



Mentor teachers' intended intervening during student teachers' lessons: A vignette study in Dutch primary education



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HIGHLIGHTS

- Mentor teachers prefer teaching values over mentoring values.
- Mentor teachers intervene frequently, intensely and directed toward ST and pupils.
- Intended intervening intensity and direction are affected by the situation and the MT.
- Intervening is predicted by trigger type and severity; not by ST's experience.
- Intervening is predicted by mentor teachers' personal value and empirical premises.

ARTICLE INFO

Article history:

Received 24 December 2019

Received in revised form

10 January 2021

Accepted 21 March 2021

Available online 16 July 2021

Keywords:

Mentoring

Mentor teachers

Student teachers

Intervening

Primary education

Multilevel analysis

Vignette study

ABSTRACT

This vignette study examined mentor teachers' intended direction and intensity to intervene during student teachers' lessons in Dutch primary education and the triggers for their intervening. Based on Fenstermacher's (1986) theory of premises leading to actions, we developed vignettes in which we manipulated trigger type, trigger severity, and student teacher experience. 159 mentor teachers indicated whether and how they would intervene. Results showed that mentor teachers prefer teaching values over mentoring values and intend to intervene quite intensely. We suggest that explicitly emphasising towards mentor teachers that their intervening should serve both pupils and student teachers might improve student teachers' learning.

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1. Introduction

Imagine a student teacher (ST) teaching 25 pupils in a primary school classroom. Her mentor teacher (MT) sits at the back of the classroom. After a while, pupils start chatting and are no longer on task. What should this MT do? Intervene forcefully by taking over the lesson? Subtly intervene (e.g., whispering at the ST or the pupils)? or not intervene? This situation illustrates an MTs' dilemma; on the one hand, MTs are responsible for their pupils, and on the other, for fostering STs' learning.

During student teaching in primary education in the Netherlands (Jaspers, Meijer, Prins, & Wubbels, 2014), and many other countries (e.g., Clarke, Triggs, & Nielsen, 2014; Glenn, 2006; Kent, 2001; Rajuan, Beijaard, & Verloop, 2007; Weasmer & Woods, 2003) MTs often intervene (cf. Ben-Peretz & Rumney, 1991; Gardiner, 2017; Post, 2007; Wang, 2010). The *direction* of MTs' intervening can be towards the ST or the pupils. Interventions can vary in *intensity*: the intervention's degree of disruptiveness. Jaspers, Prins, Meijer, and Wubbels (2018) found that some MTs in primary education intervene frequently primarily by guiding the pupils, and quite disruptively, for example, by taking over the lesson. As mentoring during student teaching has been reported to be an important aspect of teacher training (Ellis, Alonzo, & Nguyen, 2020; Hobson, Ashby, Malderez, & Tomlinson, 2009; Orland-Barak & Wang, 2020), and MTs significantly influence STs development (Beck & Kosnik, 2002;

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Clarke et al., 2014; Darling-Hammond et al., 2017; Schwille, 2008), understanding why MTs intervene is essential for eventually improving STs' learning during student teaching.

Whether and how MTs intervene when an ST teaches varies according to the MT and situation. Some MTs tend to interrupt ST's lessons while others do not (Ben-Peretz & Rumney, 1991). When developing strategies to improve STs' learning during student teaching, it is helpful to understand why MTs choose to intervene or not and, if they intervene, how intensely and in what direction. Potential predictors for MTs' intervening are situational characteristics, such as ST's mistakes (e.g., Ben-Peretz & Rumney, 1991) or ST's level of experience (Post, 2007), and MT's personal characteristics, such as their values (Wang, 2010), beliefs, and personal mentoring and teaching knowledge (Jaspers et al., 2018). Consequences for pupils and ST of MTs' intervening might depend on the direction and intensity of intervening. To contribute to STs' development, it might be helpful to actively guide STs during teaching practice because then they can become aware of how to improve their teaching (Maynard, 2000; Schwille, 2008). From other mentoring contexts, such as co-teaching (e.g., Thomson & Schademan, 2019), or educative mentoring (Marciano et al., 2019; Schwille, 2008) in which MT and ST share authority and teach together, we know that STs experience direct feedback, in the moment, as timely and non-evaluative, and that STs appreciate when they are able to act upon it (Thomson & Schademan, 2019). In contrast, when STs independently teach, MTs' intervening might be detrimental for STs' learning, when one considers that learning to teach is a matter of practice (Hagger & McIntyre, 2006) and experience (Borko & Mayfield, 1995); when MTs step into STs' lessons, STs do not have the opportunity to manage the class on their own, which can harm their confidence (Izadinia, 2015; Maynard, 2000) and self-esteem (Wang, 2010).

This study aims to gain insight into when and how MTs intervene and the triggers for their intervening. Vignettes and multilevel analyses were used to investigate 1) MTs' direction and intensity to intervene, 2) MTs' values and beliefs about mentoring and teaching, and 3) the relative importance of situational and personal characteristics in MTs' intervening direction and intensity. By using a set of vignettes (descriptions of imaginary situations), we were able to systematically present classroom situations in which MTs could indicate whether they have the intention to intervene or not. With multilevel analyses we determined the relative contribution of situational and personal characteristics to MTs' intended intervening direction and intensity.

2. Theoretical framework

2.1. The mentoring process and intervening

Ellis, Alonzo, and Nguyen (2020) stated that what constitutes good mentoring has changed over time and place. Various approaches have been defined (Orland-Barak & Wang, 2020) such as discussion and reflection of ST's experiences (Schön, 1983), planning, observing, and analysing lessons (e.g., Hobson, 2002), modelling professional practice (Roehrig, Bohn, Turner, & Pressley, 2008), and various forms of mentoring during teaching, such as co-teaching (e.g., Thomson & Schademan, 2019), educative mentoring (Marciano et al., 2019; Stanulis et al., 2019), mentoring inside the action of teaching (Gardiner, 2017; Schwille, 2008), and MTs' intervening during STs' teaching (e.g., Glenn, 2006; Jaspers et al., 2014; Kent, 2001; Rajuan et al., 2007; Weasmer & Woods, 2003). The latter concerns the context of the current study, in which STs teach, MTs observe, and afterwards provide feedback. In this context, at times MTs tend to intervene (Gardiner, 2017; Post, 2007;

Wang, 2010). Although various articles on mentoring have mentioned MTs' tendency to intervene during STs' teaching, few have explicitly examined the characteristics and predictors of MTs' intervening.

Schwille (2008), based on a study of 26 MT and ST pairs to conceptualise a shared vision of "good mentoring," contends that MTs' guidance during the STs' lessons helps the STs learn to teach. Post (2007) argues that to be effective, MTs should intervene at the very first moment they encounter an ST-pupils incident, and as non-disruptively as possible because, otherwise, MT are likely to miss the opportunity to help the struggling ST. Post described six interventions with increasing disruptiveness, ranging from "ignore," which means the MT deliberately does not respond, to intervene, interject, interact, interrupt, and "intercept," which means taking over the lesson. The four intermediate interventions are directed toward STs. Wang (2010), distinguished three categories of interventions: 1) active intervention, including both direct (the MT intervenes in the lesson herself) and indirect (the MT prompts pupils to ask the ST questions); 2) passive intervention (the MT responds to a question by the ST); and 3) no intervention. Contrary to Post (2007), Wang (2010) did not describe the interventions as directed toward the ST. Ben-Peretz and Rumney (1991) found that MTs corrected not only the ST but also the pupils. Additionally, Jaspers et al. (2018) concluded, based on analyses of MTs' reasoning for their intervening, that MTs tended to intervene by guiding the pupils rather than by guiding the ST. They also showed that MTs tended to intervene frequently, not always consciously, and sometimes intervened quite disruptively, for example, by taking over the lesson.

In the present study we distinguish MTs' interventions during STs' teaching in the *direction* and in *intensity* of intervening. The studies conducted to date primarily used observations or interviews to describe how MTs do or might intervene and have been executed in secondary education. It is fruitful to conduct a study on MTs' intentions to intervene in a set of systematically varying but controlled classroom situations in primary education, which allows for examining factors predicting MTs' intervening intensity and direction.

