Teachers and innovations : on the role of ownership, sense-making, and agency

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TEACHERS AND INNOVATIONS:

ON THE ROLE OF OWNERSHIP, SENSE-MAKING, AND AGENCY

Evelien Ketelaar

Teachers and innovations:
on the role of ownership, sense-making, and agency

PROEFSCHRIFT

ter verkrijging van de graad van doctor aan de
Technische Universiteit Eindhoven, op gezag van de
rector magnificus, prof.dr.ir. C.J. van Duijn, voor een
commissie aangewezen door het College voor
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Evelien Ketelaar

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Voor papa

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I know I need to grow, I won't stop I know there is more to learn
There must be something built in, that tells me keep trying

Made to be wanting | Happy Camper ft. Janne Schra

CONTENTS

CHAPTER 1

GENERAL INTRODUCTION

Teachers play an important role in the successful implementation of educational innovations. There is, however, much diversity in teachers' responses to innovations. Blank spots still exist as to why these responses can be so different. The central aim of the study described in this dissertation, therefore, is to contribute to a better understanding of teachers' responses to educational innovations. More specifically, the concepts of *ownership, sense-making* and *agency* were used to explore, reflect and explain differences in teachers' perceptions, positioning, implementation, and learning in relation to an innovation. The specific educational innovation that was of central focus in this dissertation pertains to the changing role of teachers toward a more *coaching role* in the classroom.

1.1 | CONTEXT OF THE STUDY

1.1.1 Secondary vocational education in the Netherlands

The research presented in this dissertation was conducted in the context of secondary vocational education[1] (SVE) in the Netherlands. SVE prepares students for their future working career. Graduates at the highest level of SVE are furthermore eligible to enter a bachelor programme in higher vocational education. Dutch SVE provides vocational studies in four sectors: care and welfare, business and economics, technology, and agriculture. Within each sector specific vocational studies are offered. These studies vary in duration (from 1 year up to 4 years), level (from level 1 to level 4, with level 4 being the most advanced), and study-route (school-based study-route[2]: 20% to 60% practical/workplace training and the remaining time spent at school, vs. work-based study-route[3]: at least 60% practical/workplace training and the remaining time spent at school). The student population in Dutch SVE is therefore rather diverse, differing for example in age and abilities. SVE studies are often offered at so-called "regional educational centres", where a broad range of vocational studies are offered. Specific educational centres exist for

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[1] In Dutch: middelbaar beroepsonderwijs (mbo)

[2] In Dutch: beroepsopleidende leerweg (bol)

[3] In Dutch: beroepsbegeleidende leerweg (bbl)

the agriculture sector, and other, much smaller, vocational schools only offer programmes within one specific area, for example the graphical sector.

Currently, Dutch SVE finds itself in a time of educational change. During the late 1990s, the Social-Economic Council and the Education Council advised the Dutch government to revise the content and design of SVE in the Netherlands. This advice was based on demands from the labour market, where it was noticed that professions and jobs were changing rapidly (Dutch Inspectorate of Education, 2007). Due to the constant developments and innovations in their work, it was argued that employees need to develop themselves continuously (Biemans, Nieuwenhuis, Poell, Mulder, & Wesselink, 2004; Biemans et al., 2009; Day, 2000). Also, the need for other competencies of employees was noticed, such as being more service-oriented, being better able to communicate with colleagues from other disciplines, and being more flexible (Dutch Inspectorate of Education, 2007).

The aforementioned developments led to the decision by the Dutch government that the education in SVE had to be changed towards competence-based education. Since 2004, several SVE schools have started to experiment with redesigning their learning environment, and since August 2010, every SVE school was obliged to have started with the implementation of competence-based education (Dutch Inspectorate of Education, 2007). Competence-based education in Dutch SVE is aimed at reducing the gap between school and the labour market, and preparing students for continuous development and lifelong learning (Biemans et al., 2004; Biemans et al., 2009). The main characteristics of competence-based SVE are summarised in Table 1.1 (based on the work of De Bruijn & Leeman, 2011; Glaudé, Van den Berg, Verbeek, & De Bruijn, 2011; Koopman, Teune, & Beijaard, 2011; Van den Berg & De Bruijn, 2009; Wesselink, Biemans, Mulder, & van den Elsen, 2007).

