

An abstract painting featuring bold, expressive brushstrokes in a variety of colors including red, blue, green, yellow, and black. The composition is dynamic, with large, overlapping shapes and a sense of movement. The background is a mix of these colors, creating a rich, textured effect.

The Teacher as Linchpin: The Teacher's Perspective on Student Engagement

Jolien van Uden

**THE TEACHER AS LINCHPIN: THE TEACHER'S
PERSPECTIVE ON STUDENT ENGAGEMENT**

Jolien van Uden

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ON STUDENT ENGAGEMENT**

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CHAPTER 1

Introduction

'They say I gotta learn, but nobody's here to teach me. If they can't understand it, how can they reach me' (Coolio, 1995).

1.1 BACKGROUND OF THE STUDY

The quote comes from Coolio's song, *Gangsta's Paradise*, the title song of *Dangerous Minds*, a movie based on the book, *My Posse Don't Do Homework*, by LouAnne Johnson. LouAnne writes about her challenges in reaching the disengaged students she teaches at a high school in a rough school district in California. The movie shows how she is the one who tries to engage her students, and how she finally manages to stimulate her students' interest in learning. She is the linchpin in raising those students' engagement with school.

The importance of student engagement for achieving success in school has been proven in a number of studies. Archambault, Janosz, Fallu and Pagani (2009), for example, show that disengagement is related to early school leaving; other studies have also related student engagement to student achievement (Klem & Connell, 2004; Zimmer-Gembeck, Chipuer, Hanisch, Creed, & McGregor, 2006). These outcomes indicate that fostering student engagement could have benefits not only for students at risk of leaving school early, but for all students.

Student engagement decreases during their school careers (Fredricks, Blumenfeld, & Paris, 2004; Klem & Connell, 2004). This decrease in student engagement sometimes results in leaving school early, which is often defined as the result of a long-term process in which the student withdraws from school (Appleton, Christenson, & Furlong, 2008; Bradshaw, O'Brennan & McNeely, 2008; Finn, 1993; Rumberger, 1995). Disengagement, leaving school early and drop out all have a negative connotation. Furthermore, withdrawal from school could be the result of factors that are difficult to influence at school, such as stress at home, use of drugs, criminal

friends and debts (Battin-Pearson, Newcomb, Abbott, Hill, Catalano, & Hawkins, 2000; Jimerson, Egeland, Sroufe, & Carlson, 2000; Walker & Sprague, 1999). Engagement, on the other hand, has a positive connotation and can positively influence the process of withdrawal (Dekkers & Claassen, 2001; Walker & Sprague, 1999). Therefore this dissertation focuses on student engagement, which has a positive connotation, and which can be influenced from within the school, in particular by teachers.

There are quite a number of studies that have examined the theoretical concept of engagement and factors that can influence engagement. Fredricks and colleagues presented the state of evidence in relation to student engagement in a review in 2004 (Fredricks et al., 2004). From that moment on, interest in and understanding of the concept increased (e.g., Appleton et al., 2008; Archambault et al., 2009; Elffers, 2011). Notably, only a few studies have examined student engagement from the perspective of the teacher (Harris, 2011), considering how teachers perceive the concept and which activities they would use to foster their students' engagement. None of the studies found by Harris examined the possibilities for professional growth and development in relation to student engagement.

The aim of this dissertation is to further investigate the concept of student engagement from the teacher's perspective and to promote student engagement by means of teachers' professional development. The teacher is the linchpin in this dissertation. It is very important to know more about how teachers perceive the concept, how they would foster engagement and what and how they can learn about fostering student engagement. First of all, the teacher can be seen as the link between the student and the school. The teacher interacts with students during their school career, thereby influencing student engagement consciously or unconsciously. Secondly, the teacher plays a central role in broadening and deepening the scientific knowledge base about student engagement.

In this dissertation, different studies are conducted to further examine the concept of student engagement from the teacher's perspective. In the studies described in the first part of this dissertation the focus is on teachers' beliefs and perceptions. Certain teacher beliefs are examined in relation to teachers' perceptions of their students' engagement and the engagement reported by students themselves. In the second part of this dissertation, three teams of teachers are asked to improve their students' engagement. Their reflections, discussions and experimentation are used to examine to what extent teachers' perceptions about engagement can change and how those changes occurred. The knowledge created by this dissertation not only contributes to increased understanding of the concept of student engagement but also supports teachers in fostering student engagement.

1.2 CONTEXT OF THE STUDY

In the Netherlands, most early leaving of school occurs in vocational education. It could therefore potentially be of great importance to investigate how student engagement can be fostered in vocational education.

Most problems with disengagement seem to occur in vocational education; 74% (n = 27,002) of early dropouts dropped out from vocational education in school year 2011-2012. Among the early school leavers, only 23% dropped out during secondary education. One-third of the dropouts from secondary education attended pre-vocational education (Dutch Ministry of Education, Culture and Science, 2013). Prior to vocational education, students attend pre-vocational education. Most students in pre-vocational education are between 12 and 16 years old. After primary education, 53% of the students begin pre-vocational education (Dutch Ministry of Education, Culture & Sciences, 2013). Four different levels of education are offered within pre-vocational education. Pre-vocational education is not terminal education, but provides a basis for further vocational training. In the Netherlands, two different tracks are provided in vocational education: practical training makes up 20-60% of the one (BOL) and 60% or more of the other (BBL). Students in the BBL often attend school for one day a week and learn and work at an organization or institution during the other days. Both tracks comprise four different levels for qualification (European Union, 2013):

- Level 1: the assistant level equips students to perform simple executive tasks.
- Level 2: basic vocational training prepares students to perform executive tasks.
- Level 3: professional training prepares students to carry out tasks completely independently.
- Level 4: middle-management or specialist training prepares students to carry out tasks completely independently, but asks for more than a level 3 program. These students have more knowledge and skills in a particular field and have developed tactical and strategic thinking skills.

Programs in economics, health and social care, engineering and agriculture are offered at all levels. Of the students who dropped out from vocational education, 55% were registered at level 1 or level 2, although only 27% of the students in vocational education attend level 1 or 2 (Dutch Ministry of Education, Culture and Science, 2013).

Pre-vocational education and level 1 of vocational education do not provide a basic qualification. Students have to finish level 2, 3 or 4 in vocational education to obtain a basic qualification. The basic qualification is the minimum qualification that everyone should achieve and implies that someone has enough knowledge and skills to enter the labor market.

1.3 THEORETICAL FRAMEWORK

In this introduction we introduce the key constructs of this dissertation. These concepts will also be explained further in the theoretical frameworks for the different studies. Along with these constructs, the theoretical frameworks in the different chapters will also elaborate on additional constructs that have particular relevance for the study presented in that chapter. We will finish this section with a short overview of the additional constructs.

1.3.1 Student engagement

The popularity of the concept of engagement has increased in the last decades. This increased attention is often explained by its supposed relation with dropout and achievement (Appleton et al., 2008). For example, Archambault and colleagues (2009) found a relation between engagement and dropout and Zimmer-Gembeck and colleagues (2006) found a relation with achievement. Willms (2003) is more critical about the relationship between engagement and achievement. He concludes that there are also students who are engaged and achieve low results and students who are disengaged and have high results. Nonetheless, Willms emphasizes the importance of engagement, stating that engagement should be approached as an important learning outcome on its own.

In most studies, three types of engagement are distinguished (e.g. Archambault et al., 2009; Fredricks et al., 2004; Moreira, Machado Vaz, Dias, & Petracchi, 2009):

- Behavioral engagement is about observable behavior. Students who are behaviorally engaged are on time, participate in the lessons and do the assignments given.
- Emotional engagement is about feelings. Students who are emotionally engaged are enthusiastic about and interested in school. They can identify themselves with school.

- Cognitive engagement is about knowing and experiencing the importance of education. Students who are cognitively engaged understand the importance of their education, take the initiative and know they have to put effort to achieve good results.

Harris (2010, 2011) states that behavioral and emotional engagement can be seen as engagement in schooling. Cognitive engagement should be fostered to engage students in learning. Engagement in schooling can be important as a social outcome, but engagement in learning is expected to increase achievement, according to Harris. Looking at how Willms (2003) measured engagement, we can conclude that Willms measured engagement in schooling; this could explain his findings in relation to student achievement. Both engagement in schooling and engagement in learning are important to foster. Engagement in learning to improve students' learning outcomes and engagement in schooling as a social or emotional outcome are important to prepare students for their future lives, functioning in society and within social institutions (Appleton et al., 2008; Harris, 2011; Willms, 2003).

The increased interest in student engagement has resulted in a variety of studies about engagement. An important review of various studies on engagement is presented by Fredricks et al. (2004). Studies on engagement take different perspectives. First of all, there are studies about the concept of engagement itself (Appleton et al., 2008). Secondly, there are studies that report about an instrument measuring engagement (e.g. Appleton, Christenson, Kim, & Reschly, 2006; Kong, Wong, & Lam, 2003; Reeve & Tseng, 2011). Although recent studies often distinguish behavioral, emotional and cognitive engagement, there are also studies where other distinctions are made. For example, Reschly and Christenson (2006) distinguish academic engagement as a fourth type, and Reeve and Tseng (2011) propose to include agency as a fourth type of engagement. Discussion about the concept also results in different instruments measuring engagement. Behavioral and emotional engagement are what are most often measured, and cognitive engagement the least (Appleton et al., 2008). Different questionnaires show resemblances, but so far there has been no consensus on one instrument measuring student engagement.

Other studies examined what kinds of factors relate or contribute to student engagement. Without being complete, here is a list of a number of factors that relate to student engagement according to different studies, in alphabetical order:

- Autonomy support (Elffers, 2013; Skinner, Marchand, Furrer, & Kindermann, 2008);
- Classroom structure and management (Raphael, Pressley, & Mohan, 2008);
- Instructional practices such as scaffolding, encouraging mastery of the content (Anderman, 2003; Raphael et al., 2008);
- Parents (de Bruyn, 2005; Marks, 2000);
- Peers (de Bruyn, 2005; Furrer & Skinner, 2003);
- School characteristics (Finn & Voelkl, 1993; Lee & Smith, 1993);
- Social-economic background (Lee & Smith, 1993; Marks, 2000);
- Task characteristics (Marks, 2000; Mitchell & Carbone, 2011);
- Teacher support (emotional and personal) (Anderman, 2003; Decker, Dona, & Christenson, 2007; Klem & Connell, 2004; Patrick, Ryan, & Kaplan, 2007; Roorda, Koomen, Spilt, & Oort, 2011).

We conclude that many authors have contributed to our current knowledge about student engagement by discussing the scientific construct of 'student engagement' on an educational system level and possible implications for the classroom level. But what is missing in these studies is how teachers perceive engagement, what teachers themselves would do to foster engagement and what and how they could learn about fostering engagement. In addition, little is known about how teacher beliefs influence (perceptions of) student engagement. There are only a few studies in which student engagement is examined from the teacher's perspective (Cothran & Ennis, 2000; Harris, 2008, 2010, 2011; McMahan & Zyngier, 2009; Ravet, 2007; Zyngier, 2007, 2008). Cothran and Ennis conclude that teachers mostly mention barriers to student engagement such as negative student attitudes and violence, and they assume that the responsibility for engagement lies with the students themselves. On the other hand, students bring up factors that could contribute to greater engagement. They state that they are more engaged when teachers communicate, care about them and enthusiastically present learning opportunities. Harris (2008, 2010, 2011) and Zyngier (2007, 2008, and also McMahan & Zyngier, 2009) found that some teachers describe engagement as something arising in students themselves, but they presented other views from teachers on student engagement as well. Some teachers emphasize more behavioral aspects whereas others also include more emotional or even cognitive aspects in their descriptions. Harris and Zyngier both state that in order to engage students in learning, a learning environment should be created that stimulates critical thinking, both teachers and students are involved in creating this learning environment. Finally the study by Ravet (2007) examines disengagement on a micro level by comparing the perceptions of the disengagement manifested by a specific student from the

perspective of the teacher, the parent and the student him or herself. The results show that teachers', students' and parents' descriptions of the misbehavior of the student are quite comparable, but that little similarity was found when asking about the student's underlying feelings or other explanations for this misbehavior.

None of these studies about teachers' perspectives on engagement have been conducted in the vocational education track. Furthermore, these studies show that there is space for teachers to develop their beliefs about engagement and their ways of fostering engagement, but none of the studies examined to what extent and how professional development in relation to student engagement could take place.

1.3.2 Professional development and action research

The aim of this dissertation is twofold: to contribute to the scientific knowledge about the concept of engagement by examining how teachers think about engagement and act upon it. And, at the same time, to contribute to educational practice by educating teachers about how to foster student engagement and to examine how their professional development in relation to student engagement could take place.

Professional development is often aimed at improving student outcomes (Avalos, 2011; Guskey, 1986; Villegas-Reimers, 2003). This is also the motivation for most teachers to participate in professional development activities (Guskey, 1986). In this dissertation, professional development is aimed at improving student engagement, to achieve an affective outcome. Several studies have shown that teachers prefer learning by doing and experimentation (Clarke & Hollingsworth, 2002; Guskey, 1986; Hodkinson & Hodkinson, 2005; Kwakman, 2003; van Eekelen, Boshuizen, & Vermunt, 2005); reflection and interaction with others are also often mentioned (Avalos, 2011; Kwakman, 2003; van Eekelen et al., 2005).

Hodkinson and Hodkinson (2005) distinguish two lines of research on teachers' professional development, one that focuses on more traditional forms of learning and another that focuses on workplace learning, in which the significance of everyday working practices is emphasized for teachers' learning. Along the same lines, Sfard (1998) presented two metaphors of learning: (1) acquisition, learning as an individual process of acquiring knowledge and learning of concepts, (2) participation, learning as a social process by which someone becomes integrated within a specific community. This second metaphor is not about knowledge, but about knowing. However, research has shown that the acquisition metaphor when

applied to professional development is least effective, referring to one-shot workshops (Lumpe, 2007), and that teachers' professional development benefits most from an active environment, such as in professional learning communities. This applies to workplace learning, with the type of learning indicated by Sfard's second metaphor. Paavola and Hakkarainen (2005) however, concluded that Sfard's two metaphors did not cover all forms of learning and proposed a third metaphor: learning as knowledge creation, collaboratively developing new objects or artifacts that support innovation and that create new knowledge.

Action research could fulfill this knowledge-creating purpose, and combines learning by doing and experimenting with reflection and interaction. Action research aims at improving current practices. Action researchers believe that the social world can only be understood by changing something in it and seeing what happens. Cycles of action and reflection play an important role in this process (Brydon-Miller, Greenwood, & Maguire, 2003; Kemmis, 2009; Ponte, 2002). Through these cycles of action and reflection, teachers can change their practices and alter their beliefs and ideas (Koutselini, 2008). Action research stimulates these changes, and it should result in transformations (1) in beliefs and sayings, (2) in ways of acting and (3) in relations with others and the environment (Bradbury Huang, 2010; Broad & Reyes, 2008; Kemmis, 2009). These changes can be interpreted as learning, which is what Zwart, Wubbels, Bergen and Bolhuis (2007) do, by defining learning as changes in cognition (beliefs and sayings) and changes in behavior (ways of acting). From the point of view of action research, we may add a third element 'changes in relations with others', although these might be the consequence of changes in beliefs or ways of acting. Thus, action research not only contributes to our understanding of student engagement from the teacher's perspective, but it can also contribute to the professional development of the participating teachers at the same time. In this investigation, action research was used in order to adequately aim at investigating teachers' professional progress when they are involved in developing practices for engaging students.

1.3.3 The Interconnected Model of Professional Growth

The model used in this dissertation to monitor the process and the outcome of professional development is the Interconnected Model of Professional Growth (IMPG, see Figure 1.1). This model represents professional growth by processes of reflection and enactment between the domains of practice, consequence, and beliefs (Clarke & Hollingsworth, 2002). The model consists of four domains, with one domain located outside the direct professional world of the teacher. This external

domain can be seen as an external source providing a stimulus to a teacher. In this dissertation the action researcher can be seen as a stimulus from this external domain, asking teams to improve their students' engagement, thus providing an external stimulus for the teachers to act. The other three domains represent the knowledge, beliefs and attitudes of the teachers in the personal domain; their ways of acting and experimenting with new activities in the domain of practice; and the inferred student outcomes in the domain of consequence. The domains are connected by processes of reflection and enactment. Changes in one of the domains could result in changes in the other domains by these reflection and enactment processes. A change in two or more domains supported by reflection and/or enactment is called a change sequence. Professional growth is defined as more enduring changes (Clarke & Hollingsworth, 2002).

As in other studies (Justi & van Driel, 2006; Voogt et al., 2011; Zwart et al., 2007) the IMPG is used in this dissertation to analyze processes and outcomes of professional development. We will also use the IMPG as a conceptual framework to depict and explain the relations between the different studies and to show how these studies contribute to the scientific understanding of student engagement from the teacher's perspective.

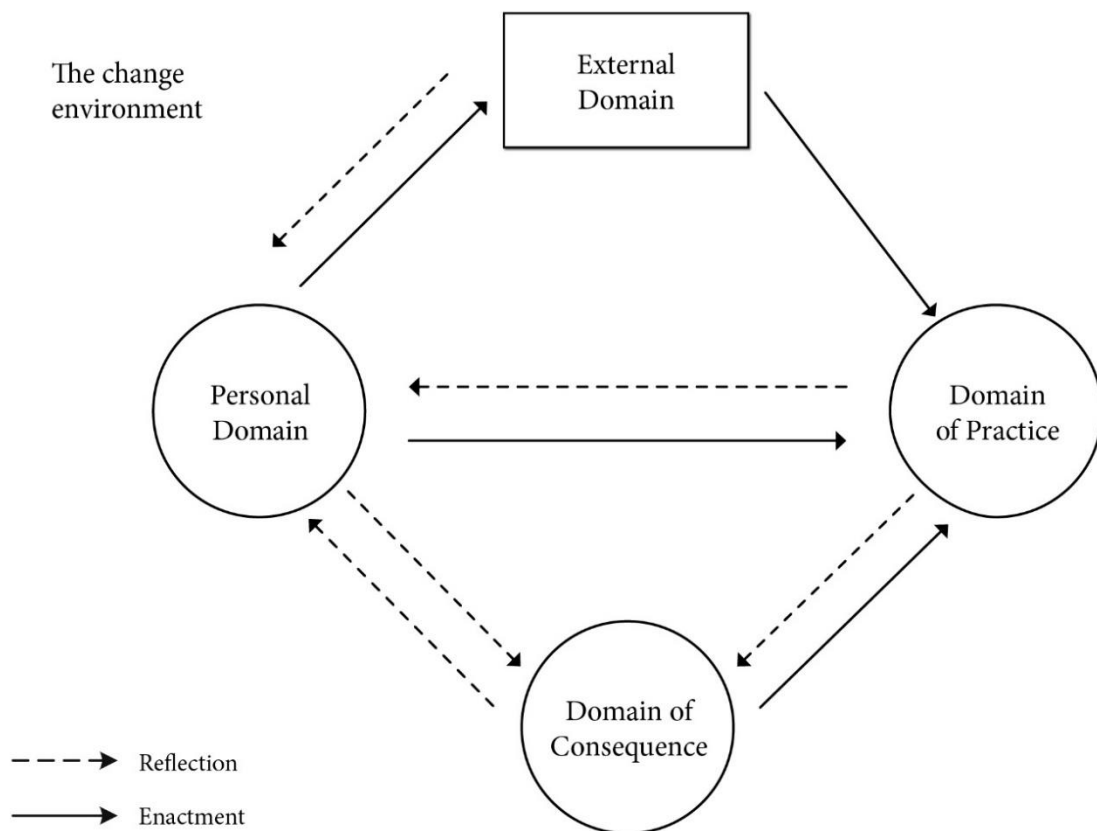


Figure 1.1 The Interconnected Model of Professional Growth (Clarke & Hollingsworth, 2002)

1.3.4 Overview of additional concepts in this dissertation

In the previous paragraphs we elaborated on the main concepts of this dissertation. In the next paragraphs we define the additional concepts that are included in the research questions of the various studies in this dissertation. In the studies, we examine these additional concepts in relation to student engagement. Here only brief definitions of the additional concepts are given, as in the different chapters we will elaborate more on these additional concepts.

With teacher motives we consider three motives for being a teacher that are often reported: altruistic motives, intrinsic motives and extrinsic motives (Pop & Turner, 2009; Richardson & Watt, 2005, 2006; Yong, 1995). In chapters 2 and 3 we elaborate on these constructs and examine to what extent motives could explain variability in teachers' perceptions of student engagement (chapter 2) and in students' reports of their own engagement (chapter 3).

In various studies three types of knowledge and corresponding competences related to teaching are distinguished: pedagogical competence, didactic competence and subject-matter competence (Beijaard, Verloop, & Vermunt, 2000; Borko, 2004; Darling-Hammond, 2006). We are interested to see how teacher ratings of the importance of each of these types of competence are related to their perceptions of student engagement (chapter 2) and to students' reports of their own engagement (chapter 3).

Interpersonal teacher behavior could be seen as a fourth teacher competence (SBL, Association for the Professional Quality of Teachers) that teachers show in interaction with their students. Wubbels, Créton and Hooymayers (1985) created a model to describe teachers' interpersonal teacher behavior. This model has two dimensions: influence and proximity. We are interested in whether teachers' perceptions of their own interpersonal teacher behavior relate to their perceptions of student engagement (chapter 2) and whether students' perceptions of their teacher's interpersonal behavior relate to their reports of their own engagement (chapter 3).

Self-efficacy is the conviction people have about their own capability to reach a certain goal (Bandura, 1997; Tschannen-Moran & Woolfolk Hoy, 2001). Teacher self-efficacy is associated with student motivation and more positive student attitudes towards school (Caprara, Barbaranelli, Steca, & Malone, 2006). Therefore, we examine how strongly self-efficacy relates to teachers' perceptions of student engagement (chapter 2) and also how strongly teachers' feelings of self-efficacy relate to students' reports of their own engagement (chapter 3).

Finally, teacher beliefs: in chapter 3 we refer to teacher beliefs when writing about teachers' motives for being a teacher, their evaluations of the relevance of different teacher competences, and their feelings of self-efficacy.

1.4 DESIGN OF THE STUDY

1.4.1 The research questions

In this dissertation, student engagement is examined from the teacher's perspective; the studies reported encompass teachers' perceptions, beliefs and learning about fostering student engagement. This includes teachers' understanding of the concept, how they would foster engagement and the opportunities for professional development in relation to student engagement. These aspects will be examined in relation to teachers' (experienced) practices, including the perceptions and experiences of students and in some studies also the beliefs and experiences of managers and even the researcher.

The general question guiding this dissertation is:

How do teachers in vocational education perceive, foster and learn about student engagement?

We conducted four studies to answer the research question, each addressing a different sub-question:

1. To what extent do teacher motives for being a teacher, perceived importance of different teacher competences, perceived self-efficacy and views about their own interpersonal teacher behavior relate to teachers' perceptions of student engagement in pre-vocational and vocational education?
2. To what extent do teacher beliefs and perceived interpersonal teacher behavior matter in relation to behavioral, emotional and cognitive student engagement in pre-vocational and vocational education?
3. How and to what extent can teachers develop themselves to be better prepared to foster their students' engagement?
4. How do teacher teams foster engagement and what and how do they learn when explicitly working on enhancing student engagement during an action research project?

1.4.2 The research approach

To answer the different questions we used both a quantitative and qualitative research approach. The approach chosen depends on the question addressed in the study. For the first two studies a quantitative approach seemed most appropriate. To answer the third and fourth question we used a qualitative approach.

For the two quantitative studies two digital questionnaires were developed. The first questionnaire pertained to the first question and was administered to teachers. To answer question two, the results of this questionnaire were combined with the results of a second questionnaire developed for students.

The teacher questionnaire contained questions about teachers' motives for being a teacher, their attitudes toward teacher competences, their self-efficacy beliefs, their perceptions of their interpersonal teacher behavior, and the way they perceive their students' emotional and behavioral engagement. In the student questionnaire we asked students about their level of behavioral, emotional and cognitive engagement. Furthermore, we asked the students to rate their teacher on his or her interpersonal teacher behavior. The questions in both questionnaires were based on existing questionnaires, where available. Both questionnaires were tested during a pilot.

Two qualitative studies were conducted to examine how teachers perceive engagement and especially to investigate what teachers would do to enhance engagement and what (more) they can learn about enhancing student engagement (questions 3 and 4), whereas the quantitative studies contribute to what can be learned or can be important for teachers' professional development in relation to student engagement. The qualitative studies needed to show how teachers develop themselves so far as fostering student engagement. Furthermore we wanted to contribute to teachers' professional development during these studies. Thus, our aim was not limited to research alone.

To promote teachers' professional development, we used an action research project as an intervention during studies 3 and 4. As shown in the theoretical framework, action research can be used as a professional development activity. Within the action research project, teams of teachers had to formulate and implement activities to improve their students' engagement. Two teams of teachers from vocational education and one team of teachers teaching at the upper levels of pre-vocational education participated in an action research project. Based on their discussions,

these teams designed activities to foster their students' engagement, implemented these activities and reflected on the developed and implemented activities. Their experiences with the activities and learning from the process of designing, implementing and reflecting on these activities were analyzed using two different methods.

Halfway through the action research project, a learning history was conducted to analyze and foster the learning of the participants. A learning history aims at capturing experiences, meanings and learning from different participants involved in a project or organization. By combining the different participant voices, a learning history results in pointers to improve future practices and to stimulate the learning of the participants involved. A learning history is presented using a two-column format. In the right column the stories of the different participants are presented. The left column is used to interpret the different stories and to formulate underlying themes and contradictions. Practitioners and researchers work together writing a learning history (Amidon, 2008; Kleiner & Roth, 1996). A learning team was formed to prepare and conduct the learning history. The steps proposed by Kleiner and Roth (1996) were used.

The professional development of the teams during the whole action research project was examined using the IMPG. During the action research project, reports of meetings, reports of the evaluation, answers on short open-ended questionnaires, verbatim transcripts of interviews and different products developed during the action research were gathered. The verbatim transcripts of the interviews conducted for the learning history were also included. From these documents, quotes related to the different domains of the IMPG were selected. These quotes were coded using a code scheme (appendix B) based on the IMPG (Voogt et al., 2011). Ten percent of the quotes were coded by two researchers to be able to test interrater reliability. This resulted in 80% reliability. The remaining quotes were coded by one researcher. Changes in the different domains and change sequences indicating learning were first analyzed per team. Finally, these processes and the different learning outcomes were compared across the teams.

1.4.3 Positioning the different studies

The relation between the different studies can be explained using the Interconnected Model of Professional Growth (Clarke & Hollingsworth, 2002). While the first study is limited to beliefs, the personal domain, more domains are included in study two and three. Finally the whole model will be applied as tool for analysis in the last study.

Study 1 (chapter 2) examines teachers' perceptions of student engagement (domain of consequence) in relation to their perceived interpersonal teacher behavior (domain of practice) and certain other beliefs (personal domain) (Figure 1.2). The perceived engagement and perceived interpersonal teacher behavior are interpreted as the result of reflection on the domain of practice and the domain of consequence. That is why we used dotted circles around the domain of consequence and the domain of practice. A total of 195 teachers participated in this study. Their answers on a digital survey were used to answer the following research question: *To what extent do teacher motives for being a teacher, perceived importance of different teacher competences, perceived self-efficacy and views about their own interpersonal teacher behavior relate to teachers' perceptions of student engagement in pre-vocational and vocational education?*

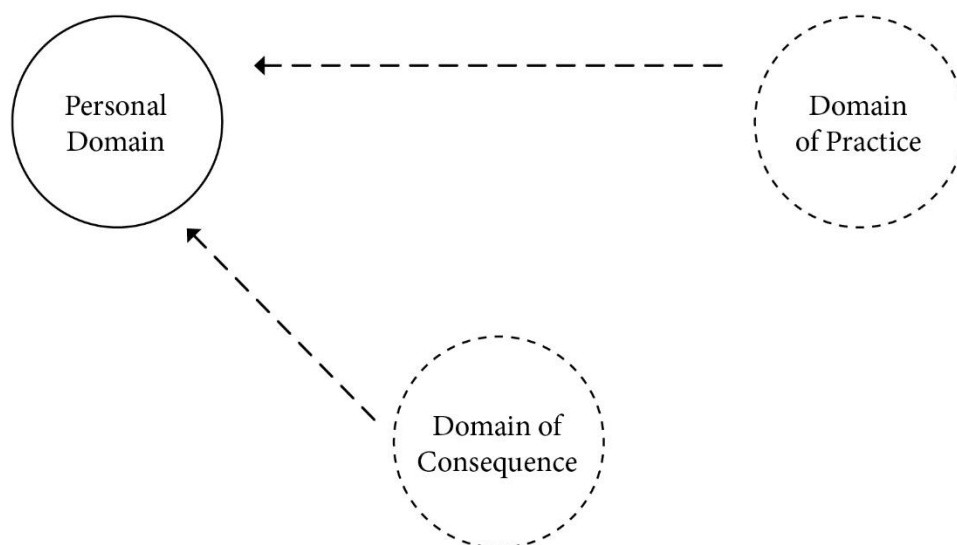


Figure 1.2 Overview of study 1

Study 2 (chapter 3) investigates the relation between teacher beliefs (personal domain) their interpersonal teacher behavior as experienced by their students (domain of practice as perceived by the students) and their students' engagement as reported by their own students (domain of consequence reported by students)

(Figure 1.3). The answers of 2288 students are added to the answers of their 195 teachers (study 1). A code was used to match the answers on the student questionnaire to the right teacher questionnaires. Students filled in the same code as their own teacher.

The results are analyzed to answer the following research question: *To what extent do teacher beliefs and perceived interpersonal teacher behavior matter in relation to behavioral, emotional and cognitive student engagement in pre-vocational and vocational education?*

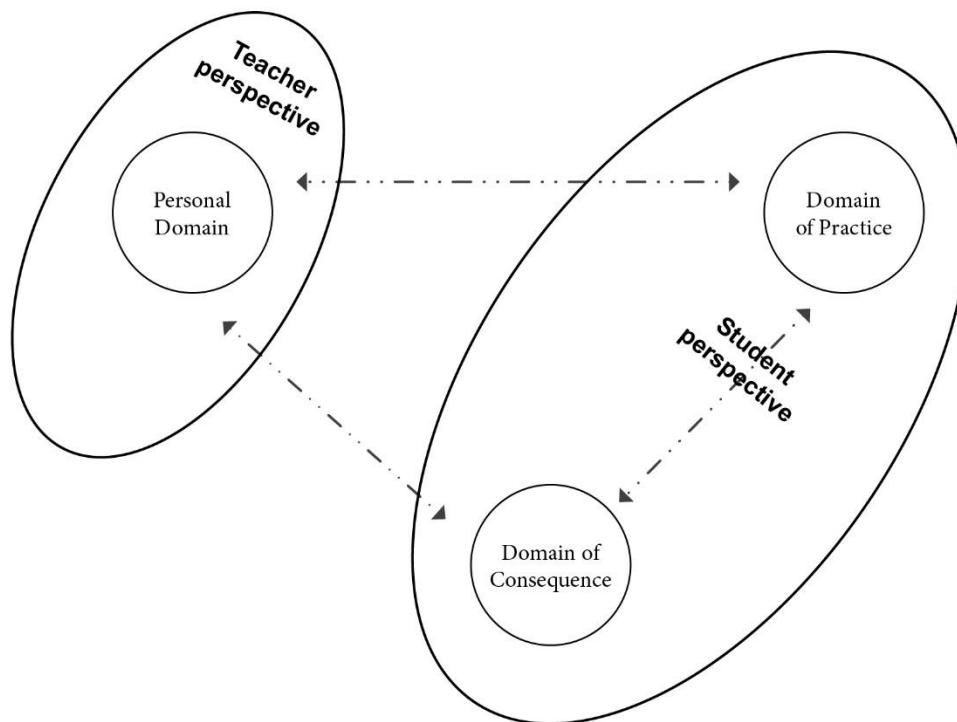


Figure 1.3 Overview of study 2

Study 3 (chapter 4) examines how teachers perceive the concept of engagement and how they think they can foster student engagement (personal domain) in relation to the changed practices that occur based on the designed activities (domain of practice) and the (inferred) outcomes of these changes (domain of consequence) (Figure 1.4). These aspects are investigated using a learning history conducted halfway through the action research project. Interviews for the learning history were conducted with ten teachers, ten students and five managers. The results of

the learning history in which three teams participated are used to answer the following research question and sub-questions: *How and to what extent can teachers develop themselves to be better prepared to foster their students' engagement?*

- How can student engagement be enhanced, according to the different actors involved?
- What conditions are necessary to be able to enhance student engagement?
- To what extent did teachers learn about fostering student engagement?

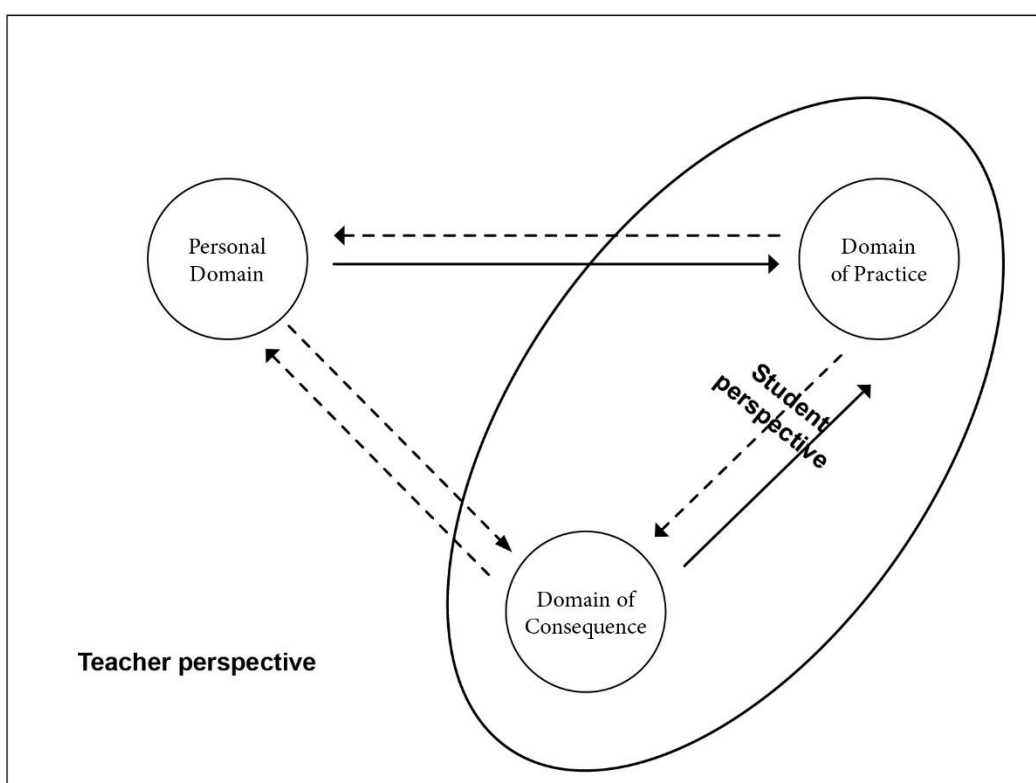


Figure 1.4 Overview of study 3

Study 4 (chapter 5) uses the whole IMPG to analyze the learning processes that occurred within the different teams and to further examine teachers' perceptions of the concept of engagement and how engagement can be fostered (Figure 1.5). Interviews, products and reports are analyzed using the IMPG to answer the following research question and sub-questions: *How do teacher teams foster engagement and what and how do they learn when explicitly working on enhancing student engagement during an action research project?*

- What kinds of changes do the three teams of teachers implement to foster student engagement?
- How do teachers perceive engagement and do they alter their beliefs during an action research project on student engagement?
- What kinds of change sequences occur within teams during an action research project on fostering student engagement?
- How do these change sequences support the teachers' changes in knowledge and beliefs about engagement?

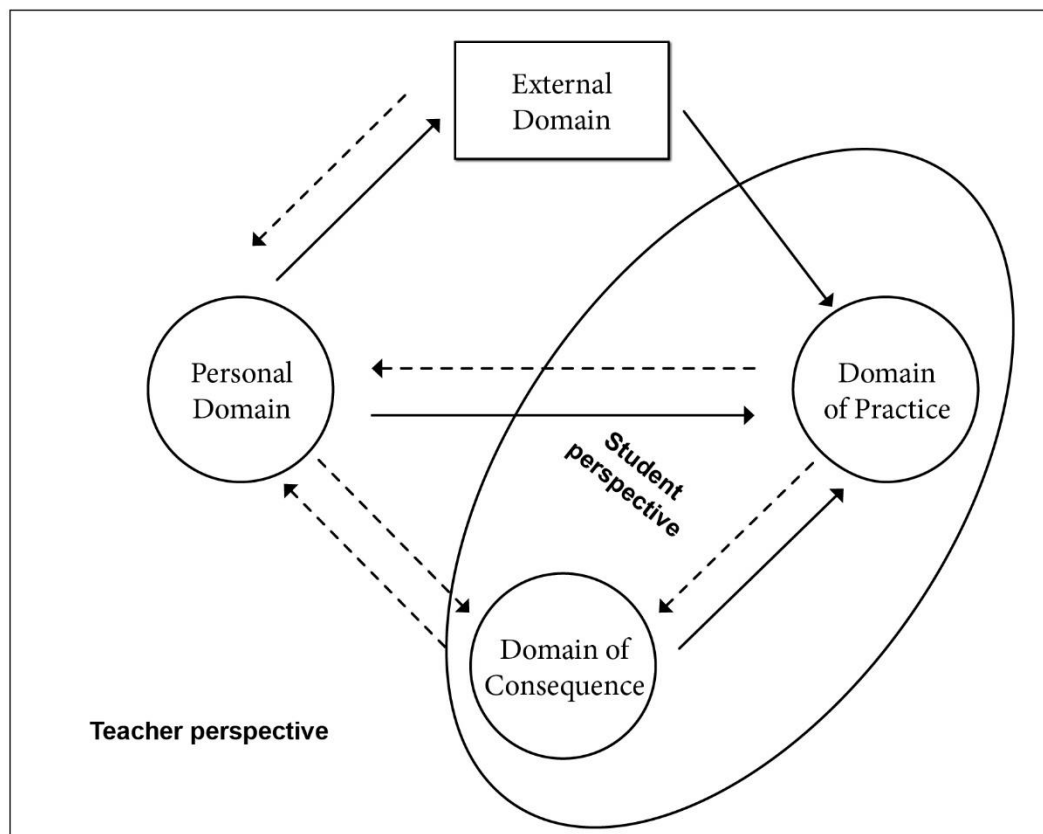


Figure 1.5 Overview of study 4

In chapter 6 we will combine the outcomes of the different studies to answer the general research question. The results of the different studies related to the different domains of the teachers' professional world contribute incrementally to the scientific but also practical knowledge about student engagement.

CHAPTER 2*

I think I can engage my students. Teachers' perceptions of student engagement and their beliefs about being a teacher

Student engagement is an important condition for positive outcomes at school. This study examined whether teachers' motives for being a teacher, their ratings of the relative importance of different teacher competences, their self-efficacy for teaching, and ratings of their own interpersonal teacher behavior could predict teacher perceptions of student engagement. Relations between perceived student engagement and teacher beliefs were explored using data from a survey of 195 teachers in pre-vocational and vocational education in the Netherlands. Teachers rating themselves higher on dimensions of interpersonal teacher behavior, importance of didactic and pedagogical competence, and self-efficacy perceived their students as more engaged.

