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Author: Ginkel, G. van

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6

MENTOR TEACHERS' HEURISTICS FOR ADAPTIVE RESPONSE TO THEIR MENTEE TEACHERS' LEARNING

Abstract

This descriptive study focuses on mentor teachers' shared practical knowledge of adaptive response to their mentee teachers' learning. To adapt mentoring to where their mentee teacher is as learner of teaching, mentors need to draw on their knowledge of mentee teacher learning and of mentoring activities. As a result of everyday micro-adaptions, mentors develop actionable heuristics that connect these two knowledge domains. This study explores mentor teachers' shared heuristics. In repertory-grid interviews, 11 mentors described characteristics of their mentee teachers' learning and their response to these characteristics. Based on shared associations of these characteristics and mentoring activities in mentor teachers' descriptions, seventeen shared heuristics were identified. These heuristics related to four domains: classroom management and interaction, knowledge and beliefs about learning and instruction, dealing with emotions in learning to teach and the role of the mentee teacher in guided problem solving. Heuristics were differentiated according to the specific explanations that mentors gave for characteristics of their mentee teachers' learning. We suggest ways in which the results may inform the knowledge base of mentoring and the development of practical knowledge for adaptive mentoring practices.

6.1 Introduction

Mentoring is currently the dominant support strategy to help novice teachers learn from the experience of teaching. Mentored learning to teach is however not always an educative experience. Feiman-Nemser (1998) introduced the notion of ‘educative mentoring’ (p. 66) to denote forms of mentoring in which mentors are more than local guides and educational companions, and go beyond providing moral support, practical advice and a place for practice (Stanulis et al., 2018). Educative mentoring rests on a vision of good teaching, and a view of teaching that can and needs to be learned through focused and assisted performance (Feiman-Nemser, 2001b; Wang & Paine, 2001). Educative mentoring fosters professional norms of collaboration and shared inquiry (Wang & Odell, 2002), and blends showing and telling, asking and listening. It occurs both inside the action of teaching through coaching, stepping in, co-teaching and demonstration, and outside the action of teaching through informal conversations, mentoring sessions, debriefing sessions and co-planning sessions, writing tasks and video analysis (Schwille, 2008). Educative mentoring conversations go beyond novice’s subjective experience of teaching events and practical advice for teaching (Stanulis et al., 2018). Instead, the focus is on co-inquiry into teaching events through evidence of pupil learning, explicating views and rationales underlying choices in teaching, and connecting analysis to goals for deliberate practice (Timperley, 2001).

In such educative mentoring, a central challenge for mentor teachers is to “...improvise and adapt their practices to suit the situation and the novice’s learning” (Schwille, 2008, p.155). Mentors need to ‘read’ a mentoring situation (Orland-Barak & Klein, 2005) in order to act adaptively. Doing so requires mentors to diagnose developmental and performance levels of mentee teachers, structure learning settings through goals and tasks, and scaffold mentee teacher learning toward successful unassisted performance (Stanulis, Brondyk, Little, & Wibbens, 2014). It involves sharing and shifting responsibility for teaching tasks in light of the novice’s readiness and capability (Feiman-Nemser, 1998). Thoughtful mentors that do so effectively, “...draw upon their knowledge of teaching, learning to teach, and where their novice is as a learner of teaching to craft learning opportunities for their novices” (Schwille, 2008, p.164). Crafting such learning opportunities for their mentee teachers requires that mentors

develop and connect two knowledge domains; knowledge of their mentee teachers' learning, and knowledge of mentoring activities and strategies to support this learning.

The purpose of this qualitative study is to explore how mentor teachers connect these two knowledge domains, through a descriptive exploration of their personal practical knowledge of being adaptive to their mentee teachers' learning. The current knowledge base of mentoring in teacher education is still relatively underdeveloped (Jones & Straker, 2006; Brondyk & Searby, 2013). We therefore assume that making mentor teachers' practical knowledge for adaptive response to their mentee teachers learning explicit and public, can contribute to the development of such a knowledge base of mentoring (Hiebert, Gallimore, & Stigler, 2002; Verloop, Van Driel & Meijer, 2001), and to the further development of educative mentoring practices. Verloop et al. (2001) argued that for practitioner knowledge to contribute to the professional knowledge base, it is desirable to focus on common elements in practical knowledge, or elements that are shared by practitioners. The focus in this research is therefore on shared elements in mentor teachers' practical knowledge.

6.2 Theoretical considerations

The development of a knowledge base for mentoring necessarily builds on and borrows from the knowledge base of teaching (Hiebert & Morris, 2009). Our conceptualization of mentor teachers' adaptive response therefore partly draws upon current views of adaptive teaching that emphasise the role of personal, actionable heuristics in micro-adaptation (Corno, 2008; Lin, Schwartz, & Hatano, 2005; Randi & Corno, 2005), and their connection to teachers' beliefs and self-knowledge (Fairbanks, Duffy, Faircloth, He, Levin, Rohr, & Stein, 2010). We assume that the main insights from this work also transfer to the situation of teacher mentoring.

6.2.1 Micro-adaptation in mentoring

Teachers, by the very nature of their work with classes in which learner variation is present, develop micro-adaptive responses to differences in learners and learning (Corno, 2008). Micro-adaptation refers to "continually assessing and

learning as one teaches - thought and action intertwined" (Corno, 2008, p.163). It refers to teacher's ability to simultaneously assess and respond to individual learner differences, performed in the ongoing course of instruction itself. As a result of their day-to-day micro-adaptive responses, teachers develop personal and actionable heuristics that connect knowledge of salient differences between pupils, situations and pupil behaviour to courses of action (Randi & Corno, 2005). With increased experience, teachers develop heuristic categories of learning situations to aid their informal assessments and decision-making on the fly. Such heuristics are seen as a form of conditional knowledge: of knowing why certain knowledge is or is not appropriate in a specific situation, including a pro-active pursuit of multiple perspectives and possibilities (Fairbanks et al., 2010, p.167). Mentoring studies indicate that mentors develop similar heuristics that connect courses of action to heuristic categories of novice teacher learning. For instance, Stanulis et al. (2014) showed how a mentor differentiated her response for three 'regular kinds of novice teachers': (1) a novice expecting to do fine alone; (2) a novice overwhelmed with management issues and struggling to conform to the mandated curriculum, and (3) a novice eager to learn but unsure what to do. Similarly, Schwille (2008) showed how a mentor saw the need to provide different learning opportunities for a mentee teacher "barely holding on by her fingernails" (p.161) than for a mentee teacher teaching at a level as good as experienced colleagues.