2.2. Predictors of MTs' intervening

The process in which MTs consider whether, when, and how to intervene can be described by applying Fenstermacher's theory on practical arguments (cf. Fenstermacher, 1986; Jaspers et al., 2018). Practical arguments are post hoc descriptions of practical reasoning that teachers indicate as fair and accurate accounts of actions that explain or justify what they did (Fenstermacher & Richardson, 1993). A practical argument consists of situational, value and empirical premises (Fenstermacher, 1986) contributing to the decision or intention to act. When someone thinks about what he or she did or ought to do in a specific situation, given the commitment to his or her role, this is a case of *practical reasoning* (Pendlebury, 1990).

In our previous study we described MTs' practical reasoning regarding their intervening (or abstaining from intervening) in STs' lessons and found several factors that seemed to be related to MTs' intensity to intervene, and the direction of intervening either toward the pupils or the ST (Jaspers et al., 2018). MTs (often unconsciously) consider various characteristics of the situation (situational premises) and relate these to their personal values regarding mentoring and teaching (value premises) and their knowledge and beliefs about the effect of intervening on STs and pupils' wellbeing and development (empirical premises).

Situational factors. Situational factors, or situational premises, might impact MTs' direction and intensity of intervening. The

situational premise is a description of the situation or context in which an action takes place (Fenstermacher, 1986). In primary education when an ST teaches the MT's pupils, MTs may observe situations that trigger them to consider intervening. In the reasoning process about intervening MTs might consider the *trigger type*, the *trigger severity*, and the *characteristics* of the people involved in the situation.

Trigger type. Various triggers may cause MTs to intervene, such as problems concerning teaching strategies (Ben-Peretz & Rumney, 1991), a mistake made by STs in the lesson content (Ben-Peretz & Rumney, 1991; Jaspers et al., 2018; Wang, 2010; Weasmer & Woods, 2003), or STs demonstrating insufficient classroom management skills (Ben-Peretz & Rumney, 1991; Jaspers et al., 2018; Wang, 2010; Weasmer & Woods, 2003). The current study focuses on difficulties with classroom management and mistakes in lesson content because these were the triggers most often mentioned by MTs when reasoning about their intervening (Jaspers et al., 2018). Classroom management refers to teacher actions that are intended to create an environment that supports and facilitates both academic and social-emotional learning (Evertson & Weinstein, 2006). MTs perceive effective classroom management as an important condition for pupil and ST learning (Collison & Edwards, 1994), and they have difficulties in transferring responsibility for the pupils to the ST (Glenn, 2006; Jaspers et al., 2018). Therefore, when MTs perceive STs' classroom management problems, MTs are likely to intervene. We expect MTs' intervening to be directed toward the pupils because previous studies have shown such intervening during classroom management problems (Ben-Peretz & Rumney, 1991; Jaspers et al., 2018).

Second, STs' mistakes in lesson content can be triggers for considering intervening, for example, giving a wrong explanation of a concept. Such mistakes are misleading for pupils and could impair their learning (Ben-Peretz & Rumney, 1991; Wang, 2010). Because MTs want the pupils to learn the right content (Edwards, 1998; Post, 2007), MTs may decide to correct the mistake by correcting STs (Ben-Peretz & Rumney, 1991; Post, 2007). Therefore, we expect MTs' intended intervening in the case of a mistake in lesson content to be directed toward the ST.

Trigger severity. When perceiving a trigger, intervening depends not only on the type but also on the severity of the trigger (Post, 2007), in particular, the MT's appraisal of the trigger severity (Jaspers et al., 2018). Research on teacher responses when pupils disturb lessons (Feldmann, 2001) has shown that when teachers fail to address the disruption, pupils may feel authorised to display more misbehaviour. The longer the misbehaviour continues, the more intensely the response will need to be (Feldmann, 2001). Hence, we expect that the more severe the trigger is, the more intensely MTs intend to intervene.

ST characteristics. Third, ST characteristics might impact MTs' intervening. We focus on ST experience, because MTs most frequently mentioned this when reasoning about intervening (Jaspers et al., 2018). During teacher training STs may experience various teaching contexts and situations (Calderhead, 1991; Edwards, 1998; Nettle, 1998) that makes STs more experienced and probably more competent (Calderhead, 1991; Sugrue, 1997). Less-experienced STs normally have less knowledge, skills, and competence than more-experienced STs (Kagan, 1992; Sugrue, 1997); thus, they will probably have more teaching problems. Because MTs might feel that less-experienced STs need more general help and guidance (Glickman & Gordon, 1987; Post, 2007), we expect that the less experienced the ST is, the more intensely MTs' intend to intervene and the more they direct intervening toward the pupils.

Personal factors. In addition to situational factors, personal factors can impact MTs' intended direction and intensity to intervene. When MTs observe situations that do not correspond with

their wishes, MTs' personal values and beliefs might be challenged, and they may feel that the dual loyalty as mentor *and* teacher is at stake (Edwards, 1998; Orland-Barak, 2001; Rajuan et al., 2007). Whether and how MTs intervene might be influenced by value premises (Jaspers et al., 2018; Wang, 2010) and empirical premises (knowledge of mentoring and teaching (Jaspers et al., 2018)).

Value premises. Value premises are moral and ethical considerations and indicate teachers' goals or desired conditions (Fenstermacher & Richardson, 1993). Values (implicitly) act as points of reference in decision-making (Halstead, 1996), regulate teacher behaviour (Kagan, 1992; Pajares, 1992), and are reflected in what teachers choose to permit or encourage in the classroom (Wang, 2010). Values of MTs in guiding STs refer to both STs and pupils and the goals MTs want to achieve as mentors do not always correspond with their teaching goals (Edwards, 1998; Jaspers et al., 2018; Rajuan et al., 2007). MTs are likely to experience a conflict between mentoring and teaching values and such a conflict causes MTs to consider intervening (Jaspers et al., 2018). Often, this value conflict results in MTs' intervening being directed toward the pupils because they consider teaching their most important and mentoring only an additional task (Jaspers et al., 2014; Wang, 2010). In this study, we examine whether MTs prefer teaching values over mentoring values.

Wang (2010) found that MTs who consider STs' self-esteem and authority the first priority intervene with a low intensity or do not intervene at all. MTs appear to choose less-intrusive intervening behaviour (Post, 2007) when they perceive STs' authority as necessary to act as teachers (Beck & Kosnik, 2002) and STs' freedom to explore teaching ideas as critical for professional learning (Patrick, 2013; Rajuan et al., 2007). Therefore, we expect that the more MTs prefer teaching values over mentoring values the more intensely they intervene and mainly directed toward the pupils.

Empirical premises. Empirical premises are based on earlier observations that can be tested by new observations (Fenstermacher & Richardson, 1993) and are often referred to as practical knowledge (Fenstermacher, 1994; Gholami & Husu, 2010). This knowledge plays a role in their decision-making (Roehler, Duffy, Herrmann, Conley, & Johnson, 1988) and guides their actions (Zanting, Verloop, & Vermunt, 2001).

In reasoning about intervening, MTs use empirical premises about how intervening (or abstaining from intervening) can positively or negatively affect STs' and pupils' wellbeing and development (Jaspers et al., 2018). MTs may believe that learning to teach is just a matter of practice (Hagger & McIntyre, 2006) and experience (Borko & Mayfield, 1995). Therefore, MTs might think that not intervening will help STs learn to teach because they are given the opportunity to solve problems on their own (e.g., Oosterheert & Vermunt, 2001; Van Eekelen, Boshuizen, & Vermunt, 2005), to explore their own teaching styles, and not to feel their authority is undermined (Jaspers et al., 2018; Rajuan et al., 2007). MTs might also think that when they step into STs' lessons, STs lack freedom to manage the class on their own, which can harm their confidence (Izadinia, 2015; Maynard, 2000), self-esteem (Wang, 2010), and wellbeing (Jaspers et al., 2018). However, MTs also might think that intervening might help STs in learning to teach because the STs will become aware of how they can improve their teaching (Jaspers et al., 2018; Maynard, 2000; Schwillie, 2008). Additionally, by intervening, MTs can prevent STs from making mistakes (Post, 2007), can limit or prevent further problems (Wang, 2010), and can restore an orderly classroom atmosphere (Jaspers et al., 2018). MTs might believe that abstaining from intervening will not support STs' learning and teaching and could be harmful for pupils' learning and STs' wellbeing (Jaspers et al., 2018). Given these contradicting expectations, we explore in the current study whether and how MTs' empirical premises regarding the positive effect of

intervening (or abstaining from intervening) on pupil and ST wellbeing and development affect their intended intervening direction and intensity.