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2.1 INTRODUCTION

Student engagement is addressed seriously on conceptual and empirical levels in research and policy because of its relevance for explaining student behavior, especially school dropout. In the Netherlands, as well as in other countries, student dropout is a major political issue. Too many students leave secondary education without an appropriate basic qualification, although this level of education is necessary to obtain a job. Studies in the Netherlands reveal that most dropouts (75%) leave school in secondary vocational education (Dutch Ministry of Education, Culture and Science, 2011a).

Educational researchers' interest in the relation of dropout and student engagement is increasing. From a pedagogical perspective, dropout is seen to be the result of a student's long-term process of disengagement and withdrawal from education. This process of disengagement starts during the early years of education (pre-school and primary education) and could lead to the student dropping out from school in secondary, vocational and higher education (Audas & Willms, 2001; Dynarski, Clarke, Cobb, Finn, Rumberger, & Smink, 2008; Hammond, Linton, Smink, & Drew, 2007). There is not one single factor that causes dropout. Research confirms that many different factors can influence the final decision to drop out (Dynarski et al., 2008; Hammond et al., 2007): e.g., level of household stress, low socioeconomic status, antisocial behavior and demographic characteristics. These risk factors are interrelated, interact with each other and have a cumulative effect on the decision to quit school (Dynarski et al., 2008). Student engagement is another major factor influencing dropout from school (Appleton, Christenson, & Furlong, 2008; Fredricks, Blumenfeld, & Paris, 2004). Although much research examining the relation between dropout and engagement has been conducted (e.g., Archambault, Janosz, Fallu, & Pagani, 2009; Finn, 1989; Klem & Connell, 2004), only a few studies have examined how teachers' characteristics can influence the engagement of their students. Interested, warm and caring teachers can make the difference for students at risk of dropping out (Jennings & Greenberg, 2008; Pianta & Allen, 2008). Thus, teachers matter in fostering engagement; but how do they perceive the engagement of their students, and are teachers' beliefs about being a teacher related to perceptions of student engagement? Teachers' beliefs and intentions influence their behaviors in the classroom (Oolbekkink-Marchand, van Driel, & Verloop, 2007). Therefore, we assume that their beliefs will drive teachers to act in a certain way, and this behavior will influence student engagement, which will thereby feed back to teachers' perceptions of engagement. Therefore, the purpose of this study is to analyze how teachers' perceptions of their students' engagement relate to certain of their beliefs about being a teacher.

2.2 CONTEXT OF THE STUDY

As is the case in most European countries, most dropouts in the Netherlands occur in pre-vocational and vocational education (Dutch Ministry of Education, Culture and Sciences, 2011a; European Commission, 2012). The context of this study is therefore pre-vocational and vocational education.

After primary education, students in the Netherlands can go on to either general lower secondary education or pre-vocational education. The majority (55%) of students in secondary education attend pre-vocational education (Dutch Ministry of Education, Culture and Science, 2011b). The pre-vocational track takes four years, and most students start at the age of 12 and finish at the age of 16. There are different programs that prepare students for secondary vocational education.

In the Netherlands we distinguish four levels of vocational education. All tracks in pre-vocational education and level 1 and 2 of vocational education are equivalent to levels 1 and 2 from the European Qualification Framework (EQF). Similarly, levels 3 and 4 of vocational education are comparable to levels 3 and 4 of the EQF. Programs in economics, health and social care, engineering and agriculture are offered at all levels of vocational education.

2.3 THEORETICAL FRAMEWORK

Student engagement is important for the pursuit of positive results at school. At the classroom level, teacher support, positive teacher-student relationships, class structure, autonomy support and authentic and challenging tasks have been associated with student engagement (Fredricks et al., 2004). The teacher creates those classroom conditions. In this study, we move from those classroom conditions to more general teacher beliefs that support teaching in pre-vocational and vocational education, including teachers' perceptions of student engagement. To be able to create those conditions, teachers need to believe that they have certain competences and to believe in the value of having certain competences, to be aware that they engage in specific interpersonal behaviors and to feel that they can really achieve their goals with their students. Moreover, their motives for being a teacher will probably also influence their actions and, finally, teachers' perceptions of student engagement could also be influenced by their beliefs. Therefore, we investigated the relation of these beliefs to teacher perceptions of student engagement. The main teacher beliefs studied are: motives for being a teacher, self-efficacy beliefs, relative value placed on different teacher competences, and views about their own interpersonal teacher behavior.

2.3.1 Student engagement

In this study we focus on teacher's perception of student engagement and subsequent acting by teachers. To identify characteristics of teacher's perceptions, student engagement will be described. In most studies, engagement is made up of two or three components (Appleton et al., 2008), although some studies include a fourth component when describing student engagement. Irrespective of the number of components making up the construct of engagement, there are at least two basic components one finds in almost every study on engagement. The first is emotional engagement, which reflects students' feelings of belonging in school; the second is behavioral engagement, and consists of student participation at school (e.g. Archambault et al., 2009; Anderson, Christenson, Sinclair, & Lehr, 2004; Audas & Willms, 2001; Elffers, 2011; Finn, 1989; Fredricks et al., 2004; Klem & Connell, 2004). An additional third component often mentioned is cognitive engagement (Appleton et al., 2008; Archambault et al., 2009; Fredricks et al., 2004). However, cognitive engagement is often associated with more motivational constructs such as self-regulation, goal orientation and intrinsic motivation; it can also be viewed as being strategic in nature. Cognitive engagement is associated with metacognitive knowledge, which depends on age and capabilities (Fredricks et al., 2004).

There is no agreement on the fourth component of engagement. Agency is introduced as a fourth component by Reeve and Tseng (2011), Mitchell and Carbone (2011) introduce metacognitive engagement, while Reschly and Christenson (2006) suggest academic engagement as the fourth component of engagement.

Due to the haziness about the fourth component and the dependence of cognitive engagement on age and capabilities, we decided to focus on the two basic components of engagement, behavioral and emotional engagement (Appleton et al., 2008; Fredricks et al., 2004; Klem, & Connell, 2004; Moreira, Machado Vaz, Dias, & Petracchi, 2009; Willms, 2003; Zyngier, 2008):

- Behavioral engagement: students are behaviorally engaged when they participate in the lesson, are on time, concentrate on the assignments given, put effort into these assignments and do what they are asked to do.
- Emotional engagement: students are emotionally engaged when they are enthusiastic about school, are interested in going to school, identify themselves with school and demonstrate a positive learning attitude.

We can distinguish between those two components of engagement, but they do not operate independently. For example, if students feel good at school (emotional engagement), it is likely they will also attend school (behavioral engagement) (Archambault et al., 2009; Volman, 2011).

According to Hattie (2003), the teacher makes an important contribution when predicting academic achievement. The teacher accounts for a large part (30%) of the variance in school success; 50% is explained by the student's own abilities. The other 20% is explained by school and peer factors, and the student's situation at home. If the teacher accounts for 30% of the variance in school success, does the teacher have a similarly major impact on student engagement?

Zyngier (2008) emphasizes that lack of engagement should not be seen in terms of deficiencies arising only in students. Engagement is reciprocal and could be influenced by school policy, teachers and parents. Studies show that teachers do influence the engagement of students. A positive relationship with teachers promotes student engagement (Anderson et al., 2004; Fredricks et al., 2004). Furthermore, Spilt, Koomen and Thijs (2011) indicate that positive teacher-student relationships contribute not only to higher student engagement but also to teacher well-being. Students with more positive views of their teachers are better performing and have fewer problems (Crosnoe, Kirkpatrick Johnson, & Elder, 2004). For students in primary education, negative teacher-student relationships have a greater effect on engagement than positive relationships, whereas in secondary education positive-teacher student relationships have a greater effect on student engagement (Roorda, Koomen, Spilt, & Oort, 2011). After the transition from primary school to junior high school, students generally report less favorable interpersonal relationships with their teachers (Eccles, Lord, & Midgley, 1991).

In general, most studies on student engagement and student-teacher relationships have been conducted in primary and secondary education. None of the studies included in the review by Roorda and colleagues (2011) aims specifically at vocational education. In this study, we focus especially on pre-vocational and vocational education, because this part of secondary education is not only often under-examined but it is also a particular locus of dropout problems, which can be seen as the result of a long-term process of disengagement. Harris (2011) states that only a few studies focus on teacher perceptions on student engagement, like we intend to do in our study. We will therefore investigate which teacher beliefs relate to teacher perceptions on student engagement in pre-vocational and vocational education.

2.3.2 Teacher competences

What should teachers do to stimulate student engagement? Bransford, Darling-Hammond and LePage (2005) describe a conceptual framework for organizing all relevant information about effective teaching. This framework consists of:

- knowledge of learners and how they learn and develop within social contexts;
- knowledge of curriculum content and goals; and
- knowledge of teaching in light of the content and learners to be taught.

Bransford and colleagues write about what teachers should know, and the studies reviewed and discussed in their 2005 book present a lot of research evidence about the knowledge needed to be an effective teacher. Our focus here is on teacher attitudes towards this knowledge and corresponding competences. We are interested in how teachers think about the importance of their competences and how this influences their perceptions of student engagement.

In accordance with Bransford et al. (2005), various researchers distinguish three types of knowledge and corresponding competences: subject-matter knowledge, or knowledge of the content and educational goals; pedagogical knowledge, or knowledge about student development and about teaching; and didactic knowledge, or knowledge about how to present teaching materials/lessons (Beijaard, Verloop, & Vermunt, 2000; Borko, 2004; Darling-Hammond, 2006). A study conducted in Serbia found four areas of teacher competences: values and child-rearing; understanding of the education system and contribution to its development; subject knowledge, pedagogy and curriculum; and self-evaluation and professional development (Pantic & Wubbels, 2010).

In the 1980's, Shulman (1986) introduced the concept of pedagogical content knowledge (PCK), in which the three kinds of knowledge mentioned earlier are integrated. We must note that the term pedagogical in PCK has a different connotation than it has in the Dutch language. In PCK, pedagogical is related to teaching and instruction, whereas pedagogy in The Netherlands (and in German-speaking countries) refers to supporting the "social, emotional and moral development" of the young (Beijaard et al., 2002, p. 754).

In the Netherlands, the *Stichting Beroepskwaliteit Leraren* (SBL, Association for the Professional Quality of Teachers) distinguishes seven competences within four domains that are required for every teacher in primary, secondary and vocational education. Three competences are professionally-oriented, and are related to colleagues, the workplace environment and the teacher himself; the other four

competences are related to contact with students and are labeled pedagogical competence, didactic and subject-matter competence, interpersonal competence and organizational competence. In this study we focus on the first three of the SBL competences related to the classroom environment: pedagogical competence, didactic/subject-matter competence and interpersonal competence. We discuss interpersonal competence in section 3.3. In line with research on teaching and subject-matter, we will examine didactic and subject-matter competences separately. We will use the Dutch connotation of pedagogical competence in our study.

Research conducted by Beijaard and colleagues (2000) shows that teachers in secondary education consider themselves to be subject-matter experts and didactic experts who are very familiar with PCK, whereas research conducted by Timmerman (2009) in schools for students with special educational needs shows that those teachers describe themselves more as pedagogical experts. We are interested to see how teacher ratings of the importance of each of the competences we are considering are related to their perceptions of student engagement in the context of pre-vocational and vocational education.

2.3.3 Interpersonal teacher behavior

We place particular importance on teachers' views about their own interpersonal teacher behavior. There are studies in which interpersonal teacher behavior is described as part of the learning environment or as a major component of classroom management (Cadima, Leal, & Burchinal, 2010; Telli, den Brok, & Cakiroglu, 2007). In this study, though, we focus on interpersonal teacher behavior as its own specific area. Wubbels, Créton and Hooymayers (1985) created the *Model for Interpersonal Teacher Behavior* (MITB), which is based on the Leary Circumplex. This model distinguishes two dimensions: the degree of influence and the degree of proximity. The dimension of influence is a continuum of submission (S) low, and dominance (D) high. The dimension of proximity is a continuum of opposition (O) low, and cooperation (C) high. Those two dimensions are represented as two axes, proximity as the horizontal axis and influence as the vertical axis. Eight types of teacher behavior fall within the space created by these two axes: leadership (DC), helping/friendly (CD), understanding (CS), freedom (SC), uncertain (SO), dissatisfied (OS), admonishing (OD) and strict (DO). Based on the outcomes on the eight types of teacher behavior, eight interpersonal profiles are distinguished: directive, authoritative, tolerant/authoritative, tolerant, uncertain/tolerant, uncertain/aggressive, repressive and drudging. The Questionnaire on Teacher Interaction (QTI) was developed to measure these constructs (Wubbels et al., 1985). This model and the QTI have been adapted for and tested in different countries (Fraser & Walberg, 2005; Wubbels, Brekelmans, den Brok, & van Tartwijk, 2006), such as Cyprus (Kokkinos,

Charalambous, & Davazoglu, 2009), Turkey (Telli et al., 2007), Indonesia (Maulana, Opdenakker, den Brok, & Bosker, 2011), China (Yu & Zhu, 2011), Brunei (den Brok, Fisher, & Scott, 2005), and the USA (Wubbels & Levy, 1991).

Research shows that the tolerant-authoritative interpersonal style, scoring very high on proximity (cooperation) and to a smaller extent also on influence (dominance), has the most positive effect on students' learning outcomes (Wei, den Brok, & Zhou, 2009; Wubbels & Brekelmans, 2005; Wubbels et al., 2006). Studies have also demonstrated a positive relation between teacher scores on both dimensions and actual cognitive and affective student outcomes (e.g. den Brok, Brekelmans, & Wubbels, 2004; 2006; Maulana et al., 2011; Van Petegem, Aelterman, Van Keer, & Rosseel, 2008; Wubbels et al., 2006). High scores on both dimensions for teachers in Brunei were also found to be related to students' actual positive attitudes towards science (den Brok et al., 2005). We expect that a higher score on both dimensions could be related to higher student engagement as well, because emotional engagement could be seen as a type of affective outcome. Behavioral and emotional engagement could be seen as separate components of the construct of engagement, but they are not independent of each other. Whether teachers rating themselves high on interpersonal behavior perceive their students as more engaged as well, is subject to question in our study as well. Furthermore, we expect that the relation with perceived engagement will be stronger for both dimensions of self-reported interpersonal teacher behavior than for the ratings of importance for the different teacher competences. Interpersonal teacher behavior is about actual behavior in interaction with students, whereas didactic, pedagogical, and subject-matter competences focus on how to create a good teaching environment. On the other hand, beliefs about those other competences could steer interactions with the students.

2.3.4 Motives

To explain the possible variance in perceived student engagement, it could be important to know which motives may drive teachers' behavior in the classroom and in interacting with students. Several researchers have examined motives that play an important role in the decision to become a teacher (Pop & Turner, 2009; Richardson & Watt, 2005, 2006; Yong, 1995). They distinguish three types of teacher motives in these inquiries:

- altruistic motives: someone chooses to become a teacher because he or she would like to contribute to the development of children/young adolescents and society as a whole;
- intrinsic motives: someone chooses to become a teacher because he or she has a passion for teaching and seeks opportunities to grow professionally;

- extrinsic motives: someone chooses to become a teacher based on external factors, such as salary, professional security, and status.

Research by Pop and Turner (2009) suggests that most teachers choose a career in education and teaching based on altruistic motives. This general line of research focuses particularly on motives for becoming a teacher. It will be of interest to examine whether these motives for becoming a teacher still apply to teachers already working in education and their relation with the competences on which teachers focus, with their reported interpersonal teacher behavior and, finally, with their perceptions of student engagement. We expect teachers to be engaged themselves in order to be able to engage students, but those teachers that are engaged could also have a more positive attitude toward their students. This could also affect how they perceive their students' engagement. Therefore we expect that if motives for being a teacher matter, we should see a positive relation of altruistic and intrinsic motives with perceived student engagement and a negative relation of extrinsic motives.

2.3.5 Self-efficacy

Another factor influencing the behavior of teachers is their self-efficacy beliefs. Self-efficacy stems from the conviction people have of their own capabilities to reach a certain goal or accomplish a particular task. It arises from the experience of a particular degree of control in specific situations and reflects the extent to which someone believes in his or her own capacities to influence the desired outcomes in that specific situation (Bandura, 1997; Knoblauch & Woolfolk Hoy, 2008; Tschannen-Moran & Woolfolk Hoy, 2001, 2007; Woolfolk Hoy & Burke Spero, 2005; Yeo, Ang, & Chong, 2008). If teachers think they cannot influence the outcome, there is little chance that they will enact specific competences to reach the desired outcome. In a study conducted in five different countries, Klassen and colleagues (2009) showed the universality of the construct of teacher self-efficacy.

Caprara, Barbaranelli, Steca and Malone (2006), developed a theoretical framework based upon which they explain that teacher self-efficacy is largely related to educational innovation, good class management, offering suitable learning activities, and taking responsibility for students in need of special care. Furthermore, teacher self-efficacy is associated with student motivation and self-esteem, achievement and more positive student attitudes towards school. These relations are also supported by the theoretical frameworks of Woolfolk Hoy and Burke Spero (2005) and Tschannen-Moran and Woolfolk Hoy (2001, 2007). Evidently, high self-efficacy is necessary when teaching at-risk students. Sørli and Torsheim (2011) showed a relation between higher levels of collective efficacy and lower levels of problem behavior within schools.

Collective efficacy is about the beliefs of the teachers regarding the performance capabilities of the school as a whole.

Self-efficacy is influenced by teaching experience. Teachers with more years of experience often feel more self-efficacious (Yeo et al., 2008). According to Woolfolk Hoy and Spero (2005) the first year of teaching is very important in developing feelings of teaching self-efficacy. Having more high-conflict relationships with low-achieving students could decrease feelings of self-efficacy (Yeo et al., 2008). In this study we focus on self-efficacy related to interactions with students: instructional self-efficacy, disciplinary self-efficacy and efficacy in creating a positive school climate. Other kinds of teacher self-efficacy are efficacy to influence decision making, enlist parental involvement and enlist community involvement (Bandura, 2006). A questionnaire developed by Tschannen-Moran and Woolfolk Hoy (2001) even incorporated student engagement as a subscale for self-efficacy, measuring the extent to which teachers think they can encourage student engagement. Based on the studies mentioned we expect higher levels of self-efficacy to be connected to higher levels of perceived student engagement.

2.3.6 The research question

Our study began with the initial purpose of exploring the relation between teachers' beliefs about being a teacher and their perceptions of student engagement. Our review of the literature about teacher competences, interpersonal teacher behavior, teacher motives, and self-efficacy yielded this research question for this study:

To what extent do teacher motives for being a teacher, perceived importance of different teacher competences, perceived self-efficacy and views about their own interpersonal teacher behavior relate to teachers' perceptions of student engagement in pre-vocational and vocational education?

We focus on the teacher perspective, which means that we will examine how teachers perceive the engagement of their students in relation to their own opinions about these other relevant constructs: their motives, the role of different competences, perceived self-efficacy and their own interpersonal teacher behavior. We hypothesize that their interpersonal teacher behavior will have the strongest relation with teachers' perceptions of student engagement and that teachers' view of their own behavior is itself related to their opinions about the different competences, self-efficacy and motives for being a teacher.

2.4 METHOD

This study aimed to identify the relations between teacher's motives for being a teacher, perceptions of the roles of different teacher competences, perceived self-efficacy, and views of their own interpersonal teacher behavior on the one hand and perceived student engagement on the other hand.

2.4.1 Participants

The respondents to our survey consisted of 195 teachers, 116 male teachers and 79 female teachers. In vocational education, 45% of the teachers are female (Dutch Ministry of Education, Culture and Science, 2011b). The average age was 45 years old ($SD = 10.11$). The average age of teachers in vocational education in 2010 was 49 years old. The participating teachers had on average 14.67 ($SD = 10.24$) years of teaching experience. Their teaching experience ranged from one year up to forty years. Most (132 teachers) were working in vocational education, while 59 taught in pre-vocational education. Four teachers taught most of the time in pre-university classes. The majority (76.4%) of the teachers confirmed that they would choose their profession again if they had to make that career choice right now. Most of the teachers (87.6%) also tutored a group of students.

2.4.2 Procedure

Responses to the survey were collected from May, 2010 until March, 2011. Participation was voluntary. Teachers from vocational and pre-vocational education were invited to participate in the survey. First, their schools were asked to participate: 52 schools (26 pre-vocational schools and 26 vocational schools) in different parts of the Netherlands were approached about participating in the survey with five to ten teachers each. A total of fifteen vocational schools and eight pre-vocational schools agreed to participate, but not all schools could deliver the minimum of five teachers. The number of participating teachers per school ranged from 1 to 40. The schools that responded positively were sent an invitation to be distributed to their teachers. Sometimes the invitation was distributed to all teachers of the school and in other schools to one or more specific teacher teams. We asked our contact persons at the different schools and in the different teams to report how many teacher invitations to participate in the survey they sent out. There were about 330 teachers invited, of which 200 began filling in the questionnaire, and 194 completed the questionnaire.

2.4.3 Measures

We developed a digital questionnaire to measure the different constructs and based the questionnaires on existing instruments. The questionnaire began with background variables such as age, gender, subject taught and the educational level at which the teacher is teaching.

The questionnaire included a set of questions ($N = 12$) about teachers' motives for becoming a teacher. We based this instrument on one used by Hargreaves et al. (2007) in their research about the status of teachers and the teaching profession in England. They distinguished three types of motives: motives aimed at giving students a good start, the status of being a teacher, and opportunities for professional development. Those motives are more or less comparable to an altruistic motive, an extrinsic motive, and an intrinsic motive, respectively. We used a four-point Likert scale ranging from *disagree* (1) to *fully agree* (4).

Next, we asked the teachers which competences they find important in their work. We used an instrument consisting of eighteen items developed by Beijaard et al. (2000). This instrument distinguishes three competences: subject-matter competence, didactic competence, and the pedagogical competence. Here, we also used a four-point Likert scale ranging from *disagree* (1) to *fully agree* (4). Higher scores mean greater importance.

We used fourteen items from three scales of Bandura's (2006) questionnaire about teacher self-efficacy, focusing on the interactions with students: instructional self-efficacy, disciplinary self-efficacy and efficacy to create a positive school climate. Teachers could rate on a ten-point Likert scale whether they had *no influence at all* (1) to could be *totally influenced* (10). Higher scores mean greater self-efficacy beliefs.

To measure interpersonal teacher behavior we used a short version (32 items) of the Questionnaire on Teacher Interactions developed by Wubbels et al. (1985). All 32 items score on both axes, which means we can calculate both dimension scores based on all 32 items. We used a five-point Likert scale ranging from 1 (*never*) to 5 (*always*). The validity and reliability of the QTI has been shown by different studies conducted in different countries (Wubbels et al., 2006).

Finally, we asked teachers to estimate the general behavioral and emotional engagement of their students. Because there is not one widely accepted instrument to measure emotional and behavioral engagement, we based our instrument on several instruments used in different studies (Appleton, Christenson, Kim, & Reschly, 2006; Archambault et al., 2009; Reschly & Christenson, 2006). We used a four-point Likert scale ranging from 1 *disagree* to 4 *fully agree*. Higher scores indicate greater perceived engagement.

First we tested the validity and clarity of the items by presenting the questionnaire to an expert. We asked the expert to check the operationalization of the constructs. Did we use the right items to measure the different constructs? Secondly, we asked the same question of three colleagues in the research group of the second author. Finally, we asked three teachers whether the questionnaire was comprehensible. We followed this up with a pilot in which 92 teachers participated. The aim of the pilot was to test the reliability of the different scales within the questionnaires. All scales used are either existing scales or based on existing scales. We used the pilot data to calculate the reliabilities of the different scales. If a scale consisted of multiple components or dimensions, we also applied a factor analysis. Based on these analyses, we made some changes to the scales measuring teachers' motives for choosing their profession and perceived student engagement.

2.4.4 Analyses

After the final survey data had been collected, means and standard deviations for each scale were calculated and reliability was tested again, using Cronbach's alpha. Alpha's were more or less comparable to the Cronbach's alpha's during the pilot phase. We found differences on three scales. The reliability of the scales measuring an intrinsic motive and subject-matter competence increased. The reliability of the scale measuring behavioral engagement decreased from .73 to .69. The scales measuring teacher competences proved to be more reliable in our sample of teachers working in vocational education than in the sample from Beijaard et al. (2000) consisting of teachers in general secondary education. We calculated the dimension scores of the QTI by transforming the scores to proportional scores and added and subtracted scores based on the position of the items in the circumplex (Mainhard, Brekelmans, Wubbels, & den Brok, 2008; Wubbels et al., 2006). Table 2.1 presents the Cronbach's alpha for each scale.

Table 2.1 *Scales teacher questionnaire*

Scale	N	Number of items	α	Sample item
Motive - altruistic	195	4	.73	to give students the best possible start in life
Motive - extrinsic	195	4	.74	the earning potential of the job
Motive - intrinsic	195	4	.68	having a challenging job
Pedagogical competence	195	6	.79	As a teacher, I serve as a model for the way students mix with each other
Didactic competence	195	6	.71	In my lessons, I pay a lot of attention to varied learning activities
Subject-matter competence	195	5 ^a	.73	I find it important to discuss subject-matter with colleagues
Self-efficacy	195	14	.89	How much can you do to keep students on task on difficult assignments
Behavioral engagement	194	5	.69	Students are always on time for my lessons
Emotional engagement	194	5	.84	Students like my lessons
Influence	194	32	.73	This teacher has authority
Proximity	194	32	.83	This teacher trusts students

a. The item, 'The subject I studied determined my decision to become a teacher' was omitted from the scale.

We checked whether there were any significant differences between male and female teachers. Male teachers differed from female teachers on only one aspect, with males scoring lower on intrinsic motives (Male $M = 2.72$, $SD = 0.69$, Female $M = 2.93$, $SD = 0.53$, $\alpha < .05$).

To analyze the relations between the different concepts, and especially the relation between perceived student engagement and teacher beliefs, we conducted correlational analyses and a regression analysis. We hypothesized that interpersonal behavior would have a more direct relation with perceived student engagement than the other concepts. We began with correlational and regression analysis to test whether it would be useful to conduct structural equation modeling (SEM) to test this assumption. Based on the correlation and regression analyses we decided to conduct SEM, but to exclude motives and importance of subject-matter competence from further analysis. The other variables together predicted 30% of the variance in perceptions of behavioral engagement and almost 50% of the variance in perceptions of emotional engagement.

Because we are interested here in the relations among constructs and not in the exact relations among the individual items, we are allowed to parcel items (Little, Cunningham, Shahar, & Widaman, 2002). To build the model for SEM, we randomly

clustered the items measuring each construct in pairs or triples so as to be able to present a clearly structured model. We compared different parameters to test the different models: Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA) and Standardized Root Square Mean Residual (SRMR).

Hu and Bentler (1999) have shown that a cutoff point greater than 0.90 for CFI and TLI is necessary to ensure that mis-fitting models are not accepted. CFI and TLI values greater than 0.90 are defined as acceptable model fit, while values greater than .95 are defined as indicating a good model fit. Hu and Bentler (1999) advise a cutoff point close to .06 for the RMSEA. The SRMR should be smaller than .05, although values as high as .08 are still deemed acceptable.

2.5 RESULTS

2.5.1 Descriptives

We measured the opinions of teachers about their motives, importance of teacher competences, their perceived self-efficacy, ratings of their own interpersonal teacher behavior, and their perceptions of the engagement of their students. Table 2.2 shows the results from the teacher questionnaire. The participating teachers chose the profession mostly based on altruistic motives ($M = 3.48$, $SD = 0.49$). The highest importance score for the three competences was found for pedagogical competence ($M = 3.52$, $SD = 0.43$). Teachers perceived their self-efficacy as relatively high ($M = 7.24$, $SD = 0.96$). They thought of their students as more emotionally ($M = 3.12$, $SD = 0.47$) than behaviorally ($M = 2.84$, $SD = 0.46$) engaged. Finally teachers scored themselves higher on the dimension of proximity ($M = 0.55$, $SD = 0.23$) than on the influence dimension ($M = 0.27$, $SD = 0.19$).

Table 2.2 *Descriptives teacher questionnaire*

Scale	N	M	SD
Motive - altruistic	195	3.48	0.49
Motive - extrinsic	195	1.92	0.67
Motive - intrinsic	195	2.81	0.64
Pedagogical competence	195	3.52	0.43
Didactic competence	195	3.00	0.47
Subject-matter competence	195	3.14	0.51
Self-efficacy	195	7.24	0.96
Behavioral engagement	194	2.84	0.46
Emotional engagement	194	3.12	0.47
Influence	194	0.27	0.19
Proximity	194	0.55	0.23

Note. We used a four-point Likert scale to measure motives, competences and student engagement. For self-efficacy we used a ten-point Likert scale. The dimension scores are calculated according the instructions accompanying the instrument.

2.5.2 Relations between teacher beliefs and the perceived student engagement

We examined and calculated the relations between motives, importance of competences, perceived self-efficacy, ratings of interpersonal teacher behavior and student engagement as perceived by the teachers themselves. The results in Table 2.3 show that on the whole, the relation between the measured teacher beliefs and perceived emotional engagement of the students was stronger than the relation between beliefs and perceived behavioral engagement. We also found acceptable positive correlations between behavioral engagement and didactic competence, perceived self-efficacy, and the influence dimension of self-rated interpersonal teacher behavior.

There is a noticeable difference with regard to how the two types of interpersonal behavior are related to the two types of student engagement. The correlation between influence and engagement is higher for behavioral engagement than for emotional engagement. Conversely, the correlation between proximity and emotional engagement is twice as big as that for proximity and behavioral engagement.

Table 2.3 *Correlational analyses: motives, importance of competences, perceived self-efficacy, interpersonal teacher behavior and perceived student engagement.*

	1	2	3	4	5	6	7	8	9	10
1. Motive - altruistic										
2. Motive - extrinsic	.09									
3. Motive - intrinsic	.42***	.45***								
4. Pedagogical competence	.39***	.02	.30***							
5. Didactic competence	.34***	.21**	.45***	.52***						
6. Subject-matter competence	.32***	.32***	.37***	.30***	.60***					
7. Self-efficacy	.30***	.13	.29***	.42***	.47***	.23**				
8. Proximity	.18*	-.13	.02	.39***	.21**	.06	.39***			
9. Influence	.17*	.05	.06	.22**	.26***	.13	.26***	.10		
10. Behavioral engagement	.13	.01	.11	.25***	.32***	.19**	.31***	.27***	.35***	
11. Emotional engagement	.29***	.11	.28***	.46***	.35***	.19**	.47***	.57***	.27***	.38***

Note. Correlations calculated using Spearman's ρ .

* $p < .05$, ** $p < .01$, *** $p < .001$

2.5.3 Testing the model

A stepwise regression analysis (Table 2.4) showed that 30% of the variance in perceptions of behavioral engagement could be explained by importance of didactic competence, and beliefs about one's own proximity and influence. Almost 50% of the variance in perceptions of emotional engagement could be explained by self-efficacy beliefs, value of pedagogical competence and beliefs about proximity and influence.

Table 2.4 Regression analyses behavioral and emotional engagement

Behavioral engagement				Emotional engagement			
	B	SE B	β		B	SE B	β
Step 1							
Constant	2.90	0.17		Constant	3.25	0.18	
Gender	0.11	0.07	.11	Gender	0.07	0.07	-.04
Age	0.00	0.00	.03	Age	-0.00	0.00	-.08
Vocational teacher	-0.08	0.07	-.08	Vocational teacher	-0.02	0.07	-.02
Mentor	-.013	0.10	-.10	Mentor	0.02	0.10	0.01
Step 2							
Constant	1.38	0.31		Constant	1.21	0.28	
Gender	0.12	0.06	.13	Gender	-0.03	0.06	-.04
Age	0.00	0.00	.11	Age	-0.00	0.00	-.08
Vocational teacher	-0.07	0.06	-.07	Vocational teacher	0.01	0.06	.01
Mentor	-.11	0.09	-.08	Mentor	-0.03	0.09	-.02
Self-efficacy	0.18	0.03	.38***	Pedagogical competence	0.60	0.07	.54***
Step 3							
Constant	1.23	0.31		Constant	0.64	0.31	
Gender	0.06	0.06	.06	Gender	0.03	0.06	.00
Age	0.00	0.00	.10	Age	-0.00	0.00	-.02
Vocational teacher	-0.08	0.06	-.09	Vocational teacher	0.01	0.06	.01
Mentor	-.16	0.09	-.11	Mentor	0.00	0.09	.00
Self-efficacy	0.12	0.04	.25**	Pedagogical competence	0.41	0.08	.37***
Didactic competence	0.23	0.08	.24**	Self-efficacy	0.15	0.04	.29***
Step 4							
Constant	1.53	0.30		Constant	1.22	0.28	
Gender	0.06	0.06	.06	Gender	0.03	0.05	.03
Age	0.00	0.00	.04	Age	-0.00	0.00	-.08
Vocational teacher	-0.08	0.06	-.08	Vocational teacher	-0.00	0.05	-.00
Mentor	-.14	0.09	-.10	Mentor	0.05	0.08	.04
Self-efficacy	0.06	0.04	.13	Pedagogical competence	0.25	0.08	.23**
Didactic competence	0.19	0.08	.19*	Self-efficacy	0.08	0.03	.15*
Proximity	0.32	0.14	.16*	Proximity	0.85	0.12	0.41***
Influence	0.64	0.16	.27***	Influence	0.47	0.13	0.19***

Note. For behavioral engagement: $R^2 = .03$ in step 1, $\Delta R^2 = .14$ in step 2, $\Delta R^2 = .04$ in step 3, $\Delta R^2 = .09$ in step 4 ($p < .001$). For emotional engagement: $R^2 = .01$ in step 1, $\Delta R^2 = .28$ in step 2, $\Delta R^2 = .05$ in step 3, $\Delta R^2 = .16$ in step 4.

* $p < .05$, ** $p < .01$, *** $p < .001$.

The regression analyses showed that it would be useful to conduct SEM. When the interpersonal teacher behavior variables were added to the model, the contributions of the other variables declined. We created four models (Table 2.5) in which we examined how the different constructs could contribute to both behavioral and emotional engagement. Based on the correlational and regression analyses we decided to include the dimensions of interpersonal teacher behavior, the views of pedagogical and didactic competence and self-efficacy. Based on the regression analysis we decided to exclude motives and importance of subject-matter competence.

We began with a model including only the two dimensions of interpersonal teacher behavior. We then added the variables of self-efficacy, didactic competence and pedagogical competence to see whether the model fit was improved by adding those variables (model 2). The model fit improved, and based on our assumptions we tested whether all variables directly influenced behavioral and emotional engagement. In the third model we tested whether the dimensions of interpersonal teacher behavior directly influenced perceptions of student engagement and the other variables influenced interpersonal behavior and therefore indirectly affected perceived student engagement. Based on the results of model 2 and 3 we tried to improve the fit by implementing direct and indirect effects of the other variables in the last model (model 4). Based on the goodness of fit parameters, model 4 is the best fitting model (Figure 2.1, $\chi^2 = 194.13$, $df = 106$).

Table 2.5 *Fit results for structural equation models*

	Description	CFI	TLI	RMSEA	SRMR
Model 1	Interpersonal behavior only	.924	.848	.119	.059
Model 2	Other variables also - Direct effects	.929	.901	.068	.053
Model 3	Other variables also - Indirect effects	.916	.891	.071	.061
Model 4	Mixed effects based on outcomes from models 3 & 4	.929	.909	.065	.052

The final model (4) includes a direct relation between both dimensions of interpersonal teacher behavior and perceptions of emotional and behavioral engagement. Perceptions of emotional engagement are also directly influenced by the importance of pedagogical competence, whereas perceptions of behavioral engagement are directly influenced by the importance of didactic competence. Importance of pedagogical competence also indirectly affects perceptions of both types of engagement through proximity, while self-efficacy has an indirect effect through influence. Although there is a high correlation between didactic and pedagogical competence, the paths from didactic competence to emotional engagement and pedagogical competence to behavioral engagement are not significant.

Based on the combination of goodness of fit indices, we could speak about an acceptable fit. Based on the Chi square we must reject our model. Although model 4 is the best fitting model, the added concepts and paths are not sufficient to explain the variance in perceived behavioral and emotional engagement.

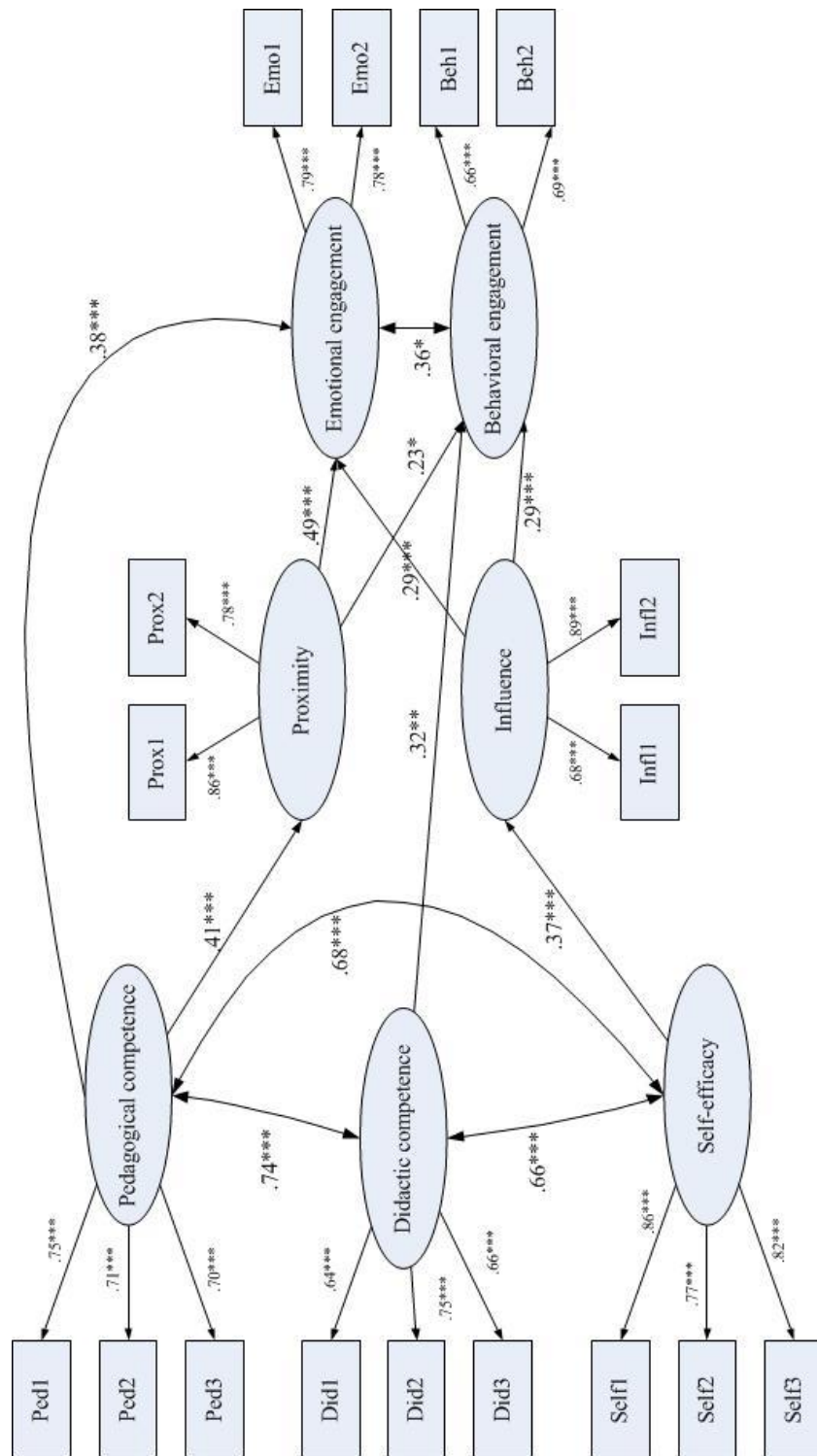


Figure 2.1 Structural equation model 4 with significant paths

2.6 CONCLUSIONS AND DISCUSSION

2.6.1 Teacher beliefs and their perceptions of student engagement

We investigated the relations among teachers' views of their motives for being a teacher, importance of different teacher competences, self-efficacy, their own interpersonal teacher behavior, and perceptions of student engagement. We use the results to answer our research question: *To what extent do teacher motives for being a teacher, perceived importance of different teacher competences, perceived self-efficacy and views about their own interpersonal teacher behavior relate to teachers' perceptions of student engagement in pre-vocational and vocational education?*

We found relations among motives, attitudes towards competences, perceived self-efficacy, ratings of interpersonal teacher behavior, and perceptions of student engagement. In particular, ratings of interpersonal teacher behavior (influence and proximity), perceived self-efficacy and views of didactic and pedagogical competence contribute to predicting perceived student engagement.

