to use different sorts of knowledge and skills.
	Community of practice	The creation of a learning environment in which the participants communicate about the meaning of competent behaviour and participate in practices that require such behaviour. Expertise is seen here as the possibility to solve problems and perform tasks in accordance with the standards of the community in question.
	Intrinsic motivation (to do the job)	Fostering intrinsic motivation in different ways, which is linked to being prepared to do the things that are part of the teaching profession and of learning to be a teacher.
	Exploit collaboration	Let student teachers collaborate (also with colleagues), thereby stimulating the co-operative solving of problems and they support each other in evaluating and reflecting on the choices they make or have made.
	Exploit competition	Confront student teachers with the way in which others have performed a particular task.