3. Research questions

By developing a set of vignettes (descriptions of imaginary situations), in which the three situational factors, trigger type, trigger degree and STs' competence, were combined, we are able to systematically present classroom situations in which MTs could intervene or not. Four research questions guided the current study: Q1) What value and empirical premises are important to MTs?, Q2) What is the direction and intensity of MTs' intervening?, Q3) How do situational characteristics (ST experience, trigger type, trigger severity) and personal characteristics (the MT's value and empirical premises) contribute to an MT's likelihood of abstaining from intervening, of intervening directed toward pupils, or of intervening directed toward the ST? and Q4) To what degree is variability in intensity to intervene due to situation versus MT, and what is the relative importance of trigger type, trigger severity, ST experience, and value and empirical premises in MTs' intensity to intervene? To determine the relative contribution of situational and personal characteristics to MTs' intervening direction and intensity we will use multilevel analyses.

4. Method

4.1. Context and participants

This study was performed in the context of a four-year undergraduate teacher education programme for primary education in the Netherlands. In the Netherlands one teacher teaches all the subjects. In the teacher education program in which this study was conducted STs enrol in university courses and are placed at various schools as part of the programme. The teacher who is responsible for the class in which the ST has been placed, is the MT of the ST and is responsible for guiding and assessing the ST.

For this study we invited 461 MTs who had at least mentored an ST once and 159 MTs (25 males and 132 females; 2 did not indicate their gender) agreed to participate. Most MTs currently mentored STs or had done so in the past six months. Eight MTs had mentored an ST three to six years ago. MTs varied in age from 23 to 70 ($M = 42.2$ $SD = 11.6$). The average teaching experience was 17.1 years ($SD = 10.6$), and the average experience in mentoring was 10.4 years ($SD = 8.0$).

4.2. Design

A questionnaire measuring MTs' personal value- and empirical premises was administered. Furthermore, to elicit MTs' intended intensity and direction of intervening in various situations, we presented the MTs with vignettes involving various teaching situations. Vignettes are descriptions of imaginary situations that can be used to determine which circumstances influence peoples' attitudes and beliefs and to understand peoples' actions in specific situations (Schoenberg & Ravdal, 2000). The vignette approach presented the participants with carefully constructed realistic situations and allowed us to manipulate and control situational factors potentially influencing peoples' intentions and behavior (Aguinis & Bradley, 2014). Besides, by using a vignette approach MTs might have felt less assessed than if they were observed and might have prevented socially desirable answering tendencies (Gould, 1996). By using vignettes, we also aimed for an understanding of MTs' generic intervening not related to specific STs (Schoenberg & Ravdal, 2000). Finally, the vignette approach enabled us to reach many respondents within a short period of time, strengthening our findings' representativeness. We created text-based vignettes as authentic situations' descriptions: 1) representative of what MTs regularly experience during ST lessons, 2) eliciting MTs to consider their intended intervening, and 3) highlighting variations in MTs' intended actions. The vignettes were created by the first author, who had experience as a primary teacher, and four student assistants who were also STs in primary education. These were based on observed situations, MTs' reasoning on these situations and their intervening in our previous study (Jaspers et al., 2018). To improve the authenticity of the vignettes, various pilots were performed.

We operationalised *ST experience* by varying the year of study (i.e., a first-year versus a third-year student). *Trigger type* was manipulated by distinguishing between lesson content and classroom management problems. Thus, the combination of these two variables led to four types of vignettes (see Table 1). Additionally, *trigger severity* was included. We designed the vignettes with a variety of trigger severity to determine at which severity level MTs would intervene. Every vignette had three or four versions that differed in severity level: low, medium, medium-high, and high. All other variables, such as the STs' gender (all female) and pupil characteristics (for example, average competence) were the same for all vignettes. Table 1 gives an overview of the 14 vignettes, and Fig. 1 gives two examples of vignettes.

Table 1
Schematic overview of vignettes.

Type	Trigger		ST experience	
	Severity	First-year ST	Third-year ST	
Mistake in lesson content	Low	2.1 First-year ST making a small mistake in lesson content	1.1 Third-year ST making a small mistake in lesson content	
	Medium	2.2 First-year ST making a medium mistake in lesson content	1.2 Third-year ST making a medium mistake in lesson content	
	High	2.3 First-year ST making a large mistake in lesson content	1.3 Third-year ST making a large mistake in lesson content	
Difficulties with classroom management	Low	3.1 First-year ST having low difficulties with classroom management	4.1 Third-year ST having low low difficulties with classroom management	
	Medium	3.2 First-year ST having medium difficulties with classroom management	4.2 Third-year ST having medium difficulties with classroom management	
	Medium-High	3.3 First-year ST having medium-large difficulties with classroom management	4.3 Third-year ST having medium-large difficulties with classroom management	
	High	3.4 First-year ST having large difficulties with classroom management	4.4 Third-year ST having large difficulties with classroom management	

<p>Vignette 1.1</p> <p>Sophie (21 years old) is student teaching in your class (grade 4). She is a third-year student, and she has been your intern for three months now. Today, she is teaching about insects. During your collaborative lesson preparation, Sophie seemed well prepared. However, when telling the pupils how to distinguish spiders from insects, Sophie says that spiders always have six legs and that insects have eight legs. Of course, this is wrong. Spiders have eight legs, and insects have six.</p> <p>What would you do?</p>
<p>Vignette 3.1</p> <p>Susy (18 years old) is in her first year of study. She has been student teaching in your class, grade 4, for three months now. Today, Susy is teaching a math lesson. After a few minutes, two pupils at the back of the classroom, Kay and Ann, start quietly whispering about things other than math. You don't know whether she has failed to see it or she doesn't want to say something about it. Nevertheless, she isn't going to do something about it and just continues her instruction.</p> <p>What would you do?</p>

Fig. 1. Examples of vignettes. Numbering refers to the vignettes mentioned in Table 1.

4.3. Measures

Intended intensity of intervening. The intended intensity to intervene was measured on a scale based on a combination of various variations of intervening described by Post (2007), and by Jaspers et al. (2018). In order to give the participants a clear view of the “intensity of intervening”, participants were informed about this concept before reading the vignettes. They read that MTs have various ways of intervening and that MTs differ in the intensity of their intervening. MTs were instructed that they could have their own way of making their intervening more or less intense. After reading each vignette MTs answered the question “What would you do?” by sliding a pointer on a continuous scale. The left side of the scale was labelled as *not intervene*, and the right side as *very intensely intervene*. Only the extremes of the scale were labelled. The Cronbach's α of 0.88 indicated that the internal consistency of intensity scores of the fourteen situations was high.

Intended direction of intervening. After indicating the intensity to intervene for a situation, the participants, except when indicating 5.0 or 0.0, were asked to indicate whether they would intervene mainly by guiding the ST or mainly by guiding one or more pupils. When MTs scored 5.0 on the intervene scale, we assumed based on MTs' reasoning for intervening (Jaspers et al., 2018) that this meant taking over the lesson, and thus, MTs' intervening was mainly aimed at guiding the pupils and no option to indicate the direction of intervening was provided. When MTs scored 0.0 on the intervene scale, the intervention was labelled “Abstaining from intervening,” and also no direction option was presented. Thus three categories were used: 1) Abstaining from intervening, 2) Intervening mainly directed toward the ST, and 3) Intervening mainly directed toward the pupils.

Value premises. MTs' value premises were measured by paired comparisons in which participants compared each object with every other object (David, 1988; Thurstone, 1927). The instrument included four mentoring and four teaching values (see Table 2) that MTs' had indicated in our previous study (Jaspers et al., 2018) to be important in their decisions whether to intervene during ST lessons.

For every participant, a score for each value was computed by counting all times the value was picked as the preferred one. Then we created the value premises scale by adding up the scores of the four mentoring values representing MTs' relative preference for teaching values compared to mentoring values, ranging from 6 (strong preference for mentoring values over teaching values) to 22 (strong preference for teaching values over mentoring values). A score of 14 meant that an MT found mentoring and teaching values evenly important. The Cronbach's α of the mentoring value premise scale was 0.71.