Based on the results of the correlational and regression analyses, we conclude that interpersonal teacher behavior with its two dimensions is the most important construct in predicting perceived student engagement. This result confirms our expectations. We found the strongest relations between emotional engagement and proximity, importance of pedagogical competence and self-efficacy. Didactic competence and influence contributed most to behavioral engagement. Whereas self-efficacy contributed to perceived emotional engagement in the regression analysis, SEM showed no significant path between self-efficacy and emotional engagement, although a significant path was found between self-efficacy and influence. Previous research, conducted in general secondary education, has already indicated a connection between interpersonal teacher behavior and affective student outcomes (e.g. den Brok et al., 2004, 2006; Van Petegem et al., 2008). With this study we affirm this relation also applies to perceived student engagement in vocational education.

We used SEM to explore a model with direct and indirect effects in which both types of student engagement were included. Although model 4 was the best fitting-model, we had to reject the model. When conducting SEM, it is very tempting to change your model while searching for a model that fits. We tested only those models that fitted our theoretical framework. Thus, it is possible that there are other relations between the different concepts that could better explain the variance in perceived student engagement.

2.6.2 The model: what is influencing perceptions of engagement?

Within this study we focused on student engagement from the perspective of the teacher, based on teacher beliefs. We assumed a relation between teacher beliefs and student engagement and thus also teachers' perceptions of student engagement. Although it could also be the case that teachers' beliefs influence what they see when they look at students. Correlational and regression analyses showed a relation between those beliefs and perceptions, we were not able to build a reliable model presenting the relations among the different variables. Because we focused on teachers' beliefs about themselves, we did not take into account other variables that could influence student engagement and therefore also teachers' perceptions of engagement. Bronfenbrenner (1979) emphasizes that situations are embedded within broader contexts and that those contexts influence what happens within the specific situation. Teachers base their perception of student engagement on their different experiences with their students. The interaction between a teacher and his or her students can be seen as a situation at the micro level. Is the perceived engagement the outcome of what happens within this microsystem or do other microsystems also influence the outcomes? Students also interact with peers during lessons and with different teachers during the day. Teachers also interact with others such as colleagues or maybe their family at home. Furthermore, it is also possible that parents influence student engagement with school. And on other levels school climate as well as other organizational aspects such as the timetable could influence student engagement. This could influence what teachers see in their classes and could color their perceptions of student engagement.

Therefore we would recommend including teacher beliefs about 'others' in future research. By 'others' we mean beliefs about the effect of peers in the classroom, the way colleagues function as teachers and the organizational context. Based on these additional aspects we could examine the extent to which teachers' beliefs about themselves matter or whether teachers' beliefs about other things also matter for engaging their students.

2.6.3 The competences: APCK?

Although we did not find a good fitting model, we found some relevant relations in the correlational and regression analyses. How might we interpret those relations? In this study we distinguished three teacher competences: subject-matter competence, didactic competence and pedagogical competence. Interpersonal teacher behavior was introduced as separate concept. In the Netherlands, we consider the three mentioned competences, and also interpersonal competence. Therefore we will combine the findings on the competences and the findings on interpersonal teacher behavior in this part of the discussion.

The results show the strongest relation between perceptions of engagement and the dimensions of interpersonal teacher behavior, pedagogical competence and didactic competence. We found only a weak correlation between importance of subject-matter competence and perceptions of engagement. Subject-matter competence was excluded in the stepwise regressions. This competence could be of more importance for teachers in higher levels of secondary education than for those in vocational and pre-vocational education. Students need subject knowledge, but the content and complexity of that knowledge differs for the different educational levels. So according to the findings it would be of more importance for teachers in vocational education to invest in perceptions of pedagogical, didactic and interpersonal competence than subject-matter competence when improving perceptions of student engagement.

It is noticeable that importance of pedagogical competence is especially related to perceptions of emotional engagement whereas importance of didactic competence is mostly related to perceptions of behavioral engagement. The descriptives show that teachers state that they invest more in their pedagogical than didactic competence. Because we found lower scores for importance of didactic competence, we would suggest investing in didactic competence or attitudes towards didactic competence. It could improve the perceptions of behavioral engagement and could even affect the real levels of behavioral student engagement. If teachers who find didactic competence important also act that way we could conclude they are probably better at creating an attractive learning environment in which students are willing to participate actively.

Importance of pedagogical competence is related to perceived emotional engagement and ratings of interpersonal teacher behavior to both types of engagement. This could mean that teachers in vocational education explicitly need to invest in positive relations with their students. Students in vocational education probably need social-emotional support to start learning. Subject-matter itself does not engage those students. Teachers need to invest in getting them engaged before they can start explaining subject-matter. Therefore we would like to extend the concept of PCK with the 'A' of affective. Establishing this affective component of competence is necessary before a teacher can continue with teaching a specific subject. Teachers should be aware of their own interpersonal behavior and how this affects students' attitudes toward school and learning. But teachers should also know how to create a safe learning environment for every student. Thus, speaking about APCK we mean that teachers should be aware of their interpersonal behavior and pedagogical approach (the Dutch connotation) when teaching students about a specific topic using an appropriate didactic strategy. This is also supported by Rotgans and Schmidt (2011), who found that social congruence supports cognitive congruence. Social congruence can be seen as the outcome of investment in the affective part and cognitive

congruence as outcome of applying the correct PCK. Affective outcomes such as emotional engagement are related to perceptions of one's own interpersonal teacher behavior and importance of pedagogical competence. As we wonder what could improve our model, we question the role of emotions in this process. The interactions between teachers and students evoke emotions in the classroom, which makes teaching a vulnerable job. Teachers are responsible for their students, but they never totally dominate a situation, which means they can never be sure that their actions have the intended effect (Kelchtermans, 2005). Day and Leitch (2001) write that emotions shape the way teachers act in their schools, while Hargreaves (2000) discusses how positive emotions arise when working as a teacher. It would be interesting to add perceptions of emotions and the way teachers handle emotions within the classroom to the model.

2.6.4 Self-efficacy

The results showed that teacher self-efficacy is also important in predicting perceived student engagement. Self-efficacy significantly contributes to the prediction of perceived emotional and behavioral engagement, but the effects of self-efficacy diminish when ratings of interpersonal teacher behavior are added to the regression model. Our best fitting SEM-model showed that self-efficacy indirectly affects perceived engagement. Teachers who feel in control score themselves higher on influence, and a higher score on influence relates to higher perceptions of student engagement. So as expected, based on Caprara et al. (2006), teachers' self-efficacy is related to perceived engagement. But there could also be another explanation for the relation between self-efficacy and perceived student engagement. Teachers with higher levels of self-efficacy are more satisfied (Opdenakker & Van Damme, 2000). Satisfied teachers could have a more positive attitude toward the students, which eventually has a positive effect on perceived student engagement. It could mean that those teachers have a more optimistic attitude and therefore indicate higher levels of student engagement. Their students are not necessarily more engaged, but this type of teacher reports higher scores. More evidence comes from studies like Yoon (2002), that teachers scoring high on self-efficacy report lower levels of stress than teachers scoring low on self-efficacy. Thus, high scores for self-efficacy could also be seen as an indicator of teachers' well-being. Martin, Sass and Schmitt (2012) confirm this by stressing that teachers with low levels of self-efficacy in student engagement tend to use more controlling instruction strategies.

2.6.5 Teacher motives

We expected motives for choosing to work as a teacher to influence perceived student engagement. We thought that reasons for being a teacher would influence how teachers approach their students and their teaching and that this could be related to engagement and perceptions of student engagement. Or that motives for being a teacher influence how teachers perceive their students. The results showed almost no relation. Most of the participants in this study work in the lower vocational tracks. We expected them to have more altruistic motives (Pop & Turner, 2009) and that a teacher needs an altruistic motivation to be able to engage those students. Most teachers scored high on the altruistic motive, but they did not differ in perceptions of student engagement compared to teachers with lower scores on this scale. It may be that too many things influence the process in-between. Besides a motive, teachers also need to perceive some behavioral control. Furthermore, teachers could also be influenced by what they think others expect from them (Ajzen, 1991). In this context, attitudes toward teacher competences could be more strongly related to what teachers actually apply in the classroom.

2.6.6 Practical implications

Because we work at a vocational school, we thought about the implications of this research for our school and other institutions for vocational education. This study could have implications for current teachers, and for training delivered by centers for teacher training. We will also mention some opportunities for future research.

The results show that teachers' perceptions of their interpersonal behavior, their feelings of self-efficacy and their understandings of the importance of didactic and pedagogical competence are related to perceived student engagement. Based on these outcomes, we could create a profile for teachers who perceive their students as engaged. The results cannot tell us whether the students of these teachers are really engaged, but based on this profile one could have conversations with teachers about how they could try to improve the engagement of their students. What are their own attitudes towards the different competences? How do they perceive their own interpersonal behavior and how self-efficacious do they feel? How does this profile of a specific teacher relate to the outcomes of this study and are there elements which could be improved by the teacher? We would advise using such an instrument just for conversations, to stimulate teachers to talk about elements that could influence student engagement, but also how student engagement can influence their beliefs. Examining whether these students are really more engaged could be a subject for future research.

Even when those students are not really more engaged than students from teachers with a profile that do not match the outcomes of this study it could be valuable to work on these teacher beliefs. Spilt, Koomen and Thijs (2011) argue that positive teacher-student relationships are important for the wellbeing of teachers. Teachers also have a basic psychological need for relatedness. Perceiving students as being engaged could be seen as a confirmation of a positive relation. Self-efficacy could play an important role in this process, with teachers who feel more self-efficacious perceiving their students as more engaged. If teachers do not feel that self-efficacious they will need support to improve their feelings of self-efficacy. To improve self-efficacy teachers have to experience that they as a teacher matter, that they can influence the desired outcomes. Watching other teachers could already help (Bandura, 1997). But if teachers doubt their own capabilities to influence the outcome, they could be supported by a coach who can support them in making specific decisions in the classroom and to explore different alternatives.

Finally we would like to discuss what we could do with the results in preventing students from dropping out. What we see in the Netherlands is that we already do a great deal to provide activities that are intended to prevent students from dropping out. Those activities aim at better career orientation, challenging education, more and better care in school or more attention to learning styles. But if engagement is really important in preventing students from dropout, we should start with better teacher-student interactions to improve student engagement. We have already done quite a good job in diminishing dropout rates, but the last step could involve improving small things within the classroom, such as the interpersonal teacher behavior and pedagogical competence, by emphasizing the A in APCK. We could coach teachers or develop programs to develop this affective component. It could also be a good idea to ask teachers themselves how they think they can improve this component in their own classrooms. Teachers could observe and coach each other on establishing positive relationships with their students. Furthermore, we would also advise teacher training centers to focus more on this affective component, especially when training teachers for vocational education. It is important to work on PCK but also to introduce the interpersonal, affective component and emphasize this component. It would be good to design a special track in which we include those components for students who would like to teach in vocational education.

2.6.7 Limitations of the study

We included only the teacher perspective in this study, which means we could only draw conclusions about which teachers' beliefs influence teachers' perceptions of student engagement. What we do not know is whether these teachers actually have more engaged students than teachers scoring lower on these variables. In future

research it would be interesting to link the perceptions of teachers to actual student engagement as reported by the students themselves or as observed in the classroom. A study conducted by Van Petegem et al. (2008) showed that student perceptions of interpersonal teacher behavior are linked to student well-being. We might expect this linkage to apply to student engagement as well.

Additionally, all results are based on self-report data all measured at a single timepoint. The results could be strengthened by doing classroom observations to be able to include data on the actual behavior of teachers and students in the classroom. Furthermore, studies comparing teacher perceptions and student perceptions indicate differences between those perceptions (Evers, Tomic, & Brouwers, 2004; Fraser, 1998; Mitchel, Bradshaw, & Leaf, 2010), which makes it difficult to predict whether those teacher outcomes also apply when measuring actual student engagement based on student perceptions.

Thirdly, teachers participated voluntarily. Schools and teams of teachers within schools were approached to participate in this study, but not all teachers on those teams participated. Three team leaders reported that their best performing teachers (according to them) participated but their poorer performing teachers did not. This could mean that we would have found stronger or maybe different relations if all teachers had participated.

And a final limitation, we conducted regression analyses and SEM, assuming that engagement is the result of a process in which teachers act based on their motives, competences, self-efficacy, showing their interpersonal behavior. But could it be the other way around? What could be the implications for teachers' self-perceptions when perceiving students as being engaged? For example, teachers could be more confident because they feel to have engaged students, and this could result in higher scores on self-efficacy on the different competences, and on interpersonal behavior.

Despite those limitations, this study offers insights into the relations between teacher motives, attitudes towards teacher competences, beliefs about self-efficacy and self-rated interpersonal teacher behavior on the one hand and perceptions of student engagement on the other hand. These insights offer possibilities for further research, but could also contribute to educational practices in pre-vocational and vocational education.

CHAPTER 3*

Engaging students: the role of teacher beliefs and interpersonal teacher behavior in fostering student engagement in vocational education

Student engagement is an important precursor for learning. In this study we used teacher (N = 200) and student (N = 2288) questionnaires to investigate whether perceived interpersonal teacher behavior and teacher beliefs concerning motives for being a teacher, attitudes toward teacher knowledge domains and self-efficacy for teaching are related to self-reported student engagement. Three components of engagement were distinguished: behavioral, emotional and cognitive engagement. The strongest relations were found between the two dimensions of interpersonal teacher behavior and the three components of student engagement. Remarkably, there was a relation of almost zero (0.01) between students' age and their engagement.

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3.1 INTRODUCTION

Student engagement is an important precursor for learning. Engagement has been shown to be related to better achievement at school, while disengagement has been shown to be related to school dropout (Archambault, Janosz, Fallu, & Pagani, 2009; Fredricks, Blumenfeld, & Paris, 2004; Reschly & Christenson, 2006; Zimmer-Gembeck, Chipuer, Hanisch, Creed, & McGregor, 2006). In fact, disengagement is even included in the definition of the dropout process. From a pedagogical perspective, dropout is defined as the outcome of a long-term process of withdrawal and *disengagement* of the student from school. This process of disengagement begins during the early school years and can ultimately lead to the student's dropping out in high school or vocational education (Bradshaw, O'Brennan, & McNeely, 2008; Dunn, Chambers, & Rabren, 2004; Finn, 1993; Rumberger, 1995). Most dropouts in the Netherlands have abandoned pre-vocational or vocational study (Dutch Ministry of Education, Culture and Sciences, 2011a). It is therefore potentially of great importance to investigate how student engagement can be fostered, especially in pre-vocational and vocational education.

We know from the literature that a number of factors influence student engagement. At the school level, the size of the school and the teacher-student ratio matter (Fredricks et al., 2004). Within the classroom, a positive relationship with the teacher contributes to student engagement (Anderson, Christenson, Sinclair, & Lehr, 2004; Klem & Connell, 2004; Muller, 2001; Roorda, Koomen, Spilt, & Oort, 2011), as do structure and clear teacher expectations. Student engagement is fostered in learning environments in which student autonomy is supported and where there is no punishment (Fredricks et al., 2004), although Elffers (2011) concluded that too much autonomy results in lower levels of student engagement. Furthermore, peers also influence the engagement of individual students (Fredricks et al., 2004). Finally, engagement usually decreases as students get older, particularly during high school (Fredricks et al., 2004; Klem & Connell, 2004).

This study focuses on the teacher. We are interested in the extent to which student engagement can be seen to be related to specific teacher behavior and beliefs. Teachers' beliefs influence their behavior in the classroom, and could affect the way they teach and the kinds of learning environments they create (Guskey, 2002; Palak & Walls, 2009). Pajares (1992) argued that there should be more focus on teacher beliefs in educational research. It may be that beliefs lie at the very heart of teaching (Kagan, 1992, p. 85). The aim of this study is therefore to explore whether and to

what extent teachers' motives for being a teacher, attitudes toward teacher knowledge domains, and self-efficacy beliefs, and students' perceptions of their teacher's interpersonal behavior are related to student engagement.

3.2 THEORETICAL FRAMEWORK

This study aims to investigate teacher beliefs and interpersonal teacher behavior that could influence student engagement. Fredricks and colleagues (2004) stated that teacher support, positive teacher-student relationships, classroom structure, autonomy support and authentic and challenging tasks have been associated with student engagement at the classroom level. Clearly, the teacher has a role in creating those supportive conditions. However, whether teachers try to create them and how they go about trying to do so is likely to depend on their beliefs about teaching and about being a teacher.

3.2.1 The concept of engagement

According to Appleton, Christenson and Furlong (2008), the concept of student engagement was introduced about 29 years ago. In early work related to engagement, Tinto (1975) and Finn (1989) each developed a model explaining dropout as the consequence of student withdrawal or disengagement from school. In Tinto's (1975) mediation model for dropout in higher education, students' interactions with the academic and social system produce a certain degree of social and academic integration. Finn's (1989) participation-identification model explicitly introduced the concept of engagement, which is defined as participation in and identification with school.

Research interest in student engagement has grown over the years. Fredricks et al. (2004) reviewed the literature on engagement and proposed using engagement as a meta-construct to bring together different lines of research. However, they also concluded that there are inconsistencies in the use of the different concepts and terminology associated with the multidimensional construct of engagement. For the purposes of our study, we distinguish among three types of engagement that have been proposed by different researchers (e.g., Appleton et al., 2008; Fredricks et al., 2004; Moreira, Vaz, Dias, & Petracchi, 2009; Sciarra & Seirup, 2008):

- Students are *behaviorally* engaged when they participate in the lessons, are on time, concentrate on the assignments given, and put effort into those assignments.
- Students are *emotionally* engaged when they are enthusiastic about a class, are interested in going to the class, and demonstrate a positive learning attitude.
- Students are *cognitively* engaged when they understand the importance of their education and the specific subjects and assignments, are able to formulate their own learning goals, make use of their self-regulating capabilities, and want to achieve academically.

Although we distinguish three different aspects of engagement, this does not mean that these aspects are mutually exclusive and independent of each other. For example, to be able to establish some kind of emotional engagement with school, the student needs to show at least some behavioral engagement, i.e., the student has to attend school (Archambault et al., 2009; Fredricks et al., 2004). Along with the multidimensionality of engagement, we can also distinguish two levels at which engagement can occur. A student can be engaged within a specific classroom and/or with the larger school community. Fredricks and colleagues (2004) state that it is important to differentiate between the two levels, because they are likely to have different antecedents and outcomes. Because our study focuses on the role of the teacher in fostering engagement, we use the concept of engagement as occurring at the classroom level.

3.2.2 Teacher-student relationships and interpersonal teacher behavior

A positive relationship between student and teacher has been shown to be important for student engagement and achievement (Roorda et al., 2011). According to Muller (2001), students who are trying to do their best are more likely to build a positive relationship with their teachers than are students who do not show interest in school. This means that the already disengaged students, those who are most in need of positive relationships with their teachers, are also less apt to be liked by their teachers (Jennings & Greenberg, 2008). Interested and caring teachers who try to establish positive relationships with their students could make the difference for students at risk (Jennings & Greenberg, 2008; Pianta & Allen, 2008).

Wubbels, Créton and Hooymayers (1985) developed a circumplex *Model for Interpersonal Teacher Behavior* (MITB) that can account for teachers' interactions with their students. The MITB includes two dimensions: influence (along a continuum

from low influence or Submission to high influence or Dominance) and proximity (along a continuum from low proximity or Opposition to high proximity or Cooperation). The two dimensions generate eight types of teacher behavior: leading (DC), helping/friendly (CD), understanding (CS), freedom (SC), uncertain (SO), dissatisfied (OS), admonishing (OD) and strict (DO) (see Figure 3.1). Furthermore, eight teacher profiles can be distinguished: directive, authoritative, tolerant/authoritative, tolerant, uncertain/tolerant, uncertain/aggressive, drudging and repressive.

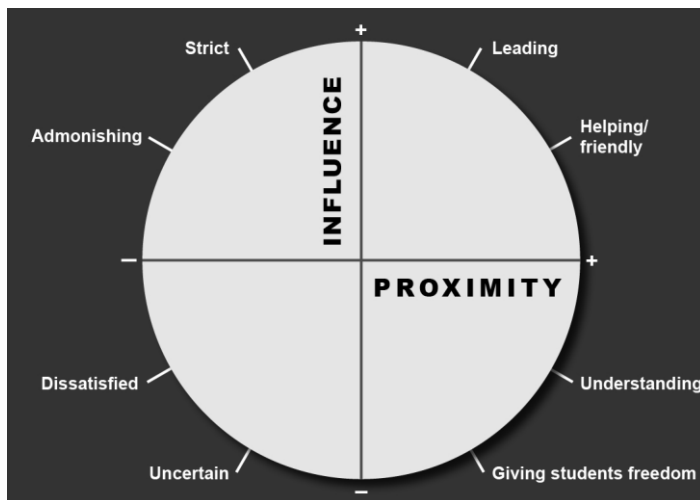


Figure 3.1 Model for Interpersonal Teacher Behavior (Wubbels et al., 1985)

The Questionnaire on Teacher Interaction (QTI) was developed to evaluate this model, and can be used to assess both student and teacher perceptions of interpersonal teacher behavior (Wubbels, Brekelmans, den Brok, & van Tartwijk, 2006; Wubbels et al., 1985). This instrument has been tested in different countries, including Brunei (den Brok, Fisher, & Scott, 2005), China (Yu & Zhu, 2011), Cyprus (Kokkinos, Charalambous, & Davazoglu, 2009), Indonesia (Maulana, Opdenakker, den Brok, & Bosker, 2011), Turkey (Telli, den Brok, & Cakiroglu, 2007) and the USA (Wubbels & Levy, 1991).

In terms of the dimensions of the MITB, teachers describe the ideal teacher as a teacher with a tolerant-authoritative interpersonal style (Wubbels & Brekelmans, 2005; Wubbels et al., 2006). This style scores very high on both proximity and influence, that is, at the Dominance and Cooperation ends of the scales (Wei, den Brok, & Zhou, 2009; Wubbels & Brekelmans, 2005; Wubbels et al., 2006). Studies also show a positive relation between high scores on both dimensions and positive cognitive and affective student outcomes (e.g. den Brok, Brekelmans, & Wubbels, 2004, 2006; van Petegem, Aelterman, van Keer, & Rosseel, 2008; Wubbels et al.,

2006). In this study, we extend relevant student outcomes to include engagement, and consider cognitive, affective, and emotional types of engagement. Furthermore, most studies of the MITB have been conducted within secondary education, but they do not include secondary vocational education (Wubbels & Brekelmans, 2005; Wubbels et al., 2006). In this study we focus specifically on pre-vocational and vocational education.

3.2.3 Teacher beliefs: motives, knowledge domains and self-efficacy

Besides interpersonal teacher *behavior* we expect that teacher *beliefs* could also be related to student engagement. Therefore, this study also aims to identify the influence on engagement of teachers' motives for being a teacher, their beliefs about the specific teacher knowledge domains, and their self-efficacy for teaching.

Most teachers have an altruistic motive for choosing to become a teacher (Pop & Turner, 2009), although additional motives for choosing a teaching career have also been identified (Richardson & Watt, 2005, 2006; Yong, 1995):

- Teachers are *altruistically* motivated when they want to be a teacher to be able to contribute to the development of young people and society as a whole.
- Teachers are *intrinsically* motivated when they choose to be a teacher because they have a passion for teaching and seek opportunities to grow professionally.
- Teachers are *extrinsically* motivated when they choose to be a teacher based on external factors, such as salary, professional security, and status.

At the start of their careers, novice teachers are typically highly motivated to become a teacher. However, this initial high motivation could be affected by their later experiences during their careers, both within and outside of school (Kelchtermans, 1993). In this study, we address motives for being a teacher, rather than for becoming a teacher, and investigate whether there is a relation between these three types of teacher motives and levels of student engagement.

Another important area of teacher beliefs is their beliefs about what teachers should know. It is likely that particular teachers may consider specific domains of teacher knowledge to be more important than others. Three different types of teacher knowledge have been distinguished: subject-matter knowledge, or knowledge of the content and educational goals; pedagogical knowledge or knowledge about student development and about teaching; and didactic knowledge, or knowledge about how to present teaching materials/lessons (Beijaard, Verloop, & Vermunt, 2000; Borko,

2004; Bransford, Darling-Hammond, & LePage, 2005; Darling-Hammond, 2006; Verloop, van Driel, & Meijer, 2001). According to Beijaard and colleagues (2000) these three knowledge domains help to shape a teacher's identity. Teachers' classroom practice will be affected by what they know and by their view of the importance of that knowledge. Their students then experience that classroom practice. In this study we are interested in whether teacher attitudes toward the specific teacher knowledge domains relate to the reported engagement of their students. Thus, we are asking about the extent to which beliefs about teacher knowledge could be related to student engagement.

Whether teachers enact specific behaviors or apply specific knowledge also depends on their feelings of self-efficacy. Self-efficacy stems from the conviction someone has about his or her own capabilities to reach a certain goal. If a person thinks that he or she is not capable of influencing a certain outcome, he or she will probably not invest effort in reaching that outcome (Bandura, 1997; Knoblauch & Woolfolk Hoy, 2008; Tschannen-Moran & Woolfolk Hoy, 2001, 2007; Woolfolk Hoy & Burke Spero, 2005; Yeo, Ang, & Chong, 2008). The constructs of general self-efficacy as well as self-efficacy for teaching have been tested in multiple countries, and proved to be universal (Klassen et al., 2009; Schulz, Doña, Sud, & Schwarzer, 2002).

Many studies have shown the importance of teachers' self-efficacy beliefs in relation to other education-related attributes and outcomes. For example, self-efficacy has been associated with teachers' attitudes toward instructional innovations (Guskey, 1988) and their instructional management (Martin, Sass, & Schmitt, 2012), and with student achievement (Caprara, Barbaranelli, Steca, & Malone, 2006) and students' expectancies for success and perceptions of performance and difficulty (Midgley, Feldlaufer, & Eccles, 1989). Based on those studies, we expect that teachers' self-efficacy beliefs also matter for student engagement. We expect teachers who feel more self-efficacious to have more engaged students.

3.2.4 Research question

From the literature, we know that perceived interpersonal teacher behavior is related to cognitive and affective student outcomes. We would like to test whether there is also a relation between perceived interpersonal teacher behavior and student engagement, especially in the context of pre-vocational and vocational education. Furthermore, we would like to investigate whether student engagement can be explained by specific teacher beliefs. Therefore, we will examine the extent to which teacher beliefs (motives for being a teacher, attitudes toward teacher

knowledge domains, and self-efficacy beliefs) and perceived interpersonal teacher behavior are able to predict self-reported student engagement in the form of behavioral, emotional, and cognitive engagement.

The recommendation has been made that educational research should pay greater attention to teacher beliefs (Pajares, 1992). In this study we investigate whether knowing about certain teacher beliefs can help us understand student engagement, or whether we also need to know about teacher behaviors in order to be able to explain student engagement. Figure 3.2 represents the relations modeled in the study, with a distinction between interpersonal behavior as experienced by students and the set of specific teacher beliefs. Because interpersonal teacher behavior is what students directly experience, we expect perceived interpersonal teacher behavior to be the strongest predictor of student engagement.

Based on these considerations, we formulated the following research question: *To what extent do teacher beliefs and perceived interpersonal teacher behavior matter in relation to behavioral, emotional and cognitive student engagement in pre-vocational and vocational education?* The teacher beliefs are limited to teacher motives for being a teacher, their values for teacher knowledge domains and their self-efficacy for teaching.

In this study we are testing the relations indicated by the black boxes and solid lines in Figure 3.2.

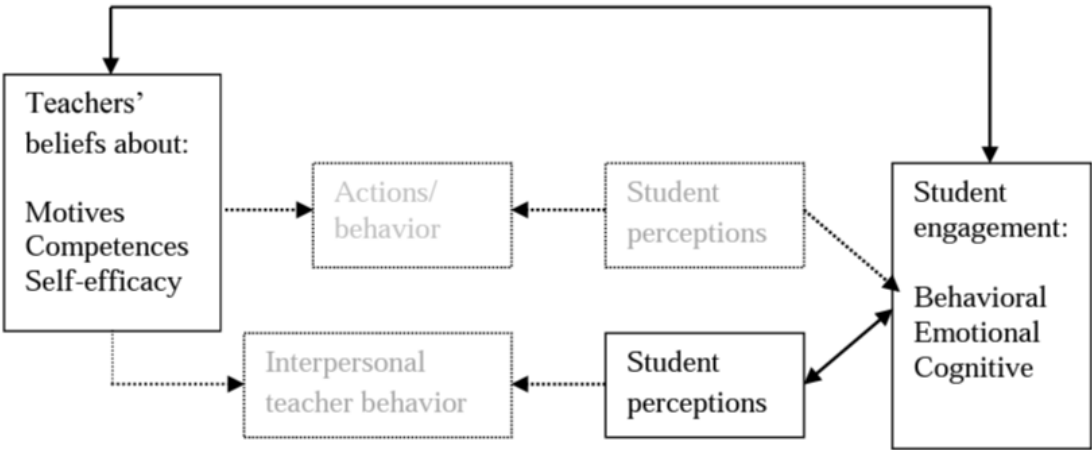


Figure 3.2 Model of study

3.3 METHOD

Questionnaires were administered to measure the independent variables of teachers' motives, their attitudes toward teacher knowledge domains, self-efficacy, and perceived interpersonal teacher behavior, and the dependent variables of the three types of student engagement, in order to enable us to identify the relations between these independent and dependent variables.

3.3.1 Respondents

Teachers from schools in The Netherlands providing pre-vocational and vocational education were invited to participate in the survey. In The Netherlands, after primary education, students can go on to either general lower secondary education or pre-vocational education. The majority (55%) of students in secondary education attend pre-vocational education (Dutch Ministry of Education, Culture and Science, 2011b). The pre-vocational track takes four years, and most students start at the age of 12 and finish at the age of 16, at which point they can move on to secondary vocational education. Programs in economics, health and social care, engineering and agriculture are offered at all levels of secondary vocational education, and students completing the highest level of secondary vocational education can move on to an applied university.

We contacted teams in our own school and schools in our network with the request to respond to our questionnaire. Because schools get many requests to participate in surveys and other studies, we asked schools to participate with a limited number of five to ten teachers. The request was sent to 52 schools (26 schools for pre-vocational education and 26 schools for vocational education). We received a positive answer from fifteen schools for vocational education and eight schools for pre-vocational education. The lower response rate from schools for pre-vocational education could be because we have better contacts in vocational education, as we are working at an institute for vocational education. We also visited some schools of vocational education to explain our request.

The schools that reacted positively received an invitation for their participating teachers. In this invitation, we asked teachers to participate together with at least ten of their students. There were about 330 teachers invited, 200 of whom began filling in the questionnaire; 195 teachers completed the entire questionnaire. Students from 178 teachers responded to the student questionnaire. The number of participating teachers per school ranged from 1 to 40.

A total of 118 male teachers and 82 female teachers decided to participate. Their average age was 44.7 years old ($SD = 10.64$). In 2010, the average age of teachers teaching in vocational education in the Netherlands was about 49, and about 45% of them were female (Dutch Ministry of Education, Culture and Sciences, 2011b). The participating teachers had on average 14.61 years of working experience, ranging from less than a year to forty years of experience. The majority (130 teachers) were working in vocational education, while 59 teachers taught students in pre-vocational education. The results showed that 87.6% of the teachers were mentoring a group of students.

Many of the teachers also asked their students to participate. A total of 2288 students responded to the student questionnaire. Their average age was 17.10 years old ($SD = 3.26$). The majority (54.5%) of the participants were male. The student respondents included 824 pre-vocational students, 1459 students registered at an institution for vocational education, and five students identified as 'other'. The majority of the students (75.9%) were asked to respond to the questionnaire by their mentor teacher. The mentor teacher in the Netherlands provide additional support in the learning process, but also supports career orientation. If a student experiences problems at school, the mentor is the first one to be contacted.

3.3.2 Instruments and data collection

To be able to measure students' engagement and their perceptions of interpersonal teacher behavior, as well as teacher motives, attitudes toward teacher knowledge domains and self-efficacy, two digital questionnaires were developed. We developed a student questionnaire to measure student engagement and interpersonal teacher behavior as observed by the students. A teacher questionnaire was developed to measure teachers' motives for being a teacher, the knowledge domains they value and their self-efficacy beliefs. Both questionnaires started with some questions about background variables such as gender, age, school level, but also about the subject taught by a specific teacher or whether the teacher was also the mentor of the group.

Teachers and students often differ in their perceptions of the learning environment (Fraser, 1998). We expect that students' perceptions of interpersonal teacher behavior are likely to be more closely related to students' engagement than teachers' perceptions of their own behavior would be. In this study we are interested in what influences student engagement. Therefore we chose to measure students' perceptions of interpersonal teacher behavior in order to capture the influence of teacher behaviors on student engagement. The other teacher attributes we are

interested in are teacher beliefs. These beliefs could be compared with parts of the *professional self* and the *subjective educational theory* (Kelchtermans, 1993, 2009). Teachers themselves know best what beliefs they have. Therefore we decided to use teacher self-perceptions in measuring their motives, attitudes about knowledge domains, and self-efficacy.

To measure interpersonal teacher behavior, we used the 32-item version of the Questionnaire on Teacher Interaction (Wubbels et al., 1985). The response format we used was a five-point Likert scale ranging from 1 (*never*) to 5 (*always*). The reliability of this questionnaire has been proven to be satisfactory in several studies. The internal consistencies are lowest for teachers' self-perceptions, but almost never lower than .65 (Wubbels et al., 2006).

Measuring student engagement was more difficult, because there is no widely accepted questionnaire measuring this multidimensional construct. We based our final instrument on the questionnaires used by Appleton, Christenson, Kim and Reschly (2006), Archambault et al. (2009) and Reschly and Christenson (2006). In these questionnaires, engagement is measured at the school level. However, in this study we are trying to link engagement to teacher characteristics, so we decided to reformulate the statements to be able to connect the engagement with a specific teacher. This meant we asked students to report about their engagement on the classroom level. We distinguished behavioral engagement (6 items), emotional engagement (11 items) and cognitive engagement (8 items). Emotional engagement consisted of six items addressing the subject taught and five items addressing the teacher. We used these items to form two scales for emotional engagement: emotional engagement – teacher and emotional engagement – subject. The response format for engagement items was a four-point Likert scale ranging from 1 (*totally disagree*) to 4 (*fully agree*).

We based our questionnaire measuring teacher motives on the one used by Hargreaves and colleagues (2007). They used three scales of four items each to measure teacher motives in their study. The response format was a four-point Likert scale ranging from *totally disagree* (1) to *fully agree* (4). We used the questionnaire developed by Beijaard and colleagues (2000) for the measurement of attitudes toward teacher knowledge domains (17 items). The response format here was also a four-point Likert scale ranging from 1 (*totally disagree*) to 4 (*fully agree*). Finally, we based our questionnaire measuring teaching self-efficacy on Bandura (2006). Self-efficacy (14 items) was measured using a ten-point Likert scale response format, ranging from 1 (*no influence at all*) to 10 (*could be totally influenced*).

We conducted a factor analysis and tested the reliability of the different scales during a pilot study with 92 teachers and 98 students. Based on the outcomes of the factor analysis, we decided not to include items about future aspirations and goals (cognitive engagement) that had been used in the study by Appleton et al. (2006). The reliabilities of the different scales from the pilot are reported in Table 3.1 and 3.2. After the pilot phase we also changed two items in the scale for behavioral engagement.

Table 3.1 *The reliability of the teacher questionnaire*

Scale	N items	α
Motive - altruistic	4	.76
Motive - extrinsic	4	.70
Motive - intrinsic	4	.61
Pedagogical competence	6	.78
Didactic competence	6	.70
Subject-matter competence	6	.66
Self-efficacy	14	.87

Table 3.2 *The reliability of the student questionnaire*

Schaal	N items	α
Behavioral engagement	7	.70
Emotional engagement - teacher	6	.87
Emotional engagement - subject	5	.87
Cognitive engagement	8	.84
Influence	32	.84
Proximity	32	.88

Data collection for the final study took place from May 2010 till March 2011. To be able to link the teacher questionnaire to the student questionnaire, we asked teachers and students to fill in a code at the start of the questionnaire. To guarantee anonymity each teacher created his or her own code; that teacher's students used the same code. Teachers could not open the student questionnaires.

3.3.3 Analyses

After final data collection was complete, we tested the reliability of our measures once again, using Guttman's lambda-2. We chose to calculate Guttman's lambda because this statistic yields a better estimation of reliability than Cronbach's alpha (Sijtsma, 2009). The critical values for Cronbach's alpha also apply to Guttman's lambda. The dimension scores for the QTI were calculated by transforming the scores to proportional scores, and adding or subtracting scores based on the

position of the items on the circumplex (Mainhard, Brekelmans, Wubbels, & den Brok, 2008; Wubbels et al., 2006). The overall scores on the dimensions of the QTI can be positive or negative. Table 3.3 gives Guttman's lambda for the scales from the teacher questionnaire. Table 3.4 presents the same information for the scales from the student questionnaire. Although three scales are just below .70, we decided to continue the analyses with these scales. For research purposes, reliability as low as .60 is still acceptable (Suhr & Shay, 2009). The lower reliability of two of the three scales (behavioral engagement and intrinsic motives) could be explained by the small number of items in the scale. The influence dimension, the third scale with lower reliability, is essential when measuring interpersonal behavior and other studies have shown the validity of this construct (Wubbels et al., 2006).

Table 3.3 *Scales from the teacher questionnaire*

Scale	N	N items	λ	Example
Motive - altruistic	195	4	.74	To give students the best possible start in life
Motive - extrinsic	195	4	.73	The earning potential of the job
Motive - intrinsic	195	4	.68	Having a challenging job
Pedagogical knowledge	195	6	.79	As a teacher, I serve as a model for the way students mix with each other
Didactic knowledge	195	6	.71	In my lessons, I pay a lot of attention to varied learning activities
Subject-matter knowledge	195	5 ^a	.74	I find it important to discuss subject-matter with colleagues
Self-efficacy	180	14	.90	How much can you do to keep students on task on difficult assignments

^a The item 'I choose to become a teacher based on the subject I studied' was omitted to improve Guttman's Lambda.