6.2.2 The role of mentor teachers' mentoring conceptions

The conditional knowledge that teachers develop through their micro-adaptive responses, is grounded in their values and in choices that connect to broader issues of teachers' sense of personal agency and knowledge of themselves as teachers (Fairbanks et al., 2010). The same appears true for mentoring. For instance, Haigh and Ell (2014) showed mentor teachers' judgments of novice teachers' aptitude for teaching to be highly variable. Important sources of disagreement were 1) different views of the most important dimensions of teaching, 2) a differential focus on current teaching performance or on potential for learning of novice teachers, 3) different beliefs about whether key aspects of teaching are 'learnable' or not, and 4) associations with their own practice as beginning teachers. So while the heuristics that mentor teachers develop and that

connect knowledge of novice teachers' learning and of adaptive responses may be immediately usable, they may also be fallible and biased (Randi & Corno, 2005).

The sources of difference indicated by Haigh and Ell (2014) have also been identified as differentiating factors between the mentoring conceptions that mentor teachers hold (Achinstein & Barrett, 2004; Franke & Dahlgren, 1996; Graham, 2006; Norman & Feiman-Nemser, 2005; Orland-Barak & Klein, 2005; Young, Bullough, Draper, Smith, & Erickson, 2005). Mentor teachers holding an instrumental mentoring conception tend to focus more on classroom management and teacher control, and current teaching performance of novice teachers. They see teaching ability as more fixed and associate successful teaching more strongly with how they themselves teach. Mentor teachers holding a developmental conception, however, tend to focus more on pupil learning of content and pupil autonomy, mentee teacher potential for learning and developing mentee teachers' knowledge and understanding of teaching and learning. They see teaching as more learnable and associate successful teaching more strongly with being able to see teaching and learning from different perspectives, including that of pupils.

Given these differences between mentors we chose to select mentor teachers with varied outlooks on mentoring. We assume that this will allow us to maximize the variation in expressed heuristics within a small scale exploratory study.

6.2.3 Research question

The aim of this study is to explore how mentors connect the two knowledge domains of mentee teachers' learning and of mentoring activities to shape their adaptive response to their mentee teachers. Based on our theoretical considerations, we assume that mentors with experience of different mentee teachers will have developed heuristics for mentoring situations that connect specific characteristics of novice teacher learning to the mentoring activities that they see as an appropriate response to these characteristics. We conceptualise these connections that mentors make as actionable heuristics, and our research question is therefore: *What are mentor teachers' shared heuristics for adaptive response to their mentee teachers' learning?*

In teaching, the development of these heuristics and the accompanying knowledge of situations and individual pupils is often constructed from atypical rather than typical situations and behaviour patterns, as teachers tend to be more reflective, or meta- cognitively adaptive around unexpected situations than around situations they perceive as routine (Lin et al., 2005). Similarly, we assume that mentor teachers' heuristics will be connected to the mentee teachers they are able to remember well, and we therefore focus our study on mentor teachers' practical knowledge connected to mentee teachers of whom they have a vivid recollection. We therefore assume that depending on the situational interpretations that mentor teachers have of these mentee teachers' learning, they will mention different mentoring activities they undertook to further support and create opportunities for their mentee teachers' learning.

This study draws upon the same set of repertory-grid interviews as the previous two studies reported in Chapters 4 and 5. In this study, the two coding schemes from the previous two studies are combined in the analysis of the repertory-grid interviews. This combined analysis is used to explore the associations that mentor teachers describe between (1) attributes of their mentee teachers' learning and (2) mentoring activities to respond to these attributes. We assume that these associations are indicative of how mentor teachers connect their practical knowledge of mentee teachers' learning and of mentoring activities, as actionable knowledge. The focus in this study is on those attribute-activity associations that are shared across the interviews, as an indication of shared knowledge of mentor teachers.

6.3 Method

6.3.1 Participants

A purposive sampling (Palys, 2008) was used to maximize the chances of finding a variety of heuristics in a relatively small sample, selecting mentors with different patterns of mentoring conceptions. Mentors were selected based on their responses to a survey questionnaire, which measured the degree to which they held a developmental mentoring conception versus an instrumental mentoring conception (see section 3.2.1 in Chapter 3). The final sample included 5 mentors scoring above average on both scales, 2 mentors scoring below average on both

scales, 2 mentors scoring above average on the developmental scale and below average on the instrumental scale, and 2 mentors scoring the opposite combination. The sample consisted of 11 mentor teachers, 6 males and 5 females. Age in years ranged from 26 to 59 years. Teaching experience ranged from 3 to 35 years, and mentoring experience ranged from 3 to 26 years and from 6 to 60 mentee teachers mentored.

6.3.2 Repertory grid interviews

In order to elicit the associations between the characteristics of mentee teachers' learning and mentoring activities in mentor teachers' thinking, repertory-grid interviews were conducted with all mentors. This allowed mentors to engage in talk close to their lived practice of mentoring and narrative ways of knowing mentoring practice (Shulman, 2002), while also directly capturing what mentoring activities they associated with characteristics of their mentee teachers' learning. The names of mentee teachers that the mentors had mentored in the past were used as stimuli for first eliciting mentor talk about similarities and differences between their mentees, and subsequently about mentoring activities they performed to adaptively respond to these similarities and differences.

The interviews followed the classical repertory-grid interview format (Tan & Hunter, 2002), based on Kelly's theory of personal constructs (Kelly, 1955). In this format, the respondents themselves identify both the elements (the mentee teachers) and the constructs (how the mentee teachers differed). The constructs are elicited in a triadic form, by asking the respondent to distinguish how two elements (mentee teachers) are similar, and a third is different from these two. In this study, we define constructs as bipolar oppositions that mentor teachers use to discriminate between different attributes of their mentee teachers' learning.

First, mentors were asked to recall the names of six mentee teachers they had mentored, of whom they still had a vivid recollection. Second, they were given three of these names, on cards. They were asked to identify how two mentees had in some way been similar to each other and dissimilar to the third mentee. They were asked to name the terms that best described the difference, and to provide examples of how this had manifested itself in the mentoring process. Finally, they were asked to describe how they had responded to these

similarities and differences, and to provide examples of what they had done. This was repeated a total of eight times with different sets of names, so that each name was included in four different sets. To stimulate mentors to talk about what they perceived to be meaningful differences, they were allowed to 'skip' a card sorting, to contrast the set of three cards with the total card set, or to sort the same set of cards multiple times. As a result, some respondents made more than eight card sorts, resulting in a total of 97 card sorts for all eleven mentors. Interviews took between half an hour to one hour, and were transcribed verbatim from audio files.

6.3.3 Analysis

Interview transcripts were analysed using content analysis (Kurasaki, 2000). Interviews were first separately coded for attributes of mentee teacher learning and for mentoring activities (see sections 4.2.3 and 5.2.4 in Chapters 4 and 5). Subsequently, associations between attributes and mentoring activities were explored through a pattern analysis. A more elaborate description of the coding process for attributes and mentoring activities is provided in sections 4.2.3 and 5.2.4 of Chapters 4 and 5. Here, we shortly summarize the overall coding process, and then we indicate how the interviews were scored using the two coding schemes, and how shared attribute-activity associations were identified.