Six MTs had missing scores in one or more of the 28 combinations of values. When the missing score concerned a paired comparison of two teaching values (one case) or two mentoring values (one case), a score of 1 was added to that particular value. Four MTs had more than one score missing on combinations of mentoring and teaching values, and were excluded from the value premises scale.

Empirical premises. MTs' empirical premises about the positive effects of (the intensity of) intervening on the ST and the pupils were measured by having respondents indicate their level of agreement with statements based on empirical premises described in our previous study (Jaspers et al., 2018). These statements were combinations of an effect with one out of four intensities of intervening: not intervening, cautiously intervening, intensely

Table 2

Value premises: Each of these eight values was combined with every other value $((8 \times 7)/2 = 28$ combinations), and respondents had to choose the most important one (see Fig. 2).

Teaching values	Mentoring values
I think it is most important that ...	I think it is most important that ...
... the pupils feel comfortable in class.	... the ST feels comfortable in class.
... the pupils develop.	... the ST develops.
... there is an orderly working atmosphere.	... the ST's authority is not undermined.
... the pupils learn the right content.	... the ST teaches mostly on his or her own.

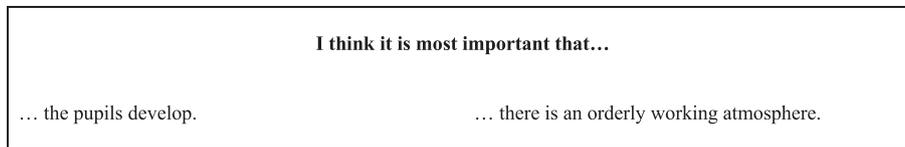


Fig. 2. Example of a combination of two values for which MTs indicated the one they found most important.

intervening, and taking over the lesson. Six effects referred to STs (for example, the effect on the ST’s learning process), and four to pupils (for example, the effect on class atmosphere). MTs indicated for 40 statements how strongly they agreed with that statement on a 6-point scale ranging from *strongly disagree* to *strongly agree*.

The statements were clustered in eight subscales, four measuring the positive effect of various ways of intervening on ST wellbeing and development and another four on the effects on pupil wellbeing and development. To create scales, negatively phrased items were recoded (e.g., ST’s authority is undermined). To create reliable scales, nine items were removed. Table 3 gives an overview of the eight subscales, examples of statements in each subscale, the Cronbach’s α , and the number of items.

Demographic characteristics. MTs were asked 14 questions about their demographic characteristics, such as gender, age, and years of experience as MT and teacher.

4.4. Procedure

All MTs were invited by email and when they chose to participate, they received a hyperlink to the online electronic questionnaire. MTs who did not start or complete the questionnaire received one reminder. Participants were informed that their answers would be analysed and reported anonymously, and were asked to sign an informed consent form. Completing the questionnaire took an average of 30 min. It was not possible to go back to a previous question. Participants were asked not to discuss the questions with colleagues until they had completed the questionnaire. Three tablet computers were raffled for MTs who participated in this study. The Faculty Ethics Review Board (FERB) of the faculty of Social and Behavioural Sciences of Utrecht University approved this study.

4.5. Data analysis

Q1 and Q2: MTs’ value and empirical premises and their intervening. Descriptive analyses were performed to gauge MTs’ value and empirical premises and the direction and intensity of MTs’ intervening. We examined the correlations between value and empirical premises and the association between direction and

intensity with a χ^2 test.

Q3: MTs’ direction to intervene. To answer Q3 and Q4, multi-level analyses were performed. Responses to the vignettes can be viewed as hierarchically nested within MTs. It is also likely that the direction to intervene is more similar for vignettes answered by the same MT rather than the answers of different MTs. Hence, the answers to the vignettes are most likely not independent and problems arise if this non-independence is ignored. Most importantly, type-1 errors (reporting something as being statistically significant, while in fact results are spurious) become more likely (see for example Hox, Moerbeek, and Van de Schoot (2018); or Mainhard, Wubbels, & den Brok, 2019) for a more advanced introduction to multilevel modelling). Multilevel modelling accounts for this non-independence; in our case this meant that variability *between MTs* (i.e., MTs were the so-called Level 2 units) was in the analysis separated from variability *within MTs*, that is, the differences between the answers one MT provided (i.e., the Level 1 units).

To analyse the variability in MTs’ intervening direction (Q3, a categorical variable, with the categories Abstaining from intervening, Intervening mainly directed toward the ST, and Intervening mainly directed toward the pupils), we followed the approach of Heck, Thomas, and Tabata (2012) to estimate logistic multilevel models (Hox et al., 2018) in SPSS, Version 24. In this analysis, the probability of choosing one of the other categories is compared against the probability of being in the reference category. We used “Intervening mainly directed toward the ST” as the reference category.

We first estimated the unconditional empty model (M1) in which the vignette or situational level (Level 1) was nested in the person or MT level (Level 2) and without predictors. The empty model estimated how much of the variability in direction to intervene was due to differences within MTs versus stable, trait-like differences between MTs (i.e., variance decomposition). In multi-level modelling these separate portions of variability are referred to as random effects. Then, in the second model (M2), the situational, Level 1 predictors (i.e., trigger type [lesson content or classroom management], trigger severity [low, medium, medium-high, high], and ST experience [first- or third-year student]) were entered, and in the third model (M3), the personal, Level 2 predictors (i.e., MTs’

Table 3
Empirical premises: Subscales, examples, cronbach’s α , and number of items.

Scale	Example	α	k
Positive effect on ST of...			
EP1 - ... not intervening	If I do not intervene, the ST experiences what is happening at the moment.	.63	5
EP2 - ... cautiously intervening	If I intervene cautiously, the ST could teach the prepared lesson.	.61	5
EP3 - ... intensely intervening	If I intervene intensely, the ST learns a lot.	.78	4
EP4 - ... taking over the lesson	If I take over the lesson, that is pleasant for the ST.	.78	5
Positive effect on pupils of...			
EP5 - ... not intervening	If I do not intervene, that is pleasant for the pupils.	.72	3
EP6 - ... cautiously intervening	If I intervene cautiously, an orderly class atmosphere is created.	.70	3
EP7 - ... intensely intervening	If I intervene intensely, the pupils work on task again.	.78	3
EP8 - ... taking over the lesson	If I take over the lesson, pupils’ learning process is disturbed.	.78	3

Note. N = 158. EP = Empirical premise; k = number of items. For one MT, the scores were missing.

value premises and eight scales of empirical premises, all continuous variables grand mean centred) were added. In multilevel modelling predictors represent so-called fixed effects and t-tests are used to check whether a predictor is indeed explaining any variance in the dependent variable (Heck et al., 2012), in our case, the variance in MTs' intervening direction. Then, we checked whether an additional personal factor, namely MT mentoring experience, predicted the MTs' intervening direction.

Q4: MTs' intensity to intervene. To investigate the degree to which variability in intensity was due to situations versus MTs, again, multilevel modelling was applied. We modelled the responses of the MTs (the Level 1 units) as being hierarchically nested within two higher levels: the MT and the vignette or situation (i.e., we used a cross-classified multilevel model). Conceptually, we assessed both, the stable, on all teachers' shared influence of situations as well as the stable pattern of MTs' responses over several situations. Level 1 units were the 2226 intensity to intervene ratings (159 MTs × 14 vignettes).

The intensity to intervene scale was not normally distributed with high frequencies of extreme scores (0.0 and 5.0), but the residuals of the multilevel models showed no significant diversion from normality. First, an intercept-only model (M1) was investigated (i.e., variance decomposition). Next, in the full model (M2), we entered all predictors (situational and personal characteristics, all continuous variables were grand mean centred). Again, as a last step, we checked whether the model improved by adding MT mentoring experience. As suggested by Shi, Leite, and Algina (2010), we included the interaction effect between the cross-classified factors (i.e., *situation* × *mentor teacher*) in our model, but this interaction was not significant.

In line with Hox et al. (2018), the increase of model fit for each successive model was tested using the likelihood ratio test based on the deviance of the models, and the significance of fixed effects (i.e., the predictors) was tested with Wald tests.