Table 3.4 *Scales from the student questionnaire*

Scale	N	N items	λ	Example
Behavioral engagement	2284	6	.68	I am often late for this class
Emotional engagement - teacher	2275	6	.92	This teacher treats me fairly
Emotional engagement - subject	2275	5	.86	I like this class
Cognitive engagement	2270	8	.85	When I do well at school it is because I work hard
Influence	2288	32	.68	This teacher has authority
Proximity	2288	32	.92	This teacher trusts students

To determine the relations among the different variables we conducted multilevel analyses. Our aim was to learn which teacher characteristics matter for student engagement measured at the classroom level. We assumed that students taught by the same teacher would score more similarly on engagement as measured at the classroom level than students taught by different teachers. We tested this assumption by replacing the fixed intercept with a random intercept. A group consisted of students taught by the same teacher. All intercepts showed significant variance across groups:

- Behavioral engagement $\text{var}(\mu_{0j}) = 0.02$, $\chi^2(1) = 55.14$, $p < .01$; the group explains 9.69% of the variance in behavioral engagement.
- Emotional engagement directed at the teacher $\text{var}(\mu_{0j}) = 0.06$, $\chi^2(1) = 244.80$, $p < .01$; the group explains 19.70% of the variance in emotional engagement-teacher.
- Emotional engagement directed at the subject taught $\text{var}(\mu_{0j}) = 0.08$, $\chi^2(1) = 292.06$, $p < .01$; the group explains 22.22% of the variance in emotional engagement-subject taught.
- Cognitive engagement $\text{var}(\mu_{0j}) = 0.03$, $\chi^2(1) = 133.66$, $p < .01$; the group explains 13.64% of the variance in cognitive engagement.
- Based on these results, we concluded that there are differences among the groups of students; we therefore decided to conduct a multilevel analysis.

In building the models we created the following blocks of independent variables: student background variables, teacher background variables, the significant teacher beliefs and finally, perceived interpersonal teacher behavior. We tested whether the amount of variance explained by the model for each type of engagement increased from adding each block of variables, based on the $-2 \log$ likelihood. We tested a model for each of the three types of engagement. We added the two blocks of background variables to every model. For the third block we first tested which beliefs significantly contributed to the model, then the significant beliefs were all added together. Finally we added both dimensions of perceived interpersonal teacher behavior. We expected the relation between perceived interpersonal behavior and engagement to be stronger than the relation between the other variables and engagement. To be able to detect the contribution of teacher beliefs to engagement, we decided to add beliefs first, before adding both dimensions of interpersonal teacher behavior.

3.4 RESULTS

We considered three types of self-reported student engagement as our dependent variables: behavioral engagement, emotional engagement and cognitive engagement. Furthermore, we subdivided emotional engagement into engagement directed at the subject taught and directed at the teacher. We conducted four separate multilevel analyses to investigate which teacher characteristics predict the different types of student engagement.

3.4.1 Descriptives

The teacher results (see Table 3.5) show that teachers most often tend to report an altruistic motive for being a teacher ($M = 3.48$, $SD = 0.49$). Pedagogical knowledge has the highest importance rating from teachers ($M = 3.52$, $SD = 0.43$) and didactic knowledge is seen as least important ($M = 3.00$, $SD = 0.43$).

The student results (see Table 3.5) show the lowest level of engagement for emotional engagement with regard to the subject taught ($M = 2.91$, $SD = 0.60$). Furthermore, students report experiencing more proximity ($M = 0.47$, $SD = 0.34$) from their teachers than influence ($M = 0.21$, $SD = 0.18$).

Table 3.5 *Descriptives from the teacher and student questionnaires*

Scale - teachers	N	M	SD	Scale - students	N	M	SD
Motive – altruistic	195	3.48	0.49	Behavioral engagement	2284	3.16	0.44
Motive – extrinsic	195	1.92	0.67	Emotional engagement - teacher	2275	3.17	0.57
Motive – intrinsic	195	2.81	0.64	Emotional engagement - subject	2275	2.91	0.60
Pedagogical knowledge	195	3.52	0.43	Cognitive engagement	2270	2.96	0.47
Didactic knowledge	195	3.00	0.47	Influence	2288	0.21	0.18
Subject-matter knowledge	195	3.14	0.51	Proximity	2288	0.47	0.34
Self-efficacy	180	7.24	0.96				

Note. We used a five-point Likert scale for all scales except the self-efficacy scale (ten-point Likert scale) and the dimension scores for interpersonal teacher behavior (scores were transformed to a score between 0 to 1 and yield a negative or positive score on both dimensions).

3.4.2 Behavioral engagement

We tested whether teacher beliefs and perceived interpersonal behavior are related to behavioral student engagement. Table 3.6 shows the outcomes. Besides the age of the student (negligible contribution), only the two dimensions of interpersonal teacher behavior are significant predictors in the final model, with influence being slightly stronger than proximity. In our zero-model without any variables, the covariance is 0.179 at the individual level and 0.017 at the group level. In our final model the covariance is 0.158 at the individual level and 0.012 at the group level. This means that the final model explains about 13% of the total variance, 12% at the individual level and 29% at the group level.

Table 3.6 *Multilevel analysis of behavioral engagement*

	Model 1		Model 2		Model 3	
	Coefficient	SE	Coefficient	SE	Coefficient	SE
Intercept	2.92	0.07	2.93	0.09	2.65	0.09
Student-level						
Student gender	-0.00	0.02	0.02	0.02	-0.00	0.02
Student age	0.01***	0.00	0.01**	0.00	0.01***	0.00
Group-level						
Mentor teacher			0.03	0.03	0.00	0.03
Subject T/P ^a			0.03	0.03	0.02	0.03
Teacher gender			-0.03	0.03	-0.01	0.03
Teacher age			-0.00	0.00	0.00	0.00
Interpersonal behavior						
Proximity					0.31***	0.03
Influence					0.39***	0.06
Number of parameters	5 (<i>df</i> = 2)		9		11	
χ^2	22.50***		498.58***		154.70***	

Note. * = $p < .05$, ** = $p < .01$, *** = $p < .001$.

^a A teacher teaching a more theoretical subject (0) or a more practical subject (1).

3.4.3 Emotional engagement directed at the teacher

We similarly tested whether teacher beliefs and perceived interpersonal behavior are related to emotional engagement directed at the teacher. The results in Table 3.7 for model 1 show that age and gender of the students do not contribute to their emotional engagement directed at the teacher. In models 2 and 3 we found that being the mentor, importance of subject-matter knowledge and level of self-efficacy predict emotional engagement directed at the teacher, but these variables do not make an independent contribution when both dimensions of perceived interpersonal teacher behavior are added in model 4. Here, proximity appears to make a much larger contribution than influence. The final model explains 47.27% of the variance in emotional engagement related to the teacher. This model explains 37.04% of the variance at the individual level and 93.33% of the variance at the group level. This percentage seems improbably high, but the covariance on the

group level is only 0.06 in our zero-model and diminished to just 0.004 in model 4. In our zero-model without any variables, the covariance at the individual level is 0.27, while in model 4 the covariance at the individual level is 0.17.

Table 3.7 *Multilevel analysis of emotional engagement directed at the teacher*

	Model 1		Model 2		Model 3		Model 4	
	<i>Coef- ficient</i>	<i>SE</i>	<i>Coef- ficient</i>	<i>SE</i>	<i>Coef- ficient</i>	<i>SE</i>	<i>Coef- ficient</i>	<i>SE</i>
Intercept	3.03	0.09	3.23	0.13	2.83	0.29	2.54	0.16
Student-level								
Student gender	0.03	0.03	0.04	0.03	0.04	0.03	-0.02	0.02
Student age	0.01	0.00	0.00	0.01	0.00	0.01	-0.00	0.00
Group-level								
Mentor teacher			0.10**	0.04	0.10**	0.04	0.02	0.02
Subject T/P ^a			0.04	0.05	0.06	0.05	-0.00	0.02
Teacher gender			-0.02	0.05	-0.01	0.05	0.04	0.02
Teacher age			-0.00	0.00	0.00	0.00	0.00	0.00
Teacher beliefs								
Subject-matter knowledge					-0.013**	0.05	-0.02	0.02
Self-efficacy					0.09**	0.03	0.01	0.01
Interpersonal behavior								
Proximity							1.09***	0.03
Influence							0.44***	0.06
Number of parameters	5 (<i>df</i> = 2)		9		11		13	
χ^2	7.22*		652.31***		13.71**		917.98***	

Note. * = $p < .05$, ** = $p < .01$, *** = $p < .001$. ^a A teacher teaching a more theoretical subject (0) or a more practical subject (1).

3.4.4 Emotional engagement directed at subject taught

The multilevel analysis for emotional engagement directed at the subject taught (see Table 3.8) shows that there are five variables that contribute to the final model: the age of the student, teacher gender, proximity, influence and teachers' extrinsic motives for being a teacher. Gender is a dummy variable, where 0 = male and 1 = female, so the negative coefficient for gender means that students taught by women score lower on emotional engagement directed at the subject. Having a teacher who

expresses an extrinsic motive for being a teacher, retained in the final model, contributes negatively as well. Positive contributions are made by both dimensions of perceived interpersonal teacher behavior and students' age (negligible). The scores on proximity contribute most to the model.

In our zero-model without any variables, the covariance at the individual level is 0.29 and at the group level it is 0.08. In our final model the covariance is 0.22 at the individual level and 0.02 at the group level. This means that the model explains about 35% of the total variance in emotional engagement directed at the subject taught, 24% at the individual level and 75% at the group level.

Table 3.8 *Multilevel analysis of emotional engagement directed at the subject taught*

	Model 1		Model 2		Model 3		Model 4	
	<i>Coef- ficient</i>	<i>SE</i>	<i>Coef- ficient</i>	<i>SE</i>	<i>Coef- ficient</i>	<i>SE</i>	<i>Coef- ficient</i>	<i>SE</i>
Intercept	2.62	0.10	2.82	0.14	2.24	0.29	2.06	0.22
Student-level								
Student	0.01	0.03	0.04	0.03	0.04	0.03	-0.01	0.03
gender								
Student age	0.01**	0.00	0.01	0.01	0.01*	0.01	0.01*	0.00
Group-level								
Mentor			0.11**	0.04	0.10**	0.04	0.03	0.03
teacher								
Subject T/P ^a			0.08	0.05	0.09	0.05	0.05	0.04
Teacher			-0.14*	0.05	-0.14**	0.05	-0.10*	0.03
gender								
Teacher age			-0.00	0.00	-0.00	0.00	0.00	0.00
Beliefs								
Extrinsic					-0.11**	0.04	-0.06*	0.03
motive								
Self-efficacy					0.10**	0.03	0.04	0.02
Interpersonal								
behavior								
Proximity							0.86***	0.04
Influence							0.35***	0.07
Number of parameters	5 (<i>df</i> = 2)		9		11		13	
χ^2	14.75***		740.28***		17.46***		478.24***	

Note. * = $p < .05$, ** = $p < .01$, *** = $p < .001$. ^a A teacher teaching a more theoretical subject (0) or a more practical subject (1).

3.4.5 Cognitive engagement

The multilevel analysis for cognitive engagement shows that the age of the student (negligible contribution) and both dimensions of perceived interpersonal teacher behavior contribute significantly to the final model (see Table 3.9). Both dimensions behave similarly. Before adding the dimensions of perceived interpersonal teacher behavior, we also found a significant negative contribution from teachers' extrinsic motives and a positive contribution from self-efficacy.

In our zero-model without any variables, the covariance is 0.19 at the individual level and 0.03 at the group level. In our final model the covariance at the individual level is 0.17 and at the group level it is 0.02. Therefore, the final model (Table 3.9) explains about 14% of the total variance, 11% of the variance at the individual level and about 33% of the variance at the group level.

Table 3.9 *Multilevel analysis of cognitive engagement*

	Model 1		Model 2		Model 3		Model 4	
	<i>Coef- ficient</i>	<i>SE</i>	<i>Coef- ficient</i>	<i>SE</i>	<i>Coef- ficient</i>	<i>SE</i>	<i>Coef- ficient</i>	<i>SE</i>
Intercept	2.57	0.07	2.59	0.10	2.32	0.21	2.27	0.21
Student-level								
Student gender	0.03	0.02	0.04	0.02	0.05	0.02	0.02	0.02
Student age	0.02***	0.00	0.02***	0.00	0.02***	0.00	0.02***	0.00
Group-level								
Mentor teacher			0.02	0.03	0.01	0.03	-0.01	0.03
Subject T/P ^a			0.02	0.04			0.00	0.03
Teacher gender			-0.06	0.04	-0.06	0.03	-0.04	0.03
Teacher age			0.00	0.00	0.00	0.00	0.00	0.00
Beliefs								
Extrinsic motive					- 0.07**	0.03	-0.05	0.02
Self-efficacy					0.04*	0.02	0.01	0.02
Interpersonal behavior								
Proximity							0.42***	0.04
Influence							0.36***	0.06
Number of parameters	5 (<i>df</i> = 2)		9		11		13	
χ^2	33.41***		468.11***		10.22*		195.78***	

Note. * = $p < .05$, ** = $p < .01$, *** = $p < .001$. ^a A teacher teaching a more theoretical subject (0) or a more practical subject (1).

3.5 DISCUSSION

3.5.1 Summary

The results show that perceived interpersonal teacher behavior is by far the most important predictor of all types of student engagement in the different models. As shown in the model used in the current study (Figure 3.2), teacher beliefs (motives, attitudes toward teacher knowledge domains and self-efficacy) are assumed to have a more indirect relation with student engagement. We were also interested in what specific teacher beliefs could tell us about student engagement. We assumed that based on their beliefs, teachers will show specific interpersonal behavior or employ specific actions in the classroom and could thereby influence student engagement.

Besides the influence of interpersonal teacher behavior, we also found a negative relation between higher teacher scores on extrinsic motives and students' emotional engagement directed at the subject taught. Furthermore, female teachers are less able to establish emotional engagement directed at their subject-matter than their male colleagues are.

Without adding teachers' interpersonal behavior, we found that being the mentor of the student, valuing of subject-matter knowledge and teacher self-efficacy beliefs matter in fostering engagement directed at the teacher. Furthermore, teacher self-efficacy and extrinsic motives for being a teacher also explain variance in students' cognitive engagement. Thus, we found a weak relation between beliefs and student engagement, and can conclude that student engagement is better captured by interpersonal teacher behavior.

Finally, we note that there is a significant but negligible positive relation between student's age and engagement for all forms of engagement except emotional engagement directed at the teacher.

3.5.2 Interpersonal teacher behavior and the differences between behavioral, emotional and cognitive engagement

The results show that higher scores on both dimensions of interpersonal teacher behavior positively contribute to student engagement in pre-vocational and vocational education. These results are in accordance with results from studies conducted in general secondary education. Those studies have shown a relation between higher scores on both dimensions and cognitive and affective learning outcomes (e.g. den Brok et al., 2004, 2006; van Petegem et al., 2008; Wubbels et al., 2006).

When comparing the different types of engagement, we found the least variance and lowest variance explained for behavioral engagement. Besides the differences in explained variance, we also found differences in the dimension of interpersonal teacher behavior that contributes more to each type of engagement. Influence contributes more to behavioral engagement than proximity, whereas proximity contributes much more to both types of emotional engagement than influence. Proximity also carries slightly more weight than influence in relation to cognitive engagement, but the difference between their contributions is only 0.06.

The outcomes for behavioral engagement differ from those for the other types of engagement. We found differences in the variance explained and in the contribution of the two dimensions of interpersonal teacher behavior. Various explanations for this difference can be provided.

One possible explanation could involve the scale we used to measure behavioral engagement. This scale was among the less reliable of all the scales used. Is it possible that some students gave more socially desirable answers about this type of student engagement? The items are about overt behavior and often about misbehavior such as skipping classes or being late. In most schools, students are punished when they do this. Although it was emphasized that filling in the questionnaire happened anonymously, students could be reluctant to admit that they do not always act as expected. As a student, saying that you do not like a class could feel safer than saying you skipped classes during the past four weeks.

Another explanation could lie in possible relations among the three types of engagement. We measured them separately, but to what extent are these different types of engagement related to one another? Archambault and colleagues (2009) showed that emotional engagement predicted both behavioral and cognitive engagement. In their model, behavioral engagement was ultimately related to dropout.

A third explanation could be that teachers influence feelings of emotional and cognitive engagement, but that there are other factors influencing behavioral engagement. For example, risk factors associated with dropout could also influence behavioral engagement, such as problems at home (Battin-Pearson, Newcomb, Abbott, Hill, Catalano, & Hawkins, 2000, Jimerson, Egeland, Sroufe, & Carlson, 2000; Walker & Sprague, 1999), peers (Macdonald & Marsh, 2004; Rumberger, 1995), and drug use or criminal activities (Battin-Pearson et al., 2000), which could make it difficult for a student to come to school (on time) or to concentrate on the assignments given. Elffers (2011) concluded that behavioral engagement does not change very much when students change schools or type of studies, but that emotional engagement differs between school contexts. This conclusion could suggest that the context influences emotional engagement but not behavioral engagement. This could imply that teachers should focus on fostering emotional and cognitive engagement.

We found the largest proportions of explained variance for both categories of self-reported emotional engagement. For emotional engagement aimed at the teacher this is probably not very remarkable. Interpersonal teacher behavior is the most important predictor; this behavior evokes emotions from students, most immediately students' feelings toward their teacher. Interpersonal teacher behavior is also an important factor in fostering engagement with a specific subject. Den Brok and colleagues (2005) found earlier that higher scores on both dimensions of perceived interpersonal teacher behavior positively influenced students' attitudes toward science education. In our study we found that these findings apply for other subjects and classes as well.

The results show that it is important to have high scores on both dimensions of interpersonal teacher behavior. Based on our findings, we conclude that proximity is more important for engagement (especially emotional engagement) than influence. Therefore helping/friendly behavior supported by leadership would be the best combination to foster cognitive and emotional student engagement as a teacher (see Figure 3.1). Thijs and Verkuyten (2009) examined the influence of authoritarian, authoritative and permissive teaching styles on situational engagement. They found the highest levels of reported intended academic effort with an authoritative teaching style and the highest levels of reported enjoyment with an authoritative or permissive style. Based on their description, the authoritarian style could be compared with the repressive style of the MITB, the authoritative with the tolerant/authoritative style of the MITB and the permissive style with the tolerant style. The authoritative, tolerant/authoritative and tolerant

teaching styles all score high on proximity. Teachers with a tolerant authoritative style show the most cooperation. The tolerant/authoritative and the authoritative teaching style both score high on influence. The tolerant teaching style scores lower on influence. Proximity is very important in relation to emotional and cognitive engagement, but influence contributes to cognitive engagement as well. Based on our findings, we would therefore promote an authoritative or tolerant/authoritative style. This is in accordance with previous studies in which they promote an authoritative style in relation to cognitive and affective student outcomes (Thijs & Verkuyten, 2009; Wubbels & Brekelmans, 2005; Wubbels et al., 2006).

3.5.3 Beliefs in action?

We have already concluded that interpersonal teacher behavior matters when fostering student engagement. This behavior is part of students' experiences during a particular class. We did not measure other experiences, other perceptions of students related to the learning environment; instead, we measured teacher motives, their attitudes toward teacher knowledge domains and their self-efficacy beliefs. We expected teacher beliefs to be at least to some degree consistent with their actions in the classroom. Thus, these beliefs should ultimately influence student engagement.

Without knowing students' perceptions of the teacher's interpersonal behavior, we would have found certain types of engagement to be positively related to teacher self-efficacy and importance of subject-matter knowledge, and negatively related to extrinsic motives. In a previous study in which we assessed only teachers' perceptions, we found relations between teachers' valuing of didactic and pedagogical knowledge and teachers' perceptions of students' emotional and behavioral engagement. Teachers placing higher values on those two knowledge domains perceived their students as more engaged (van Uden, Ritzen, & Pieters, 2013).

In this study, we measured whether beliefs directly related to self-reported student engagement; we did not assess the kind of learning environment that was created, other than students' perceptions of interpersonal teacher behavior. Therefore we do not know whether those teacher beliefs resulted in the creation of specific types of learning environments. The theory of planned behavior (Ajzen, 1991) suggests that behavioral intentions can be predicted by attitudes toward the behavior, subjective norms about the behavior (the beliefs one has about the norms or expectations of

significant others) and perceived behavioral control. In our study we measured what is most likely one aspect of the final desired behavior (perceptions of interpersonal teacher behavior) and some beliefs. We should conduct further research to investigate which other behaviors are necessary to promote engagement and are therefore desirable when creating an engaging learning environment. We could ask students about other aspects of the learning environment in relation to their engagement, such as peers, or didactic aspects such as differentiation and the use of specific materials and assignments (Fraser, 1998).

Furthermore, it would be interesting to investigate the extent to which teachers feel confident to perform these different behaviors, as well as examining which attitudes toward the behavior and beliefs about the subjective norm are related to the desired behaviors. This information could help to create a specific profile and observation formats for teachers teaching in pre-vocational and vocational education.

3.5.4 Female teachers and emotional engagement aimed at the subject taught

We were surprised by the finding of the influence of gender on emotional engagement aimed at the subject taught. Most studies on the influence of the teacher's gender have not shown significant differences between male and female teachers with regard to students' achievement (Carrington, Tymms, & Merrell, 2008; Feldman, 1992) or students' appreciation of their teachers (Feldman, 1992; Lahelma, 2000; Skelton, Carrington, Francis, Hutchings, Read, & Hall, 2009). Feldman's review (1992) found only three studies in which interaction effects between teacher and student gender were significant. Sometimes students say that they prefer a male or female teacher, but if asked why, they mention skills that are not gender specific. It is competence that is most important (Lahelma, 2000; Skelton et al., 2009). Dee (2007) found that female and male teachers have different effects on student outcomes. Female teachers have a positive effect on girls' achievement and they have more positive perceptions of girls' behavior. Dee's results were more negative for boys. For example, boys look forward less to subjects taught by a female teacher. On the other hand, Carrington and colleagues (2008) found that students taught by female teachers showed more positive attitudes toward school. They did not find any differences between male and female teachers when measuring students' attitudes toward a specific subject, as we did in our study. It is difficult to explain our finding based on the literature about the influence of teachers' gender on student outcomes. Because of the somewhat mixed findings

about the effect of gender on student outcomes, it would be good to replicate this study to test whether this outcome also applies in other samples, and if that is the case, to explore this outcome in more depth.

3.5.5 No contribution of age to engagement

We found a significant but negligible positive contribution (0.01) of age in explaining variance in engagement. This would mean that age essentially does not matter in relation to engagement for the students in our sample, and this is remarkable. In the literature, engagement has been found to decrease during the school years, especially during high school (Fredricks et al., 2004; Klem & Connell, 2004). A possible explanation for this finding could be the context of vocational education. The majority of the students in our study (63.77%) are from vocational education; they are also the older students in our study. In vocational education, students have chosen a course of study that prepares them for a specific job. In the Netherlands, we teach those students in authentic vocational settings related to the profession. This could contribute to higher levels of engagement. It is clear to students what the purpose of their study is, and it is probably even more clear in vocational education that the lessons and activities are necessary for their future profession. This could elicit positive feelings about a class.

Another explanation could be that puberty influences engagement. With an average age of 17.10, we also have a large group of students in this sample who have started to leave the phase of puberty. Recently, much research attention has been paid to the development of the brain during adolescence and corresponding changes in cognitive processes and social behavior. Cognitive control abilities improve during adolescence and also influence students' behavioral control (Crone & Dahl, 2012). These developmental characteristics could explain the almost neutral effect of age for cognitive and behavioral engagement. During adolescence students also undergo social-affective changes (Crone & Dahl, 2012) that could explain the almost neutral effect of age for emotional engagement in this study.

3.5.6 Practical implications

We have some recommendations for improving student engagement based on our findings. First of all, it is important for teachers to invest in improving their interpersonal teacher behavior, so that students perceive them as more cooperative, but also dominant to a certain extent. Learning about the influence of interpersonal teacher behavior should be a very important part of teacher education, especially

when preparing student-teachers to teach in pre-vocational and vocational education. Student-teachers should become aware of their interpersonal teacher behavior and of how it might be perceived by students. They should observe each other's behavior, and discuss it with each other. They should learn how different behaviors can influence different outcomes. For example, if student teachers would like to foster the emotional engagement of their students, they should invest more in behaving cooperatively, but if they would like to foster the behavioral engagement of their students they need to apply more dominant behaviors.

It would be good to enhance teachers' feelings of self-efficacy. Although the contribution of self-efficacy on engagement disappears when perceived interpersonal teacher behavior is taken into account, self-efficacy could influence interpersonal teacher behavior itself. As Ajzen (1991) wrote, perceived behavioral control could predict, among other things, behavior. If teachers are convinced that they themselves can foster student engagement, the chances increase that they will really try to improve their students' engagement. It is not easy to improve self-efficacy. Self-efficacy could grow when someone experiences success. But it could also help to see someone else carrying out a certain activity with the desired outcome (Bandura, 1997). In addition, Bandura suggests that a pep-talk or good feedback could help to enhance self-efficacy. Experience and feedback could be combined using direct coaching. For example, a teacher is filmed during his or her class and he or she wears an earphone. A teacher-trainer watches this teacher's class in a separate room. This trainer gives immediate feedback or suggestions to the teacher wearing the earphone. The teacher could immediately apply these suggestions and experience what happens. If this 'intervention' has the desired effect, the self-efficacy of the teacher could grow. This intervention could influence not only the teacher's self-efficacy but also the (interpersonal) behavior of the teacher in the classroom.

A final recommendation addresses the application process for becoming a teacher. Our results show that it is difficult to predict the extent to which teachers are able to foster student engagement, based on their beliefs. In interviews we can ask teachers about their beliefs and experiences. Of course, a person is also judged on how he or she behaves and interacts during the interview. But if a school finds it important to hire teachers who are able to foster student engagement, an interview is not sufficient. It would be better to ask teachers to build a portfolio in which they include evidence about how students perceive their interpersonal teacher behavior.

Some types of evidence could be videos of classes, students' evaluations, or students' answers on questionnaires about their interpersonal teacher behavior. Some teachers participating in this research asked for their students' responses on interpersonal teacher behavior in order to use that information for their portfolio. It would be even better to observe a teacher conducting some classes during the application phase. Interpersonal teacher behavior is relatively stable during a school year and difficult to change when teaching the same students (Mainhard, 2009).

3.5.7 Limitations of the study and future research

We have already mentioned some limitations of this study and recommendations for future research in the domain of pre-vocational and vocational education. One limitation is that we measured teacher beliefs and student perceptions, but for different constructs. This makes it difficult to conclude which of these constructs best predicts self-reported student engagement. In future research, it would be better to ask teachers specifically about their beliefs regarding a good learning environment. Motives and beliefs about the knowledge domains could be included, but we could also ask, for example, what kinds of lessons contribute to an engaging learning environment. In the student questionnaire we could insert questions about how they perceive the learning environment and the classes taught by the specific teacher.

In conducting this study, we examined whether the different teacher beliefs and perceived interpersonal teacher behavior could explain self-reported student engagement. But could student engagement explain teacher behavior or teacher beliefs as well? That is, do teachers change their beliefs based on perceived student engagement or do they alter their interpersonal teacher behavior? In other words, we assumed that teacher beliefs influenced their behavior and finally student engagement, but it could also be the other way around, or even be bidirectional.

We did not find strong relations between teacher beliefs and students' self-reports of engagement. Does this mean that beliefs are not as important as Pajares (1992) suggested? Or are there other beliefs that could better explain variance in student engagement? We could only capture a limited set of beliefs in our study using an online survey. In future research we could explore whether there are other teacher beliefs that could explain student engagement, such as perhaps more global beliefs about society or the development of youth. We asked about teacher knowledge domains, but we could ask about what a teacher would describe as a powerful learning environment or about the role of education in society.

A fourth limitation is that participation in this study was voluntary. The subject and goal of the questionnaire were explained in the invitation. It is possible that participating teachers were those who felt confident about fostering student engagement, which could influence the outcomes. Three contact persons for the participating teams reported that in their opinion, only their best-achieving teachers participated.

Another limitation is that we did not include school-level factors. Future research could include school-level factors such as teacher-student ratio, school size, student mobility and turnover and dropout rates. Furthermore, it would be interesting to include the influence of peers on student engagement.

A final limitation is the lower reliability of the scales measuring behavioral engagement and influence. This could have influenced the results. For future research, we would recommend examining how these scales could be improved for studies in pre-vocational and vocational education.

Finally, we recommend investigating what teachers actually do in their classrooms to foster student engagement and what they think they can do to promote student engagement. A more qualitative design could be used to pursue the results of this questionnaire in greater depth in the authentic settings in which teachers work.

CHAPTER 4*

Enhancing student engagement in pre-vocational and vocational education: a learning history

Interest in student engagement has increased over the past decade, which has resulted in increased knowledge about this concept and about the aspects that facilitate engagement. However, as yet only a few studies have focused on engagement from the perspective of the teacher. In this study, we capture the experiences of teachers who were explicitly working on fostering student engagement with their teams. We used the learning history method to capture those experiences and at the same time to stimulate learning within the participating teams. A learning history includes the voices of the different participants involved in order to stimulate reflection and learning. Three teams of teachers participated in the writing of this learning history. Several teachers (n = 10), students (n = 10) and managers (n = 5) from or related to the teams were interviewed. The learning history shows that on the one hand, teachers emphasized positive relationships and structure in relation to student engagement, yet on the other hand, students continued to provide examples of negative relationships and mentioned a lack of structure. Furthermore, the learning history showed that teachers in all teams reflected on their experiences and learned from the activities employed to foster student engagement such as a more positive approach, conversations about a skills form and being more consistent. These results taken together indicate that it is possible for teachers to do a better job of engaging their students and that their repertoire can be expanded to include more engagement-related actions. Finally, the learning history produced offers insight into the difficulties experienced by the teams. An important limitation mentioned by all teams was that teachers found it difficult to address each other's behavior when someone did not act as agreed upon.

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4.1 INTRODUCTION

High dropout rates and declines in academic motivation and achievement have resulted in growing interest in the concept of student engagement (Appleton, Christenson, & Furlong, 2008; Fredricks, Blumenfeld, & Paris, 2004). Low student engagement has been related to early school dropout (Archambault, Janosz, Fallu, & Pagani, 2009) and poor student achievement (Klem & Connell, 2004; Zimmer-Gembeck, Chipuer, Hanisch, Creed, & McGregor, 2006). Research has also shown that teacher support (van Uden, Ritzen, & Pieters, 2013, 2014; Cornelius-White, 2007; Skinner, Furrer, Marchand, & Kindermann, 2008; Zimmer-Gembeck et al., 2006), peers (de Bruyn, 2005; Furrer & Skinner, 2003), classroom structure and management (Anderman, 2003; Raphael, Pressley, & Mohan, 2008), task characteristics (instruction and assignment) (Anderman, 2003; Marks, 2000; Mitchell & Carbone, 2011) and autonomy support (Elffers, 2013; Skinner et al., 2008) influence student engagement at the classroom level (Fredricks et al., 2004). Furthermore, factors at school and family level can also influence engagement (Fredricks et al., 2004; Zyngier, 2008).

Three types of engagement are typically distinguished (e.g. van Uden et al., 2014; Appleton et al., 2008; Fredricks et al., 2004; Moreira, Machado Vaz, Dias, & Petracchi, 2009):

- Behavioral engagement, or observable behavior the student shows at school.
- Emotional engagement, or feelings toward school.
- Cognitive engagement, or knowing the importance of education and showing initiative in learning.

We can distinguish three different types of studies on engagement as well: (1) studies focusing on the concept of engagement and how it can be measured (e.g., Appleton et al., 2008; Reeve & Tseng, 2011); (2) studies examining the relation between engagement and student outcomes (e.g., Archambault et al., 2009; Reschly & Christenson, 2006); and (3) studies focusing on a specific aspect, such as classroom structure, that contributes to student engagement (e.g., Anderson, Christenson, Sinclair, & Lehr, 2004; Mitchell & Carbone, 2011).

Only a few studies have examined student engagement from the teacher's perspective (Harris, 2010, 2011; McMahon & Zyngier, 2009; Ravet, 2007; Zyngier, 2007, 2008). However, there may be good reason to take the teacher's perspective into account. As Harris (2010) says, 'Given such diverse understandings of student

engagement and how to facilitate it on the part of researchers, it seemed useful to investigate how practitioners understand this contested concept' (p. 133). Harris (2010) and McMahon and Zyngier (2009) describe how teachers in secondary education perceive student engagement and how they think they can foster engagement. Their studies show that some teachers emphasize behavioral aspects whereas others also include emotional or even cognitive aspects in their descriptions. In this study, we will investigate not only how teachers in vocational education perceive and analyze student engagement, but also what teachers can learn about fostering student engagement. The teachers participating in this study were working explicitly to enhance their students' engagement, starting about six months before the study began. They designed and implemented activities that they believe would foster engagement. They reflected on the implemented activities and altered or improved these activities based on their reflections. With this study, we aim to capture their experiences and to demonstrate that their learning based on their collaborative actions, experiences, and reflections enabled them to improve their interventions aimed to foster student engagement. Three teams of teachers participated in this study. Two teams taught level 2 students* in vocational education and the teachers on the third team taught students at the lowest levels of pre-vocational education. These teams worked explicitly on enhancing their students' engagement during the six months preceding this study. In Table 4.1 we present an overview of the different teams, the problems they experienced with student engagement and the activities they had designed and begun to implement prior to this study and on which they will reflect during this study.

* In the Netherlands, level 2 is basic vocational training, comparable with level 2 of the European Qualification Framework.

Table 4.1 *Overview of the participating teams and the activities they employed*

Team	Catering (vocational education)	Fashion (vocational education)	Pre-vocational education
Level	2	2	Upper classes of lower levels
<i>n</i> of participating teachers	15	4 (we started with 8)	6
Problem Experienced	Students lose their motivation during the school day. Teachers are also not always motivated. How can we keep them motivated during the school day, week and year?	Only a few students who started this program of study at the beginning of the year are still actively participating. Others have already dropped out, skip classes or are often late. We have to do something about it.	At the end of the final year a teacher completes a form about the student's competencies. Students experience this as unfair, because in the previous years they have only received grades on tests and assignments. How can we teach students that learning is about more than receiving good grades?
First goal	More pleasure in learning during schooldays for students and teachers.	Be able to keep students on track till the end of the program of study. Students are on time and come to school.	Teach students that school is not only about grades, but also about skills and attitudes.
Activities	A positive-week: A week in which teachers emphasize the positive aspects of students, to create a positive learning climate. What works could be integrated into the regular curriculum.	An introduction day for prospective students to let them experience what the program of study is about. Only four teachers teach this group (instead of eight). One classroom for most lessons. Formulate rules and consequences together with students.	Developing a skills form. Arranging conversations about the skills form with students. Developing a procedure to improve the conversations.

One type of appropriate methodology for capturing the experiences, meanings and learning of different participants involved in a project or organization is the learning history (Kleiner & Roth, 1996). In this study we used the learning history method to collect and interpret the stories of the teams developed during the phases of designing, implementing and reflecting on activities that could enhance student engagement. We aimed to capture the stories of the different actors involved: (1) teachers designing and implementing the activities, (2) students experiencing the implemented activities and (3) school and team leaders (management) supporting these teams. We addressed the following research question: *How and to what extent can teachers develop themselves to be better prepared to foster their students' engagement?* We will give our answer to this question in the discussion, using the results for the following sub-questions:

1. How can student engagement be enhanced, according to the different actors involved?
2. What conditions are necessary to be able to enhance student engagement?
3. To what extent did teachers learn about fostering student engagement?

4.2 A LEARNING HISTORY: LEARNING FROM EXPERIENCES

In this study we aimed to capture the experiences of the teacher teams that worked on fostering engagement, both in order to facilitate learning in those teams and also to find answers for our research questions. A method of capturing experiences that also aims to stimulate the learning process of people involved in an organization or event is the learning history (LH). The LH as a method emerged in the domain of organizational learning (Amidon, 2008; Parent, Roch, & Béliveau, 2007). 'The LH is designed to allow recognition of what is taken for granted, (...), and to facilitate the dialogical generation of a new future' (Bradbury & Mainemelis, 2001, p. 340). It is a practice-oriented research activity that produces a document representing the multiple and often contradictory experiences and understandings of the various actors involved (Amidon, 2008; Bradbury & Mainemelis, 2001; Kleiner & Roth, 1996; Wildemeersch & Ritzen, 2008). This results in a jointly-told tale about what happened in an organization or event (Amidon, 2008; Kleiner & Roth, 1996; Verdonschot, 2006). In this study the jointly-told tale is about the experiences of teachers, managers and students involved in the activities implemented by the teams.

A learning history is usually presented in a two-column structure, filled with stories by practitioners and with interpretations by researchers (the learning historians). The right column presents the stories (quotes) of the participants and the left column is used by researchers to interpret the stories and to point out contradictions and underlying themes. Thus, researchers and practitioners work together in constructing an LH (Amidon, 2008; Bradbury & Mainemelis, 2001; Kleiner & Roth, 1996; Parent et al., 2007; Wildemeersch & Ritzen, 2008).

The text of the LH can be seen as a boundary object that is used to stimulate reflective conversations between practitioners and researchers, and also between the different levels in an organization (Akkerman & Bakker, 2011; Bradbury & Mainemelis, 2001). The stories of the different actors involved stimulate reflective learning. These conversations have already been stimulated during the construction of the LH when participants formulate themes and discuss the interpretations in the left column. Thus, the LH is not only a research method but also an intervention to stimulate conversations.

An LH is future-oriented; it should result in clues that can direct actions to improve the current praxis in highly complex and dynamic settings (Bradbury & Mainemelis, 2001). The learning historian must construct the LH within the tension of three perspectives (Amidon, 2008; Kleiner & Roth, 1996; Roth & Kleiner, 1998):

- The research imperative: the learning history must be loyal to the data.
- The mythic imperative: the story should be told as it occurred, without concern as to who could be affected.
- The pragmatic imperative: the learning history needs to be useful. A learning history should contribute to the learning of the participants and organization involved.

It is important to note that the LH is about interpretations of the world as described by people from a certain community and not about assessing the successes and failures of a particular innovation (Wildemeersch & Ritzen, 2008).

4.3 METHOD

4.3.1 Participants

Teachers, students and managers from the participating teams participated in the interviews (see Table 4.2) which were used to create the right column of the LH. One of the teams taught students in the upper levels of pre-vocational education the other two teams taught catering and fashion in vocational education.

Table 4.2 *Number of teachers per team and number of participants per team*

Team	<i>n</i> teachers in team	<i>n</i> teachers interviewed	<i>n</i> students	Managers participating	Total participants per team
Upper classes pre-vocational education	6	3	4	Manager	8
Catering	15	4	4	Team manager	9
Fashion	4 (started with 8)	3	2*	Team manager	6
Institution for vocational education in general	-	-	-	Member executive board Manager staff service Education & Quality assurance	
Total respondents per group	25	10	10	5	25

* There should have been 4 students, but the recording failed the first time. Due to circumstances, only two students were available for the repeat interview.

4.3.2 Procedure

This study followed the stages for an LH as proposed by Kleiner and Roth (Kleiner & Roth, 1996; Roth & Kleiner, 1998).

1. The planning stage: a core learning team was formed consisting of the researcher who had supported the teams by developing activities to foster student engagement during the preceding six months, an experienced learning historian and a colleague from the institution for vocational education who was not directly involved with any of the teams.

2. Reflective interviews: these interviews were conducted with teachers and students from the participating teams, four managers and a policy advisor in the two schools (Table 4.2). The interviewers were members of the second author's research group and were not involved with the participating teams. They had two sessions of training on how to ask reflective questions about the activities designed and implemented by the teams and experienced by the students (reflection on action). The interviews, based on an interview guide (Appendix A), were transcribed verbatim and approved by the interviewees (member check).