6.3.3.1 Coding process for attributes and mentoring activities

The two coding schemes for attributes of mentee teachers' learning and for mentoring activities were each developed in several rounds (see sections 4.2.3 and 5.2.4). In each round, two separate coders annotated a segment of the data, and adapted the coding scheme based on comparison and discussion of their annotations (Popping, 1992), until the coding scheme was stable. Inter-coder reliability for both coding schemes was measured using proportional agreement and Mezzich's proportional overlap κ statistic (Eccleston, Werneke, Armon, Stephenson, & MacFaul, 2000; Mezzich, Kreamer, Worthington, & Coffman, 1981). Proportional agreement was above 90% and chance corrected agreement was above .85 for both coding schemes, a level that is generally considered very good (Wongpakaran, Wongpakaran, Wedding, & Gwet, 2013).

For attributes of mentee teacher learning, a three-level coding scheme was developed (see section 4.2.3 in Chapter 4). At the highest level of the coding scheme, these constructs were organized into four overarching themes. At the lowest level of this coding scheme, thirty-three constructs were identified. Each construct described a polar opposite, for instance 'self-confident versus doubting' which reflects the difference between a) being self-confident and assured about one's own capabilities, and having a high expectation of success, versus b) doubting and being unsure, insecure about one's own capabilities and having a low expectation of success. The original coding scheme described 33 constructs (see Table 4.1 in Chapter 4). For this study, we used the individual polar opposites of these constructs as indicators of attributes of mentee teachers' learning. This version of the coding scheme is presented in Appendix 2, describing 64 attributes of mentee teacher learning. Two constructs are not bipolar in the original coding scheme (see attributes 11 and 33 in Appendix 2), and these are retained in the same form as in the original coding scheme.

For mentoring activities, a two-level coding scheme was developed (see section 5.2.4 in Chapter 5). At the highest level of the coding scheme, these adaptive mentoring activities were organized into four broad mentoring intentions. These were a) providing emotional and psycho-social support, b) supporting construction of personal practical knowledge of teaching, c) creating a favourable context for mentee learning, and c) changing mentee teacher behaviour. At the lowest level of this coding scheme, 34 individual mentoring activities were identified. The coding scheme is presented in Table 5.1 in Chapter 5, describing 34 distinct mentoring activities. For each mentoring activity, a verb indicates the core of the activity, and a more detailed description denotes the activity and its goal.

6.3.3.2 Scoring of interview fragments for attributes and mentoring activities.

In applying the two coding schemes to the interviews, the basic unit of analysis was an interview fragment in which one card sort was discussed. Each unit of analysis was indexed twice, for both attributes and mentoring activities: once for the two mentee teachers sorted together as similar, and once for the mentee teacher set aside as different. For example, the following interview fragment

shows a mentor (mentor 01 in card sort 03) contrasting mentees A and B versus mentee D:

177 r> OK, uh, [...] yeah self-reliant and not self-reliant,
178
179 i> all right, how did that express itself,
180
181 r> uhm, those two try to find things out for themselves,
182 sometimes come by to ask something but more with a
183 clear-cut question and then get to work again, and that
184 one came by for every little problem, asking, and, well
185 with everything. And every day, and these would also ask
186 other people and that one would ask me everything
187
188 i> OK, how did you respond, what did you do with that
189
190 r> well, with this one, again, trying to take away that
191 insecurity, with these, more content oriented, content
192 focussed mentoring.

This card sort was indexed twice, using the lists of attributes of mentee teacher learning and of mentoring activities, as presented in Appendix 2 and Table 5.1. First, for mentees A and B, this card sort was indexed as [0103-AB: (B3.20a) self-confident + (B4.25a) independent + (14)/focus instruction] to indicate the association of the mentee teacher attributes of self-confidence and independence with the mentoring activity of focusing mentoring on the instruction of content. Second, for mentee D, this card sort was indexed as [0103-D: (B3.20b) doubting + (B4.25b) dependent + (9) reassure], to indicate the association of the mentee teacher attributes of doubting and dependence with the mentoring activity of reassuring the mentee to take away feelings of insecurity. The numerical indexes 20a/20b and 25a/25b indicate attributes that are polar opposites (a versus b) of the same construct, such as self-confident versus doubting (see Table 4.1 in section 4.2.3). All units were indexed similarly by labelling the unit with numerical codes for mentee teacher attributes and mentoring activities. For both attributes and mentoring activities, multiple codes could be attached to each index

of one unit of analysis. The final data matrix thus contained 194 indexed units (97 card sorts, each indexed twice), by 64 mentee teacher attributes (related to the 33 bi-polar constructs; two constructs were not bipolar) and 34 mentoring activities.

6.3.3.3 Pattern analysis of attribute-activity associations

In the total dataset, there was a large variability of associations between attributes and activities. For some attributes, no activities were mentioned in combination. For other attributes, up to 16 different mentoring activities were mentioned in combination. To explore shared associations between attributes of mentee teachers' learning and mentoring activities in mentor teachers' descriptions, three indicators of associations between attributes and mentoring activities were used. The three indicators are explained here with a (fictitious) example of a scoring pattern for a particular attribute of mentee teachers' learning (see Table 6.1). The table shows that mentor 1 mentions activities A and B once in combination with this attribute of mentee teachers' learning. Mentor 4 mentions activity D once and activity F three times in combination with this attribute. Mentor 1 and mentor 2 both mention activity A for this attribute, and mentor 1 and mentor 3 both mention activity C for this attribute.



Table 6.1. Example of a scoring pattern for one particular attribute of mentee teachers' learning.

Mentoring activity	Mentor 1	Mentor 2	Mentor 3	Mentor 4
A	x	x		
B	x		x	
C			x	
D		xxxx		x
E		x		
F				xxx

Note: This example is fictitious, to explain the different workings of the three indicators of association.

The first indicator (I) is maximum agreement at the level of specific activities. This was calculated as the highest number of mentors that mention the same mentoring activity in connection to the particular attribute. In the example in Table 6.1, this number is two: activities A, B, and D are all mentioned by two mentors, but no activity is mentioned by more than two mentors. High scores on this indicator point to agreement across mentors that a specific mentoring activity is an appropriate response for an attribute. However, in the example the same score would be possible if all mentors 2, 3 and 4 had each only mentioned one activity for the attribute, and only mentors 1 and 2 had agreed on activity A. At the level of the overall pattern of associations, such a score would indicate less agreement between mentors than the pattern in table 6.1, even if agreement at the level of a specific activity is the same. Therefore, we used two additional indicators at pattern level.