Table 1.1
Main characteristics of competence-based secondary vocational education in the Netherlands

Characteristic	Explanation
Competencies	Learning outcomes are conceptualised in terms of professional competencies, integrating knowledge, skills and attitudes. Competencies needed in future working practice are taken as the starting point for curriculum development.
Authenticity	Learning activities need to take place in workplaces and in school contexts similar to the future occupational practice, and are based on authentic or lifelike tasks.
Professional identity	There is a focus on students' future professions and the competencies required to succeed, in order to encourage the development of their professional identity.
Knowledge and skills	Learning from authentic or lifelike tasks is supported by offering required underlying knowledge and training of specific skills. Knowledge and skills are not only learned separately from practical situations, but students are stimulated to acquire and apply knowledge and skills in practical situations. This should lead to more coherence between theory and practice.
Pedagogy	Proven teaching methods (such as whole-class instruction) and alternative methods (e.g., coaching students' learning processes) are used as a balanced whole. This also means that teachers have to become more flexible in their pedagogy, so that they can connect and cater to individual differences and needs amongst students.
Development of meta-cognitive skills	Students are challenged to develop meta-cognitive skills, such as self-regulation and reflection. They are made responsible for their own learning and they have to monitor their own development.
Collaboration	Students are stimulated to learn cooperatively and to develop collaborative skills.
Assessment	Assessment and evaluation are directed at the development of (components of) students' competencies, their meta-cognitive skills, and their professional development and performance in authentic contexts.

1.1.2 Changing pedagogy: toward a coaching role

Due to the implementation of competence-based education, teaching practices at SVE schools change considerably. Teachers are expected, for example, to be up-to-date with developments in their vocational area, to connect theory and practice, to develop authentic tasks, to collaborate more with colleagues, and to fulfil their role as assessor. Moreover, the characteristics of competence-based education, such as guiding students who are working on authentic tasks, encouraging the development of students' professional identities, and supporting students' development of meta-cognitive skills, ask for another pedagogical-didactical role of teachers. Besides being experts in their subjects or vocational domains, the redesign of SVE asks for teachers to take on a coaching role (Biemans et al., 2004; De Bruijn & Leeman, 2011; Descy & Tessaring, 2001; Wesselink et al., 2007). The coaching role has many aspects. An example is career guidance, which is aimed at the facilitation of students in developing an individual learning and career path, often taking place in one-to-one career conversations, mostly outside the classroom (Mittendorff, Den Brok, & Beijaard, 2011). The present study, however, focuses on the teacher's *coaching role in the classroom*. This means that teachers' guidance takes place in interaction with students who are working on tasks or projects related to competence development within their vocational domain. This interaction can take place when students are working individually, in cooperative groups, or in a whole-class situation. "Classroom" is in this context a broad concept as in SVE schools they can refer to different learning environments such as traditional classrooms, practical workplaces which are, for example, set up like a garage, or so-called "open study areas" containing computers and tables for group work. Broadly, it can be stated that in taking on a coaching role, teachers actively guide, support, and facilitate students' learning processes, by anticipating the different (learning) needs of individual students (Iredale & Schoch, 2010), and focussing in particular on their self-regulated and independent learning (e.g., Bakker, 2008; De Bruijn & Leeman, 2011; Van Grinsven & Tillema, 2006).

Changing one's pedagogy toward a coaching role can be rather challenging for teachers, as the transition from mainly focussing on knowledge and skill transmission to placing the students' individual learning at the centre of education is quite a fundamental change (Biemans et al., 2009;

Descy & Tessaring, 2001; Windschitl, 2002). Besides, so far the coaching role appears not to be a well-defined concept, both from a theoretical and a practical point of view. Although the need to move towards a more coaching role for teachers in the context of SVE seems to be acknowledged in vocational education, a clear picture of what this role should entail in practice is mostly lacking. In this dissertation the coaching role is therefore both the object of study and an appropriate natural context to study teachers' responses to educational change. In the following, the perspective from which teachers' responses to the coaching role were studied will be elaborated.

1.2 | CONCEPTUAL FRAMEWORK

1.2.1 An identity-perspective on teachers in innovations

Recently, attention has been paid to the importance of teachers' identities in the context of educational innovations (e.g., Beijaard, Meijer, & Verloop, 2004; Beijaard, Verloop, & Vermunt, 2000; Day, Sammons, Stobart, Kington, & Gu, 2007; Geijsel & Meijers, 2005; Lasky, 2005; Luttenberg, Van Veen, & Imants, 2011; Sloan, 2006; Vähäsantanen & Eteläpelto, 2009; Van Veen & Sleegers, 2006). *Teacher identity* refers to the interface between the teacher as a person and the teacher as a professional (Beijaard, 2009; Beijaard et al., 2004). There appears to be a dynamic relationship between a teacher's identity and an educational innovation: teachers' identities affect how teachers react to an innovation (Schmidt & Datnow, 2005; Van Veen & Sleegers, 2006), but teachers' identities can also be affected by the implementation of that innovation (Beijaard et al., 2004; Day et al., 2007). As a consequence, teachers do not simply accept or reject what is being imposed on them. Instead, they actively position themselves in relation to an innovation (Spillane, Reiser, & Reimer, 2002; Vähäsantanen & Eteläpelto, 2009), making deliberate choices (Coldron & Smith, 1999) and comparing personal beliefs, values and desires in work, with the characteristics and demands of the proposed innovation (Spillane et al., 2002). The growing evidence for the importance of teacher identity in relation to teachers' responses to educational change asks for a deeper understanding of this process. To contribute to this understanding, in this dissertation a specific lens was used to study in depth three concepts that

seem to play an important role in teachers' responses to innovations from an identity-perspective, namely *ownership*, *sense-making*, and *agency*.