3. Distillation: the core learning team was extended with members of the second author's research group. From the participating teams one teacher or manager was invited to be part of the extended learning team, but only one team ended up being represented during the distillation stage. During this stage, the themes for the LH were inductively formulated. A theme covers several constructs, and there is always a limited number of themes (Kleiner & Roth, 1996).

4. Writing: every member of the extended learning team selected quotes from two interviews that they thought contributed to one of the formulated themes. This yielded many quotes per theme. The core learning team then selected the quotes that were most informative by (1) removing duplicates of the same quotes; (2) removing quotes that presented more of the same content (saturation); (3) choosing from the remaining quotes those that best fitted with the given theme. During this process, this team took care that the different themes and different perspectives (teachers, students and management) were evenly represented in the final version of the right column of the LH. After selecting the quotes, the core team clustered the quotes within the themes and interpreted the meanings of those quotes.

5. Validation: during this stage, the concepts included in the LH were discussed with a teacher and manager of the three teams (insider groups). The representatives were asked whether they found any inaccuracies (quote checking), about their experiences during reading, about the correctness of the interpretations made by the core learning team, about what they learned reading the LH and what other teams could learn from reading the LH. The responses and comments of the representatives were used by the core learning team in writing the final version of the LH.

6. Dissemination: this took place at different levels. During the first dissemination the LH was presented and discussed in the teams and later shared within both educational institutions. The LH is also available for others interested in this study. This article itself can also be seen as a form of dissemination (at an international level).

4.4 RESULTS AND INTERPRETATIONS

4.4.1 The themes

Themes were formulated during the distillation stage, based on the verbatim transcripts of the interviews. First, all members of the extended learning team described their initial impression of the verbatim transcript they had read. Secondly, these team members formulated themes/labels based on the transcripts. All of these labels were collected and discussed in the extended learning team. During the discussion, the extended learning team reached consensus about four general themes appearing in the interviews:

- Enjoying education
- Crossing borders
- Engaging teachers
- Controlling the basics

Consensus was reached when every member of the extended learning team recognized the themes as presented and none proposed any additional new themes.

During the writing stage, the selected quotes were clustered around subthemes. The subthemes within the four general themes are presented in Table 4.3.

Table 4.3 *Overview of themes, subthemes and research questions*

Enjoying education	Crossing borders	Engaging teachers	Controlling the basics
Motivation	Balance between influence and proximity	Basis for engagement	Offering structure
Being recognized as a student	Teacher or counselor	The interpersonal perspective	Time
The important role of mentor or study career coach	The influence of the outside world	Gaining students' confidence	Class size
Invest in relationships	Students' self-confidence	Proximity and investing in relationships	Team agreements
Role career image	Target group as limitation?	The (implemented) activities	Guarantee of the process
Influence of parents	result of the activities	The learning teacher	The organization
Influence of peers			
RQ*: 1	RQ: 1, 3	RQ: 1, 3	RQ:1, 2, 3

*RQ = Research question

It is not possible to present the whole LH in an article (an example of the layout of the LH is presented in Figure 4.1); therefore we will present a summary of stories told by the participants (right column) and we will give a summary of the interpretations from the left column of the LH (van Uden & Ritzen, 2013). We will present the results by research question. Table 4.3 shows how the different themes contributed to the answers to the research question.

In the left column of the LH, the participants' statements were related to theoretical knowledge about practice; this bridged the gap between theory and the experiences of practitioners. The practitioners valued this approach, because in this way the theoretical knowledge became very approachable and understandable for them. The theory really was related to their experienced practice.

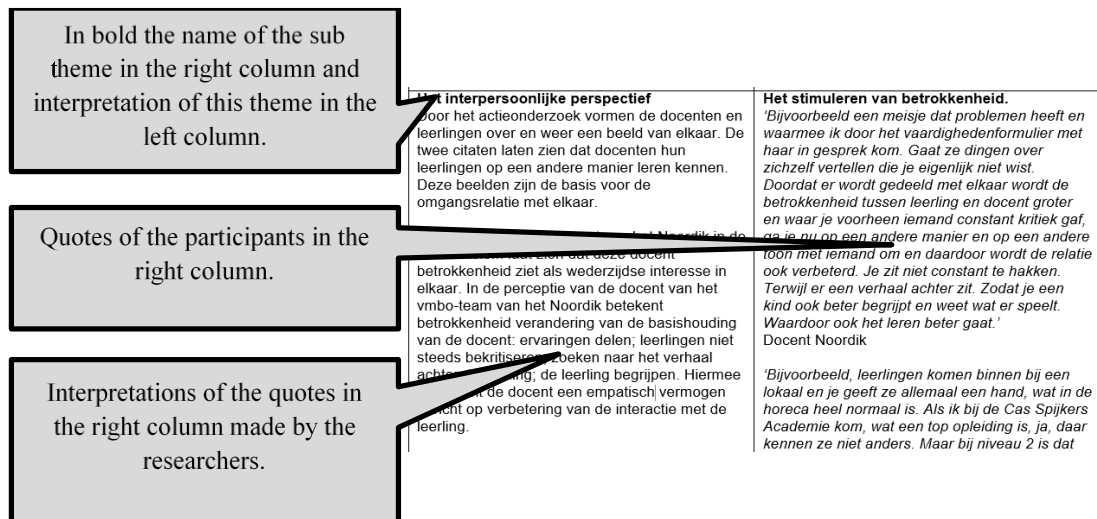


Figure 4.1 Example of the design of a learning history

4.4.2 How can student engagement be enhanced, according to the different participants?

Summary from the right column

Enjoying education: All participants, teachers, managers and students emphasized positive relationships between teacher and students. Students want to be recognized by their teachers. Although students gave positive examples they also mentioned moments when they did not feel recognized. Students catering gave the most negative comments in relation to positive relationships.

Although 'positive relationships' was the most emphasized element, teachers in all teams also mentioned the influence of career image on engagement. According to the teachers, having a clear career identity as a student positively influences engagement. One of the students from vocational education also mentioned that she does not like her program of study, because it does not meet her expectations. Students, especially those in pre-vocational education, also mentioned the influence of peers and parents on their perceptions of school.

Crossing borders: Teachers' quotes about the influence of parents are included within this theme. They mentioned the situation at home as something outside the school that influences the engagement of students with school. Furthermore, the right balance of interpersonal teacher behavior was mentioned in relation to student engagement. A teacher should be approachable but simultaneously needs

to have an authoritative appearance. One of the teachers elaborated on his journey to find the right balance. Students also gave examples of teachers being too strict or too close.

Engaging teachers: Within this theme, participants described what a teacher should do to enhance student engagement. They elaborated on the concept of a positive relationship by emphasizing that teachers should invest in knowing their students. But, first of all, teachers need to gain their students' trust. Furthermore participants mentioned different aspects of engaged teachers: teachers must show authenticity, empathy, respect and they must try to guide their students as well as possible.

Controlling the basics: Offering structure is mentioned in the quotes included in this theme. Managers and teachers distinguished structure in the lessons and structure provided by rules. They did not describe what structured lessons look like, but having and applying rules was often mentioned. One of the teams planned to start the new school year with formulating the rules together with their students. Although teachers and managers emphasized the importance of structure, students mentioned a lack of structure.

Interpretations from the left column

Two core elements for fostering engagement emerge from the different participants' quotes: positive relationships and structure. These findings are in accordance with previous research. Research about engagement suggests that individual needs must be fulfilled as a pre-condition for engagement: needs for feelings of competence, relatedness, and autonomy (Appleton et al., 2008; Fredricks et al., 2004; Zimmer-Gembeck, 2006). Positive relationships could fulfill the need for relatedness. From previous research, we know that students who experience acceptance and recognition and feel that their teachers really care about them are in general more engaged (Jennings & Greenberg, 2008; Osterman, 2000; Tucker et al., 2002; Wentzel, 1998). In the themes *Crossing borders* and *Engaging teachers*, participants elaborated on the interpersonal perspective on teaching (Brekelmans, 2010) in relation to positive relationships. Teachers mentioned the struggle to find the right balance between influence and proximity in their interpersonal behavior. These reflections are valuable, insofar as research has shown that interpersonal behavior that is high on influence and proximity is positively related to cognitive and affective student outcomes (Wubbels, Brekelmans, den Brok, & van Tartwijk, 2006).

Structure relates to the need for competence (Jang, Reeve, & Deci, 2010; Tucker et al., 2002). Structure means being clear about expectations and offering clearly framed lessons and/or assignments (Jang et al., 2010; Skinner & Belmont, 1993; Tucker et al., 2002). Many participants mentioned rules in relation to structure. This could be risky, because with too much admonishment or rules that are too strict, it becomes about control rather than structure (Jang et al., 2010; Sierens, Vansteenkiste, Goossens, Soenens, & Dochy, 2009).

Notably, students mentioned they do not always experience positive relationships and structure. They gave examples of negative reactions from teachers, said that they do not always feel recognized and mentioned a lack of structure. This means that teachers could improve their learning environments and their teaching by focusing on these aspects. It would also mean that it is possible for teachers to improve their students' engagement even more. Walker (2008) and Wentzel (2002) emphasize that it is important to explain clearly what a rule means and why it is used. The fashion team also planned to go one step further, by involving students in the process of formulating rules. That could be a good example for other teams.

We would also like to give attention to the role of career identity in fostering engagement. Career identity could be of particular importance in the context of vocational education. Students in pre-vocational and vocational education are being prepared to choose or have already chosen a specific program of study for a specific vocation. The participants mentioned that the feeling of making the 'right' choice could positively influence engagement. This is also confirmed by a study by Kenny, Blustein, Haase, Jackson and Perry (2006), who found a positive relationship between the extent to which students had already planned their career and levels of engagement.

4.4.3 What conditions are necessary to be able to enhance student engagement?

Summary from the right column

The conditions that could contribute to student engagement according to the participants are all presented within the theme *Controlling the basics*. Based on their experiences, participants mentioned four aspects that are necessary to be able to enhance student engagement: enough time, small class sizes, living up to agreements, and guarantee of the whole process of designing and implementing activities. Needing enough time was mentioned by teachers from pre-vocational education in particular. The activity on which they were reflecting involved one-

on-one conversations with students. Students also mentioned the aspect of time. They would like to have enough time during the lessons. Furthermore, students asked for small classes and related this to time for interaction with and guidance from their teacher. Moreover, teachers and managers also mentioned that living up to the agreements made during the process was a problem. Not everyone within the team acted as had been proposed, which influenced the impact of the activity. Finally, based on their experiences they stated that it is very important to guarantee a process like designing and implementing new activities in the organizational plans.

Interpretations from the left column

The comments on time and class size are clear, but could also have another interpretation. The teachers in pre-vocational education experienced time difficulties when implementing the conversations about the skills form activity. These one-on-one conversations between teacher and student should help students to become more engaged with their own learning process. The activities implemented by the other two teams were whole-class activities. Could this team achieve the same outcomes with a whole-class activity? And to what extent do those conversations save time later on, because of the higher levels of student engagement?

If we read the comments on class size carefully we see that students actually asked for better guidance, a quiet class and better didactic skills from the teacher. Research on class size reduction also shows small effects and it is often stated that it is more important that teachers adapt their teaching style to the class size (Brühwiler & Blatchford, 2011; Hattie, 2005; Mueller, 2013).

Teams experienced problems living up to the agreements made. The agreements themselves could be too difficult for every teacher to live up to, but this could also indicate problems with team functioning. In two of the three teams, not all teachers implemented the activities as intended. Within these teams, it was difficult to address a teacher who was not acting as agreed upon. Brouwer, Brekelmans, Nieuwenhuis and Simons (2012) propose 31 design principles to facilitate community-building in schools. Three of these principles could be very helpful for these teams for developing an atmosphere in which they can discuss it with one another if things do not happen as proposed: (1) develop trust, (2) enable a positive climate, and (3) develop ownership.

4.4.4 To what extent did teachers learn about fostering enhanced student engagement?

Summary from the right column

Crossing borders: This theme shows that teachers reflected on their practices. One of the teachers reflected on his struggle in finding the right balance between being close and being authoritative. Another teacher reflected on the vulnerability of being a teacher, approaching it as a top sport activity. Furthermore, teachers reflected on the activities they had developed during the preceding six months. For example, one teacher reflected on the 'positive week' saying that it is not that easy to approach students only positively. It is very easy to focus on what they are doing wrong instead of emphasizing the positive points or behavior.

Engaging teacher: Teachers explaining their own engagement with their students also emphasized positive relationships. They also described the results of their activities. For example, one of the teachers from pre-vocational education stated that due to the conversation about the skills form, she got to understand the problems of a particular student. Therefore, she was able to change her reactions toward this student during the lessons, which resulted in a better relationship with this student. Another teacher described a change in acting as a teacher as a consequence of the activities employed. A team leader reflected on why one of their activities did not work out as intended, but concluded that shaking hands with students at the beginning of the lesson should be possible with level-2 students if it were done every day.

Another teacher gave a very concrete example of what she has learned. She learned to use the ALACT* model. This teacher had recordings of her own conversations with students about the skills form. The team analyzed those conversations using the ALACT model, and she concluded that not all steps were present in the conversations. She improved her conversations based on those discussions.

Controlling the basics: Teachers also pointed out what they could have done better within their teams, such as making clear agreements. They also stated that the implementation of those agreements should be monitored. Furthermore, it would be better to take more time for the preparation and the timing of the activities.

* Model for reflection consisting of Action, Looking back on the action, Awareness of essential aspects, Creation of alternative methods of action, Trial of alternative methods (Korthagen, 1985).

Interpretations from the left column

The interviews conducted for the LH not only made teachers reflect on their experiences with the designed and implemented activities but also on previous experiences that influenced their ideas about fostering engagement. These reflections suggest learning. Clarke & Hollingsworth (2002) show with their Interconnected Model of Professional Growth that professional development takes place through an iterative process of enactment and reflection. Teachers can change their practices based on (new) knowledge and ideas, but they can also alter or refine their ideas and beliefs based on reflection on their changed practices and students' outcomes. The statements show mostly a reflection on practices and outcomes and what teachers learned from this. But there are also statements about reflection and enactment. Based on reflections on their practice and outcomes, teachers decided to change their practice. This LH made this learning explicit. The results show that teachers learned about the influence of their own behavior on the engagement of students. But they also learned from the whole process, especially in the catering team. The members of this team stated that their proposed activity would probably have had more impact if every teacher had implemented the activity as proposed. Based on these experiences, different teachers mentioned that they should prepare the activity better next time.

What was learned during the validation stage

During the creation of an LH the validation stage is very important, not only to test the validity of the LH and especially of the interpretations in the left column (research imperative), but also because of the learning opportunities this stage offers to the participants (pragmatic imperative). This was the first time the participants saw the whole LH with the sometimes contradictory voices of the teachers, students and managers within every team (mythic imperative) in the right column and the theoretical interpretations in the left column. In the validation stage, we discussed what kind of learning or insights they would take with them based on this document. Table 4.4 presents what was learned during the validation stage per team. The table shows two similarities (white cells and dark grey cells) across all three teams. All teams felt that they learned about their team process regarding agreements and addressing each other when someone does not act as agreed upon. Secondly, all teams mentioned the importance of positive relationships or positive interpersonal teacher behavior. According to the participants, it is important to reflect on interpersonal behavior once in a while. Other insights formulated during this stage are related more to the specific activities implemented by the different teams.

Table 4.4 *What was learned or insights formulated during the validation stage by team*

Pre-vocational education	Catering	Fashion
Agreement is agreement: It is important to check that every participant has a clear and correct perception of the activity. Activities should be included in the team plan.	Structure and variety: We should work on structure during the school day and variety in activities.	Interest in the skills form developed in pre-vocational education
The team needs to discuss whether the conversations with students about the skills form are really time-consuming or if this investment saves time later on.	Is it about teaching skills or is it about class size? Discussion between teacher and manager.	Confirmation of the importance of compliments, even to students who are more quiet or more in the background.
Affirmation of the importance of positive relationships.	Authoritarian behavior does not have the desired effect, but there are teachers within this team who show authoritarian behavior.	It is important to reflect on the balance between influence and proximity from time to time.
Recording conversations and discussing these recordings is very valuable.	Tell one other when things go wrong.	To tell each other about things that go wrong, but also compliment each other
	ICT is useful, but we have to think how we will use ICT in our program.	

The reactions during the validation stage show that the LH really offered an opportunity for the teachers to learn.

4.5 GENERAL DISCUSSION AND CONCLUSIONS

In this section we will discuss what can be learned from the stories of the three teams and we discuss the possibilities and limitations of the LH as a research methodology.

4.5.1 Clues for future practices

An LH should result in clues that can direct actions to improve current practices (Bradbury & Mainemelis, 2001). This LH offers clues for improving the engagement of students, thereby answering the research question: How and to what extent can teachers develop themselves to be better prepared to foster student engagement?

The LH shows that within all three teams, teachers learned from designing, implementing and reflecting on activities to promote student engagement. This LH made this learning explicit and thereby reinforced the new insights. We expect these teams not to be unique in this; their learning suggests that teachers in other teams could also develop themselves to be better able to foster student engagement by designing, implementing and especially reflecting on new activities.

Based on the experiences of the teachers and their reflections, we can conclude that teachers learned more about the importance of positive relationships and structure in relation to student engagement. This relationship is confirmed by other studies (e.g. Fredricks et al., 2004; Raphael et al., 2008; Zimmer-Gembeck et al., 2006). This study shows that teachers themselves also emphasize these two aspects in relation to engagement. On the other hand, the LH shows a discrepancy between teachers' and managers' views on positive relationships and structure and the experiences mentioned by students. Students reported a lack of structure and gave examples of negative relationships. Differences in perspectives and goals between teachers and students could explain this discrepancy. We know that students and teachers experience learning environments differently, and teachers are often more positive than students (Fraser, 1998). But feelings of engagement need to arise in the students; therefore, we advise teachers to discuss the experienced discrepancy and to ask students what could be changed to alter their feelings of engagement. Constructing an engaging learning environment together with students is also promoted by Zyngier (2007, 2008) and Harris (2010, 2011). Furthermore, the discrepancy between teachers emphasizing structure and positive relationships and the experiences mentioned by students indicates that the teachers on the participating teams could be further supported in fostering student engagement.

Finally the LH also shows that to guarantee improvement of student engagement, it is important that the team functions well. The teams created activities which would have had most impact if the whole team implemented them. Two teams mentioned difficulties in this respect, reporting that not every teacher implemented the activities as intended and agreed upon. It seemed difficult for the teachers to

discuss this with one another. All teams recognized this aspect during the validation stage and mentioned this point as something they would like to work on in their teams. We would therefore advise examining whether a team is ready to work as a team on a joint project on engagement before starting such a project. It is also important to verify that the team is ready to make clear agreements about the content of the project, i.e. what is expected from all team members and how the planning will work.

In summary, we conclude that teachers could do more to develop their ability to improve student engagement. To do this, we advise: (1) ensuring that the team functions well; (2) investigating as a team both teachers' and students' beliefs about and experiences with current practice in relation to student engagement; (3) designing activities based on these outcomes, taking into account the importance of positive relationships and structure, to improve current practice; and (4) learning from implementing and reflecting on these activities for future practice.

4.5.2 Reflection on the learning history as research method

The LH is not very often used as a method in empirical research (Amidon, 2008), although the research imperative should make it possible to use the method for that purpose (Wildemeersch & Ritzen, 2008). This LH showed how different participants on different teams experienced the activities on which they had worked to foster student engagement. Due to the LH and the design and implementation of the activities performed, these participants reflected on their practices in relation to their own beliefs. The LH offers the opportunity to approach concepts related to engagement from the teachers' perspective. This study gives insight into which aspects teachers consider when asked to improve the engagement of their students and what they, as well as their students and managers, experience when they work on improving their students' engagement. The LH could therefore be seen as a valuable research method in this context, together with other approaches. The LH supported the people involved in making their beliefs more explicit and in reflecting on these beliefs. Furthermore, participants and members of the learning team reacted very positively to the structure of the LH. It really showed the stories of the different participants, and the interpretations in the left-column were recognized by the teacher teams. The results stimulated the teams to design more activities to improve their practices.

Because the LH is about interpretations and individual experiences, questions could be raised about its generalizability. But with the work of the core and the

extended learning team and the conversations during the validation stage, we worked on reaching intersubjectivity. Furthermore, this LH offers insight into the experiences of different teams and the LH also shows resemblances across the teams. For example, working on positive relationships between student and teacher, the role of structure, and team functioning. In addition, the LH shows that change and learning occurred in every team, based on the activities implemented by the teams.

As a final remark, in this LH we choose interviewers who were not involved in the design and implementation of the activities intended to enhance student engagement. The interviewers were outsiders. We chose outsiders because they would be able to question the interviewees more objectively than someone who already knew the participants and the processes that took place in formulating and implementing the activities. On the other hand, reading the verbatim transcripts, the researcher who supported the teams in developing activities to foster engagement would have asked more about certain statements of participants because of her knowledge. This knowledge could also have helped to deepen the participants' reflections. Furthermore, the quality of the reflective questions depended on the interviewee.

Despite these limitations, we think this LH contribute to our understanding of how teachers experience their activities and reflect on their beliefs in relation to student engagement. Furthermore the LH offered the participants insight into their own beliefs and motivations. Learning occurred within the teams and among the participants of the LH. The LH explains the interactive nature of the interactions between teachers and students and focuses on engagement in pre-vocational and vocational education. Finally, the use of an LH after a period of explicitly working on fostering student engagement supported teams in altering their practices and/or reinforcing the activities they were implementing.

CHAPTER 5*

Teachers' beliefs about engagement: changes occurring during an action research project on student engagement

Although much research has been conducted on student engagement, there is only limited knowledge about teachers' beliefs and their learning to improve student engagement in their classrooms. In this study, three teams of teachers were asked to foster their students' engagement during an action research project. Data were collected within the project in the form of reports, questionnaires and interviews and analyzed by making use of the Interconnected Model of Professional Growth. The results not only provide insights into how teachers perceive engagement, but also show that participation in action research contributed to the professional development of the teachers involved.

* This chapter has been submitted as: van Uden, J. M., Ritzen, H., & Pieters, J. M.. (submitted). Teachers' beliefs about engagement: changes occurring during an action research project on student engagement

5.1 INTRODUCTION

'If I am interested in knowing the people' ways of thinking and levels of perception, then the people have to think about their thinking and not be only the objects of my thinking' (Freire, 1982, p. 30).

Student engagement has received more and more attention in educational scientific research during the last decade, in particular due to its relationship with dropout and achievement (Archambault, Janosz, Fallu, & Pagani, 2009; Fredricks, Blumenfeld, & Paris, 2004; Klem & Connell, 2004; Zimmer-Gembeck, Chipuer, Hanisch, Creed, & McGregor, 2006). Improving student engagement on the one hand prevents at-risk students from dropping out from school and on the other hand facilitates generally better outcomes for all students. A number of studies have examined the variables that support student engagement (e.g. van Uden, Ritzen, & Pieters, 2013, 2014; Furrer & Skinner, 2003; Mitchell & Carbone, 2011; Raphael, Pressley, & Mohan, 2008), but only a few studies have investigated engagement from the teachers' perspective, describing how teachers perceive engagement and what activities they (would) employ to foster student engagement (Harris, 2011; Zyngier, 2008). The teacher could be seen as the main actor in this process, the one who must create a classroom climate that engages students. Teachers play a central role in this study, not only because of the active involvement of teachers in creating a positive and engaging climate, but also in terms of how teachers can be supported to effectively develop their roles as fosterers of engagement. We selected three teams of teachers as our participants, one team in pre-vocational education and two teams in vocational education. The average dropout rates in this educational context are relatively high (Dutch Ministry of Education, Culture and Science, 2013).

The purpose of this study is (1) to contribute to the professional development of the participating teachers in relation to promoting student engagement, (2) to broaden our understanding of student engagement from the teacher perspective and (3) to investigate what types of learning processes (change sequences) contribute to teachers' professional development in relation to improving student engagement. To be able to combine these different purposes and to understand the thought processes of the participating and collaborating teachers from the field of vocational education, we used the methodology of action research.

5.2 THEORETICAL FRAMEWORK

5.2.1 Engagement

Engagement is a multidimensional concept. Although Fredricks and colleagues (2004) discussed different understandings and uses of the concept of engagement, a majority of studies distinguish three types of engagement: behavioral, emotional and cognitive engagement (Table 5.1) (e.g., Appleton, Christenson, & Furlong, 2008; Fredricks et al., 2004; Moreira, Machado Vaz, Dias, & Petracchi, 2009). Different researchers have examined student engagement in relation to dropout and achievement (e.g., Archambault et al., 2009; Klem & Connell, 2004; Willms, 2003). Other researchers have examined what factors (e.g., teacher support, task characteristics, peers) could contribute to engagement, and have identified factors at the school level, classroom level and the individual level that could influence student engagement (e.g., Anderman, 2003; de Bruyn, 2005; Elffers, 2013; Fredricks et al., 2004).

It is important to consider how the theoretical construct of student engagement can be applied in the daily practices of teachers. Zyngier (2007, 2008) and Harris (2010, 2011) broadened the understanding of the concept of engagement by investigating teacher perceptions of student engagement. Based on teachers' and students' descriptions of engagement, Zyngier (2007, 2008) distinguished three epistemological perspectives on engagement: an instrumentalist or rational technical perspective, a social constructivist or individualist perspective and a critical transformative perspective (Table 5.1). These perspectives describe how engagement could be perceived by teachers and which teacher practices and actions are related to a specific perspective on engagement.

Harris (2010, 2011) asked teachers how they think they can engage their students. Her research resulted in three different 'how aspects': delivering, modifying and collaborating (Table 5.1). These alternative views on how engagement could be fostered are very similar to the approaches described by Zyngier (2007, 2008). Harris (2011) makes an interesting distinction in comparing the three alternatives described by teachers, stating that the first two categories, delivering and modifying, support mostly engagement in schooling (participation at and positive feelings about school) and that the third, collaborating, also supports engagement in learning. Both of these, the engagement in schooling and the engagement in learning could be important to promote, but Harris argues that only engagement in learning is related to better achievement by students.

Furthermore, both Zyngier and Harris conclude that teachers often approach disengagement as a deficit of the student. Both researchers emphasize that disengagement should not be approached as a students' deficit, but that disengagement is the result of the interactions between student and school and student and teacher.

Zyngier's perspectives or constructions (2007, 2008) (Table 5.1) could be interpreted as a combination of 'what is engagement' and 'how could engagement be fostered'. He suggests that how teachers perceive engagement influences how they (think they) can foster engagement. Harris (2010, 2011) investigated how teachers would foster student engagement. In this study, inspired by and based on the action research approach, we will not only observe how teachers in vocational education perceive the concept of engagement, but we will also investigate what and how teachers learn when actively working on engaging their students.

Table 5.1 *Types of engagement, Epistemological constructions and 'How aspect categories'*

Types of engagement (e.g., Appleton et al., 2008; Fredricks et al., 2004; Moreira et al., 2009)	Epistemological constructions of engagement (Zyngier, 2007, 2008)	The 'how aspect categories' (Harris, 2010)
<i>Behavioral engagement:</i> this is about observable behavior. For example, students are behaviorally engaged if they are on time, complete their assignments and participate in the lessons.	<i>Instrumentalist or rational technical:</i> within this construction engagement is described based on observable behavior. Teachers describing engagement from this view often also take a deficit view on engagement.	<i>Delivering:</i> described by activities to stimulate students to be on task and often mentioning a teacher-centered transmission approach to instruction.
<i>Emotional engagement:</i> this is about feelings. For example, students are emotionally engaged when they are enthusiastic about school, are interested in going to school and feel safe at school.	<i>Social constructivist or individualist:</i> teachers in this construction use more student-centered pedagogies and see student engagement as students' exploration and discovery of individual interests. It could perhaps been seen as a more friendly way to encourage on-task behavior.	<i>Modifying:</i> these teachers adjust the curriculum to make it more interesting to their students, but approach the class as a group.
<i>Cognitive engagement:</i> this is about knowing and feeling the importance of education. For example, students are cognitively engaged when they show personal investment in learning, are intrinsically motivated and make use of learning strategies.	<i>Critical transformative:</i> In this construction, teachers and students work together to construct a learning environment and curriculum that is democratic and serves all students and where students and teachers learn together. This approach should stimulate students' critical and reflective thinking.	<i>Collaborating:</i> describing a curriculum created with students to match the students' purposes. This collaboration will increase students' reflective thinking and the ownership of their own learning processes.

5.2.2 Professional development and action research

The first aim of this study is to contribute to the professional development of teachers in relation to promoting student engagement. Teachers' professional development mostly aims to increase the effectiveness of teaching (Penuel, Fishman, Yamaguchi, & Gallagher, 2007; Villegas-Reimers, 2003). Students should

benefit from the changes that occur as a consequence of the professional development activities conducted (Avalos, 2011; Garet, Porter, Desimone, Birman, & Suk Yoon, 2001; Guskey, 1986). Those expected benefits are also the motivation for teachers' participation in professional development activities (Guskey, 1986). Research on teachers' professional development shows that teachers prefer learning by doing and experimenting and experiencing the results of their efforts (Clarke & Hollingsworth, 2002; Guskey, 1986; Hodgkinson & Hodgkinson, 2005; Kwakman, 2003; Van Eekelen, Boshuizen, & Vermunt, 2005). Reflection and interaction with others (colleagues, students and managers) also play an important role in teachers' professional development (Avalos, 2011; Kwakman, 2003; Van Eekelen et al., 2005).

In this study, we want to contribute to teachers' professional development related to student engagement, while at the same time we would like to gain insight into their beliefs about the concept of engagement and about fostering engagement. As doing and experimenting and reflection and interaction play an important role in teachers' professional development, action research could fulfill both aims. Action research aims at changing or, even better, imagines improving current practice. Action researchers believe that the social world can only be understood by changing something in it and examining what happens (Brydon-Miller, Greenwood, & Maguire, 2003). Participants in action research discuss and reflect upon their own practice and try to improve their practice by formulating actions and implementing those actions. This often results in a cycle of action and reflection. Actions are evaluated and discussed, and based on these discussions the actions can be revised or new actions can be implemented (Goodnough, 2010; Ponte, 2002). The cycle of action and reflection stimulates a process of meaning-making, knowledge construction and sharing within the teams that should result in 'acting more wisely and prudently' (Kemmis, 2009, p. 470), indicating a practical action research approach (Kemmis, 2009; Kinsler, 2010; Rearick & Feldman, 1999). During an action research project the cycle of action and reflection should lead to transformations (1) in beliefs and sayings, (2) in ways of acting and (3) in relations with others and the environment (Bradbury Huang, 2010; Broad & Reyes, 2008; Brydon-Miller & Maguire, 2009; Kemmis, 2009; Kemmis & McTaggart, 2005). Due to these transformations and to the reflective perspective of action research, the action research process could offer teachers the opportunity to change their practices and to alter or adjust their beliefs and ideas (Koutselini, 2008).

A model of teachers' professional growth that represents learning by processes of reflection and enactment is the Interconnected Model of Professional Growth (IMPG) developed by Clarke and Hollingsworth (2002). This model consists of four

domains connected to each other by reflection and enactment processes: the external domain, the domain of practice, the domain of consequence and the personal domain. The external domain differs from the other domains, based on its location outside the teachers' professional world. The *external domain* is an external source providing new information or a stimulus. This could be a specific training activity, but it could also be feedback from a colleague. The other three domains directly relate to the teachers' professional world related to their practice. The *personal domain* consists of teachers' knowledge, beliefs and attitudes. The *domain of practice* refers to professional experimentation within the teachers' own teaching practice. The *domain of consequence* includes inferred (changes in) students' outcomes related to the teacher's practice.

During action research, educational change should occur in the personal domain and the domain of practice: transformations in beliefs and practices. This is in accordance with the definition of learning proposed by Zwart, Wubbels, Bergen and Bolhuis (2007), who define learning as a change in teachers' cognition (personal domain) or behavior (domain of practice). According to Clarke and Hollingsworth (2002), learning occurs when there is reflection between the domains, or when enactment takes place based on outcomes, personal beliefs or triggers in the external domain (see Figure 5.1). Enactment means putting a (new) belief or idea into action. This differs from simple action in that the action is based on new insights. Clarke and Hollingsworth define reflection as 'active, persistent and careful consideration' (p. 954). We will use the broader definition used by Zwart and colleagues (2007, p. 169) where reflection is defined as 'a set of connected mental activities carried out by the teachers in order to structure or restructure an experience, a problem or existing knowledge or insights'. Clarke and Hollingsworth speak about a change sequence when change occurs in two or more domains and when this change is supported by reflection and enactment processes between the domains. They speak about professional growth when there is more lasting change.

To investigate the learning processes (change sequences) that contribute to teachers' professional development, or in other words, professional growth, related to student engagement, we will use the IMPG. In contrast to studies analyzing the learning of individual teachers (Justi & van Driel, 2006; Zwart et al., 2007), our primary focus is on the learning processes that occur within teams.

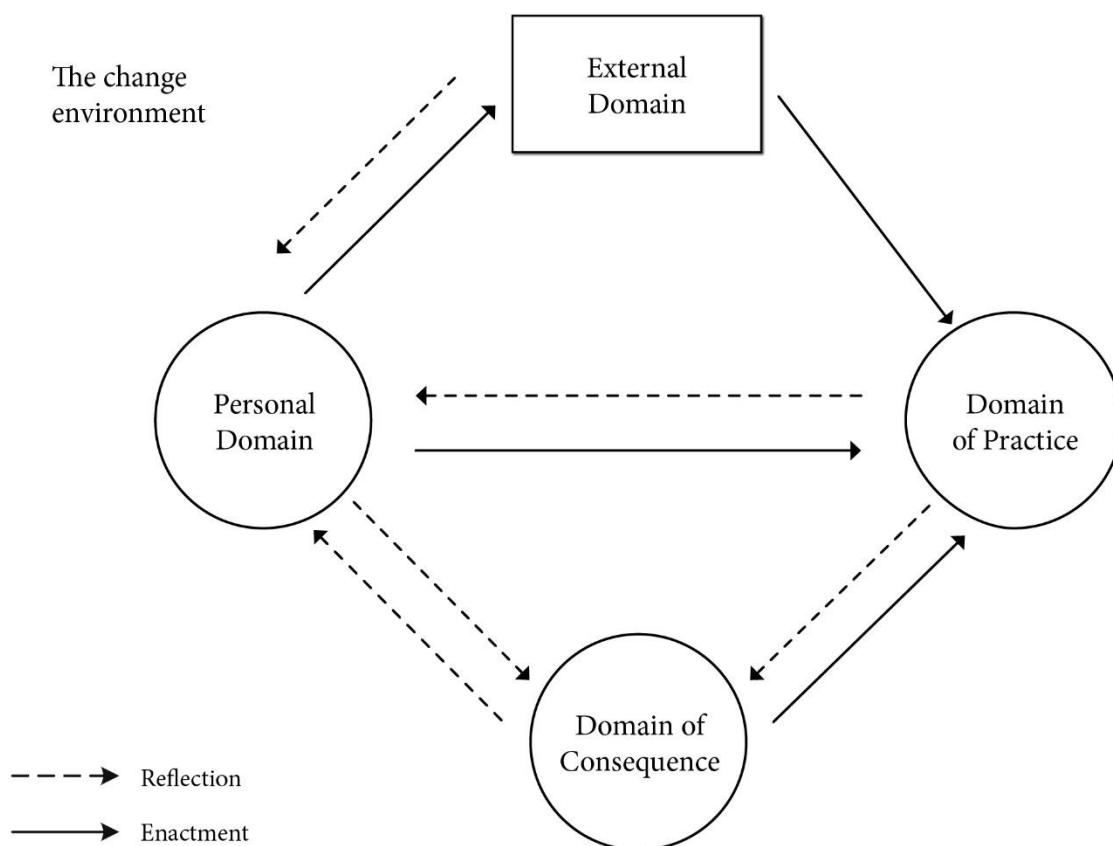


Figure 5.1 The Interconnected Model of Professional Growth (Clarke & Hollingsworth, 2002)

5.3 THE PRESENT STUDY

To fulfill the three goals of this study we are interested in teachers' views on engagement, what they do to foster engagement and whether these views can change, and primarily in what kind of change sequences take place when teachers actively try to improve their students' engagement during an action research project. This resulted in the following overarching research question, with four sub-questions:

How do teacher teams foster engagement and what and how do they learn when explicitly working on enhancing student engagement during an action research project?

1. What kind of changes do the three teams of teachers implement to foster student engagement?

2. How do teachers perceive engagement and do they alter their beliefs during an action research project on student engagement?
3. What kind of change sequences occur within teams during an action research project on fostering student engagement?
4. How do these change sequences support the teachers' changes in knowledge and beliefs about engagement?

We used an action research approach to investigate these questions and asked pre-existing teacher teams to participate. Teachers within three teams investigated their own practice by implementing new activities. These activities were designed by the teams themselves and this process was supported by the action researcher. The teams examined their own practices, whereas the researcher examined what happened within the teams that were working on fostering engagement. The activities within the teams were collaboratively designed, implemented and adapted in a step-by-step process, based on the literature and on the teachers' and students' experiences. The intervention and the whole process emerged during the action research itself; it was a co-operative inquiry with the teachers involved. The intervention resulted from negotiation between the teachers, the action researcher, the context and the literature.

5.4 METHOD

5.4.1 Participants

Participation was voluntary but team-based. In pre-vocational and vocational education, teams are often responsible for certain years (pre-vocational education) or area of study (vocational education). All teachers within a team had to be willing to participate. The purpose of the action research project was explained during a team meeting. At the end of this explanation the teachers in the teams were asked whether they would like to participate. Five teams with apparently strong team leaders were approached, and three teams decided to participate: a team teaching the upper levels of pre-vocational education ($n = 6$), a team teaching Catering level 2^{**} in vocational education ($n = 15$) and a team teaching Fashion level 2 (n start = 8, n end = 5). We chose teams with clearly strong leaders, because those team leaders could really support the action research process within their teams. Teams differed

^{**} In the Netherlands, level 2 is basic vocational training, comparable with level 2 of the European Qualification Framework.

in their main subjects taught and in their composition of teachers and instructors (lower qualifications). The teachers within the Pre-vocational team taught different programs: engineering, economics, health and social care and sports, services and security. The teachers within the Catering team supported students in becoming a cook or host(ess). Teachers within the Fashion team prepared their students to work in a sewing workshop.

The Pre-vocational team consisted entirely of teachers who had a bachelor's degree, while the vocational teams consisted of teachers (with and without a bachelor's degree) and instructors. In this study we will not make a distinction between teacher and instructor in presenting the results, although there could be some influence of the lower educational level of some teachers and instructors in vocational education.

5.4.2 Procedure and data collection

The aim of the action research component of this study was to foster student engagement. The starting question for the teams was 'how can we foster the engagement of our students?'. Teams worked for about a year on this question. Based on reflections on their current practice and discussions within the team, the teams formulated and implemented activities (enactment) which they thought would foster their students' engagement. Within the teams, they then discussed their experiences with the implemented activities, based on collaborative and individual enactment and reflection. Teams collaboratively altered or improved their activities based on their experiences and discussions, if necessary. Different types of data were collected during this process. An overview of the data collected for each research question is presented in Table 5.2.