The second indicator (II) is agreement at the level of the overall scoring pattern. This was calculated as the average proportional agreement (Eccleston et al., 2000). For each attribute, all pair wise agreements between each combination of two mentors was calculated, and these were then averaged across all pair wise combinations. In the example in Table 6.1, proportional agreement between mentor 1 and mentor 3 is 0.33. Together between them, they mention three activities (A, B and C), but they have made only one agreement (activity A) for these three activities. Their pairwise proportional agreement is therefore $1/3=0.33$. Mentors 3 and 4 show no agreement, so their pairwise proportional agreement is 0. The average proportional agreement over all six pairwise combinations in this example is 0.14 ($0.25 + 0.33 + 0.25 + 0 + 0 + 0 / 6$). Higher scores indicate that mentors overall tend to connect the same activities to a particular attribute, indicating agreement at pattern level.

The third indicator (III) is discrimination at pattern level. It is calculated as the ratio of (1) the number of different mentoring activities to (2) the total number of associations with mentoring activities that the mentor teachers mention for an attribute, across the total dataset. In the example in Table 6.1, this ratio is 0.43 (six over 14); the mentors mention six different mentoring activities (activity A to F) in combination with the attribute, for a total of 14 times (including the repeated mentions by mentors 2 and 4). A lower ratio indicates that mentors more frequently mention a more narrow range of different mentoring activities with the particular attribute, indicating discrimination at pattern level. If mentors 2 and 4

had only mentioned all activities once, this ratio would have been 0.67 (six over nine), whereas proportional agreement (indicator I) would have remained the same. Overall, it is likely that as mentors mention attributes more often in association with mentoring activities, they will also mention a wider range of mentoring activities for these attributes. To check whether this was so, the correlation coefficient between (2) and (1) was calculated for the whole dataset. Kendall's tau-b was used, a non-parametric measure suitable for ordinal data in a small sample such as this one. There was a strong and statistically significant positive relationship between (2) the total number of associations with mentoring activities that mentors mention for an attribute and (1) the number of different mentoring activities they mention for the attribute ($\tau = .94$. $p(\text{one-tailed}) < .01$). Attributes with a relatively low ratio of (1) over (2) deviate from this general trend. For these attributes, mentors mention a relatively narrow range of mentoring activities. Low scores may also originate from a few mentors repeatedly associating an attribute with an activity, but this is compensated for by the other two indicators.

The three indicators were used in combination to compensate for the weaknesses of each. Attributes were selected that met at least two of the following three criteria for the three indicators; (I) at least three mentors that mention the same mentoring activity in combination with the attribute, (II) an average proportional agreement of 0.03 or higher, and (III) a ratio lower than 0.6. The attribute from the example in Table 6.1 would therefore have been selected even though maximum agreement at activity level (indicator III: 2) is below 3. Average proportional agreement (indicator I; 0.14) is above 0.03, suggesting some agreement at pattern level, and the ratio of activities over associations (indicator II; 0.43) is below 0.60, suggesting some discrimination at pattern level. The criteria were empirically established based on the scores in the total dataset. Appendix 3 presents all attributes of mentee teachers' learning, and scores for indicators of their association with mentoring activities.

For each selected attribute, we retrieved all relevant interview fragments and compared how mentors combined the selected attribute with other attributes and mentoring activities in their descriptions. Based on this comparison, we developed summaries that provided a condensed account of these patterns of combinations. The summaries are presented in the results section in the form of 'if...then' statements that connect attributes of mentee learning to mentoring

activities. Where reference is made in the results section to an attribute of mentee teacher learning or to a mentoring activity, the corresponding letter and number combination from Appendix 2 is indicated after the attribute, or the corresponding number from Table 5.1 in Chapter 5 (see section 5.2.3.1) is indicated before the mentoring activity, in parentheses.

6.4 Results

In this section, we first present the shared attribute-activity associations and the mentoring situations that mentors identified for these attributes in their descriptions. In the subsequent four sections we present the common response patterns for these attributes, organized according to the concomitant four domains of mentee functioning. Each section presents the patterns of attribute-activity associations in mentor teachers' descriptions, followed by a condensed account of these patterns in the form of 'if...then' heuristics.

6.4.1 Shared attribute-activity associations

Ten attributes met at least two of the criteria for shared attribute-activity associations (see Appendix 3). Table 6.2 presents the attribute-activity associations for these ten attributes, showing the mentoring activities that mentors mentioned multiple times (at least twice) in association with the attribute. The attributes in this table are ordered along the four domains of mentee functioning they relate to: interactions with pupils and classroom management (A1), knowledge, beliefs and approaches towards learning, instruction and content (A2), mentee teacher dealing with emotions in the learning process (B3), and mentee teacher role in guided problem solving (B4). The mentoring activities in this table are ordered along the four broad mentoring goals they are oriented toward: A) providing emotional and psycho-social support, B) supporting construction of personal practical knowledge of teaching, C) creating a favourable context for mentee learning, and D) changing mentee teacher behaviour.

For the two domains of mentee teaching (A1 and A2 in Table 6.2), the shared mentoring activities generally represent two of the four mentoring goals;

combining support for knowledge construction with either emotional support or efforts to change mentee behaviour. For the two domains of mentee learning to teach (B3 and B4 in Table 6.2), these mentoring activities generally represent all four mentoring goals. Several attributes were mostly mentioned in combination with each other, as part of interconnected pattern of attributes and activities (B3.20b doubting/ B3.21b emotional, and B4.22b closed/ B4.23b unaware/ denying). These attributes are therefore presented in combination in Table 6.2.

In their descriptions of the shared attribute-activity associations, mentor teachers tended to differentiate their response for an attribute of mentee teacher learning according to their interpretation of the mentoring situation at hand. Table 6.3 provides an overview of these mentoring situations, ordered along domain of mentee functioning and attribute of mentee learning. For most attributes, mentor teachers' descriptions of their response were differentiated according to situational interpretations that involved causal explanations or attributions. For instance, for mentee teachers that have an unsure presence in class, mentor teachers' described responding differently according to whether they attributed this to mentee insecurity and self-doubt, or to a lack of skills for classroom management (see Table 6.3).

The following four sections present the common response patterns for the four domains of mentee functioning. Each section presents the patterns of attribute-activity associations in mentor teachers' descriptions, followed by a condensed account of these patterns in the form of 'if...then' heuristics.

Table 6.2. Shared attribute-activity associations expressed by mentor teachers in this study.