5. Results

5.1. Q1: descriptives on MTs' value and empirical premises

Value premises. Table 4 shows the means for the eight value premises. The teaching value "Pupils should feel comfortable in class" was most important to MTs ($M = 5.95$). The mentoring value "STs should teach mostly on their own" scored lowest. Of the mentoring values, "The ST should develop" was least important to MTs ($M = 2.04$).

Most of the MTs (83.9%) preferred teaching values over mentoring values with a relative preference of 17.80 ($SD = 2.93$, $Min. = 8$ and $Max. = 22$). A one-sample *t*-test showed that, on average, the mean value score was significantly different from the centre of the scale, which is 14 ($t = 16.15$, $p < 0.001$).

Table 4
Mean and SD of the value premises.

Value premises	<i>M</i>	<i>SD</i>
Teaching values		
Pupils should feel comfortable in class.	5.95	1.34
Pupils should develop.	5.47	1.16
There must be an orderly working atmosphere.	2.49	1.72
Pupils should learn the right content.	3.90	1.66
Mentoring values		
STs should feel comfortable in class.	2.37	1.52
STs should develop.	3.52	1.35
STs' authority should not be undermined.	2.25	1.35
STs should teach mostly on their own.	2.04	1.33

Note. $N = 153$.

Empirical premises. Table 5 shows the means of the empirical premise scales. MTs scored highest on the positive effect of cautiously intervening on pupils (EP6; $M = 4.63$) and second highest on the positive effect of cautiously intervening on STs (EP2; $M = 4.23$). Thus, MTs strongly agreed that cautiously intervening is positive for the wellbeing and development of pupils and STs. MTs had the lowest scores on the positive effect on the ST of taking over the lesson (EP4; $M = 2.64$) and the positive effect on the pupils of not intervening (EP5; $M = 2.65$). MTs believed that taking over the lesson is not positive for STs' wellbeing and development and that abstaining from intervening is not positive for pupils' wellbeing and development.

Association between value and empirical premises. Value premises were not significantly correlated with any of the empirical premises, which indicated that value premises and empirical premises are clearly differentiated (see Table 6). We performed preliminary analyses to ensure no violation of the assumptions of normality, linearity, and homoscedasticity. The correlations between the various empirical premises varied from small to large.

5.2. Q2: descriptives for MTs' intended intervening

Table 7 shows for each vignette the proportions of MTs' intended directions to intervene and the average scores of MTs' intended intervening intensity. In 272 of the intervening ratings (12.2% of the 2226) MTs indicated that they would not intervene, and in 155 ratings (7%) that they would intervene very intensely. All other ratings were evenly distributed over the other intensities. Most MTs (88%) indicated that they would intervene in at least eleven of the fourteen vignette situations.

The average proportion over the 14 vignettes of intended interventions directed toward pupils and toward STs, were almost the same (44.1% and 43.7%, respectively). However, the proportion of intervening directed toward the ST varied strongly over the vignettes, namely, from 11.9% to 75.5%.

MTs' average score on the intensity to intervene scale was 2.35 (5-point scale; $SD = 1.65$; $N = 159$). The average intensity scores varied over the fourteen vignettes, indicating that the variety in MTs' intended intervening seems to be related to the situation. For all vignettes, there were MTs who would not intervene (score 0.0) and MTs who would intervene by taking over the lesson (score 5.0), indicating that the variety in MTs' intervening is also related to the person.

A bootstrapped chi-square test for independence showed a large positive association between MTs' intensity and direction of intervening, $\chi^2(924, n = 2226) = 2950.66$, $p < 0.001$, Cramer's $V = 0.81$. The higher the intensity ratings were, the more often MTs' intervening was directed toward pupils.

5.3. Q3: predicting MTs' direction to intervene

To investigate the relative contribution of situational and personal characteristics to MTs' intended direction to intervene we performed logistic mixed multilevel analyses (see Data analysis section). In this analysis the likelihood that participants choose a category of the dependent variable is compared and these comparisons were made in two steps: the likelihood for an MT to indicate abstaining from intervening versus intervening directed toward the ST, and for intervening directed toward the pupils versus intervening directed toward the ST was compared (see Table 8).

MTs were more likely to indicate to intervene directed toward the ST than to abstain from intervening; see M1 in Table 8, log odds = -1.64 , $p < 0.001$ for the intercept of "abstaining from intervening". The likelihood that an MT would intervene toward

Table 5
Mean, SD, minimum and maximum scores of the eight empirical premises subscales.

Emperical premises	M	SD	Min.	Max.
EP1 - Positive effect on ST of not intervening	3.82	.70	1.60	6.00
EP2 - Positive effect on ST of cautiously intervening	4.23	.65	2.60	5.80
EP3 - Positive effect on ST of intensely intervening	2.94	.85	1.00	4.75
EP4 - Positive effect on ST of taking over the lesson	2.64	.81	1.00	4.80
EP5 - Positive effect on pupils of not intervening	2.65	.74	1.00	4.33
EP6 - Positive effect on pupils of cautiously intervening	4.63	.63	2.33	6.00
EP7 - Positive effect on pupils of intensely intervening	3.50	.88	1.00	5.33
EP8 - Positive effect on pupils of taking over the lesson	3.58	.90	1.67	5.33

Note. N = 158. EP = Empirical premise.

Table 6
Correlations between value premise and eight empirical premises.

	GmcVP	GmcEP1	GmcEP2	GmcEP3	GmcEP4	GmcEP5	GmcEP6	GmcEP7	GmcEP8
GmcVP	–								
GmcEP1	-.01	–							
GmcEP2	-.01	-.16*	–						
GmcEP3	-.00	-.30**	.13	–					
GmcEP4	.04	-.18*	.09	.69**	–				
GmcEP5	-.10	.33**	-.09	-.23**	-.24**	–			
GmcEP6	-.04	-.00	.49**	.18*	.20	-.10	–		
GmcEP7	-.03	-.08	.05	.60**	.54**	-.24**	.26**	–	
GmcEP8	-.07	-.09	.09	.49**	.56**	-.36**	.23**	.75**	–

Note. GmcVP: N = 155; GmcEP: N = 158. Gmc = Grand mean centred; VP = Value premise; EP = Empirical premise.
*p < .05 (2-tailed); **p < .01 (2-tailed).

Table 7
Proportion of direction to intervene and means and SD of intensity to intervene for each vignette.

Vignette	Situational characteristics	Direction to intervene (percentage of MTs)			Intensity to intervene	
		NO	ST	PP	M	SD
1.1	Third-year ST, Small mistake in lesson content	8.2	63.5	28.3	2.55	1.61
1.2	Third-year ST, Medium mistake in lesson content	3.1	71.7	25.2	2.85	1.46
1.3	Third-year ST, High mistake in lesson content	4.4	66.0	29.6	3.29	1.58
Total	Third-year ST mistake in lesson content	5.2	67.1	27.7	2.90	1.58
2.1	First-year ST, Small mistake in lesson content	13.8	69.2	17.0	1.99	1.58
2.2	First-year ST, Medium mistake in lesson content	6.9	75.5	17.6	2.46	1.51
2.3	First-year ST, High mistake in lesson content	1.9	71.7	26.4	3.16	1.43
Total	First-year ST mistake in lesson content	7.5	72.1	20.3	2.53	1.58
3.1	First-year ST, Low difficulties classroom management	28.9	13.2	57.9	1.13	1.26
3.2	First-year ST, Medium difficulties classroom management	20.8	18.2	61.0	1.46	1.29
3.3	First-year ST, Medium-high difficulties classroom management	9.4	34.0	56.6	2.27	1.55
3.4	First-year ST, High difficulties classroom management	6.3	22.6	71.1	3.36	1.48
Total	First-year ST difficulties classroom management	16.4	22.0	61.6	2.06	1.64
4.1	Third-year ST, Low difficulties classroom management	29.6	20.1	50.3	1.28	1.43
4.2	Third-year ST, Medium difficulties classroom management	13.8	11.9	74.2	2.23	1.59
4.3	Third-year ST, Medium-High difficulties classroom management	11.3	43.4	45.3	2.17	1.60
4.4	Third-year ST, High difficulties classroom management	12.6	36.5	50.9	2.76	1.68
Total	Third-year ST difficulties classroom management	16.8	28.0	55.2	2.11	1.66
Total	First-year ST	12.6	43.5	43.9	2.26	1.63
Total	Third-year ST	11.9	44.7	43.4	2.45	1.70
Total	Mistake in lesson content	6.4	69.6	24.0	2.72	1.59
Total	Difficulties with classroom management	16.6	25.0	58.4	2.08	1.65
Total		12.2	44.1	43.7	2.35	1.65