Table 5.2 *Overview of data collection in relation to the research questions*

	RQ1	RQ2	RQ3	RQ4
Reports of the team meetings. These reports were written by the action researcher and approved by the participants in the meetings.	X	X	X	X
A short questionnaire containing five open-ended questions administered to the teachers at the beginning and the end of the action research project.		X		X
The reports of the evaluation of the whole action research project (process and product) with all teachers of each team at the end of the action research project. Evaluation took place during a team meeting.	X	X	X	X
Verbatim of interviews with teachers and students conducted as part of the action research project, depending on the questions raised within the teams.	Xts	Xt	Xt	Xts
Products and practices developed during the action research project.		X		X
Verbatim of interviews with teachers, students, team leaders and managers conducted as part of a learning history.	Xts	Xt	Xt	Xt
Impressions from the meetings described by the action researcher in a logbook.	X	X		X

t = teacher (and manager) interviews

s = student interviews

The questionnaire administered at the beginning and end of the study included questions about the definition of engagement, how engagement could be enhanced, their experiences, what had already been done and what could be done to enhance engagement.

From a scientific perspective, we cannot rely only on the teachers' descriptions of what happened during planning and implementation. Therefore, we included interviews with students and the observations and impressions of the action researcher to be able to check whether the outcomes experienced by teachers were also experienced by the students and were in accordance with the impressions of the researcher. The impressions of the action researcher (captured in a logbook) could also have influenced how she approached the teams, and therefore have influenced the final results.

5.4.3 Analysis

As has been done in previous studies (Justi & van Driel, 2006; Voogt et al., 2011; Zwart et al., 2007), we used the IMPG as an analytical tool. The IMPG is useful for detecting learning processes and products from reflection and enactment between the domains, but the use of the different domains also makes it possible to detect changes within the domains. Materials categorized as belonging to the same domain can be compared to each other to determine whether teachers or students describe a certain practice differently at the beginning than at the end of the study.

Voogt et al. (2011) developed a coding scheme based on the IMPG to analyze learning during teachers' collaborative design of curriculum materials in the context of curriculum innovation. In contrast to other studies, they examined the change sequences not at an individual level, but at the team level. We used this scheme to analyze learning processes in teams who were collaboratively working on enhancing their students' engagement (see Appendix B for the coding scheme). The first author selected phrases from the data sources given in Table 5.2, that contained information about the action research process or descriptions of beliefs and practices in general. All documents are numbered from P1 to P126. The selection resulted in 891 quotes. A quote could receive different codes.

We randomly selected 15 documents representing 114 of the selected 891 quotes to test the reliability of the coding scheme, making sure that different types of documents (observations, interviews, reports) were represented in the sample. Two raters, both educational researchers with knowledge and experience of the IMPG coded the quotes from four of the selected documents (P1, P2, P18, P20). These first ratings were used to clarify the meanings of the different codes. Differences in ratings were discussed between the experts until agreement was reached about the interpretation of the quote and code. Based on these first ratings the other selected quotes were coded, resulting in a total of 117 coded quotes. From the 117 given codes, sixteen codes differed completely between the raters and twelve codes differed partially, resulting in 80% inter-coder reliability (Miles & Huberman, 1994). A code differed partially when for example raters agree about the change process and one domain, but disagreed about the second domain. Furthermore, differences were discussed between the experts and consensus was reached on every code. Based on this reliability percentage, the remaining quotes were coded by one of the two raters. Only the domain codes (practice, beliefs, outcomes) were used when a data source did include the views of students or the action researcher. The codes referring to a reflection or enactment process were not used for these

documents. To interpret the content of the changes found by using the IMPG, the first author went back and forth between the codes and literature about engagement and professional development.

First, teams were analyzed separately. Subsequently teams were compared to investigate notable similarities and differences between the teams. Several steps were taken to answer the different research questions. We started by comparing quotes coded as descriptions of beliefs and practices over time to see whether those descriptions changed. Here, information from students and the researcher was used to refine the interpretations. Secondly, we used Clarke and Hollingsworth's entire model (2002) to analyze the learning processes that occurred. For each team, we calculated the percentage of the different codes to be able to compare the teams with each other. We looked for differences in the percentage of codes for the different domains and change sequences. We used a ratio to present different codes in relation to each other and to examine the differences in these relations between the teams. Although the data only represent what was written down based on the team meetings and what was said during interviews and the final products, we assume that what was most important within the teams will be represented in these documents. We therefore expect that the coded quotes represent the most important changes and change sequences for the teams.

Finally, data from answering the first three research questions were used to answer the last question about how the learning processes supported teachers' learning about engagement.

5.5 RESULTS

5.5.1 The changes in practice

We will begin by examining the domain of practice. The teams differed in their reason for wanting to participate in the study. Therefore we begin each description with the team's motivation to participate, followed by why and how teams changed their practices. Furthermore, we also give an impression of their experiences with the changes in practice.

Pre-vocational Education Team

This team's aim was to engage their students more with their own learning process, so that the students will understand better why they must learn the content of their lessons and that they should show more effort during their learning at school. This could be interpreted as working on cognitive engagement with a modifying and maybe to some extent collaborating approach. Teachers within this team developed a 'skills form' to help students realize that the learning process at school is about more than receiving good grades. In this form students are asked about different skills such as searching for useful information, being able to cooperate, showing initiative and being able to plan and organize the work that must be done. Students indicate on a continuum the extent to which they have developed a certain skill, ranging from just beginning to develop it, to being experienced with it. Afterwards, the form is discussed with the teacher. During the action research process, the teachers paid more and more attention to these conversations by recording the conversations and reflecting on them. One of the teachers wrote a conversations manual with the ALACT-model for reflection as the central element. This model with Action, Looking back on the action, Awareness of essential aspects, Creating alternative methods and Trial was developed by Korthagen (1985), and the teacher proposed to use this model for analyzing their conversations. Teachers used this manual to reflect on their conversations and to improve their conversations based on these reflections.

Students recognized the new element in their program, and although some students hesitated at first about the usefulness of the form and the conversations, overall, they seemed to be positive. In one interview, students commented: Student 1 'On the other hand, yes. Because if you are honest in filling in the skills form you learn more about yourself (...)' Student 2: 'and teachers can take those things into account' (Students, P16).

Finally, one impression of the researcher that should be taken into account in interpreting the results is that not all teachers on the team implemented the conversations as agreed upon.

Catering Team

The action research component of this study was prepared by two teachers from this team and the action researcher. The team's first intention was to start with the roles of the career coach and the internship supervisor (both roles are fulfilled by teachers). During the preparatory conversations, the focus shifted to 'pleasure', that is, how could the learning program be arranged so that it is attractive for both

students and teachers during the entire day. This team was thus aiming at emotional engagement, using a modifying approach. The question was discussed during a team meeting, and as a consequence of this discussion a 'positive week' was organized. Teachers concluded that most of the time, they tell students about what they are doing wrong; it would be better to emphasize the positive aspects of the students' behavior and results. A small group of teachers formulated principles for this week. The purpose was to use one week to experience the consequences of a more positive approach according the formulated principles, to reflect on these experiences and to use these reflections to formulate principles/activities that could be implemented at the start of the new school year.

The 'positive week' was not implemented as intended. This is affirmed by data from the teachers, students and the researcher. Students could not recall a week in which they were approached differently by their teachers. Although teachers were positive about the 'positive week': 'We approached the students positively. Thus not 'Take off your cap', but 'Good morning, nice to see you, could you also take off your cap?'" (teacher, P1), they also mentioned that the week was not implemented as intended: 'I think that if we would reach more clear agreement, that it (positive week) could affect the students' (teacher, P2). During the evaluation (P65), teachers agreed that more attention needed to be paid to the 'positive week'. They just had forgotten about it.

The researcher affirmed in her impressions that the 'positive week' was really only implemented at an individual level, depending on the teacher. She also wrote that it was difficult to arrange meetings with this team and that it seemed difficult for the teachers to formulate principles/activities that could be implemented in the regular program and would also contribute to fostering student engagement. This is confirmed by one of the last meetings preparing for a positive start of the new school year. The teachers involved preferred to formulate strict rules and consequences for breaking those rules.

Fashion Team

This team felt it was urgent to do something about the engagement of their students. At the start of this action research project, the behavioral engagement of the students was very low. Only a few students were on time for the lessons, and many students skipped classes or even whole days. Although the urgency was felt, it took a while to formulate activities that this team thought would work to engage students. Finally, this team came up with different activities to foster student engagement. First, they decided to reduce the number of teachers teaching this

group during the entire program, by constructing a core teaching team of two teachers and two instructors. Second, they created an introduction day before the start of the program to introduce the program of study and especially the career. Teachers had experienced that students often had expectations of the program of study and career that did not match what the student would actually learn and do. They expected that engagement would be better if this mismatch could be avoided. Third, if possible, they split the group in two smaller groups of about ten students. They worked on offering more structure during the school day and week, they introduced two days of internship every week instead of ten weeks at the end of the first year, and they decided to formulate rules together with their students. This last activity was not carried out as intended. But one of the teachers clearly explained the rules and why those rules were applied. Starting at the beginning of the new school year, teachers maintained the rules much more consistently. Most changes could be described by the delivering approach, although there are elements of modifying, such as the change of the internship structure.

Teachers perceived positive results with the new group of students: 'A lot of students are ahead of the study program (...). Remarkably, most students received a grade for manufacturing. That was not the case in previous years' (teachers, P102).

Second-year students also interpreted the changes made for the first year students as positive: 'The effect of the smaller groups is that there is more guidance for students. And we know from contacts with first years students that everything is much better organized than last year' (students, P4).

The researcher confirms the changes made, but also notes that the regular meetings during the last six months of the action research project are necessary to reinforce the implemented activities.

5.5.2 Changed beliefs

To investigate changes in beliefs we used the quotes coded with codes including the personal domain. These quotes included the answers on some of the questions in the teacher questionnaire administered at beginning and at the end of the action research project. We compared the answers to detect a shift in beliefs. Furthermore, we scanned all quotes for indications of changed beliefs, such as teachers mentioning things they learned or became conscious of.

Pre-vocational Education Team

The results seem to show a shift in teacher beliefs about engagement. At the beginning of the study, teachers described mostly behavioral and cognitive aspects when defining engagement. Teachers also mentioned some emotional aspects related to motivation: 'a student is engaged if he is motivated and interested' (teacher, P41).

At the end of the study, most teachers described their own role in engaging students if asked to define student engagement: 'Knowing what is going on in the class/group/student that could influence the lesson or the learning and behavior of the student (...) but also how do you engage a student with the lesson taught?' (teacher, P39). There was relatively less emphasis on behavioral engagement and it seemed that there was a balance between emotional and cognitive aspects in their descriptions of student engagement.

During the action research process, teachers also developed new insights into how engagement could be enhanced. Teachers paid more and more attention to their relations and conversations with students. Furthermore, the skills form was seen as kind of an eye-opener. Based on the skills form and conversations, teachers could clarify the behavior of students and base their reactions upon this new knowledge. The importance and especially the quality of the conversation was also emphasized. Teachers learned how to structure and analyze their own conversations using the ALACT-model. Teachers stressed that they should really have a conversation with the student and that it should not be limited to talking *to* the student. At the end of the study, one of the teachers described how more improvement could occur: 'Involve students when creating ideas, activities and rules' (teacher, P 40). This quote includes aspects of collaboration with students that could indicate a critical transformative approach to student engagement.

One important observation by the action researcher that should be taken into account is that the teachers who implemented the skills form and conversations as intended seemed more positive about the implementation than those teachers who did not implement the skills form as intended.

Catering Team

Unfortunately, the response level on the questionnaire at the beginning of the study was low for this team ($n = 3$). This makes it difficult to draw comparisons with the answers on the final questionnaire. What could be interpreted as positive is that almost all teachers within this team responded to the final questionnaire. This could

indicate that involvement with the action research project increased during the study. At the end, almost all of the teachers perceived student engagement from the role of the teacher. They described what they as teacher could do to foster engagement. Most of these statements related to aspects of emotional engagement, for example: 'To listen to the student, to motivate him or her and to give a supporting pat once in a while. The glass is half full' (teacher, P85).

During the action research process, teachers started to emphasize a positive approach and positive relations with students: 'Engagement means to me that I am interested in students and that they are interested in me. Both should invest in this relationship' (teacher, P1). Although there was growing interest in a positive approach, teachers found it difficult to find a good mode for this approach: 'We found it quite difficult to find a good approach, because a positive week does not mean that you have to act like an overdone positive person' (teacher, P6). This is also an insight showing the difficulty of implementing the activity formulated by this team.

Teachers within the team mentioned foremost that they became more conscious of the influence of their own behavior on the behavior of their students. Two examples of quotes that support this finding: 'I learned that the results with students depend on my own mindset' (teacher, P84) and 'If we approach students positively their confidence will grow' (teacher, P2). Besides this aspect, one of the teachers stated that there is still a long way to go in fostering student engagement.

Fashion Team

The teachers emphasized behavioral aspects at the beginning and end of the study, but the behavioral descriptions included emotional and cognitive aspects. Teachers described the behavior that students should show to be engaged, for example: 'Showing interest in the subject/study' (teacher, P115), could be related to emotional engagement, feelings of interest, while 'Asking questions and working on the assignments' (teacher, P121) could also be related to cognitive engagement, regulating their own learning.

It seemed that teachers within this team saw engagement as characteristic of their students during the whole action research process: 'A student follows a program in which he is interested, in which he would like to participate actively and contribute positively, that is engagement' (teacher, P10). Teachers used the difficulties arising in the students they generally teach to explain why the engagement of their students was low at the beginning of the action research, but

when the engagement was much better in the next year they stated that the engagement of the students was better because it is a better group and they only somewhat related this improvement to the changes they had made: 'That everything is so positive could be mostly explained by the current group of students. Although the introduction day as part of the strict and serious intake could also have influenced this' (teacher, P100). This is confirmed by the impressions of the action researcher, who said that although the results were probably most obvious for this team, teachers seemed not convinced that it was due to their activities that these students were more engaged, but thought that it was due to the particular group of students.

The results also show some new insights. During the action research process, teachers started to mention that they should provide more structure to students. 'Another point which emerges is that probably too little structure is provided to students. It should be clear to students what is expected from them and what will be the consequences for not acting as expected' (teachers, P97).

Teachers also stated that they became more conscious of the influence of their own behavior and became more consistent toward their students. Furthermore, teachers tried to discuss students' problems outside the lessons. Because of the postponement of this discussion, in some cases teachers learned that problems had already been solved.

5.5.3 Supportive change sequence during the action research

To be able to detect supportive change sequences, we first analyzed the change sequences that we found in the different teams. Then we compared those change sequences with the changes in teachers' beliefs and teachers' practice, because we wanted to determine which change processes were supportive.

Change sequences within the teams

The quotes from all teams were coded using the IMPG. To indicate potential learning, we not only examined reflection and enactment processes, but we also examined the descriptions of beliefs, practices and consequences in general. Changes in these descriptions over the course of the action research process could also be interpreted as a shift in beliefs or practices. In Table 5.3, we present the relative frequency with which each code was assigned for each team, given as a percentage of the total codes for the data from that team.

Table 5.3 Overview of the use of each code presented in total number of quotes and percentages

	Pre-vocational education		Catering		Fashion	
	N	%	N	%	N	%
EXT	8	2.93	3	1.16	0	0.00
PERS	94	34.43	115	44.57	99	39.56
PRAC	50	18.32	46	17.83	47	20.89
CONS	10	3.66	7	2.71	10	4.44
EN-PERS-EXT	1	0.37	1	0.39	0	0.00
EN-EXT-PRAC	2	0.73	4	1.55	0	0.00
EN-CONS-PRAC	3	1.10	5	1.94	3	1.33
EN-PERS-PRAC	24	8.79	26	10.08	18	8.00
RE-EXT-PERS	7	2.56	7	2.71	1	0.44
RE-PRAC-PERS	47	17.22	37	14.34	43	19.11
RE-PRAC-CONS	8	2.93	2	0.78	5	2.22
RE-CONS-PERS	6	2.20	3	1.16	6	2.67
RE-PERS-CONS	4	1.47	1	0.39	2	0.89
ENV	9	3.30	1	0.39	1	0.44
Total	273	100	258	100	225	100

EXT = Extern Domain, PERS = Personal Domain, PRAC = Domain of Practice, CONS = Domain of Consequence, ENV = Change Environment, EN = Enactment, RE = Reflection.

The results show that teachers tended to talk more about personal beliefs than to describe their practice. To gain more insight into those differences, we calculated the ratio between descriptions coded as personal domain and as domain of practice (Table 5.4). The personal - practice ratio for the Pre-vocational and the Fashion teams are nearly identical, but this ratio is much higher for the Catering team. The results also showed the highest percentage of quotes about personal beliefs from the Catering team, compared with the other two.

If we examine what kind of relations were described by the participating teams and teachers, we find that relations between the personal domain and the domain of practice were most prevalent. We found both reflection and enactment processes (see Table 5.4). The Fashion team had a higher percentage of quotes coded as reflection between those two domains than the other teams did. The ratio between reflection and enactment was the smallest for the Catering team.

Table 5.4 Comparing different domains and change sequences

	Pre-vocational education	Catering	Fashion
Personal	34.43 %	44.57 %	39.56 %
Practice	18.32 %	17.83 %	20.89 %
Ratio	1.88 : 1	2.5 : 1	1.89 : 1
RE-PRAC-PERS	17.22 %	14.34 %	19.11 %
EN-PERS-PRAC	8.79 %	10.08 %	8 %
Ratio	1.96 : 1	1.42 : 1	2.39 : 1
Reflection	26.38%	19.38%	25.33 %
Enactment	10.99%	13.96%	9.33 %
Ratio	2.4 : 1	1.39 : 1	2.71 : 1

PERS = Personal Domain, PRAC = Domain of Practice, EN = Enactment, RE = Reflection.

If we look at the reflection and enactment processes in general, we see that teachers in the Pre-vocational team had the highest percentage of quotations coded as describing reflection processes. The Fashion team had the highest ratio between reflection and enactment, in favor of reflection.

There was a much lower percentage of quotes about the domain of consequence, compared to the personal domain and the domain of practice. About 11 percent of the quotes from the Pre-vocational and Fashion team teachers referred to the domain of consequence, whereas in the Catering team this accounted for only 7 percent of the quotes.

Finally, few references were made to the external domain, least by the Fashion team. This does not mean that there were no external stimuli within the Fashion team, but they spent most of their time talking about other aspects.

Looking more carefully at different quotes and codes related to the external domain, a pattern emerged for all three teams when analyzing quotes concerning the presentation of the results of a questionnaire about engagement and motivation administered to the students of the teams. Reflection between the external domain (presentation of results) and personal domain occurred, but this was immediately followed by reflection between the domain of practice and the personal domain. An example from the Pre-vocational team: 'Remarkably, students from the economics track score highest on most motivational and engagement aspects [reflection between external domain and personal domain]. One of the teachers states that a number of girls in this class are very ambitious. At the time of the

questionnaire they still had hope of making the step to a higher educational level [reflection on current practice to explain the results] ' (teachers, P22). Comparable quotes were found in the other teams.

How do these change sequences support teachers' learning about engagement?

Most of the changes in the teams' practices occurred in the Pre-vocational education and the Fashion teams. The Catering team had intentions to change, but the 'positive week' was never implemented as intended. Students from Pre-vocational education and Fashion acknowledged the changes, while Catering students did not.

With regard to changes in beliefs, the most changes seemed to occur in the Pre-vocational team. The changes were most scattered for the Catering team. Teachers in the Fashion team did not really change their perceptions of student engagement, but they valued the activities employed as leading to greater consciousness or even new insights.

Combining the reported changes in beliefs and practice, the most changes occurred in the Pre-vocational and Fashion teams. Results about the reflection processes showed that many more quotes concerning reflection were found in those two teams as compared to the Catering team. The Catering team spent more time than the other teams describing their beliefs about (changed) practices without any combination with another domain, thus without reflection or enactment processes. Finally, the domain of consequence was represented almost equally in the Pre-vocational and Fashion teams, but was lower for the Catering team. Thus, we could conclude that different change sequences occurred in the two teams where they collaboratively changed their practice.

Describing change processes on the team level using the IMPG produces three different figures. All teams begin from the external domain, inasmuch as the action researcher triggered them with the question, 'What could you do to foster your students' engagement?'. Based on this question, teachers began to reflect on their current practices to find something that could be changed or improved. From this point on, the team from pre-vocational education began a cycle of enactment and reflection between the personal domain and domain of practice to continuously improve their skills form and conversations. Therefore, this cycle could be interpreted as a kind of prototyping, this team refined its implemented activity. In this cycle, reflection was more represented than enactment. The consequences experienced by the teachers reinforced their ideas and were used to optimize their

practice. The outcomes in the domain of consequence actually supported the learning process. They reported a change in beliefs. Figure 5.2 summarizes the described process.

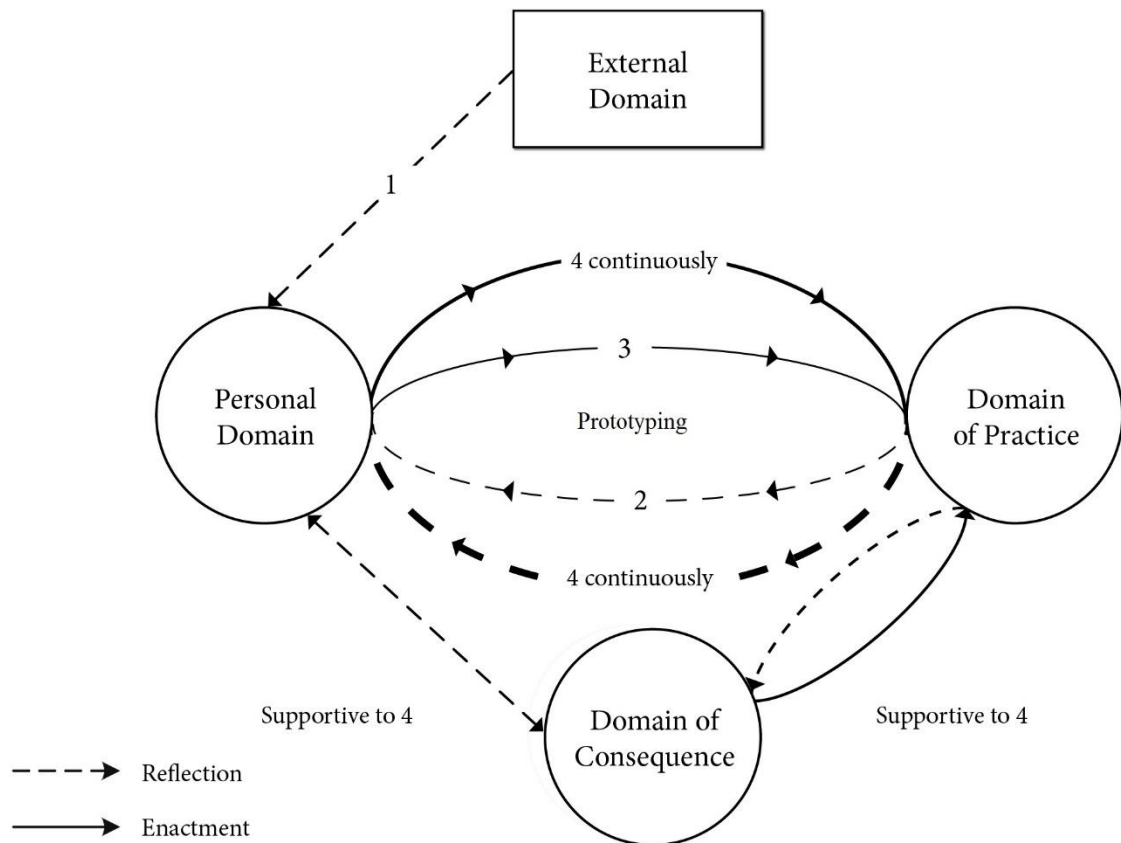


Figure 5.2 The growth network of the Pre-vocational education team

The Catering team also started with reflection from the external domain and domain of practice, but plans for change were never implemented as proposed. Every meeting could be seen as a new beginning of the process, but the process stalled during the enactment process between the personal domain and domain of practice. Some teachers tried a positive approach, but most teachers did not. The teachers who did change their practice reflected on the consequences and these reflections changed or reinforced certain beliefs. But those reflections were very dependent on the teacher and did not count for the whole team. The change processes for this team are summarized in Figure 5.3.

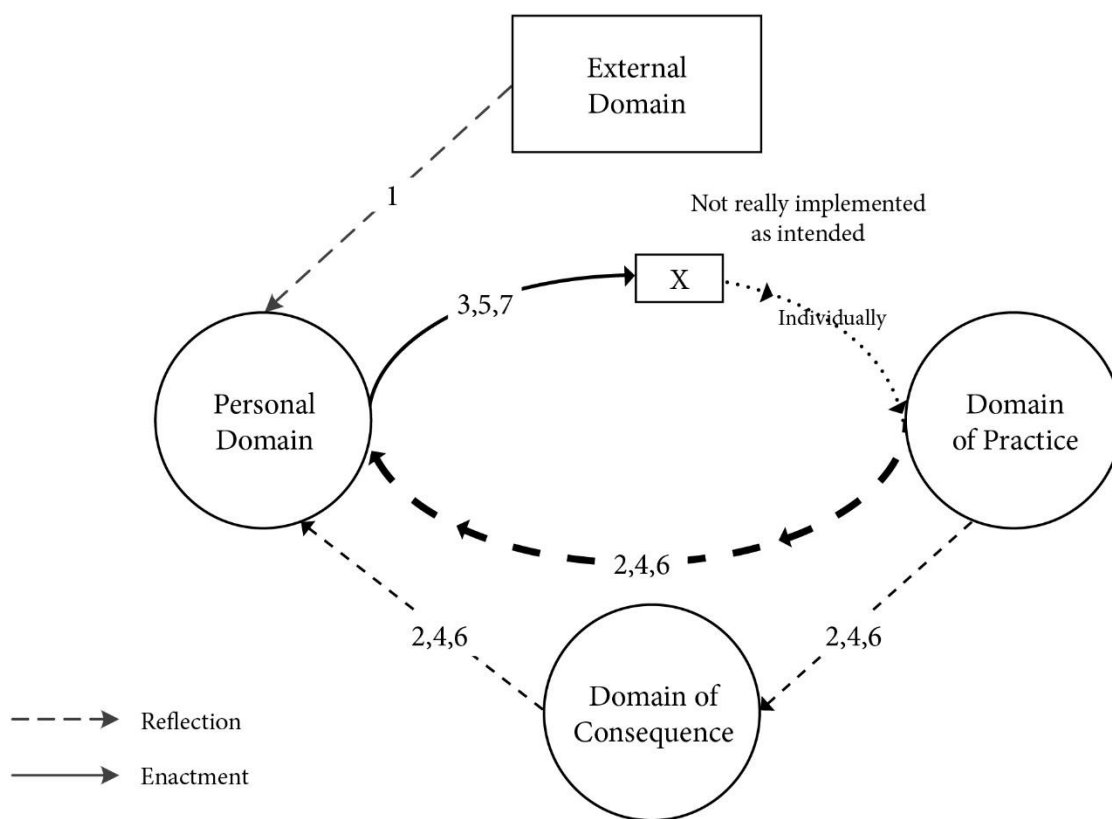


Figure 5.3 The growth network of the Catering team

Although urgency (problems with the behavioral engagement of students) was felt within the Fashion team, it took several meetings for them to come to enactment. The first meetings were used to reflect on their current practice and student outcomes. Finally, the team made several changes and reflected regularly on those changes. The changes were not altered, but were mostly reinforced and sometimes improved based on the reflections. Where this team differed from the Pre-vocational team was that they were very careful in relating the students' better outcomes to the changes made in their practice. Although the role of the domain of consequence was comparable to what was seen for the Pre-vocational team, the results did not influence certain beliefs. The results in the domain of consequence were probably most obvious for this team, but they were very persistent in their explanation that the better results were because the new group of students was much better than in previous years. Thus, the members of the team reflected on the consequences based on their beliefs, and the consequences did not support their learning processes as in the Pre-vocational team, although they did value the changes made. We summarized the change sequences for this team in Figure 5.4.

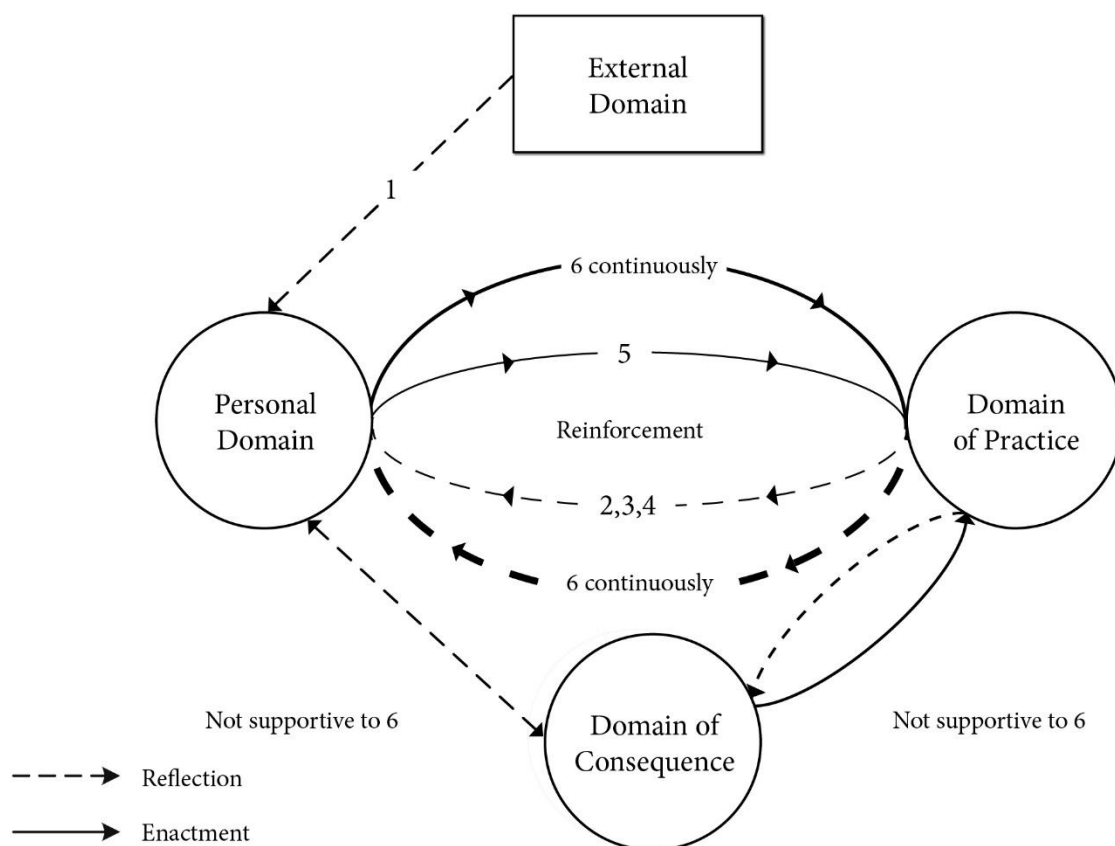


Figure 5.4 The growth network of the Fashion team

Comparing the three figures for the change sequences with each other, the figures for the Pre-vocational and Fashion team could indicate professional growth, because the change (process) occurred over a longer period and in different domains. This professional growth could be stronger for the Pre-vocational team, where the results in the domain of consequence supported their changes in beliefs and practices. We cannot conclude based on our results that the changes also lasted after the action research project concluded. The figure for the Catering team seems to indicate that there was no professional growth at the team level. In the catering team different change sequences are not combined in a cyclic process.

5.6 DISCUSSION AND CONCLUSION

Based on our results, we conclude that teachers in the pre-vocational and vocational track tend to prefer a delivery or modification approach to stimulate engagement. They can alter their beliefs about (fostering) student engagement during an action research project if they really change their practice and reflect on those changes,

and when they are able to relate positive outcomes to the changed practices. The core element of teachers' learning related to student engagement is the cycle of reflection and enactment between the domain of practice and the personal domain. Reflection occurs more often than enactment. The external domain could influence this cycle by providing new information, feedback, asking questions, and so forth. The domain of consequence is supportive to this cycle, confirming that the changes made in practice did or did not result in the desired outcomes.

5.6.1 Perspectives on engagement

Like Harris (2010) and Zyngier (2007, 2008), we found different views on student engagement among the teams and among teachers in the vocational track. But our results also showed that beliefs about student engagement could change. A core element found in the different descriptions about engagement is a modification approach based on a social constructivist perspective. The Catering team could be placed into just this category with their positive approach, although during one of the last meetings to prepare the positive approach, they were talking only about rules and being strict, indicating a more delivery approach. The Pre-vocational team flirted with the critical transformative approach by introducing their conversations *with* instead of *to* students. They also took the information from these conversations into account during the regular lessons. On the other hand, teachers in the Fashion team did not really alter their beliefs about engagement and emphasized a deficit approach, which could be interpreted as an instrumental or technical approach.

Teachers not only changed their beliefs about how student engagement should be perceived, but also about how engagement could be fostered. All teams started to emphasize their relationships with students, and they mentioned gaining insight into how their behavior influences the behavior of their students. It is interesting that at the end of the study, many teachers in pre-vocational education and on the Catering team described student engagement as their involvement with and interest in students. On the other hand, teachers in the Fashion team kept saying that the better results they achieved with their students was due to the students and not the activities implemented, despite the fact they valued those activities. Why did they not alter their beliefs, even though their change sequences were quite similar to those of the Pre-vocational team? Is it more difficult to change from an instrumental or rational technical perspective to a social constructivist one, than from a beginning social constructivist to a more social constructivist or even a critical transformative one? Or do these beliefs differ in their relation to the

teachers' self, for we know that beliefs are hard to change (Korthagen, 2004). Could beliefs about a deficit approach be related to identity? Perceiving disengagement as a deficit of the student could be safe for the teacher, because then it is not the teacher's fault that a student is disengaged. Feelings of self-efficacy could also play a role. In a previous study we have shown that teachers reporting higher levels of self-efficacy also reported higher levels of engagement for their students (van Uden et al., 2013). Teachers' feelings of self-efficacy were also weakly but positively related to students' own reports of student engagement (van Uden et al., 2014).

5.6.2 Professional development

Because changes were seen in teachers' practices (behavior) and beliefs (cognition), we can conclude that learning took place. Although the extent to which the different teams learned during the action research project differed, all teams gained new insights. The reflection and enactment cycle between the domain of practice and the personal domain was revealed to be the core of the teams' change sequences. The Catering team is noteworthy in this regard, because they never implemented the proposed activity as a team. This made it difficult for them to reflect collaboratively on the new practice. The change sequence was broken at this point and started over again. The discussions about beliefs and practices, without implementing new activities, resulted in some insights but did not lead to real change. This confirms the importance of experience, as reported by previous studies (e.g., Guskey, 1986; Hodkinson & Hodkinson, 2005; Kwakman, 2003). The results also show that more reflection than enactment took place in the teams where most changes were reported. Does this finding indicate careful consideration before trying something new in practice and thus experimenting? At a minimum, these findings suggest that enough room for (collaborative) reflection is an important factor in stimulating change.

It is interesting to observe that the domain of consequence needs to be supportive of the cycle of reflection and enactment between the personal domain and the domain of practice. The results show that beliefs play a role in interpreting the consequences. Although the positive consequences for the students of the Fashion team were very clear, the teachers maintained their deficit approach. This could also be the result of the number of changes implemented by this team. The Pre-vocational team implemented only two related activities, which probably made it easier for them to relate the results to the change in practice.

Finally, the IMPG is often used to analyze the learning processes of individual teachers. In this research, we showed the value of the model for analyzing the professional development of teams, confirming the findings of Voogt and colleagues (2011). This is valuable because the importance of teams in education is growing. Teachers are responsible as a team for a specific program or group of students. Furthermore, studies have emphasized the importance of collaboration during teachers' professional development (Avalos, 2011; Kwakman, 2003; Van Eekelen et al., 2005), which makes it interesting to analyze the learning of a team.

5.6.3 Not implemented as intended

Within the different teams we found activities that were not implemented as intended. Organizational aspects were often mentioned as explanations: no time or too little attention paid to the implementation of the activity. It is important to keep in mind that besides these explicit explanations, other more implicit reasons could have influenced the decision not to implement the proposed activities. This decision could also include aspects of learning, if careful consideration leads to the decision not to implement the activities as proposed. This shows active involvement of the teachers with the formulated activities (van den Akker & Voogt, 1994). This might be the case for the Fashion team. For example a teacher said that she experienced that students could not think up any rules. Therefore, she simply started to explain the rules that she had already formulated beforehand. But this could also have been a self-fulfilling prophecy.

Another explanation for not implementing the activities as proposed could be that the activities were not in accordance with the teachers' beliefs about engagement. For example, formulating rules together with students includes aspects of a collaborating approach, whereas these teachers expressed a rational or technical approach during their discussions. This activity was introduced by the team leader, but might not be in coherence with the teachers' beliefs and therefore might have been difficult for them to implement. This could also account for the Catering team's failure to implement their proposed activity, where the teachers who should have formulated the framework for the 'positive week' emphasized having rules and being strict. Another explanation for this team could be that the 'positive week' was something completely new to work on for this team. Within the Pre-vocational and Fashion team it was quite easy to find a development on which they were already working that could be part of the action research project. Garet and colleagues (2001) state that there should be coherence between a teacher's daily practice and the professional development activity; this coherence was probably the lowest for the Catering team.

5.6.4 Action research as professional development and research method

'Thus in doing research, I am educating and being educated with the people' (Freire, 1982, p. 30). This is what happened in this study as well, and shows that action research contributes to scientific knowledge and the professional development of the people involved. The action researcher provided the teams with new information, but her foremost role was to stimulate the teams to improve their practices and reflect on them. Together, they examined the concept of student engagement in practice. This process provided the action researcher with insight into how teachers really perceive engagement, to what extent their beliefs about engagement can change and what processes support these changes. The IMPG seemed the appropriate tool to analyze these changes, because of the important role of changes in the domain of practice and in the reflection and enactment processes. We could also interpret the results the other way around, concluding that action research is a good method for professional development. As Justi and van Driel (2006, p. 448) stated, 'the IMPG informed our decision to organize the activities in the domain of practice in the form of an action research project'.

The action research project could have been improved if teachers had actually examined their practice using a data-driven approach. In the approach used here, the teachers only reflected on the experience of implementing changes in practice and on the perceived consequences of the changed practice. If they had measured the effects in the domain of consequence before and after the changes were implemented, this could have resulted in an even more supportive influence of the domain of consequence.

What could be seen as a limitation of action research in general is that the researcher is part of the development being studied. This could influence the interpretations of the results. We tried to provide objectivity by coding the data using the IMPG. The codes helped to verify whether the described processes took actually place and were correctly interpreted. The action researcher's impressions were made transparent and part of the action research process by including these impressions as actual data.

CHAPTER 6

General conclusions and discussion

6.1 INTRODUCTION

Although interest in student engagement has increased over the past decades, little is still known about teachers' perceptions of student engagement, how they foster student engagement and what and how they learn when explicitly fostering engagement. With the studies conducted within this dissertation we contributed to knowledge about student engagement by examining student engagement from the teachers' perspective. Our second aim was to contribute to teachers' professional development in relation to student engagement. The outcomes of the different studies helped to fulfill this aim.

Many researchers have investigated various factors affecting student engagement, such as teacher support (Anderman, 2003; Roorda, Koomen, Spilt, & Oort, 2011) and task and instructional characteristics (Anderman, 2003; Marks, 2000; Raphael, Pressley, & Mohan, 2008). The activities investigated in these studies could be used by a teacher, but these different studies do not show what teachers themselves would do to foster student engagement. On the other hand, Harris (2008, 2010, 2011) and Zyngier (2007, 2008) found that teachers differ in their views on student engagement and how it can be enhanced. Some teachers emphasize more behavioral aspects, others also include emotional and cognitive aspects of engagement. The studies by Harris and Zyngier were conducted in secondary education; this dissertation investigates how teachers in vocational education perceive and foster student engagement. To be able to contribute to teachers' professional development in relation to student engagement we also examined how teachers' perceptions of student engagement can change and how these changes take place. The main question addressed in this dissertation is:

How do teachers in vocational education perceive, foster and learn about student engagement?