Attribute	Mentoring goals and activities			
	A. Providing emotional and psycho-social support	B. Supporting construction of personal practical knowledge about teaching	C. Creating a favourable context for learning	D. Changing novice teacher behaviour
<i>A1. Teaching: Interactions with pupils and classroom management</i>				
A1.2b. impersonal	8.incite 9.reassure	15.focus contact		33.suggest
A1.4b unsure	1.affirm 8.incite 9.reassure 10.solicit self-affirmation	13.focus discipline		
<i>A2. Teaching: Knowledge, beliefs and approaches towards learning, instruction and content</i>				
A2.6b.relaxed		17.guide application		28.confront 30.dictate
A2.8b.uneducated		14.focus instruction 17.guide application		28.confront
A2.11 educational values		16.use		28.confront
<i>B3. Learning to teach: Mentee teacher dealing with emotions in the learning process</i>				
B3.20a.self-confident	2.attune	12.focus teaching 14.focus instruction	21.defer 27.self-adjust	28.confront
B3.20b doubting/ B3.21b emotional	1.affirm 2.attune 5.focus emotions 8.incite 9.reassure 10.solicit self-affirmation	13.focus discipline		28.confront
<i>B4. Learning to teach: Mentee teacher role in guided problem solving</i>				
B4.22b closed/ B4.23b unaware/ denying	2.attune	18.solicit	19.abbreviate	28.confront

Table 6. 3. Mentoring situations identified based on shared attribute-activity associations expressed by mentor teachers in this study.

Domain of mentee functioning	Attribute of mentee learning	Mentoring situations: when mentees...
A1. Teaching: Interactions with pupils and classroom management	A1.2b.impersonal	...are fearful of engaging with pupils ...do not recognize the importance of engaging with pupils
	A1.4b unsure	...lack assertive presence due to self-doubt ...lack skills for classroom management.
A2. Teaching: Knowledge, beliefs and approaches towards learning, instruction and content	A2.6b.relaxed	...are competent but unmotivated to plan for teaching. ...set low standards for teaching and learning. ...lack skills for lesson planning
	A2.8b.uneducated	...have a deficit in content knowledge
	A2.11 educational values	...have strong personal views.
B3. Learning to teach: Mentee teacher dealing with emotions in the learning process	B3.20a.self- confident	...are confident and capable ...are overconfident and self-centred
	B3.20b doubting/ B3.21b emotional	...are emotionally vulnerable ...are insecure due to perfectionism ...feel incompetent because of problems in teaching
B4. Learning to teach: Mentee teacher role in guided problem solving	B4.22b closed/ B4.23b unaware/ denying	...have impediments to productive reflection on teaching ...are closed due to over-confidence ...refuse to be mentored

6.4.2. Heuristics for mentee interactions with pupils and classroom management

6.4.2.1 Mentee teachers who are impersonal and distant towards pupils (A1.2b).

This set contained eight card sorts by six mentors, involving nine mentee teachers. There were two patterns: 1) mentee teachers who mentors saw as retreating from making contact with pupils because of their own insecurities and fears (four card sorts), and 2) mentee teachers who mentors saw as having a 'blind spot' for making contact with pupils (four card sorts). For both groups, mentors mentioned they responded by (15) focussing on this issue, (33) making suggestions on how to engage into contact, and (8) inciting mentees to stretch beyond their comfort zone. For a fearful mentee, inciting was mentioned to get over her fears, and for two 'blind spot' mentees it was mentioned to change their typical dealing with a class, and to either show more warmth or create more room for pupil interaction by using more collaborative forms of learning. For the fearful mentees, mentors especially mentioned (9) reassuring them to put their experiences into perspective. To summarize, mentors identified two mentoring situations for mentees that were distant and impersonal with pupils: when mentees 1) are fearful of engaging with pupils, or 2) do not recognize the importance of engaging with pupils. Box 6.1 provides a condensed account of their response to these mentoring situations.

6.4.2.2 Mentee teachers with an unsure presence in class (A1.4b).

This set contained six card sorts by five mentors, involving nine mentee teachers. Mentors saw all but one of these mentee teachers also as doubting and insecure (B3.20b). The dominant response that mentors mentioned was (8) inciting mentee teachers to take more risks in order to learn, and to overcome the insecurities that made them unsure in class. Their further response depended on whether they saw unsure presence as emanating mostly from insecurity and self-doubt, or mostly from lacking skills for classroom management, even if this was accompanied by self-doubt. Depending on this distinction, mentors expressed either 1) a more 'support' oriented response or 2) a more 'task' oriented response. Mentors who

expressed a more support-oriented response pattern mentioned building confidence by (9) reassuring, (1) affirming and (10) asking for self-affirmation, in the form of asking the mentee teachers for examples of success and improvements made. Mentors who expressed a more task-oriented response pattern (13) focussed on discipline and classroom management, and combined this with (32) monitoring progress through observation, (22) giving mentee teachers the status of teacher by not intervening and (16) using mentee teachers' existing reflective skills to (17) guide application by training and building competence in incremental steps. In sum, mentors described their response for two mentoring situations when mentees have an unsure presence in class: when mentees 1) lack assertive presence due to self-doubt, or 2) lack skills for classroom management (see Box 6.1).

Box 6.1. Mentoring heuristics for mentee interactions with pupils and classroom management.

If the mentee...	...then...	...and if the mentee...	...then...
...is impersonal and distant towards pupils (A1.2b)	...focus time on the issue, incite stepping out of his/her comfort zone to approach pupils, suggest how to make contact...	...is actually fearful, afraid of engaging with pupils or the class...	...reassure the mentee to help put his/her experiences in perspective and especially pay attention to giving suggestions for ways to make contact. Perhaps increase the intensity of mentoring.
		...has a blind spot for the importance of contact with pupils...	...put extra emphasis on inciting the mentee to get out of his/her comfort zone.
...has an unsure presence in class (A1.4b)	...incite the mentee to step out of his/her comfort zone...	...has deep doubts about him/herself as a teacher and a low expectation of success...	...affirm the mentee teacher of his/her capability where possible, reassure the mentee to help put experiences into perspective, and also ask the mentee to self-affirm by asking or examples of success and improvements over time.
		...lacks skills for classroom management...	...take time to focus on discipline and classroom management. Perhaps try not to intervene to prevent undermining mentee teachers' authority in class. Make use of mentee teachers' reflective skills in guiding application of new knowledge, and monitor progress with the mentee.