Note. N = 159. NO = Not intervening; ST = Intervening primarily directed toward ST; PP = Intervening primarily directed toward the pupils.

the pupils versus the ST was almost similar, log odds = -0.02, p = .785 for the intercept “intervening towards pupils” in Table 8. On average, the probability that an MT would indicate to not intervene at all was small, 0.09 (0.20/(0.20 + 0.98+1)); the probability for MTs’ intervening directed toward the pupils was .45 (0.98/(0.20 + 0.98+1)), and intervening directed toward the ST was 0.46 (1/(0.20 + 0.98+1)). These probabilities varied across MTs ($\sigma^2_{(not\ intervening)} = 1.56, SE = 0.28; \sigma^2_{(intervening\ directed\ toward\ the\ pupils)} = 0.20, SE = 0.06$).

On average, MTs were rather stable in their preference for intervening directed toward the ST vs. abstaining from intervening; the intra-class correlation (ICC) was 0.32. Their preference for intervening directed toward pupils versus intervening directed toward the ST was much less similar over the 14 rated vignettes; ICC = 0.06.

Situational characteristics. In M2 (see Table 8), the three situational predictors, trigger type (lesson content or classroom management), trigger severity (low, medium, medium-high, high),

Table 8
Fixed effects estimates (top) and variance-covariance estimates (bottom) for models predicting intended intervening direction of mentor teachers (MT) with intervening directed at the student teacher (ST) as reference category.

	Model 1		Model 2		Model 3	
	Coefficient (SE)	E.C.	Coefficient (SE)	E.C.	Coefficient (SE)	E.C.
Fixed effects						
Abstaining from intervening vs. intervening directed at the ST						
Intercept	-1.64 (0.13)***	0.20	0.34 (.21)	1.41	0.27 (0.21)	1.32
Situational characteristics						
Student type (third-year student) ^a			-0.12 (0.18)	0.89	-0.11 (0.19)	0.90
Trigger type (mistake in lesson content) ^b			-2.56 (0.26)***	0.08	-2.61 (0.28)***	0.07
Trigger severity (high) ^c			-1.95 (0.26)***	0.14	-1.97 (0.27)***	0.14
Trigger severity (medium-high) ^c			-1.82 (0.21)***	0.16	-1.81 (0.22)***	0.16
Trigger severity (medium) ^c			-0.88 (0.16)***	0.41	-0.85 (0.16)***	0.43
Personal characteristics						
GmcVP					-0.06 (0.05)	0.94
GmcEP1					0.94 (0.22)***	2.57
GmcEP2					-0.51 (0.28)	0.60
GmcEP3					0.26 (0.27)	1.29
GmcEP4					-0.54 (0.28)*	0.58
GmcEP5					-0.36 (0.21)	0.70
GmcEP6					0.46 (0.24)	1.59
GmcEP7					-0.16 (0.23)	0.86
GmcEP8					-0.11 (0.24)	0.90
Intervening directed toward pupils vs. intervening directed at the ST						
Intercept	-0.02 (0.06)	0.98	1.08 (0.15) ***	2.95	1.09 (0.16)***	2.98
Situational characteristics						
Student type (third-year student) ^a			-0.06 (0.10)	0.95	-0.05 (0.11)	0.95
Trigger type (mistake in lesson content) ^b			-2.16 (0.17)***	0.13	-2.10 (0.17)***	0.12
Trigger severity (high) ^c			-0.30 (0.19)	0.74	-0.30 (0.20)	0.74
Trigger severity (medium-high) ^c			-0.38 (0.15)**	0.68	-0.38 (0.15)*	0.69
Trigger severity (medium) ^c			0.05 (0.12)	1.05	0.05 (0.11)	1.05
Personal characteristics						
GmcVP					0.06 (0.03)*	1.06
GmcEP1					0.15 (0.14)	1.16
GmcEP2					-0.15 (0.13)	0.86
GmcEP3					0.15 (0.12)	1.17
GmcEP4					0.07 (0.14)	1.08
GmcEP5					-0.03 (0.13)	0.97
GmcEP6					0.38 (0.14)**	1.46
GmcEP7					-0.09 (0.17)	0.92
GmcEP8					-0.07 (0.14)	0.93
Random parameters						
Level 2 (MT)						
Abstaining from intervening vs. intervening directed at the ST						
Intercept	1.56 (0.28)***		2.21 (0.39)***		1.72 (0.35)***	
Intervening directed toward pupils vs. intervening directed at the ST						
Intercept	0.20 (0.06)**		0.39 (0.10)***		0.34 (0.09)***	
-2Log pseudo likelihood		17156.58		18520.42		18317.17

Note. Dependent variable: Direction to intervene; Reference category: Intervening directed toward the ST; Probability distribution: Multinomial; Link function: Generalised logit. E.C. = Exponentiated Coefficient; Gmc = Grand mean centred; VP = Value premise; EP = Empirical premise.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

^a Reference is first-year student.

^b Reference is classroom management difficulties.

^c Reference is low. In M2 the intercepts represents a first-year ST making a small mistake in classroom management. In M3 the intercepts represents a first-year ST making a small mistake in classroom management, with all other predictors being averaged.

and ST experience (first- or third-year student) were added.

Abstaining from intervening versus intervening directed toward the ST. In line with our expectation, the tendency to intervene directed toward STs, rather than abstaining from intervening, became even more pronounced with a more severe trigger; log odds medium trigger = -0.88, $p < 0.001$; log odds medium-high trigger = -1.82, $p < 0.001$; log odds high trigger = -1.95, $p < 0.001$. Further, not intervening (versus intervening directed toward the ST) was more likely for classroom management

difficulties than with a mistake in lesson content; log odds = -2.56, $p < 0.001$. Contrary to what we expected, student type was not a statistically significant predictor.

Intervening directed toward the pupils versus intervening directed toward the ST. As expected, MTs were more likely to intervene directed toward the ST in case of a mistake in the lesson content than in case of classroom management difficulties; log odds = -2.16, $p < 0.001$. Further, MTs were more likely to intervene directed toward the ST rather than pupils in case of a medium-high-

Table 9
Probabilities of MTs' intervening direction for specific combinations of situational predictors.

Trigger		First-year ST			Third-year ST		
Type	Severity	NO	ST	PP	NO	ST	PP
Mistake in lesson content	Low	.07	.69	.23	.07	.71	.23
	Medium	.03	.71	.25	.03	.73	.24
	High	.01	.79	.20	.01	.80	.19
Difficulties with classroom management	Low	.26	.19	.55	.25	.20	.55
	Medium	.12	.21	.66	.12	.23	.66
	Medium-high	.07	.31	.62	.07	.32	.61
	High	.06	.30	.65	.05	.31	.64

Note. NO = Abstaining from intervening; ST = Intervening directed toward the ST; PP = Intervening directed toward the pupils. Due to rounded numbers, the probabilities do not always add up to 1.00.

severity trigger; log odds = -0.38, $p < 0.01$. High- and medium-severity triggers and student type were not statistically significant predictors.

The exact probabilities of MTs' intervening direction, based on model 2, are presented in Table 9. For example, if the vignette depicted a first-year ST making a mistake of high severity in the lesson content, the probability that an MT would decide not to intervene is 0.01 (i.e., not likely), the probability that the MT would intervene directed toward the pupils is .20, and the probability that the intervening would be directed toward the ST is 0.79 (i.e., rather likely).

MTs' personal characteristics. In the third model, the predictors referring to MTs' personal characteristics (value premises and empirical premises) were added (see Table 8).