Four studies were conducted to answer this research question. The interconnected model of professional growth (IMPG) (Clarke & Hollingsworth, 2002) was used to present the cohesion between the different studies. Study 1 focused on the personal domain of the IMPG, while in the second study, the domain of practice and consequence from the perspective of the student was added. In the third study we examined the personal domain, the domain of consequence and the domain of practice and changes occurring within and between these domains. In the final study we used the IMPG as the method for analysis. In this study the teachers' learning was analyzed using the entire IMPG.

In the first two studies, chapters 2 and 3, we reported on a survey in which certain teacher beliefs were examined in relation to perceived student engagement and student engagement as reported by students themselves. In the third and fourth studies, chapters 3 and 4, teachers' perceptions of student engagement and their development in relation to student engagement were investigated. The research questions for the different studies were as follows:

1. To what extent do teacher motives for being a teacher, perceived importance of different teacher competences, perceived self-efficacy and views about their own interpersonal teacher behavior relate to teachers' perceptions of student engagement in pre-vocational and vocational education?
2. To what extent do teacher beliefs and perceived interpersonal teacher behavior matter in relation to behavioral, emotional and cognitive student engagement in pre-vocational and vocational education?
3. How and to what extent can teachers develop themselves to be better prepared to foster their students' engagement?
4. How will teacher teams foster engagement and what and how do they learn when explicitly working on enhancing student engagement during an action research project?

6.2 SUMMARY OF MAIN FINDINGS

6.2.1 Study 1: Teacher beliefs in relation to their perceptions of student engagement

The first study contributed to answering the first part of the overall research question 'how do teachers perceive student engagement?'. This study examined whether teachers' motives for being a teacher, their ratings of the relative importance of different teacher competences, their self-efficacy for teaching, and ratings of their own interpersonal teacher behavior are related to teacher perceptions of student engagement.

The study revealed relations between teachers' values for different teacher competences, their feelings of self-efficacy, their perceptions of their interpersonal teacher behavior and their perceptions of their students' behavioral and emotional engagement. Looking at the motives for being a teacher, only significant relations were found between an altruistic or intrinsic motive and perceptions of emotional engagement.

A regression analysis showed that interpersonal teacher behavior, consisting of proximity and influence, is the most important construct in predicting teachers' perceptions of their students' engagement. Furthermore, the value teachers place on pedagogical and didactic competence and their feelings of self-efficacy also contributed to predicting teachers' perceptions of student engagement. The importance of pedagogical competence, proximity and influence are the core elements predicting perceptions of students' emotional engagement. The value placed on didactic competence, self-efficacy, influence and proximity predict perceptions of behavioral engagement.

6.2.2 Study 2: The role of teacher beliefs and interpersonal teacher behavior in fostering student engagement

This second study followed up on the first study. Whereas in the first study teacher beliefs were found to be connected to teachers' perceptions of student engagement, the second study investigated the connection of those teacher beliefs to student engagement and interpersonal teacher behavior as perceived by the students themselves.

A multilevel analysis showed the strongest relations between both dimensions of interpersonal teacher behavior and the three types of student engagement: behavioral, emotional and cognitive engagement. Furthermore, an extrinsic motive was negatively related to students' emotional engagement directed toward the subject taught. Students of female teachers also scored lower on this aspect of engagement. Before including teachers' interpersonal behavior, the results showed that being the mentor of the student, teachers' valuing of subject-matter knowledge and teacher self-efficacy beliefs mattered in fostering engagement directed at the teacher. Furthermore, teacher self-efficacy and extrinsic motives for being a teacher also explained variance in students' cognitive engagement.

The results reveal that teacher beliefs had a limited role in predicting student engagement. How students perceived their teachers' interpersonal behavior was much more important.

6.2.3 Study 3: A learning history about enhancing student engagement

The third study contributed also to answering the second part of the main research question. The results provide insight into how teachers' perceptions of engagement change and primarily into how teachers develop in relation to student engagement. In this study, the learning history method was used to capture the experiences of teachers who were explicitly and collaboratively working on fostering student engagement with their teams. This method makes it possible to examine perceptions and experiences and to stimulate learning and development at the same time. A learning history includes the voices of the different organizational levels and the participants involved in order to stimulate their reflection, development and learning processes.

The learning history shows that on the one hand, teachers emphasized positive relationships and structure in relation to student engagement. Yet, on the other hand, students continued to provide examples of negative relationships and mentioned a lack of structure. Furthermore, the learning history shows that teachers in all teams reflected on their experiences and learned from the activities employed to foster student engagement; they became conscious of the effect of a more positive approach toward students and understood the importance of really knowing their students and being more consistent in their classroom behavior. All of these results taken together indicate that it is possible for teachers to do a better job in engaging their students and that their repertoires can be expanded to include more engagement-related actions. Finally, the learning history produced offers insight into the difficulties experienced by the teams.

6.2.4 Study 4: Changes in teachers' beliefs about engagement during an action research project

In the fourth study we used the IMPG (Clarke & Hollingsworth, 2002) to analyze the learning that occurred in three teams of teachers working on fostering student engagement during an action research project. This study aimed at examining to what extent and how teachers' perceptions about student engagement and fostering student engagement can change and what change sequences occur during this process.

The results reveal that teachers in pre-vocational and vocational education prefer a *delivery* or *modification* approach to stimulate student engagement. A delivery approach is related to a more behavioral perspective on student engagement. The modification approach also aims at emotional aspects. Or using the epistemological constructions of Zyngier (2007, 2008), teachers mostly used an *instrumental* or *rational technical* and a *social constructivist* or *individualist* approach to describe student engagement.

The results also show that teachers can alter their beliefs about (fostering) student engagement during an action research, but this change is conditional upon having that teachers really change their practices and reflect on the changes made. The core element of this change process is a cycle of reflection and enactment between the personal domain and the domain of practice. It also seemed important for the teachers' learning to perceive positive results from the changes made. We concluded that reflection between the domain of consequence and both the personal domain and the domain of practice should be supportive of the processes occurring in and between the personal domain and the domain of practice. The domain of consequence needs to confirm the changes made in the domain of practice. Finally we concluded that reflection processes occurred more often than processes of enactment. The ratio between reflection and enactment was higher in the teams where changes actually occurred.

6.3 OVERALL CONCLUSIONS

The main findings of the different studies reveal variables that are related to teachers' perceptions of their students' engagement, but also which of these variables are related to student engagement as reported by students. The findings also reveal how teachers would foster student engagement and how teachers learn

about student engagement while explicitly working on fostering student engagement. Based on these findings we can draw conclusions as an answer to our general research question, 'how do teachers perceive, foster and learn about student engagement?'

Teachers' perceptions on student engagement

Teachers' perspectives on student engagement mainly illustrate a rational technical and (social) constructivist approach. Teachers mentioned mostly behavioral and emotional aspects in their descriptions of student engagement at the beginning of the action research project. Some teachers spoke of student engagement as a unilateral student characteristic; they saw disengagement as a deficit of the student. This often indicates a rational technical view on student engagement (Zyngier, 2007).

On the other hand, the action research project shows that teachers can change their perceptions of student engagement. Teachers in our study developed from a more rational technical to a more (social) constructivist approach. Descriptions that fit into a critical transformative approach were scarce. It was noticeable in the descriptions of student engagement at the end of the action research project that teachers often described their own role when asked to define student engagement. They wrote that they themselves have to be committed to foster student engagement.

Finally, we can conclude that teachers' beliefs color their perceptions of the engagement of their own students, but their beliefs do not provide enough information to predict real student engagement. When student reports of engagement and student perceptions of their teachers' interpersonal behavior are used, the predictive value of teachers' beliefs is limited. Interpersonal teacher behavior as experienced by students is a much better predictor.

How teachers foster student engagement

The activities employed to enhance student engagement could mainly be categorized as taking a delivery or modification approach toward fostering student engagement. Teachers in all teams emphasized the importance of positive relationships with students. The importance of positive relationships is also confirmed by the two quantitative studies. Thus teachers, but also students, perceive positive interactions with students as an important element in fostering student engagement. Furthermore, teachers emphasize the importance of being consistent toward students and offering structure in relation to fostering student engagement.

Teachers' learning in relation to student engagement

The changes in perceptions of student engagement reveal that teachers can develop professionally in relation to student engagement, but the changes found within the three teams differed. For example, the Fashion team gained new insights in relation to their practices, but the teachers within this team kept their deficit approach toward student engagement. The insights of the teachers from the Pre-vocational team were not limited to new activities to improve their practices but also included the development of a broader view on student engagement.

Changes in teachers' beliefs are the result of reflection and enactment processes between the personal domain (beliefs and knowledge) and domain of practice that occur during the action research project. These changes in beliefs are conditional upon teachers really changing something in their practice and reflecting on it. The interpretations of the perceived results of the changed practice are supportive of these changes in beliefs. Perceived positive outcomes reinforce the changes in beliefs.

The findings also show that action research can be considered as a crucial activity for teachers' professional development, especially in relation to fostering student engagement. The action research project offered opportunities to reflect on current practices, to collaborate with colleagues, to experiment and to reflect on the changes made. In addition, the writing of the learning history supported the professional development of the teams involved. The interviews conducted during the making of the learning history stimulated reflection on fostering student engagement and teams were able to formulate new insights based on the learning history produced. Finally, the results presented in the learning history also show that there are differences between the experiences of students and teachers and that there is still room to improve student engagement.

6.4 REFLECTION ON METHODOLOGY

To be able to answer the general research question, a mixed method design (Teddlie & Tashakkori, 2009) was used. The research questions guided the choice of the appropriate approach. A quantitative approach was used in the first two studies to investigate the relation between certain teacher beliefs and (perceptions of) student engagement. A qualitative approach has been used during the final part of the study, where an action research project was carried out to examine how teachers

would foster their students' engagement and what they learn about fostering student engagement when actively working on it. To analyze the outcomes, we conducted a learning history halfway through the action research project, and the learning and change processes that occurred during the entire project were analyzed using the IMPG (Clarke & Hollingsworth, 2002).

6.4.1 The quantitative approach: a survey

To investigate the relation between teacher beliefs and teacher perceptions of their students' engagement, a teacher questionnaire was developed. Knowing that teacher perceptions and student perceptions could differ (Evers, Tomic, & Brouwers, 2004; Mitchel, Bradshaw, & Leaf, 2010; Fraser, 1998), we also developed a student questionnaire to measure how students themselves rate their own engagement. This also applies for the measurement of interpersonal teacher behavior. The differences in results between using only teachers' perceptions and adding student perceptions of student engagement and interpersonal teacher behavior confirmed our choice to use both a teacher and a student questionnaire.

Although a survey is very useful to investigate variables and their relations, there are also limitations, such as the limited number of variables that can be included, measurement at a single timepoint, the difficulty in claiming causal relations and respondents filling in socially desirable answers. These limitations also apply to this survey.

Despite its limitations, a survey at the outset of an investigation permits us to analyze relevant phenomena and provides an initial, although perhaps superficial understanding of participants' perceptions and beliefs. The choice of a limited number of teacher beliefs was mainly determined by the available instruments, which contain the relevant variables often mentioned in literature, with scales high in validity and reliability. Most of these scales have been developed and used in general education, such as the scales measuring values for teaching competences and the questionnaire on teacher interactions. Differences in the validity and reliability of the scales could be attributed to the application in this vocational context. Moreover, we could have included additional variables, as discussed in study 2, for example, teachers' ideas about an engaging learning environment such as characteristics of assignments (Mitchel & Carbone, 2011) and instructional practices (Raphael et al., 2008). However, the effects of these variables pertaining to the learning environment can be better studied in a realistic context. On the other hand, an initial qualitative approach could have helped with exploring the

possibilities for the different variables in practice without excluding meaningful variables in advance, and with exploring specific aspects of vocational education that would need to be captured in the scales.

The survey measured teacher beliefs at a single timepoint, and made it more difficult to interpret causal relationships. Based on our theoretical framework we proposed causal relations, but with only this single measurement, it is important to interpret these causal relationships with caution. This caution especially applies for a concept such as self-efficacy, where feelings are influenced by experiences of success, and related attributions. Thus, feelings of self-efficacy could not only predict the outcomes, the outcomes could also influence feelings of self-efficacy. For this kind of construct, the use of a survey could be less informative and decisive.

A final limitation is that participation in the survey was voluntary. It took a while to find a reliable number of teachers to participate in the survey. One reason was that schools and teachers are often asked to participate in surveys and they are to some extent 'tired of participating in research'. Another explanation for nonparticipation could be the subject of the questionnaires. Teachers could be reluctant to participate because of the assessment of their interpersonal teacher behavior by students. Nonparticipation could influence the outcomes if groups of teachers with similar characteristics decided not to participate. On the other hand, our survey with almost 200 teacher participants outnumbered most studies investigating student engagement from a teacher perspective, where only a small number of teachers typically participate (Harris, 2011).

6.4.2 The qualitative approach: an action research

Action research was used in this dissertation to support teachers' professional development related to student engagement. The results showed that this approach is valuable in its combination of scientific research and professional development. Participants in action research discuss and reflect on their own practice and try to improve their practices by formulating actions and implementing those actions. Actions are evaluated and discussed, and based on these discussions the actions could be revised or new actions could be implemented (Goodnough, 2010; Ponte, 2002). Kemmis (2009) might have been critical of the action research conducted in this dissertation, stating that the teams should have included the voices from others involved (e.g., students, parents) and that the research should have had a more critical edge by providing an unwelcomed truth. Although the learning history includes voices of students, teachers themselves only very rarely asked students about their opinions and ideas.

Different approaches were used to guarantee the reliability of the interpretation of the data, aiming at intersubjectivity. The language used describing the outcomes reflected the confidence we had in our interpretations.

First of all, we gathered different data, such as reports, short open-ended questionnaires, verbatim transcripts of interviews, to make triangulation possible. Furthermore, a learning history was generated to capture the experiences of the teachers and other persons involved in or affected by the action research. The interviews conducted for the learning history were also used when analyzing the learning that occurred over the whole course of the action research project.

Secondly, we used two different approaches to analyze the outcomes of the action research: the learning history method and the IMPG. In both approaches, measures were taken to optimize intersubjectivity. During the learning history, interviews were conducted by outsiders instead of by the action researcher. A learning team with insiders and outsiders was formed to formulate themes based on the verbatim transcripts of the interviews, and consensus was reached on four themes. The learning team subsequently selected quotes from the transcripts that fit the different themes. Two researchers within the learning team interpreted these quotes by writing the left column of the learning history. The correctness of these interpretations was checked during the validation stage, in which the whole learning history was discussed with members of the participating teams.

We used the IMPG to analyze the changes that occurred during the action research project. We selected quotes from all of the gathered data and coded these quotes using the code scheme developed by Voogt et al. (2011). Two raters coded a selection of the quotes to test inter-rater reliability. By using the IMPG, the change process that occurred during the action research project could be made visible. Literature was used to interpret the content of these changes. The outcomes of the final learning history could then be compared to these interpretations to check the correctness of the interpretations. The use of the IMPG allowed us to be more precise about the change sequences and possible learning that occurred within the teams.

In conducting action research, it is important to take the role of the action researcher into account, because this role is not limited to gathering data; the action researcher actively participates in the action research. As Bradbury Huang (2010, p. 95) writes, 'all claims to knowledge are shaped by interests', and the autobiography of an action researcher could help to interpret the claims made during an action research

project. The way the action researcher acts within the research will be influenced by the biography of the action researcher. This also influences the researcher's attitude toward the teams, the questions asked and reactions of different participants, what was said and done during our action research. However, the process of data gathering and analysis as described in the previous paragraph could mitigate the effects of these influences.

6.4.3 The combination of a quantitative and qualitative approach

We chose to begin with a survey and to use a qualitative design for the follow-up. As the reflection on the survey implies, it could also have been useful to begin with a qualitative design and to use the outcomes of the qualitative study to develop the questionnaires. By beginning with a qualitative design we could have examined what variables really seem to matter in relation to student engagement without excluding possible variables in advance.

On the other hand, by beginning with the survey, the findings from the survey offered a framework for interpreting the outcomes of the action research projects. This provided a combination of a deductive and inductive approach for analyzing the outcomes. Without the framework we developed for the survey and the findings from the survey, it would have been much more difficult to interpret what happened in the action research project and to interpret its outcomes. A limitation could be that the framework and findings provided by the survey became part of the researcher's biography. These findings could have influenced how the action researcher approached the teams and how she interpreted the outcomes of the action research. We diminished this potential influence by beginning the action research project with an open question and not presenting the findings from the survey. Secondly, we tried to mitigate the possible effects of this influence by using an outsider as a second rater in analyzing the outcomes using the IMPG and by including outsiders in the learning team.

The combination of the quantitative study with the qualitative study provided us with more concise answers on the research question. Whereas the quantitative study showed how teachers' perceptions of student engagement are influenced by beliefs, the qualitative study was necessary to show how teachers' perceptions changed over time in a real context and how these changes occurred. Furthermore the qualitative study helped to overcome some limitations of the quantitative study such as measurement at a single time point and the limited number of variables that could be included.

6.5 REFLECTION ON OUTCOMES

This dissertation shows how teachers perceive, (try to) foster student engagement and learn about student engagement when explicitly seeking to foster the engagement of their students. We will reflect on the outcomes provided on these different aspects by relating these aspects to the IMPG, the model used to represent the relation between the different studies. We will end this reflection with a general reflection on the concept of student engagement, based on this and other studies.

6.5.1 Perceptions on student engagement

Perceptions can be seen as beliefs in the personal domain, but these beliefs are influenced by the domain of practice, experiences of teachers in their classrooms with their students and the outcomes of their students, which in this study are limited to student engagement. Following Harris (2010, 2011) and Zyngier (2007, 2008), we examined how teachers perceive student engagement, which includes not only how teachers describe student engagement, but also whether teacher beliefs influence their perceptions of their students' engagement. Based on the findings of the quantitative studies, we concluded that certain teacher beliefs influence teachers' perceptions of their students' engagement. These beliefs do not imply anything about how engaged their students really are. The relations found between the measured beliefs and student engagement faded out when students' own reports of student engagement were included as predictors.

Within the qualitative studies, teachers described their own understanding of the concept of engagement. These outcomes show that teachers differ in their understanding of student engagement and that the participating teachers often display a limited understanding of student engagement. Their descriptions were often limited to behavioral and emotional aspects of engagement. Cognitive aspects were rarely mentioned. When they were mentioned, it was more often at the end of the action research project. Harris (2011) writes that engagement is often seen as a deficit of the student. This deficit approach was also found in our study, but seemed to occur more often at the beginning of the action research project than at the end, indicating a shift in the teachers' understanding of student engagement. Teachers also began to emphasize their own role in relation to fostering student engagement. They wrote that they themselves should be committed to the student. This suggests that those teachers learned that student engagement is the outcome of their interaction with the student. Comparing the findings to the constructions of Zyngier (2007, 2008), teachers mostly demonstrated a *rational*

technical view or a *social constructivist* or *individualist* view on student engagement. Teachers seemed to develop to a more social constructivist approach during the action research. A critical transformative approach was not really found. There was also a team that maintained a deficit approach, indicating a rational technical view on engagement, during the entire action research project. A possible explanation for this could be teachers' low levels of self-efficacy. If they do not trust that they themselves can influence student engagement, it is safer to believe that disengagement arises only in the student. This idea could be related to teachers' identity and would therefore be hard to change (Korthagen, 2004).

6.5.2 Fostering student engagement

The studies reveal how teachers do foster or would foster student engagement in practice. Both quantitative studies show that high levels of proximity and influence are important in fostering student engagement. During the action research project, teams implemented activities to foster student engagement. Teachers mentioned that they became more conscious of their own behavior during this process. They seemed to emphasize especially aspects that could be related to proximity, such as getting to know students and a positive approach.

Based on the relation found between interpersonal teacher behavior and teachers' perceptions of student engagement, we proposed to extend pedagogical content knowledge (PCK) with an 'affective' component, resulting in APCK, in the first study. The outcomes of the second study strengthen this proposal, and the outcomes of the qualitative studies could also be interpreted as support for our claim that there should be an affective part added to PCK. Although the teams in the qualitative studies differed in their approach to foster student engagement, they all emphasized the importance of including positive affective relationships in their teaching. The insights formulated during the validation of the learning history underline this finding. Previous studies examining the relation between interpersonal teacher behavior and affective outcomes could also support this claim (den Brok, Brekelmans, & Wubbels, 2004, 2006; Wubbels, Brekelmans, den Brok, & van Tartwijk, 2006). Based on these and our findings, we argue that this affective part is a precondition for creating an attractive and challenging learning environment in which engagement will be fostered. If teachers neglect this affective part in their educational practice, it will be hard to develop positive mutual relations with their students, which will ultimately lead to disengagement.

Besides focusing on the affective part, teachers also developed activities during the action research project that could be related to other variables measured in the survey. Although the relation between the measured values for teacher competences and student engagement disappeared when student engagement as reported by students themselves was added, some activities formulated by the teams could be considered in relation to these competences. For example, being more consistent could be interpreted as an activity related to influence, but could also be related to pedagogical competence. The skills form developed by the Pre-vocational team could be the result of applying didactic competence. Not only did the teachers come up with activities that could be related to the competences measured in the survey, students also asked for other aspects beyond positive interpersonal teacher behavior. Students asked for more structure, better guidance, better instruction and clear rules. Thus, the relation found between teachers' values for didactic and pedagogical competence and perceptions of student engagement are also found in practice, and these do not influence only teachers' perceptions, as would be concluded based on the survey alone.

In the previous paragraph we mentioned the limited understanding of student engagement by teachers. This understanding could also have influenced the activities used by the teams. If we define these different understandings as a mindset, this mindset influenced the activities the teams used (Simons, 2013). If a teacher thinks that only behavior shows how engaged a student is, and that this behavior is a characteristic of the student, the teacher would think up activities to regulate this behavior, but would not take into account underlying reasons for this behavior. This would mean that teachers with a more critical transformative approach would foster student engagement differently, but as this approach was not explicitly found, activities related to this approach were also rarely mentioned. This means that there could be other forms of activity that are important to foster student engagement, but to examine what these forms entail we would need to find teachers with a critical transformative approach.

6.5.3 A student perspective on the domain of practice and consequence

Although this study examined student engagement from the teachers' perspective, we also included comments from students themselves about the domain of practice and consequence in the second, third and fourth studies. Teachers' inferred consequences of student engagement and students' reported consequences differed. This also occurred for the domain of practice. For example, teacher beliefs were related to their perceptions of student engagement (domain of consequence),

but only minimally related to students' own reports of their engagement. Furthermore, teachers emphasized positive relationships and structure, but students also mentioned a lack of both. This could possibly explain why the relation between certain beliefs and student engagement disappeared when students' own reports of engagement were used. The results show that teachers find positive relationships and structure important, but the results only sparsely reveal how this is applied in practice or whether teachers possess the capabilities to put these ideas into practice.

The studies provide insights into how teachers perceive and experience student engagement, but the findings from the students also show that student engagement is complex and cannot be completely understood from a single perspective. Multiple perspectives will be necessary to optimize student engagement; in this study this has been done during the action research where student voices were also included.

6.5.4 Professional development: learning

A learning history was conducted and the IMPG (Clarke & Hollingsworth, 2002) was used to investigate how teachers developed in relation to student engagement, that is, what they learned about fostering engagement. In earlier paragraphs we commented on the changes that occurred in the different domains. Teachers changed their perceptions on student engagement (personal domain), they changed their practices to experiment with new activities to foster student engagement (domain of practice) and report on the outcomes of these changed practices (domain of consequence). Changes in beliefs and practice can be interpreted as learning, according Zwart, Wubbels, Bergen and Bolhuis (2007). This learning can also be related to the changes in beliefs, practices and relations that occur as result of an action research project (Bradbury Huang, 2010; Broad & Reyes, 2008; Kemmis, 2009). The outcomes of the two qualitative studies show that it is possible for teachers to develop professionally in relation to student engagement.

The changes in beliefs and practices were the result of reflection and enactment processes between the personal domain and the domain of practice, supported by reflections about the domain of consequence. The results confirm the findings of various researchers that experimenting with new practices is an important factor in professional development (e.g. Guskey, 1986; Hodkinson & Hodkinson, 2005; Kwakman, 2003). Furthermore, the importance of reflection and interaction with others (Avalos, 2011; Kwakman, 2003; Van Eekelen et al., 2005) is also strengthened

by the outcomes of this dissertation. To change their perceptions of student engagement, teachers had to change their practice, their action repertoire, and to reflect on what happened.

Our assumption that action research can be an appropriate professional development activity was also confirmed. The action research project facilitated experimentation, reflection and interaction within the teams. The learning history strengthened the reflections of the different participants in the action research project. Therefore, we conclude that the learning history method is very useful during professional development activities to support and strengthen the reflection that takes place.

The action research project and the learning history generated resulted in changed practices and new insights; teachers collaboratively developed activities that supported innovation and that created new knowledge. Therefore, we conclude that the metaphor of learning as creating knowledge (Paavola & Hakkarainen, 2005) applies to the learning occurring during an action research project.

6.5.5 General reflection on the concept of student engagement

Different studies on student engagement show that there is agreement about presenting student engagement as a multidimensional construct consisting of three dimensions: behavioral, emotional and cognitive engagement (e.g., Appleton, Christenson, & Furlong, 2008; Archambault, Janosz, Fallu, & Pagani., 2009; Fredricks, Blumenfeld, & Paris, 2004). In all these studies, the three dimensions seem to be represented as equal to each other, but is that assumption true? By equal, we mean equally strong relations among the three types, but also an equal extent to which they can be influenced and an equal importance of the different types.

The study by Archambault and colleagues (2009), for example, shows a relation between behavioral engagement and dropout and behavioral engagement and emotional engagement. In their model, emotional engagement seems to predict both behavioral and cognitive engagement. How should these findings be interpreted? Does it mean that emotional engagement is a precondition for cognitive and behavioral engagement? Or do factors outside school have more influence on behavioral engagement and factors in school on emotional and cognitive engagement? This last explanation could be supported by the findings of Elffers (2011), who found that emotional engagement differs between school contexts but that behavioral engagement does not change very much when

students change schools or programs of study. Our quantitative study could support this interpretation, insofar as the variance explained by the different variables was the lowest for behavioral engagement. This could mean that it is very difficult to influence behavioral engagement from within the school. On the other hand, within the action research project, the students in the Fashion team behaved much better after implementation of the different activities than students from previous years. Students were on time and participated in the lessons, according to the teachers.

Another view on student engagement is represented by Zyngier (2007, 2008) and Harris (2010, 2011). Their descriptions can be interpreted as a hierarchical understanding of student engagement, in which a rational technical understanding of engagement and a delivery approach mean a superficial understanding of student engagement, and a critical transformative or a collaborative approach would imply a deep understanding of student engagement. Aiming at only improving behavioral aspects thus shows a superficial understanding; according to Harris and Zyngier, it would be more important to improve cognitive engagement. Applying this understanding to our study reveals that teachers can develop from a more superficial to a deeper understanding of student engagement. If we combine this interpretation with the hypothesis provided above that it is difficult to influence behavioral engagement from inside the school, we can conclude that it would be very hard to improve student engagement relying only on a rational technical view of student engagement.

6.6 RECOMMENDATIONS

6.6.1 Recommendations for future research

The outcomes of the different studies also offer clues for future quantitative and qualitative research on student engagement. Beginning with quantitative research, hypotheses based on the findings from the action research project could be tested in other contexts using a survey. Knowing that teacher beliefs can be related to teachers' perceptions of student engagement, but only weakly to students' own experiences, it would be good to ask students about their experiences with certain modifications in the classroom as proposed and implemented by the three teacher teams that participated in the action research project.

Secondly, in the quantitative study we measured how teacher beliefs are related to teachers' perceptions of student engagement, but it could be even more interesting to examine how teacher beliefs relate to teachers' interpretations of the concept of student engagement, using the distinctions made by Zyngier (2007, 2008) and Harris (2010, 2011), or to examine whether teachers' interpretations of student engagement with these distinctions are related to student engagement as reported by students themselves. This will also make it possible to test our hypothesis that it will be harder for teachers with a rational technical approach to foster student engagement than for teachers with another view on student engagement.

In addition, the theory of planned behavior (Ajzen, 1991) could be used to construct a questionnaire to measure which attitudes, subjective norms and perceived behavioral control influence the different approaches to student engagement.

Third, we introduce an affective component to pedagogical content knowledge based on the outcomes of the different studies. It will be important to investigate whether this affective part is correctly operationalized as interpersonal teacher behavior or whether other elements need to be added, such as a positive approach. Furthermore, in relation to drop out it will be interesting to investigate whether increased attention for this affective component could prevent students from leaving school early.

Finally, we have raised questions about the equal status of the three types of engagement. To broaden our knowledge about student engagement, it would be important to investigate whether there are differences between the three types of student engagement in their mutual relationships, in whether they can be influenced from inside the school and in the importance of the three types.

To increase the generalizability of the findings of the qualitative part of this study, replicating this study in other programs in vocational education can be considered. Thus, including programs in, for example, the domains of technology or health in selecting teams to carry out a similar action research project, and to determine whether the results of this study are confirmed or not. It would also be interesting to replicate the study in teams with a relatively high number of early school leavers. This will make it possible to examine not only the relation between the activities developed and (perceived) student engagement, but also the assumed relation between student engagement and drop out.

Secondly, a more systematic approach can be used if an action research project is conducted in new teams. The action research project in this dissertation emerged as a work in progress, but in the future, steps and meetings could be planned in advance. The learning history findings showed that teams should be adequately prepared to conduct such a project, and decisions about the action research should be explicitly agreed to and written down in plans, in order to guarantee the whole process. Furthermore, the action research could be improved when teams also involve students and maybe even parents in their quest to improve student engagement. To improve the supportiveness of the domain of consequence, a more data-driven approach could be used. If teachers could not only rely on their own reflections, but also use a data-driven approach to examine their practices and the consequences of their practices before and after implementing the designed activities, it could become clearer whether the changes in practice have the desired effects. This approach will not only support teachers in the change process, but can also contribute to the scientific understanding of student engagement. Moreover a more data-driven approach could prevent teams from basing their actions on assumptions that are not true.

Finally, it will be important to investigate further the importance of the affective component. Teachers emphasized this aspect when fostering their students' engagement. But this emphasis could also be the result of their perceptions of student engagement. It is important to investigate whether teachers who have a critical transformative view of student engagement and emphasize its cognitive aspect also emphasize this affective element, or whether these teachers would introduce other activities to foster student engagement. Furthermore, students also asked for other elements, such as providing more structure, better instructions and clear rules.

6.6.2 Recommendations for practice

Besides clues for future research, the outcomes of this dissertation provide leads for fostering student engagement for teachers in pre-vocational and vocational education.

First of all, the studies show that teachers should be aware of the effect of their own behavior on their students' feelings and behavior, and that there is often room for improvement. The Questionnaire on Teacher Interactions (Wubbels, Créton, & Hooymayers, 1985) can be used to help teachers to become aware of their own behavior.

It is important for teacher education to spend time on the affective component of teaching, especially when preparing teachers for vocational education. In the Netherlands, special tracks are provided for aspiring teachers in vocational education. These programs should spend more time on the affective part and especially on the influence of the teachers' behavior in relation to student engagement. The current programs often emphasize only didactic aspects.

The results of the studies show that there are teachers who possess a deficit approach to student engagement. It is very important for these teachers to realize that as teachers, they matter in fostering student engagement. If teachers do not realize this, the chance that they will work on fostering student engagement diminishes. Why should they invest in student engagement when what they do does not matter? Experiences of success can contribute to these feelings that what one does can result in the desired outcome (Bandura, 1997). Developing activities that we know can contribute to student engagement and supporting teachers in implementing these activities could help them experience success. The current study showed that the inferred positive outcomes can support changes in beliefs. Looking at the outcomes of the Fashion team, we expect that teachers need to experience success over a longer period to realize that their behavior matters and to leave behind their deficit approach.

The results also show that there is room to improve current practices to better foster student engagement. Therefore, attention needs to be paid to professional development in relation to student engagement. The studies show that action research is a good form of professional development for teachers to learn about fostering student engagement. Furthermore, the teams would probably not have formulated and implemented the activities if there was no external guidance to keep them on track during the whole action research project. During regular team meetings, topics of discussion are often limited to organizational aspects, day-to-day questions and students with problems. Looking at the similarities across the outcomes in the three teams, teachers could work on their relationships with students, really knowing their students, providing structure and being consistent. One advantage of conducting action research within the teams as a professional development activity is that the activities used are consistent with the team's practice and that the whole team is engaged in the activity.

6.7 A PERSONAL REMARK

Kemmis (2009) stated that most current action research has lost its critical edge; action research should bring bad news or tell unwelcome truths. From what I heard and saw during the action research, I would argue that teams should have time and should learn to reflect on their practices and to improve these practices. Conducting the action research with the teams showed me how their time was swallowed by administrative and organizational tasks. It was only due to my presence and my questions that they started to collaboratively reflect on their practices and to improve those practices. They exchanged experiences and asked each other how and what they taught and did during the lessons. I had expected that they would discuss things such as what their practice looks like and how it could be improved during their team meetings, but it seemed from what I heard and saw that they did not. Within team meetings, difficult students, problems with internships, scheduling and project weeks were discussed. It was difficult for the teams to make time for the action research, but within the two teams where they did manage to make time, the teachers collaboratively reflected and learned from one another and from their practices. My fear is that with all attention given to basic cognitive skills, such as reading, writing and arithmetic, and with the additional educational hours that should be given in vocational education, teachers will spend even less time on collaborative reflection on their practices in relation to student engagement. If they lose their students' engagement, it could become even more difficult to attain the desired results. As Cothran and Ennis (2000, p. 106) state, 'Even a quality curriculum guided by a knowledgeable teacher, will not result in student learning unless students first are engaged in the learning process.'

Instead of increasing the number of educational hours provided to the students, I propose offering teams those hours for professional development and especially for using those hours to reflect on their current practice. This process needs to be supported by someone from outside the team who can stimulate collaborative reflection and enactment. This should result in a cycle of reflection and enactment aimed at offering high quality education that includes the affective component.

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DUTCH SUMMARY

De docent als linking pin: een docentenperspectief op leerlingbetrokkenheid

INTRODUCTIE

Leerlingbetrokkenheid speelt een rol in het voorkomen van voortijdig schoolverlaten en draagt bij aan betere leerresultaten. Dit heeft er toe geleid dat er afgelopen jaren in wetenschappelijk onderzoek veel aandacht is besteed aan leerlingbetrokkenheid. In deze onderzoeken wordt echter weinig aandacht besteed aan de rol van docenten bij leerlingbetrokkenheid en hoe zij leerlingbetrokkenheid zien, terwijl zij toch degenen zijn die in interactie met de leerlingen deze betrokkenheid tot stand moeten brengen. Betrokkenheid is namelijk geen karaktereigenschap van de leerling, maar het resultaat van een interactief proces.

Over het algemeen worden drie typen betrokkenheid onderscheiden:

- Gedragmatige betrokkenheid, waarbij het gaat om het gedrag van de leerlingen, zoals op tijd komen, zich aan de regels houden en opdrachten op tijd inleveren.
- Emotionele betrokkenheid heeft betrekking op hoe leerlingen zich voelen op school: voelen ze zich er thuis en zijn ze enthousiast over school.
- Cognitieve betrokkenheid houdt in dat leerlingen begrijpen dat ze zich moeten inspannen voor school, dat het niet vanzelf gaat en dat ze inzien dat bijvoorbeeld de vakken die ze volgen belangrijk zijn voor hun toekomst.

Harris (2010, 2011) en Zyngier (2007, 2008) spreken in mindere mate over deze drie typen betrokkenheid maar hebben het over perspectieven op leerlingbetrokkenheid en de wijze waarop docenten de leerlingbetrokkenheid proberen te vergroten. Deze benaderingen zijn te koppelen aan de drie typen betrokkenheid, zie Tabel 1.

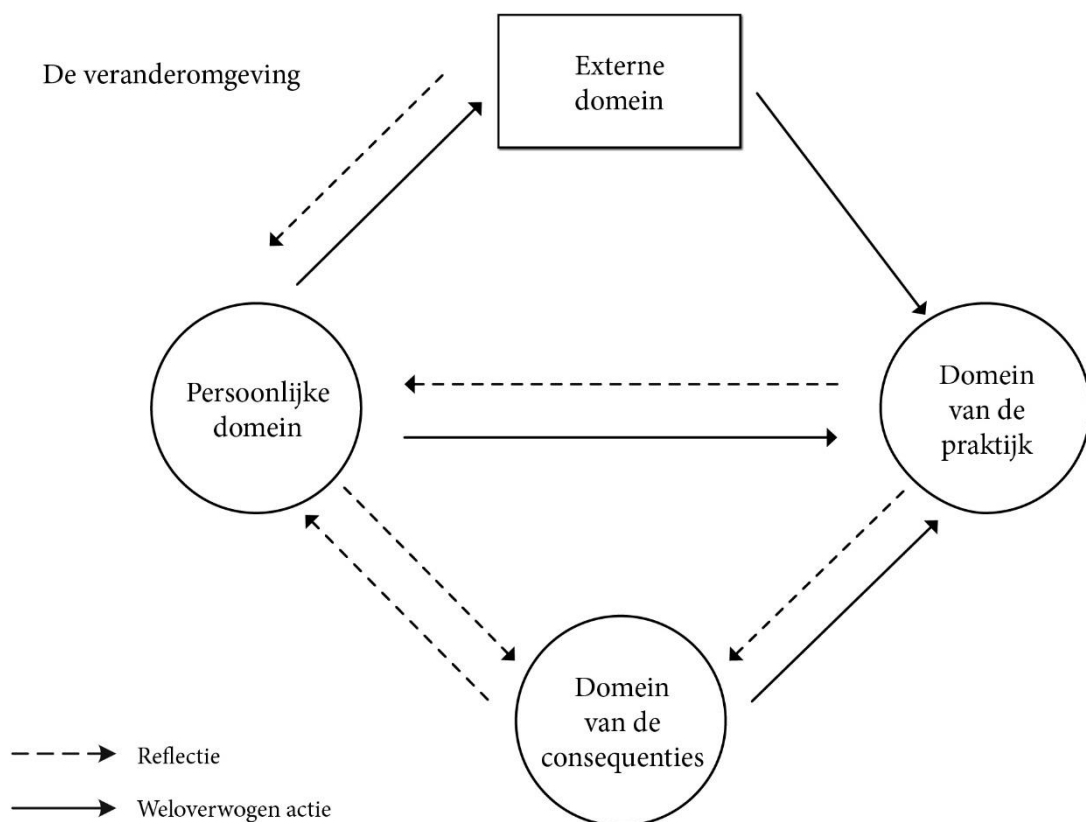
Tabel 1 Typen betrokkenheid, epistemologische constructies, en de 'Hoe categorieën'

Typen betrokkenheid	Epistemologische constructies van Zyngier (2007, 2008)	De 'Hoe' categorieën van Harris (2010)
<i>Gedragsmatige betrokkenheid</i>	<i>Instrumentalistische of rationeel technische benadering:</i> betrokkenheid wordt gezien als het observeerbare gedrag. Vaak wordt betrokkenheid gezien als eigenschap van de leerling.	<i>Overbrengen:</i> Het gaat om activiteiten die er voor zorgen dat leerlingen aan het werk gaan en blijven. Er wordt vaak uitgegaan van een docentgestuurde benadering.
<i>Emotionele betrokkenheid</i>	<i>Sociaal constructivistische of individualistische benadering:</i> Hier gaat het om een vriendelijkere manier om leerlingen aan het werk te zetten. Docenten benadrukken aanpakken waarbij de leerling meer centraal staat. Ze zien betrokkenheid als het stimuleren van de interesses van de leerlingen.	<i>Veranderen:</i> vanuit deze benadering wordt het curriculum zo aangepast dat het interessanter wordt voor leerlingen, waarbij wel een klassikale benadering wordt gehanteerd.
<i>Cognitieve betrokkenheid</i>	<i>Kritisch transformatieve benadering:</i> Docenten en leerlingen werken samen om een democratische leeromgeving te creëren die alle leerlingen de mogelijkheid biedt zich te ontwikkelen en waarin samen geleerd wordt. Deze benadering stimuleert reflectief en kritisch denken.	<i>Samenwerken:</i> In samenwerking met de leerlingen wordt een leeromgeving gecreëerd die aansluit op de behoeftes van de leerlingen. Deze leeromgeving moet zorgen voor eigenaarschap bij de leerlingen en hun reflectieve denken stimuleren.