6.4.3. Heuristics for mentee knowledge, beliefs and approaches towards learning, instruction and content

6.4.3.1 Overly relaxed mentee teachers (A2.6b).

This set contained seven card sorts by seven mentors, involving seven mentee teachers. Mentors predominantly saw these mentees as overly relaxed in the sense that they did not adequately plan for instruction. There were three patterns of response. Three mentee teachers were seen as strong mentees with good content knowledge (A2.8a) and a flexible disposition (A2.7a), but with a tendency to teach too much 'on the fly' without specific planning for instruction (A2.10b). Mentors mentioned taking a 'tough' approach with these mentees by (28) confronting them with their lack of planning and (30) dictating the performance of specific steps in planning lessons, even if the mentor realized this would probably not have a lasting effect because the mentee teachers' 'relaxed' disposition was too strong. For two mentee teachers, mentors took the same 'tough' approach as in the first pattern, but here this was because the mentees' performance and the learning results were not up to standards (A2.9b). Finally, two mentee teachers also performed below standards (A2.9b), but in these cases the mentors took a (17) guiding approach, to help build required skills with regard to planning for instruction or classroom management. Therefore, mentors differentiated their response to mentees that did not adequately plan for instruction according to three different mentoring situations: when mentees 1) are competent but unmotivated to plan for teaching, 2) set low standards for teaching and learning, or 3) lack skills for lesson planning (see Box 6.2)

6.4.3.2 Uneducated mentee teachers with knowledge deficiencies (A2.8b).

This set contained five card sorts by four mentors, involving seven mentee teachers. All mentors saw these mentees as having a superficial, limited or narrow understanding of content, which they connected to mentee teachers' problems with bringing content across to pupils. The dominant response was to provide (17) guidance in skill acquisition, by training how to prepare for the lesson content as well as for a good lesson structure and ways to bring the content across

clearly for pupils. Two mentors combined this with an extended (14) focus on this issue, and one mentor also (28) confronted his two mentees with their deficits. For one of these two mentees, the mentor also chose to (25) shield the mentee, a non-native speaker with language deficits, from potential conflict with colleagues by correcting spelling errors in her tests. These response patterns were all oriented to one mentoring situation: when mentees have a deficit in content knowledge (see Box 6.2).

6.4.3.3 Mentee teachers with particular educational values (A2.11).

This set contained five card sorts by three mentors, involving ten mentee teachers. The dominant response for this attribute was to make productive (16) use of the mentee teachers' values and to build upon them. Each mentor expressed a distinct pattern of reasoning. One mentor contrasted mentees with a more progressive and a more conservative stance, which also influenced their larger goals for pupil learning. The mentor mentioned making (16) use of and stimulating both stances, because pupils needed to see a diversity of teachers. A second mentor contrasted mentees motivated to teach through content, versus a mentee motivated by the desire to work with children. She found both motivations for teaching valuable and tried to accommodate both. In addition, she tried to remediate potential pitfalls of each, by (29) curbing the tendency of the content-oriented mentee to plan and control too much (A2.10a), and (28) confronting the pupil-oriented mentee with teaching too much ad hoc and not planning for instruction thoroughly enough (A2.10b). The third mentor mentioned the influence of cultural backgrounds of mentee teachers on their views of teaching. In one case, this had led to strong external attributions by the mentee teachers, which expressed itself by them being closed (B4.22b), denying of their own role in teaching situations (B4.23b) and thereby not trying to change their teaching (B4.24b). She had responded by (28) confronting, but indicated that since this had not been productive, she would now be more inclined to (18) solicit problem solving by taking a more questioning approach. In the second case from the same mentor, she mentioned how two mentees' background led them to have a pupil-oriented orientation towards teaching (A2.11), providing for pupil autonomy in the classroom. She (16) used this orientation in a different sense than in the above

examples: when problems with pupils arose, she mentioned being able to (16) use the mentees' existing orientation towards pupils to help them solve problems by having them re-establish positive contact with pupils. These response patterns were all oriented to one mentoring situation: when mentees have strong personal views (see Box 6.2).

Box 6.2. Mentoring heuristics for mentee knowledge, beliefs and approaches towards learning, instruction and content.

If the mentee...	...then...	...and if the mentee...	...then...
...is relaxed and easy-going (A2.6b)		...generally performs well as a teacher, but prefers teaching 'on the fly' and sees planning as cumbersome or unnecessary...	...confront the mentee with what is expected of professional teachers and what is necessary for pupils to know what they are learning and what for, and dictate the mentee teacher to regularly submit lesson plans...
		...teaches ad hoc, sets low standards for pupil learning, puts in too little effort, achieves poor outcomes...	...confront the mentee with what is expected of professional teachers, the standards teachers should have for pupil learning, and dictate the mentee teacher to set a higher standard in subsequent lessons...
		...lacks skill or understanding of how to professionally plan for pupil learning...	...train skills, provide practice opportunities and guide application of new knowledge, perhaps make use of mentee teachers' reflective skills to support skill acquisition.

Box 6.2 (continued).

If the mentee...	...then...	...and if the mentee...	...then...
...is uneducated in essential areas of content (A2.8b)	...guide skill acquisition in preparing for lesson content, structuring of lessons and bringing content across for pupils...		...take time to focus mentoring on issues of instruction, confront the mentee teacher with his/her deficit to help them develop learning intentions and a willingness to learn, perhaps temporarily shield the mentee teacher from possible negative effects of his/her lack of skill or knowledge.
...has strong personal views about the goals of education and the teacher role (A2.11)	...make use of the mentee teacher's orientation as a quality to build upon...	...has a perspective with pitfalls that might adversely affect pupil learning...	...confront the mentee teacher with the pitfalls of his/her perspective and teaching approach, and help the mentee teacher to overcome these pitfalls by soliciting problem-solving, and by actively curbing undesired teaching behaviour.

6.4.4. Heuristics for mentee dealing with emotions in the learning process

6.4.4.1 *Highly self-confident mentee teachers (B3.20a).*

This set contained nine card sorts by seven mentors, involving 12 mentee teachers. There were two overall patterns. Four mentors saw the self-confidence of six mentee teachers as well founded, because they were either independent problem solvers (B4.25a), responding rationally to teaching experiences (B3.21a), mature (C.31a) and/or had an assertive presence in class (A1.4a). The mentors thus saw these mentees as confident and capable. This opened up room

to focus on learning the task of teaching, and mentors mentioned they therefore focused mentoring time on (12) teaching or more specifically on (14) instruction, and (21) deferring attention for the mentees' sense of self in the learning process. Three mentors saw six mentee teachers as over-confident, too aggressively assertive of themselves in class or in the mentoring relationship, and as self-centred (A1.1b), closed (B4.22b) or having a disagreeable and unsociable disposition (C.30b). The mentors mentioned a combination of (2) attuning the mentoring approach to the emotional state of the mentee teacher and (27) adjusting themselves to be able to work with the unpleasant aspects of the mentee teachers' over-confidence, combined with (29) confronting the mentee teacher where necessary. Depending on the nature of the emotional state of the mentee teacher, (2) attuning took on a different forms. One mentor mentioned initially taking a non-confrontational and somewhat submissive stance towards a mentee teacher that was highly self-assured (B3.20a) and closed (B4.22b), in order to create room for the mentee teacher to open up. Another mentor mentioned taking a more distant stance towards male mentee teachers (C.26b) whom she saw as generally more self-centred (A1.1b) than female mentee teachers (C.26a). Two mentors mentioned (27) adjusting themselves to cope with the resistance engendered by the self-assertiveness of the mentee teacher. One mentor had made an effort to overcome her initial tendency to slow down the mentee teacher's tendency for taking initiatives. A second mentor had felt initial resistance and antipathy towards a mentee teacher he saw as disagreeable to work with (C.30b) because she was very confrontational. He had made an effort to overcome his feelings, on the grounds that he felt he had to be able to adapt as a mentor, and had therefore also decided to (21) defer attention for certain aspects of her personality and behaviour, to make the mentoring relationship work. Thus, mentors differentiated their response to mentees that were highly self-confident according to two different mentoring situations: when mentees 1) are confident and capable, or 2) are overconfident and self-centred (see Box 6.3).