Because five empirical premises did not significantly predict MTs' intended intervening direction, the change in deviance from the model with the situational predictor ($\sigma^2_{\text{(not intervening)}} = 2.21$, $SE = 0.39$; $\sigma^2_{\text{(intervening directed toward the pupils)}} = 0.39$, $SE = 0.10$) to the model with the personal predictors ($\sigma^2_{\text{(not intervening)}} = 1.72$, $SE = 0.35$; $\sigma^2_{\text{(intervening directed toward the pupils)}} = 0.34$, $SE = 0.09$) was not statistically significant. Therefore, we focused here on the

personal characteristics that do predict MTs' intervening direction.

Abstaining from intervening versus intervening directed toward the ST. MTs who believed that abstaining from intervening has a positive effect on the ST (GmcEP1) were more likely to abstain from intervening; log odds = 0.94, $p < 0.001$. Also, the more MTs believed that taking over the lesson has a positive effect on the ST, the less likely they were to abstain from intervening (GmcEP4); log odds = -0.54, $p < 0.05$. The other empirical premises and the value premise were unrelated to MTs' abstaining from intervening versus MTs' intervening directed toward the ST.

Intervening directed toward the pupils versus intervening directed toward the ST. The more MTs preferred teaching values over mentoring values the more likely they intervened directed at the pupils rather than the ST; log odds = 0.06, $p < 0.05$. Further, the more MTs believed that cautiously intervening has a positive effect on pupils (GmcEP6) the more likely they were to intervene directed toward the pupils; log odds = 0.38, $p < 0.01$. The other empirical premises did not predict MTs' intervening directed toward the ST versus pupils. MT mentoring experience also did not predict intervening towards pupils vs. STs.

Table 10
Fixed effects estimate (top) and variance-covariance estimate (bottom) for models predicting intended intervening intensity.

	Model 1	Model 2	
	B (SE)	B (SE)	β
Fixed effects			
Intercept	2.35 (0.20)***	0.59 (0.20)**	
Situational characteristics			
Student type		0.18 (0.13)	.06
Trigger severity		0.56 (0.06)***	.35
Trigger type		0.90 (0.13)***	.27
Personal characteristics			
GmcVP		0.07 (0.02)**	.13
GmcEP1		-0.36 (0.10)**	-.15
GmcEP2		0.02 (0.12)	.01
GmcEP3		0.07 (0.12)	.04
GmcEP4		0.26 (0.12)*	.12
GmcEP5		-0.02 (0.10)	-.01
GmcEP6		0.21 (0.12)	.08
GmcEP7		-0.01 (0.12)	-.01
GmcEP8		-0.01 (0.12)	-.00
Random parameters			
Residual (level 1)	1.49 (0.05)***	1.48 (0.05)***	
MT (level 2)	0.78 (0.10)***	0.53 (0.07)***	
Situation (level 2)	0.47 (0.18)*	0.05 (0.02)*	
-2Loglikelihood	7600.46	7309.07	

Note. Dependent Variable = Intensity to intervene. Gmc = Grand mean centred; VP = Value premise; EP = Empirical premise.
* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

5.4. Q4: predicting MTs' intensity to intervene

To answer this question cross-classified multilevel models with MT responses nested in situations and MTs (see Analysis section) were used. The ICC in the intercept-only model (M1) indicated that 17% of the variance in intensity of intervening was due to the situation, and 28% of the variance was due to the MT. The remainder was residual variance. Including the predictors (i.e., student type, trigger type, trigger severity, MTs' value premise and MTs' eight empirical premises) improved the model (see M2 in Table 10); $\chi^2(12, N = 159) = 7600.46 - 7309.07 = 291.39, p < 0.01$.

Situational characteristics. Table 10 shows that from the three manipulated situational variables, two variables, namely trigger type and trigger severity, significantly predicted MTs' intervening intensity; respectively, $B = 0.90, p < 0.001$; $B = 0.56, p < 0.001$. MTs' responses indicated that they would intervene more intensely when an ST made a mistake in the lesson content than when an ST had difficulties with classroom management. As expected, the higher the trigger severity, the more intensely MTs' intervening was. Contrary to our expectation, ST experience was not significantly associated with MTs' intensity to intervene.

MTs' personal characteristics. MTs' value premises significantly predicted their intended intervening intensity; $B = 0.07, p < 0.01$. In line with our expectations, the more MTs preferred teaching values over mentoring values the more intense their intended intervening. Of the eight empirical premises only GmcEP1 and GmcEP4 were associated with MTs' intervening intensity, respectively; $B = -0.36, p < 0.01$; $B = 0.26, p < 0.05$. The more MTs believed that abstaining from intervening has a positive effect on STs, the less intensely MTs intended to intervene, and the more MTs believed that taking over the lesson has a positive effect on STs, the more intensely they intended to intervene. MT mentoring experience did not predict MTs' intervening intensity.

In sum, almost all variance (90%) due to situation and 32% of the variance due to the MTs was explained by the predictors in our model. The total explained variance of intervening intensity was 25%, which can be considered a medium-to-large effect (Cohen, 1988).

6. Discussion

In this study, we aimed to describe MTs' value and empirical premises and to gain insight into whether and how MTs intend to intervene during STs' lessons in primary education. We also examined how situational characteristics (ST experience, trigger type, trigger severity) and personal characteristics (MTs' value and empirical premises) contribute to the likelihood that MTs will abstain from intervening, will intervene directed toward the pupils, or directed toward the ST. Further, we wanted to determine to what extent situational characteristics and MTs' personal characteristics predict differences in MTs' intervening intensity and which factors predict MTs' intensity to intervene.

6.1. MTs tend to intervene

This quantitative study showed that, over all described situations, in more than ninety percent of the ratings MTs would intervene to at least some intensity. The probability that MTs will abstain from intervening is only 9%. Most of the MTs intended to intervene in more than three quarters of the described situations. This result confirms the findings from our qualitative research that MTs do frequently intervene (Jaspers et al., 2018). Furthermore, MTs intended to intervene as much directed toward the pupils as toward the STs and in about seven percent of the situations MTs intervened by taking over the lesson, which is in contrast with

findings from studies performed in other mentoring contexts, for example from Gardiner (2017), who described that mentors when mentoring new teachers during their induction period, did not take over parts of lessons.

Our results that MTs do intervene, intervene quite intensely, and not only directed toward STs add new insights to the results from studies about intervening, for example by Ben-Peretz and Rumney (1991), Post (2007), and Wang (2010), which mostly focused on one direction of MTs' intervening and did not systematically relate the types of teaching problems with MTs' intervening. Our findings emphasize the importance for researchers, teacher training institutes, policymakers, and practitioners of addressing MTs' behavior during STs' teaching in mentoring research and practice in addition to the pre- and post-lesson phases.

Our multilevel vignette design confirmed that, MTs' intervening intensity was due to both the situation (17% of the variance) and the person (28% of the variance). In total a quarter of the variance in MTs' intervening intensity was explained by their value and empirical premises and the situational factors, trigger type, and trigger severity. We also found that MTs' intervening direction is affected by situational as well as personal factors.

6.2. Personal factors predicting intervening

This study showed that MTs found teaching values to be more important than mentoring values, confirming earlier exploratory research that MTs feel that being a teacher is their most important task, and being a mentor is only an additional task (Jaspers et al., 2014, 2018). As a result of their preference for teaching values, MTs tend to behave as teachers when STs are teaching. MTs with a relative preference for teaching values intervene more intensely and more often directed toward pupils than MTs with a relative preference for mentoring values. We argue that this preference for teaching values over mentoring values might interfere with being an effective MT and guiding the ST during teaching practice.

Although much effort was put into making ecologically valid vignettes that simulate real-life situations, we acknowledge that our findings are based on hypothetical situations. In this study, we asked MTs to imagine that they were the MT of the ST teaching their hypothetical class and asked them to indicate how they would intervene. Still, the vignettes might not fully represent the complex context of actual mentoring and what MTs experience when they observe the ST teaching their own pupils. In their own classrooms with pupils they really know, the impact of their preference for teaching values over mentoring values might even be larger than in our vignette study. MTs would probably be more concerned about the children in their care (Edwards, 1998; Hopper, 2001; Stanulis, 1995) and, therefore, would intervene more easily and more often.