In het beperkt aantal onderzoeken waarbij het perspectief van de docent in ogenschouw wordt genomen is met name onderzocht hoe docenten leerlingbetrokkenheid beschrijven. Daarbij is docenten ook gevraagd hoe zij de betrokkenheid van hun leerlingen bevorderen. Deze onderzoeken hebben echter niet plaatsgevonden in het beroepsonderwijs. Met dit onderzoek wordt daar verandering in gebracht. Bovendien richt dit onderzoek zich niet alleen op de vraag hoe docenten over betrokkenheid en het stimuleren van betrokkenheid denken, maar wordt ook onderzocht hoe docenten zich kunnen ontwikkelen op het gebied

van leerlingbetrokkenheid. Dit wordt gedaan door docententeams te vragen gedurende een jaar activiteiten te formuleren en implementeren waarvan zij denken dat het de betrokkenheid van hun leerlingen vergroot. Hierbij worden de uitgangspunten van actieonderzoek gehanteerd. Docenten verkennen het probleem door op hun praktijk te reflecteren, komen met mogelijke oplossingen, proberen deze oplossingen uit, reflecteren daarop en passen waar nodig de activiteiten aan. Deze aanpak sluit aan op in eerder onderzoek vastgestelde succesfactoren voor professionele ontwikkeling, zoals experimenteren, reflecteren en leren door interactie met anderen.

Een model dat het leren van docenten in kaart kan brengen is het Interconnected Model of Professional Growth (IMPG, Figuur 1). Bij dit model wordt uitgegaan van een extern domein, een persoonlijk domein, het domein van de praktijk en het domein van de consequenties. Deze vier domeinen zijn met elkaar verbonden door middel van reflectie- en handelingsprocessen. In deze dissertatie is dit model niet alleen gehanteerd om het leren van de docenten tijdens het actieonderzoek te analyseren, maar ook om aan te geven hoe de vier verschillende studies uit deze dissertatie zich tot elkaar verhouden.



Figuur 1 Het Interconnected Model of Professional Growth

DOEL VAN ONDERZOEK EN ONDERZOEKSVRAGEN

Het doel van het onderzoek is tweeledig. Allereerst wordt met het onderzoek achterhaald hoe docenten uit het (voorbereidend) middelbaar beroepsonderwijs betrokkenheid percipiëren. Daarbij wordt niet alleen bestudeerd hoe docenten het begrip definiëren, maar ook welke opvattingen hun percepties van de betrokkenheid van hun eigen leerlingen beïnvloeden. Daarnaast draagt het onderzoek bij aan de professionele ontwikkeling van docenten in relatie tot leerlingbetrokkenheid. Dit wordt gedaan door docenten te vragen de betrokkenheid van hun leerlingen te vergroten gedurende een periode van een jaar.

In het onderzoek staat de volgende onderzoeksvraag centraal:

Hoe percipiëren en vergroten docenten uit het (voorbereidend) middelbaar beroepsonderwijs leerlingbetrokkenheid en hoe leren zij over leerlingbetrokkenheid?

In vier deelstudies wordt deze vraag verder onderzocht. In elke deelstudie staat een andere vraag centraal:

1. In hoeverre is er een verband tussen motieven om docent te zijn, de waarde die gehecht wordt aan verschillende docentcompetenties, de ervaren *self-efficacy* en het door docenten zelf ervaren interpersoonlijk leraarsgedrag en de door docenten gepercipieerde leerlingbetrokkenheid in het (voorbereidend) middelbaar beroepsonderwijs?
2. In hoeverre doen opvattingen van docenten en hun door leerlingen gepercipieerde interpersoonlijk leraarsgedrag er toe in relatie tot de gedragsmatige, emotionele en cognitieve betrokkenheid van leerlingen in het (voorbereidend) middelbaar beroepsonderwijs?
3. Hoe en in welke mate kunnen docenten zich ontwikkelen om beter voorbereid te zijn op het vergroten van de betrokkenheid van hun leerlingen?
4. Hoe vergroten docententeams betrokkenheid en wat en hoe leren zij wanneer zij expliciet de betrokkenheid van hun leerlingen proberen te vergroten tijdens een actieonderzoek?

ONDERZOEKSONTWERP

Het onderzoek bestaat uit twee kwantitatieve en twee kwalitatieve studies. In de kwantitatieve studies wordt door middel van een survey onderzocht hoe bepaalde opvattingen van docenten zich verhouden tot de door docenten gepercipieerde leerlingbetrokkenheid en de betrokkenheid zoals gerapporteerd door de leerlingen zelf. De opvattingen van de docenten bestaan uit de motieven om docent te zijn (altruïstisch, intrinsiek en extrinsiek), de waarde die gehecht wordt aan verschillende docent competenties (pedagogisch, didactisch en vakinhoudelijk), de ervaren *self-efficacy* en de percepties van het eigen interpersoonlijk leraarsgedrag (invloed en nabijheid).

In het eerste deel van het kwantitatieve onderzoek staat het persoonlijke domein van de docent centraal waarbij de uitkomsten van reflectieprocessen op de praktijk en consequenties zijn meegenomen. In het tweede deel zijn hier ter controle de ervaringen van leerlingen met het interpersoonlijk leraarsgedrag van hun docent en door henzelf ervaren betrokkenheid aan toegevoegd. In totaal hebben 195 docenten en 2288 leerlingen uit het (voorbereidend) middelbaar beroepsonderwijs deelgenomen aan het survey.

In het kwalitatieve onderzoek is onderzocht hoe docenten de betrokkenheid van hun leerlingen vergroten en wat zij leren als ze daar expliciet aan werken. Hiervoor is de methode van actieonderzoek ingezet waarbij er vanuit wordt gegaan dat de wereld pas begrepen kan worden door er iets in te veranderen en te kijken wat er gebeurt. Actieonderzoek kenmerkt zich door een cyclus van reflectie en gerichte actie op basis waarvan betrokkenen hun praktijken en opvattingen veranderen.

Vijf docententeams zijn benaderd met het verzoek tot deelname. Op basis van de uitleg hebben drie teams besloten deel te nemen. Eén team uit het vmbo en twee teams uit het mbo (niveau 2). Gedurende het hele proces zijn de verslagen van de bijeenkomsten en de producten verzameld. Daarnaast zijn als onderdeel van het actieonderzoek interviews afgenomen. Ook de uitgewerkte interviews zijn verzameld voor de analyse. Tot slot is halverwege het actieonderzoek de leergeschiedenismethode toegepast om de ervaringen van de verschillende betrokkenen in kaart te brengen. Een leergeschiedenis ordent de ervaringen van verschillende actoren. Zowel het maken van een leergeschiedenis als het uiteindelijke product zetten aan tot reflectie en betekenisgeving. Een leergeschiedenis wordt gepresenteerd in twee kolommen. In de rechter kolom worden de ervaringen van verschillende betrokkenen weergegeven en in de linker

kolom worden deze ervaringen geïnterpreteerd. De interviews, die in het kader van de leergeschiedenis zijn afgenomen, zijn niet alleen gebruikt voor het schrijven van de leergeschiedenis maar ook opgenomen in de dataverzameling van het gehele actieonderzoek.

Bij het schrijven van de leergeschiedenis zijn de stappen uitgevoerd zoals beschreven door Kleiner en Roth (1996). Er is een kernleerteam geformeerd bestaande uit drie leden. Dit team heeft de leergeschiedenis voorbereid. De interviews zijn afgenomen door mensen die niet direct betrokken waren bij het actieonderzoek. Bij het formuleren van de thema's en het koppelen van citaten aan de thema's is het leerteam uitgebreid tot tien personen. Het kernteam heeft zich vervolgens over de interpretatie van de citaten gebogen en deze interpretaties zijn op hun beurt weer voorgelegd aan betrokkenen uit de verschillende teams. Vervolgens zijn de resultaten van de leergeschiedenis verspreid.

Voor het analyseren van het gehele actieonderzoek is een coderingsschema gehanteerd dat gebaseerd is op het IMPG. Allereerst zijn citaten geselecteerd die een relatie hadden met de domeinen uit het model. Vervolgens is ongeveer 10% van de citaten door twee beoordelaars gecodeerd resulterend in 80% overeenstemming. Op basis van deze overeenstemming heeft één beoordelaar de rest van de citaten gecodeerd. Per team is eerst onderzocht welke veranderingen plaats gevonden hadden binnen de domeinen om vervolgens te kijken welke leerprocessen (reflectie of handeling) hier aan ten grondslag lagen. Vervolgens zijn de uitkomsten van de verschillende teams met elkaar vergeleken.

RESULTATEN

In de eerste studie is met behulp van een vragenlijst onderzocht in hoeverre bepaalde opvattingen van docenten in verband gebracht kunnen worden met de door hen gepercipieerde betrokkenheid van hun leerlingen. De resultaten uit deze studie laten zien dat de motivatie om docent te zijn, de waarde die gehecht wordt aan verschillende docentcompetenties, de gevoelens van *self-efficacy* en de eigen percepties van het interpersoonlijk leraarsgedrag gerelateerd zijn aan de wijze waarop docenten de gedragsmatige en emotionele betrokkenheid van hun eigen leerlingen ervaren. De relatie tussen het interpersoonlijk leraarsgedrag en de gepercipieerde leerlingbetrokkenheid is het grootst. Beide dimensies spelen een belangrijke rol in relatie tot zowel de gedragsmatige als emotionele betrokkenheid.

Verder laat een regressieanalyse zien dat naast het interpersoonlijke leraarsgedrag de waarde die gehecht wordt aan de pedagogische competentie vooral een relatie heeft met emotionele betrokkenheid en de waarde die gehecht wordt aan de didactische competentie en de ervaren *self-efficacy* een voorspellende waarde heeft voor de gepercipieerde gedragsmatige betrokkenheid.

In de tweede studie worden de percepties van docenten over hun interpersoonlijk leraarsgedrag en de betrokkenheid van hun leerlingen vervangen door de percepties van leerlingen. Voor de andere variabelen wordt dezelfde docentenvragenlijst gebruikt als in de eerste studie. Het blijkt dat de relaties die werden gevonden tussen de opvattingen van docenten en de door hen gepercipieerde betrokkenheid vervagen als de percepties van de leerlingen zelf worden gehanteerd. Wel laat deze tweede studie zien dat ook hier het interpersoonlijk leraarsgedrag er toe doet voor zowel de gedragsmatige, emotionele als cognitieve betrokkenheid van de leerlingen. Hogere scores op nabijheid en invloed correleren met een hogere betrokkenheid, waarbij opvalt dat voor de emotionele betrokkenheid de voorspellende waarde van nabijheid veel groter is dan de voorspellende waarde van invloed. Het verschil tussen beide dimensies is veel kleiner voor cognitieve betrokkenheid en bij de gedragsmatige betrokkenheid speelt invloed juist een belangrijkere rol, al is ook daar het verschil niet zo groot als bij de emotionele betrokkenheid.

In de derde studie worden de ervaringen en het leren van de teams gedurende het actieonderzoek onderzocht met behulp van een leergeschiedenis die halverwege het actieonderzoek is uitgezet. Hieruit blijkt dat zowel het actieonderzoek als de leergeschiedenis de betrokkenen aanzet tot reflectie.

De leergeschiedenis laat zien dat docenten positieve relaties met leerlingen en het bieden van structuur benadrukken als belangrijke elementen om leerlingbetrokkenheid te vergroten, maar dat ook andere activiteiten worden benoemd zoals het gezamenlijk formuleren van regels en het implementeren van een vaardighedenformulier. Hoewel docenten positieve relaties en het bieden van structuur benadrukken, beschrijven leerlingen voorbeelden waaruit negatieve relaties en een gebrek aan structuur blijken. Het formuleren en implementeren van activiteiten om de betrokkenheid te vergroten heeft er voor gezorgd dat docenten zich meer bewust zijn van het belang van een positieve benadering en het echt leren kennen van hun leerlingen. Bovendien zijn ze zich ook meer bewust van het belang om consequent te handelen in de klas. De leergeschiedenis toont aan dat het voor

docenten mogelijk is zich verder te ontwikkelen op het gebied van leerlingbetrokkenheid zodat docenten beter in staat zijn de betrokkenheid van hun leerlingen te vergroten. Ook laten de resultaten zien dat de inzet van de leergeschiedenis de betrokken docenten en teams aanzet tot leren.

Tot slot is in de vierde studie het gehele actieonderzoek geanalyseerd met behulp van het IMPG. De resultaten tonen dat het beeld dat docenten van leerlingbetrokkenheid hebben vaak beperkt is tot een rationeel technische en soms een sociaal-constructivistische kijk op betrokkenheid. De kritisch transformatieve benadering is nauwelijks gevonden. Cognitieve aspecten van betrokkenheid worden wel benoemd, maar in beperkte mate. Een groot deel van de betrokken docenten ziet in eerste instantie het niet betrokken zijn van leerlingen als een eigenschap van de leerling zelf. Het actieonderzoek laat zien dat teams zich gedurende het actieonderzoek wel meer ontwikkelen richting of binnen de sociaal constructivistische benadering. Deze verandering in opvattingen is geduid als leren.

De teams waar de meeste veranderingen in opvattingen zijn gevonden hebben daadwerkelijk veranderingen doorgevoerd in hun praktijk. Dit was bij twee van de drie teams. Bij deze teams lijkt met name de cyclus van reflecteren en handelen tussen het persoonlijke domein en het domein van de praktijk een rol te spelen in het leerproces. Het zien van positieve uitkomsten die worden toegekend aan de veranderingen die zijn aangebracht, zorgt er ook voor dat docenten hun opvattingen wijzigen.

CONCLUSIE

Op basis van de studies kan geconcludeerd worden dat docenten die aan het onderzoek hebben deelgenomen nog een beperkt beeld hebben van wat leerlingbetrokkenheid inhoudt, maar dat zij hun ideeën over leerlingbetrokkenheid kunnen veranderen door actief aan de betrokkenheid van hun leerlingen te werken. De percepties die docenten hebben van de betrokkenheid van hun eigen leerlingen worden beïnvloed door hun opvattingen.

Positieve relaties met leerlingen en een positieve benadering worden tijdens het actieonderzoek door docenten benadrukt als middelen om de betrokkenheid van

hun leerlingen te vergroten. Dit wordt onderstreept door de twee kwantitatieve studies waar het interpersoonlijk leraarsgedrag er uit springt in relatie tot zowel de door docenten gepercipieerde als de door de leerlingen zelf gerapporteerde betrokkenheid. Het actieonderzoek laat ook zien dat docenten andere aspecten in overweging nemen zoals bijvoorbeeld het bieden van structuur en het gezamenlijk afspreken van regels.

Tot slot toont het onderzoek aan dat docenten zich kunnen ontwikkelen op het gebied van leerlingbetrokkenheid. Daarbij is het van belang dat docenten in de praktijk ervaren dat zij de betrokkenheid kunnen beïnvloeden. Dit gebeurt door nieuwe activiteiten in de praktijk te implementeren en gezamenlijk te reflecteren op wat het effect is van de geïmplementeerde activiteiten. De cirkel van reflectie en weloverwogen handelen tussen het persoonlijke domein en het domein van de praktijk speelt daar een belangrijke rol in. Bovendien ondersteunt het zien van positieve uitkomsten die gerelateerd kunnen worden aan de veranderde praktijk het leerproces van docenten.

AANBEVELINGEN

Op basis van het onderzoek en de resultaten worden aanbevelingen gedaan voor zowel toekomstig onderzoek als de praktijk.

Wat betreft toekomstig kwantitatief onderzoek is het van belang dat wat docenten onder leerlingbetrokkenheid verstaan op te nemen als één van de opvattingen. Daardoor kan onderzocht worden in hoeverre de andere opvattingen in verband gebracht kunnen worden met de opvatting van een docent over wat leerlingbetrokkenheid inhoudt. Bovendien kan onderzocht worden in hoeverre de opvattingen over wat docenten verstaan onder leerlingbetrokkenheid in verband te brengen zijn met de daadwerkelijke betrokkenheid van leerlingen. Tot slot is het van belang de rol van de affectieve component, die in deze dissertatie nadrukkelijk naar voren komt, verder te onderzoeken.

Wat betreft het kwalitatieve onderzoek wordt aanbevolen het onderzoek te herhalen in andere branches binnen het middelbaar beroepsonderwijs om te onderzoeken of daar soortgelijke activiteiten en leerprocessen ontstaan. Ten tweede wordt aangeraden het onderzoek meer van te voren te plannen en te verankeren in

de werkzaamheden van het team. Daarnaast kan het onderzoek versterkt worden door het team zelf meer data te laten verzamelen. Tot slot zou het goed zijn om op zoek te gaan naar docenten met een kritisch transformatieve benadering van leerlingbetrokkenheid om na te kunnen gaan of deze docenten andere activiteiten inzetten om de betrokkenheid van hun leerlingen te vergroten.

Wat betreft de praktijk laat dit onderzoek zien dat docenten zich verder kunnen ontwikkelen op het gebied van het bevorderen van leerlingbetrokkenheid. Het is daarbij van belang dat docenten zich bewust worden van de invloed van hun eigen gedrag op leerlingbetrokkenheid. Om hun eigen gedrag in beeld te brengen, kan de vragenlijst voor interpersoonlijk leraarsgedrag gehanteerd worden. Daarnaast is het van belang voor docenten om in de praktijk te ervaren dat hun handelen invloed heeft op de betrokkenheid van hun leerlingen. Dit kan door docenten in de praktijk nieuwe activiteiten te laten uitvoeren die de betrokkenheid vergroten, zodat ze positieve effecten van hun handelen kunnen ervaren. Een actieonderzoek waarbij docenten zelf gericht op zoek gaan naar activiteiten die bijdragen aan de leerlingbetrokkenheid is daarbij een zeer bruikbaar middel. Tot slot is het van belang dat niet alleen op scholen zelf aandacht wordt besteed aan het opbouwen van positieve relaties met leerlingen en andere activiteiten om leerlingbetrokkenheid te bevorderen, maar dat hieraan ook voldoende aandacht wordt besteed in de lerarenopleidingen.

APPENDICES

APPENDIX A

Gespreksmodel interviews leergeschiedenis

Algemeen

De eerste minuten van een interview zijn beslissend, de interviewer moet in een korte tijd een contact opbouwen in de interactie die verder gaat dan een vriendelijke conversatie en het uitwisselen van ideeën. De interviewer moet een sfeer creëren waarin het subject zich veilig genoeg voelt om vrijelijk over zijn ervaringen en gevoelens te praten. Voor een leergeschiedenis is het namelijk van belang dat de interviews een reflectief karakter hebben. Het is dus van belang dat de interviewer een situatie creëert waarin gereflecteerd kan worden. Een goed contact, attent luisteren, interesse tonen en respect voor het subject, tegelijkertijd is de interviewer duidelijk en helder over wat hij/zij wil weten.

De interviewer zal zich eerst voorstellen en zal uitleggen wat het doel van het interview is, dat deze bijdraagt aan de leergeschiedenis en dat er mogelijk citaten gebruikt gaan worden maar dat hier eerst toestemming voor wordt gevraagd. Ook zal duidelijk worden gezegd dat de uitspraken enkel onder vermelding van de functie in het verslag terecht zullen komen. Er wordt maar één lid van het college van bestuur geïnterviewd en er is maar één directeur. Dit betekent dat de privacy van deze personen niet gewaarborgd is. Dit moet worden vermeld voor aanvang van het interview.

Managers/beleidsadviseur

- 1. Zorg bij het eerste contact tussen jou en de manager er voor dat je het interview inleidt. Behandel de onderstaande onderwerpen:**
 - Stel jezelf voor
 - Gang van zaken: toestemming vragen om het gesprek op te nemen.
 - Tijd: het interview duurt ongeveer een uur.
 - Wat je doet met de informatie (verwerking resultaten): De opnames worden uitgewerkt en vervolgens voorgelegd aan de geïnterviewde. De geïnterviewde moet aangeven of hij of zij nog iets wil veranderen of dat de uitwerking wordt goedgekeurd.
 - Vertrouwelijkheid: De functie wordt weergegeven bij de resultaten. Dit kan in sommige gevallen herleidbaar zijn tot een persoon. Vraag of de respondent daar problemen mee heeft. Wanneer dit het geval is aangeven dat we een oplossing bedenken en deze oplossing zullen voorleggen.
 - Bedoeling: Het doel van het interview is te achterhalen wat de mening is over en de ervaring met het actieonderzoek. Het actieonderzoek richt zich op het vergroten van de betrokkenheid van leerlingen bij hun opleiding.

2. Open beginvraag: Wat verstaat u onder leerlingbetrokkenheid?

Hulpvragen bij het thema betrokkenheid

- Wat vindt u van de betrokkenheid van leerlingen?
- In hoeverre merkt u dat er verschil is in betrokkenheid op de verschillende onderwijsniveaus?
- Op welke manier denkt u dat de betrokkenheid van leerlingen vergroot kan worden?
- Welke rol spelen docenten in het vergroten van de betrokkenheid van leerlingen?
- Welke rol speelt u zelf in het vergroten van de betrokkenheid van leerlingen?
- Welke randvoorwaarden zijn noodzakelijk om de betrokkenheid van leerlingen te vergroten?
- Kunt u vertellen hoe u het begrip betrokkenheid schoolbreed zou (willen) implementeren?

3. Wat zijn uw ervaringen met actieonderzoek/wat vindt u van het actieonderzoek?

Het is van belang bij deze vraag reflectie aan te moedigen. Vraag naar ervaringen, wanneer de ervaring plaatsvond, gevoelens bij die ervaringen, wat er precies gebeurde of waarom het gebeurde en wat er geleerd is van de ervaring.

Hulpvragen bij het thema actieonderzoek

- Wat merkt u zelf van het uitvoeren van het onderzoek?
 - (voor lid CvB en beleidsadviseur) Weet u welke acties er worden uitgevoerd binnen het actieonderzoek?
 - Wat vindt u van de acties?
 - Zou u deze acties aan andere teams aanraden? Waarom?
 - In hoeverre verwacht u dat de acties zullen bijdragen aan de betrokkenheid van leerlingen?
- Hoe (denkt u dat) ervaren docenten het actieonderzoek?
- In hoeverre denkt u dat docenten hun opvattingen of handelen zullen aanpassen om de acties uit te voeren of door de ervaringen met de acties?
- Welke randvoorwaarden zijn noodzakelijk om de acties/het actieonderzoek goed uit te kunnen voeren?
- Afhankelijk van antwoorden doorvragen naar onderwerpen vanuit het survey:
De benodigde competenties:
 - Didactisch
 - Pedagogisch
 - VakinhoudelijkSelf-efficacy: bijv. groeit het vertrouwen om de betrokkenheid van leerlingen te vergroten?
Interpersoonlijk leraarsgedrag

4. De afsluiting van het gesprek:

- Aangeven dat dit de laatste vraag is en vragen of de geïnterviewde zelf nog wat wil toevoegen aan het interview.
- Bedanken voor het interview.
- Herhalen wat het vervolgproces is: dus uitwerken, voorleggen aan de geïnterviewde en na akkoord analyseren. Citaten worden in het onderzoek geanonimiseerd waarbij de functie wel wordt aangegeven.

Docenten

1. Zorg bij het eerste contact tussen jou en de docent er voor dat je het interview inleidt. Behandel de onderstaande onderwerpen:

- Stel jezelf voor
- Gang van zaken: toestemming vragen om het gesprek op te nemen.
- Tijd: het interview duurt ongeveer een uur.
- Wat je doet met de informatie (verwerking resultaten): De opnames worden uitgewerkt en vervolgens weer voorgelegd aan de docent. Als de docent akkoord gaat met de uitwerking wordt deze meegenomen in de analyse.
- Vertrouwelijkheid: De functie wordt weergegeven bij de resultaten. Aangezien er meerdere docenten uit een team worden geïnterviewd zouden de resultaten in principe niet herleidbaar moeten zijn naar een specifieke docent. Het zou wel kunnen zijn dat bekenden een uitspraak herkennen.
- Bedoeling: Het doel van het interview is te achterhalen wat de mening is over en de ervaring met het actieonderzoek. Het actieonderzoek richt zich op het vergroten van de betrokkenheid van leerlingen bij hun opleiding.

2. Open beginvraag: Wat verstaat u onder leerlingbetrokkenheid?

Hulpvragen bij het thema betrokkenheid:

- Hoe ziet u/merkt u dat leerlingen betrokken zijn?
- In hoeverre denkt u dat u als docent de betrokkenheid van leerlingen kunt beïnvloeden?
- Hoe denkt u de betrokkenheid van uw leerlingen te kunnen vergroten?

3. Wat zijn uw ervaringen met het actieonderzoek/wat vindt u van het actieonderzoek?

Het is van belang bij deze vraag reflectie aan te moedigen. Vraag naar ervaringen, wanneer de ervaring plaatsvond, gevoelens bij die ervaringen, wat er precies gebeurde of waarom het gebeurde en wat er geleerd is van de ervaring.

Hulpvragen bij het thema actieonderzoek

- Welke actie is/acties zijn er ingezet in het kader van het actieonderzoek?
- Wat vindt u van deze actie(s)?
- Wat is volgens u door de actie(s) veranderd op school/op de opleiding?
- Denkt u met deze actie de betrokkenheid van de leerlingen te beïnvloeden/of merkt u dat deze actie de betrokkenheid van leerlingen beïnvloedt? / Hoe merkt u dat of waarom denkt u dat?
- Hoe vindt/vond u het om de actie uit te voeren?
- Is de actie volgens u op de juiste manier ingezet/uitgevoerd? Waarom wel/niet?
- Wat voor gevolgen heeft de actie voor u?
 - In hoeverre (en hoe) heeft u uw opvattingen gewijzigd?/ verwacht u uw opvattingen te wijzigen?
 - In hoeverre (en hoe) heeft u uw handelen aangepast? /Verwacht u uw handelen te moeten aanpassen om de actie goed uit te voeren?
- Zou u het inzetten/toepassen van deze acties aan collega's aanbevelen? Waarom wel/niet?
- Wat zou u willen veranderen aan de actie?
- Welke randvoorwaarden zijn noodzakelijk om de actie goed uit te kunnen voeren?

- Afhankelijk van antwoorden doorvragen naar onderwerpen vanuit het survey:
De benodigde competenties:
 - Didactisch
 - Pedagogisch
 - Vakinhoudelijk
- Self-efficacy: bijv. groeit het vertrouwen om de betrokkenheid van leerlingen te vergroten?
Interpersoonlijk leraarsgedrag

4. Hoe vindt u dat het actieonderzoek verlopen is qua proces?

Hulpvragen bij het thema proces

- Hoe is de actie tot stand gekomen?
- Wie waren daarbij betrokken?
- Op welk moment werd u betrokken bij de actie?
- Hoe heeft u het proces waarin de actie tot stand gekomen is ervaren?
- Op welke manier had het proces beter kunnen verlopen? / Wat zou u een andere keer anders doen of anders willen zien?

5. De afsluiting van het gesprek:

- Aangeven dat dit de laatste vraag is en vragen of de respondent zelf nog wat wil toevoegen aan het interview.
- Bedanken voor het interview.
- Herhalen wat het vervolgproces is: dus uitwerken, voorleggen aan docent en na akkoord analyseren. Citaten worden in het onderzoek geanonimiseerd waarbij alleen de functie wordt opgenomen.

Leerlingen

1. Zorg bij het eerste contact tussen jou en de leerlingen er voor dat je het interview inleidt. Behandel de onderstaande onderwerpen:

- Stel jezelf voor
- Gang van zaken: toestemming vragen om het gesprek op te nemen.
- Tijd: het interview duurt ongeveer drie kwartier.
- Wat je doet met de informatie (verwerking resultaten): De opnames worden uitgewerkt en vervolgens voorgelegd aan de leerlingen. De leerlingen moeten dan aangeven of ze nog iets willen veranderen of dat ze de uitwerking goed vinden.
- Vertrouwelijkheid: Voor de analyse zullen de resultaten geanonimiseerd worden. Leerlingen worden in een groep geïnterviewd en zullen niet bij naam genoemd worden.
- Bedoeling: Het doel van het interview is te achterhalen wat demening van de leerlingen is over school en afhankelijk van het team ook de actie benoemen (bij horeca de actie niet benoemen, maar vragen of docenten ze anders benaderd hebben dan gebruikelijk, of er iets anders was).

2. Algemene openingsvraag: Hoe vinden jullie het op school? (achterhalen in hoeverre leerlingen betrokken zijn: emotioneel, gedragsmatig en cognitief)

Hulpvragen bij de openingsvraag

- Hoe belangrijk vinden jullie school en waarom? (cognitieve betrokkenheid)/ Hoe laat je zien dat je school belangrijk vindt?
- In hoeverre houden jullie je aan de regels op school? (gedragsmatige betrokkenheid, op tijd inleveren van opdrachten, op tijd komen, niet spijbelen, meedoen in de les en niet de les verstoren). Waarom houd je je aan de regels?/ Hoe komt het dat je je niet altijd aan de regels houdt?
- Zijn jullie gemotiveerd om naar school te gaan en hoe laat je dat zien?
- Wat kunnen docenten doen zodat jullie (nog) gemotiveerd(er) naar school gaan?

3. Noordik: Wat zijn jullie ervaringen met het vaardigheden formulier?

Hulpvragen bij de ervaringen met de acties uitgevoerd door docenten

- Kennen jullie het vaardighedenformulier?
- Wat vinden jullie van het vaardighedenformulier?
- Hoe vaak heb je het vaardighedenformulier ingevuld?
- Hoe ervaar je het invullen van het vaardighedenformulier?
- Wat zou je willen veranderen aan het vaardighedenformulier?
- Heeft de docent ook een gesprek met je gevoerd over het vaardighedenformulier?
- Hoe ging dat gesprek?
- Hoe vond je dat gesprek?
- Hoe vaak per jaar zou je zo'n gesprek willen hebben?
- Helpt het vaardighedenformulier en het gesprek jou om je verder te ontwikkelen?
- Wat vind je er van dat de school zo'n vaardighedenformulier inzet?
- In hoeverre wordt er in alle lessen aandacht besteed aan de vaardigheden uit het formulier?
- Hebben jullie nog tips voor de docenten om het formulier of het gesprek te verbeteren?

4. Mode/maat: Wat zijn jullie ervaringen met gezamenlijk opstellen van regels/begeleiding door docenten?

Hulpvragen bij de ervaringen met de acties uitgevoerd door docenten

- De docenten hebben samen met jullie regels opgesteld (bijvoorbeeld over afwezigheid) wat vind je van de regels? (Ik weet niet zeker of het is gegaan zoals afgesproken. Als blijkt dat er niet gezamenlijk regels zijn afgesproken bespreken hoe de leerlingen dit dan zouden vinden, hoe dit moet worden opgepakt, wat voor regels zij dan zouden voorstellen zodat alles goed verloopt op school en wat er moet gebeuren als iemand zich niet aan de regels houdt).
- Hoe vond je het om samen met de docenten regels op te stellen?
- In hoeverre mochten jullie de regels bepalen?
- Hebben jullie ook samen afgesproken wat er gebeurt als iemand zich niet aan de regels houdt?
- Hoe ging dit?
- Hoe heb je dat ervaren?
- Wat vind je van de regels die uiteindelijk opgesteld zijn?
- Hoe vaak per jaar zou je samen met de docenten regels moeten bespreken?
- Hoe verloopt de begeleiding op school?
- Weten jullie altijd wat je moet doen?

- In hoeverre lukt het om alles altijd op tijd af te hebben?
 - Wat zou je willen verbeteren aan de begeleiding op school?
 - Hebben jullie nog andere tips voor docenten?
- 5. Horeca: Hebben jullie laatst een week gehad waarin je dacht de docenten doen anders dan normaal?**
- Wanneer was dat?
 - Wat was er anders?
 - Wat vond je er van?
 - Zijn jullie je anders gaan gedragen doordat de docenten anders deden? Waarom wel/niet?
 - Moeten docenten dat vaker doen en waarom wel of niet?
 - Hebben jullie nog tips voor de docenten?
 - Als leerlingen niets gemerkt hebben vragen wat ze vinden van de begeleiding en het lesgeven van docenten en de manier waarop ze door docenten benaderd worden.
- 6. De afsluiting van het gesprek:**
- Aangeven dat dit de laatste vraag is en vragen of de leerlingen zelf nog wat willen toevoegen aan het interview.
 - Bedanken voor het interview.
 - Herhalen wat het vervolgproces is: dus uitwerken, voorleggen aan leerlingen en na akkoord analyseren. Citaten worden in het onderzoek geanonimiseerd.

APPENDIX B

Code book action research

Analyses using the Interconnected Model of Professional Growth.

Codes and their meanings based on Voogt et al. (2011).

Codes describing (changes within) domains

Code	Domain	Description	Coded example from the data
EXT	External domain	Description of the stimuli and/or support offered to the teachers/teams.	‘The meeting starts with (...) and a presentation of the results of questionnaires administered to the students. Mean emotional engagement teacher: 3.35 Mean emotional engagement school: 3.21...’. (P20)*
(CH)-PERS	(Change) in personal domain	Description of someone’s beliefs, knowledge and skills related to teaching or evidence of a change in teacher beliefs, knowledge and skills.	‘Students often start out enthusiastic, but their enthusiasm decreases during the school year. They don’t like to start at the bottom, although they understand they have to.’ (P77)
(CH)-PRAC	(Change) in domain of practice	Description of teaching practice or research practice or evidence of a change in teaching practice and/or research practice.	‘Yes, I have definitely changed my way of acting. I became more consistent in handling the rules.’(P116)
(CH)-CONS	(Change) in domain of consequences	Description of learner outcomes or evidence of a change in learner outcomes.	‘Remarkably, most students received a grade for manufacturing. That was not the case in previous years.’ (P102)

* The number of the document where this quote comes from.

Codes describing enactment processes between domains

Code	Enactment Processes	Description	Coded example from the data
EN-PERS-EXT	From personal domain to external domain	Evidence on how teachers' beliefs, knowledge and skills influence their participation in the external domain.	(Question asked to the action researcher) 'It would be interesting to find out whether SDV students score differently compared to students from other departments.' (P20)
EN-EXT-PRAC	From external domain to domain of practice	Evidence on how the stimuli offered to the teachers were used to change teaching practice.	'From the conversations with the students I learned (...). Thus I have given them their assignments on paper (...).' (P84)
EN-CONS-PRAC	From domain of consequence to domain of practice	Evidence on how learner outcomes influence teachers' teaching practice.	'Almost nothing changed with the students this week. Teachers did. We decided to make agreements about how to start this next year.' (P2)
EN-PERS-PRAC	From personal domain to domain of practice	Evidence on how teachers' beliefs, knowledge and skills influence their teaching practice.	'Furthermore we have determined that it is important to design a manual for the conversations so that students come out well. Now most information is provided by the teacher. It would be good to ask more open questions.' (P23)

Codes describing reflection processes between domains

Code	Reflection Processes	Description	Coded example from the data
RE- EXT- PERS	Reflection on external domain influencing personal domain	Evidence that teachers' reflection on the stimuli offered in the external domain, influences teachers' beliefs, knowledge and skills or recalls certain beliefs.	'Like in the other teams students score the lowest on performance motivation (Presented by the action researcher). Teachers suggest that students were more performance oriented in former times. But it could also be explained by age (...).'
RE- PRAC- PERS	Reflection on domain of practice influencing personal domain	Evidence that teachers' reflection on their teaching and/or research practice influences teachers' beliefs, knowledge and skills.	'Alternation would probably help as well. The Dutch lesson was once in another classroom and the students were much more on time and more motivated than usual.' (P97)
RE- PRAC- CONS	Reflection on domain of practice influencing domain of consequence	Evidence that teachers' reflection on their teaching and/or design practice influences the learner outcomes from the change.	'How my colleagues and I function at that location resulted in the desired consequences. Students achieve within 6 month a higher level in relation to school work but also in their social functioning.'
RE- CONS- PERS	Reflection on domain of consequence influencing personal domain	Evidence that teachers' reflection on the outcomes of the change on learners influences their beliefs, knowledge and skills.	'The self- reflection of those kids (insight). They know exactly where they are. They are real rascals, but if you talk with those boys about which skills they have and which they have to develop, then they know exactly what they have mastered and what they should work on.'
RE-PERS- CONS	Personal domain influencing reflection on domain of consequence	Evidence that teachers' beliefs, knowledge and skills influence their reflection on outcomes on of the change on learners.	'The purpose of the study is that the skills form fosters students' involvement with their own learning process. With the skills form we raise the students' consciousness that it is not only about grades but also about behavior and attitude. During the conversations it now becomes clear to students that it is not only about grades, now the thing to do is to hold this consciousness during the school year.'

Other codes

ENV	Environment	Factors in the change environment that hinder or facilitate the intervention (as reported in the findings).	'The only problem is the internships. It is a pity that we have not found an internship for everyone (...).' (P110)
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ABOUT THE AUTHOR

Jolien van Uden (Enschede, 1983) obtained her gymnasium degree at the Christelijke Scholengemeenschap Walcheren in Middelburg. She then began the bachelor's degree program in Educational Design, Management and Media at the University of Twente. She graduated and received her bachelor's degree in 2007 with a thesis on the relation between personality traits and learning styles in higher vocational education. She studied one semester on the Freie Universität in Berlin with an Erasmus grant. In 2007 she completed her master's degree in Educational Science and Technology at the University of Twente. She wrote her master's thesis on 'Teacher involvement with competence-based education'. After graduating she traveled four months in South America before she began working as a researcher and policy advisor at a Vocational and Educational Training Center, 'ROC van Twente' in Hengelo. As a policy advisor she has supported teacher teams with curriculum development and the implementation of Dutch language (reading, writing, speaking) and arithmetic within the educational programs. Furthermore, she is chair of the group of educational policy advisors who represent the different Colleges. During their monthly meetings they discuss different educational topics. From 2011 up to the present, she has advised the executive board and teacher teams about implementation of 'Focus op vakmanchap,' an action plan presented by the Dutch Ministry of Education, Culture and Sciences that includes different measures to be implemented in the curricula of all programs of study in vocational education. She presides over a 'Focus group' in which each staff department is represented and where tips and tools to support teams implementing the different measures are collaboratively created. She also participates in the policy group that is leading the reform of level 1 programs at ROC van Twente. As a researcher she is a member of the research group 'Educational arrangements in social context' and in 2009 she began her research project that is described in this dissertation. In 2012 she received the 'Best Poster Award 2012' at the Educational Research Days in Wageningen for her poster and presentation.

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