6.4.4.2 Doubting and emotional mentee teachers (B3-20b/21b).

This set contained 15 card sorts by ten mentors, involving 18 mentee teachers. There were three patterns. Seven mentors saw 11 mentee teachers as highly sensitive and emotionally vulnerable, which expressed itself in various forms,

such as crying a lot, being easily daunted by adversity, depending on the mentor for problem solving (B4.25b), and being closed to advice and feedback (B4.22b). The dominant response was to (2) attune the mentoring approach to the vulnerable emotional state of the mentee teacher by being cautious and gentle, (5) take time to focus on emotions and personal experiences of learning to teach, (9) reassure and help put experiences into perspective, and (8) incite the mentee to take risks and stretch beyond their comfort zone. Two mentors saw three mentee teachers as mainly too self-critical and perfectionist. The dominant response was to create affirmation of existing capabilities, by either (1) indicating what went well or how the mentee teacher had improved or by (10) asking the mentee teacher to do so him/herself, to help them to be less overly self-critical and more positive about their accomplishments. Finally, three mentors saw the doubtfulness of four mentee teachers as arising from recurring issues with classroom management and instruction due to a lack of skill. Their dominant response was therefore task-oriented, by (13) focussing on issues of discipline with those mentees that also had an unsure presence in class (A1.4b), by (22) giving the mentee teacher status by not intervening in class and by (32) monitoring progress through observation. One mentor indicated how a mentee teacher had initially been passive (B2.16b) and dependent (B4.25b) by wanting to copy the mentor, whereas the mentor's approach did not work for her. He mentioned (23) shielding the mentee after a blackout in class by taking over the class, (28) confronting her with the fact she had a problem to deal with, and subsequently helping to (17) build skills in developing a different teacher approach by (23) increasing the intensity of mentoring. So, mentors differentiated their response to mentees that were doubting and emotional according to three different mentoring situations: when mentees 1) are emotionally vulnerable, 2) are insecure due to perfectionism, or 3) feel incompetent because of problems in teaching (see Box 6.3).

Box 6.3. Mentoring heuristics for mentee dealing with emotions in the learning process

If the mentee...	...and if the mentee....	...then...
<p>... is highly self-confident (B3.20a)</p>	<p>...is justly confident because he/she shows maturity, independent problem solving, responds rationally to teaching experiences and has assertive presence in class...</p>	<p>...defer attention for how the mentee personally experiences teaching (since this does not pose a barrier to learning), and take time to focus on issues of teaching performance and especially instruction of content.</p>
	<p>...is over-confident and asserts him/herself too aggressively in class or in the mentoring relationship, is self-preoccupied, or unwilling to accept feedback and be mentored...</p>	<p>...attune the mentoring approach to what the mentee can handle, perhaps taking a helping stance to help the mentee to 'open up'; self-adjust to be able to productively cope with the unpleasant aspects of the mentee teachers' stance; confront the mentee where necessary with undesired effects of his/her overly assertive stance, and perhaps curb undesired behaviour.</p>

Box 6.3. (continued).

If the mentee...	...and if the mentee...	...then...
<p>...is doubting, insecure, with a low expectation of success, and/or responds emotionally to teaching experiences, taking them highly personally (B3.20b/21b)</p>	<p>...is highly sensitive and emotionally vulnerable, and easily daunted, highly dependent and/or defensive and closed...</p>	<p>...attune the mentoring approach to what the mentee can handle emotionally to prevent withdrawal from learning, take time to focus on emotions and personal experiences of learning to teach, console and reassure the mentee to help put experiences into perspective, and incite him/her to take risks, persevere and stretch beyond his/her comfort zone.</p>
	<p>...is doubtful because he/she is too self-critical and perfectionist...</p>	<p>...affirm the mentee teacher's capabilities and ask him/her to explicate his/her own successes and improvements to become aware of strengths</p>
	<p>...has doubts because lack of classroom management skills or style of teaching leads to repeated problems...</p>	<p>...provide task-oriented support by taking time to focus on classroom management and interaction with pupils, and perhaps confront where necessary with problematic aspects of teaching style. Monitor progress, increase mentoring intensity and temporarily shield the mentee from potential negative effects of his/her lack of skill, try not to intervene to prevent undermining the mentee teacher's authority in class.</p>

6.4.5. Heuristics for mentee teacher role in guided problem solving

6.4.5.1 Closed and unaware/denying mentee teachers (B4.22b/23b).

This set contained 11 card sorts by six mentors, involving 12 mentee teachers. For all these mentee teachers, mentors identified various forms of unwillingness or inability to initiate or complete the process of reflecting on teaching, thinking through problems and trying out solutions to improve teaching. Four mentors saw nine mentee teachers as being impeded to reflect through their misconceptions about teaching, advanced age, inability to face problems, or lack of understanding of what to look for in reflecting on teaching. The dominant response was to (28) confront mentee teachers with discrepancies between current and desired states, and/or to question them in order to (18) solicit problem solving. In one case, where the mentor saw the underlying problem as an unwillingness to question ingrained assumptions, the mentor relied solely on (18) soliciting by (4) focussing on the mentee teachers' personal experiences of classroom events. Two mentors saw two mentee teachers as closed (B4.22b); one as a result of being overly self-assured (B3.20a), the other as a result of being overly sensitive and insecure (B3.20b). Both mentors (2) attuned their approach to the confidence level of the mentee teacher by being cautious, deliberately avoiding a confrontational approach to prevent withdrawal by the mentee teacher. Finally, one mentor indicated (19) abbreviating the mentoring relationship because of a mentee teachers' extreme unwillingness to be mentored (B4.22b). To summarize, mentors identified three different situations for mentee teachers that were unwilling or incapable of reflecting on teaching: when mentees 1) have impediments to productive reflection on teaching, 2) are closed due to overconfidence, or 3) refuse to be mentored.