Our results show that MTs have empirical premises regarding what actions are effective during STs' teaching that may be difficult to combine. For instance, MTs believe that intervening intensely and by taking over the lesson has a positive effect on pupils, but at the same time, they believe that such intervening is not positive for the ST. Additionally, MTs believe that abstaining from intervening is positive for the ST but is not very positive for the pupils. MTs' empirical premises about actions that are positive for STs but not positive for pupils suggest a conflict between their mentoring and teaching roles. Apparently, MTs not only experience conflicts between their values as mentor and teacher, but they also have personal beliefs that are conflicting and force them to act in different ways. It is possible that MTs try to combine both roles by cautiously intervening. For example, when pupils start chatting with each other, and the ST does not notice this, an MT might intervene by whispering to those pupils. Thus, the MT might hope to prevent these pupils from not paying attention (and not disturbing the

other pupils), and at the same time to give the ST the possibility to proceed with the prepared lesson. That MTs try to combine their mentor and teacher roles by cautiously intervening is supported by our finding that MTs most strongly believe that cautiously intervening is positive for the wellbeing and development of pupils as well as the wellbeing and development of the ST.

Our finding that most MTs prefer teaching over mentoring values and that MTs believe in empirical premises that could lead to incompatible behaviours may have implications for MT professional development courses. These courses could strengthen MTs' mentoring values and their awareness of the importance of STs' learning and development (cf. Awaya et al., 2003). Consequently, MTs' intervening could become less intense and more directed toward the ST, and MT guidance might become more deliberate. We recommend professional development courses to include support for MTs' quest to combine their mentoring and teaching tasks as well as discussions of their values concerning mentoring and teaching and the conflict they (perhaps unconsciously) might experience between being a teacher and being a mentor.

6.3. Situational factors predicting intervening

Our design enabled to describe the relative importance of three situational characteristics. In separate analyses, we found that MTs' direction and intensity of intervening were both affected by situational triggers, both trigger type and trigger severity. The severer the trigger, the more intensely MTs intervened, and MTs' direction of intervening in the case of small problems (more often abstaining from intervening) differed from their intervening in situations with larger problems (more often intervening directed toward STs). We found that when confronted with an ST making a mistake in lesson content, MTs indicated that they would intervene more intensely and mainly primarily toward the ST compared to situations in which MTs were triggered by an ST having difficulties with classroom management. In the latter situations, MTs intervened less intensely and mainly directed toward the pupils. In practice, MTs possibly encounter an ST is having classroom management difficulties more frequently than an ST making a mistake in lesson content (compared to the 50% of the situations in our research). As a result, this might indicate that in real classroom situations, MTs might intervene more directed toward the pupils than the ST.

Interestingly and unexpectedly, MTs' intended direction to intervene as well as MTs' intended intensity to intervene were not predicted by ST experience. Contrary to what we found in our previous study (Jaspers et al., 2018) when MTs reasoned about their intervening in interviews, MTs' actions were more influenced by the classroom or teaching situation than by the ST's experience. Thus, it is plausible that MTs *think* that their intervening is influenced by the ST (or should be) but that in practice, there is hardly any difference in actual intervening when mentoring a first- or third-year student.

Moreover, MTs spend more time teaching than combining teaching and mentoring. Thus, as teachers, they are used to reacting to what happens with the pupils in the classroom; that is, intervening by guiding the pupils, all day long. MTs *do* think and act like teachers and *do not* perceive themselves as mentors, as teachers of STs, or as teacher educators (cf. Leathem & Peterson, 2010; Stanulis et al., 2019; Zeichner, 2005). MTs seemed not to acknowledge the complex status of STs who are simultaneously both teachers and learners (cf. Hopper, 2001). Our study confirms that becoming an MT and, specifically, guiding an ST during his or her teaching is not something that spontaneously develops from simply being a teacher (cf. Bullough, 2005; Orland-Barak, 2002, 2005). Rather, mentoring is a new skill that MTs have to develop. Furthermore, MTs might not recognise the ST as a learner (cf. Awaya et al., 2003).

This might prevent them from adapting their mentoring according to the ST's learning needs and competence, again pointing to the importance of professionalisation courses for MTs. We suggest, as was also concluded in the literature review of Ellis, Alonso, and Nguyen (2020), that MTs need mandatory or systemized mentoring courses. To help students learn, MTs need to be aware of their mentor role, and should develop a teacher educator identity (Andreasen, Bjørndal, & Kovač, 2019). We recommend policy-makers and practitioners to help MTs in their development and with the role shift (Pillen, Beijgaard, & Den Brok, 2013) from being a teacher of pupils to becoming a teacher of teachers.

Because MTs' intervening is more dependent on problematic teaching situations than on STs' experience, we recommend MTs' professional development to address the importance of ST learning and development, for example by focusing on MTs adapting their mentoring behaviour to the stage of STs' performance and learning curve (Maynard, 1996). We also recommend discussion about what characterises STs as learners, ST learning phases in becoming a teacher, MTs' expectations of STs in various years of their study or with various competences, and what all of this means for ST guidance during student teaching. Additionally, MTs could consider their intervening more structurally to be incorporated in the mentoring cycles, comparable to co-teaching (Thomson & Schademan, 2019), mentoring inside the action (Gardiner, 2017; Schwille, 2008) or educative mentoring (Marciano et al., 2019; Stanulis et al., 2019). In pre-lesson conferences, when MT and ST determine STs' specific learning goals that STs are going to practice in the upcoming lesson, they also could agree on the help the MT will provide to accomplish this goal (cf. Feiman-Nemser, 2001). Then during the ST's teaching, the MT can and probably should intervene (based on the learning goal), for example, by explicitly guiding the ST at the moment he or she is supposed to perform the new skills or by saying keywords into a microphone when the ST is wearing an earpiece (e.g., Rock et al., 2009; Voerman, Meijer, Korthagen, & Simons, 2015). Another way to guide the ST during practice is by deliberately modelling the teaching behaviour the ST has to learn (Roehrig et al., 2008). Then, in the post-lesson conference, MT and ST can discuss when and why the MT intervened and what the effect was on the ST and (eventually) pupils. When the MT and ST collaboratively reinterpret what happened, MTs have to explicate the practical knowledge underlying their teaching, which appears to be positive for STs' development (Zanting et al., 2001). In addition, especially when the MT intervened rather intensely, reflection on what happened might be supportive for the ST's wellbeing and self-esteem.

6.4. Further research

To investigate whether there are ST characteristics that predict MTs' intervening, in future research, vignettes could be developed that better operationalise the variety in ST competence, for example, by explicating how competent the ST is as assessed by the MT or by varying the learning goal of the ST instead of just referring to the year of study. Further research could also investigate whether pupil characteristics, such as age and competence (Jaspers et al., 2018; Post, 2007), or other trigger types, such as STs having difficulties with teaching strategies (Ben-Peretz & Rumney, 1991) influence MTs' intervening. Personal predictors that might be investigated are for example MTs' teaching experience, competence, and age (Jaspers et al., 2018; Post, 2007).

We were able to examine the relative impact of personal and situational characteristics on MTs' intervening. As a next step, we suggest to investigate by observations how MTs actually intervene in real teaching situations. Such observations could be combined with stimulated recall interviews (Calderhead, 1981), which involve

the MT replying on the videotaped classroom situation to stimulate the MT to recall the decision making about the action. Further, in order to improve effectiveness of mentoring, it could be useful to study how the simultaneous performance of mentoring and teaching roles might be supported, how MTs could guide STs in the moment of practicing teaching, and which intervening strategies are most effective. More specifically, it would be interesting to investigate how deliberate ways of MTs' intervening can be used in the educational context of STs practicing to become teachers and how cautiously intervening affects pupil and ST wellbeing and development. Additionally, we suggest further research to examine if and how MT guidance during the ST's teaching is or could be related to the ST's learning goals and learning needs (e.g., Feiman-Nemser, 2001). To be able to conclude which mentoring behaviour contributes to STs' wellbeing and development, future research should examine the STs' perceptions and experience.

Finally, we suggest further research to investigate changes in MTs' intervening behaviour, for example, by reconstructing practical arguments (Fenstermacher & Richardson, 1993). We showed that MTs with a relative preference for mentoring values over teaching values intervene less intensely and more by guiding the ST than by intervening toward the pupils. Further research could investigate whether MTs can develop stronger mentoring values and whether this influences MTs' intervening.

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