Box 6.4. Mentoring heuristics for mentee teacher role in guided problem solving

If the mentee...	...and if the mentee....	...then...
..is closed to feedback and advice, unaware or denying of his/her influence on pupils and lessons, making external attributions (B4.22b/23b)		...confront the mentee teacher with discrepancies between current and desired situations to make him/her see the necessity of change, and solicit problem solving to stimulate thinking through problems and ownership of solutions.
	...is closed because of being overly self-assured or overly sensitive and insecure...	...attune the mentoring approach, for instance by being more cautious and less confrontational in choice of words.
	...is extremely closed and unwilling to be mentored...	...abbreviate or terminate the mentoring relationship.

6.5 Discussion

The research question for this study was: *What are mentor teachers' heuristics for adaptive response to their mentee teachers' learning?* The main finding is that mentors expressed shared heuristics for seventeen distinct mentoring situations. These heuristics involve four domains of variation in novice teacher learning: 1) their interactions with pupils and classroom management, 2) their knowledge, beliefs and approaches towards learning, instruction and content, 3) their dealing with emotions in the learning process and 4) their role in guided problem solving. The heuristics for the second two domains were oriented toward a wider range of mentoring goals than the heuristics for the first two domains.

The main aim of this study was to contribute to the knowledge base of teacher mentoring and to the further development of educative, adaptive mentoring practices. The unique contribution of this study is the focus on shared patterns of adaptive response that connect actions to situations in the form of

heuristics. Most of these heuristics show that mentors differentiate their response according to how they explain the mentoring situation. If for instance a mentee doesn't engage in contact with pupils in class, is this because the mentee is fearful of doing so or does the mentee somehow not recognize the importance of teacher-pupil contact? The response that mentors describe differs accordingly: for instance reassuring the mentee or trying to change the mentees' view. In this way, these heuristics connect actions and intentions to situational interpretations or contextual grounds (Fenstermacher, & Richardson, 1993; Gholami & Husu, 2010; Kennedy, 2004).

In this study we have attempted to make mentor teachers' heuristics communicable by representing them in the form of condensed 'if...then' statements that connect attributes of mentee learning to mentoring activities. This form emphasizes mentor teachers' practical knowledge as actionable, practical principles (Elbaz, 1981) or forms of practical reasoning (Gholami & Husu, 2010) that guide mentor teacher action. The organization of the heuristics around seventeen situations reflects how mentor teachers' practical knowledge of individual differences between novices' learning and of mentoring strategies is "intertwined, organized (...) according to the problem the knowledge is intended to address" (Hiebert et al., 2002, p.6). This does not mean that such practical reasoning is correct; it is fallible and may be biased (Randi & Corno, 2005).

The heuristics described in this study do not in itself present or pretend to present statements of how mentors should act in the seventeen mentoring situations contained in the heuristics. Rather, they provide a mirror of practitioner knowledge in which mentor teachers can reflect their own practical reasoning with regard to these seventeen mentoring situations. Mentor teachers may disagree with the usefulness, appropriateness or desirability of the actions contained in these heuristics, based on different interpretations of the situations in these heuristics or on personal principles, beliefs and values with respect to mentoring novice teachers. They may also note how their response to these situations would be contingent upon possible additional situational considerations not related to the mentee teachers' learning, such as time set aside for mentoring (Brooks, 2000). We would argue that such is the nature of practical reasoning (Kennedy, 2004).

For several attributes, heuristics were differentiated between a more task-oriented and a more support-oriented response, depending on whether mentors

understood the situation as related to mentee issues of teaching competence or of mentee dealing with the self in learning to teach. Highly similar heuristics are proposed in the model of adaptive mentoring developed by Ralph & Walker (2013a). Previous studies have also found that novice teachers also perceive mentor teacher assistance as either emotional support or task assistance (Hennissen, Crasborn, Brouwer, Korthagen, & Bergen, 2011).

6.5.2 Limitations and suggestions for further research

The shared heuristics in this study are represented in the form of condensed accounts, to emphasize shared patterns of reasoning. Consequently, this study does not portray the richness and detail of the lived experiences of mentoring involved in these heuristics. However, the more detailed accounts of mentor teachers' views of their mentees and of their mentoring activities in Chapters 4 and 5 serve to compensate this to a degree. The repertory-grid interviews in this study have been functional in eliciting how mentor teachers connect their actions to situational conditions of mentee teacher learning, and in uncovering shared heuristics. However, our study only involved 11 mentors. In future studies, including more mentors may help to find additional shared heuristics, and provide evidence of more common grounds in mentor teachers' practical reasoning about adaptive response to their mentee teachers' learning. With Verloop et al. (2001) we suggest that such studies attend to the context in which the practical knowledge of mentors is studied. This may be as specific as a particular mentoring practice such as co-planning or debriefing lessons (Stanulis et al., 2018), or specific to certain levels of novice teacher preparation or induction into the profession. A limitation of the interview protocol in this study was that it did not probe mentors to justify their actions (Fenstermacher & Richardson, 1993; Gholami & Husu, 2010, Kennedy, 2004). With small adjustments, future studies could incorporate questions that probe justifications of knowledge, and this may help to develop descriptions of mentor teachers' practical reasoning in a more complete form, including warrants for what actions would be just or effective in a situation (Gholami & Husu, 2010). Finally, this study has been limited to mentor teachers' views of adaptive response through a retrospective method. Further research should compare both mentor teachers' and novice teachers' views of adaptive response in longitudinal studies of mentoring relationships, to

include effectiveness as a criterion of adaptive response (Van de Pol, Volman, & Beishuizen, 2010).

6.5.3 Suggestions for practice

The heuristics developed in this study may be used as a mirror for mentor teachers. Not in the sense of prescription, but they can serve to make them “more aware of their own thinking and to heighten the sense that alternative ways of thinking are possible” (Floden & Feiman, 1981, p. 280). Mentor teachers may be presented with a case description, and then be provided with different heuristics that represent various contrasting understandings of the underlying nature of the situation, and asked to develop an approach for the case. Encountering such different perspectives on an event during decision making, promotes the activation of adaptive metacognition (Lin et al., 2005). The seventeen mentoring situations can serve as source material to create vignettes or case descriptions of mentoring situations. The response patterns in the heuristics can serve to create mini-strategies for responding to situations. Together this may help to create a rich set of case materials for use in professional development activities with mentors.

6.6 Conclusion

This study provides representations of mentor teachers' shared conditional knowledge, in the form of heuristics for adaptive response to seventeen distinct mentoring situations. If mentoring is to become a professional role with a distinct knowledge base (Schwille, 2008), then conditional knowledge that connects both knowledge of learner variation and knowledge of mentoring activities needs to be part of this knowledge base. Such conditional knowledge provides a foundation for mentor teachers' ability to create learning opportunities that suit where the novice teacher is as a learner of teaching.