1.2.2 Ownership

It is often assumed that for an innovation to be successful, those involved should develop a feeling of ownership towards that innovation. This is also the case with teachers in the context of educational innovations. Ownership is understood here as a mental or psychological state of feeling owner of an innovation, which develops through a teacher's mental and/or physical investment in it (cf. Breiting, 2008; Pierce, Kostova, & Dirks, 2001). Ownership is closely related to other concepts such as commitment, engagement, involvement, showing interest, sense of belonging, or feeling responsible (Breiting, 2008, p. 163). However, feeling ownership towards an innovation seems to go a step further than these concepts. When a teacher feels ownership towards an innovation, this innovation becomes a part of the teachers' identity (Pierce et al., 2001). Ownership can develop when teachers invest their mental energy in activities that are in favour of the innovation; as Breiting (2008) explains: "the more involvement and effort to achieve a certain change, process, or outcome in a situation, the higher the level of mental ownership possible for those involved" (p. 162). However, for teachers to be willing to invest their time and energy in an innovation, they need to support the ideas of the innovation and feel the urge and necessity for change (Van den Berg & Geurts, 2007). When teachers feel ownership towards an innovation, they communicate about the innovation, express their identification with it (Pierce, Kostova, & Dirks, 2003) and feel proud of it (Breiting, 2008). It is therefore expected that when teachers feel ownership towards an innovation, this contributes to the innovation's sustainability; teachers integrate the innovation in their working routines (Bergen & Van Veen, 2004; Breiting, 2008) and continue the change process in the long term, even when there are no external rewards attached (Struckman & Yammarino, 2003).

1.2.3 Sense-making

While feeling ownership towards an innovation might be seen as a result or a product, sense-making of an innovation clearly is a process (Weick, 1995). It is

an active process in which teachers attempt to relate the innovation to their existing knowledge, beliefs and experiences (Coburn, 2004; Luttenberg et al., 2011; Schmidt & Datnow, 2005; Sleegers, Wassink, van Veen, & Imants, 2009; Spillane et al., 2002). This process is dynamic, because teachers use their own frames of reference as a lens to make sense of the innovation, but at the same time their frames of reference change in the process (Coburn, 2004; Klein, Moon, & Hoffman, 2006). Although a teacher's frame of reference evolves throughout the years (Coburn, 2004), it seems to get more stable as their experience and expertise grow (Klein et al., 2006).

Based on the work of Jean Piaget on human cognition, the process of sense-making is often (partly) explained in terms of assimilation and accommodation (Coburn, 2004; Klein et al., 2006; Spillane et al., 2002). Klein et al. (2006) assert that the process of sense-making can either result in elaborating and/or preserving one's frame of reference (similar to assimilation) or in reframing one's frame of reference by rejecting the initial frame and replacing it by a new one (similar to accommodation). Besides assimilation and accommodation Coburn (2004) added three other possible ways of making sense of innovation messages, namely rejection, decoupling/symbolic response, and parallel structures. Rejection happens mostly when teachers perceive the innovation as not congruent with their own beliefs about education. Coburn described decoupling/symbolic response as teachers' symbolic responses to an innovation without truly implementing it, for example, by placing students into smalls groups but at the same time continuing to give only whole-class instructions. Parallel structures refer to combining multiple and conflicting demands in two or more parallel approaches. This can happen, for example, when teachers on the one hand are expected to anticipate different learning needs of individual students, but on the other are expected to put them all at the same time through the same exam.

Luttenberg et al. (2011) elaborated the work of Coburn (2004) and Spillane et al. (2002), by explaining that in the process of sense-making both the teacher and the innovation change as a result of the interaction between teacher and innovation. They have translated this line of thinking into a model of sense-making, consisting of four types of sense-making which are determined by two dimensions. The first dimension relates to the degree of

congruence between the teacher's frame of reference and the situational demands of the innovation, with the poles referred to as "match" or "mismatch". The second dimension relates to the *dominance* of either the teacher's frame of reference or the situational demands of the innovation during the sense-making process, described with the poles "own frame of reference" and "other frame of reference". Combining these two dimensions lead to four types of sense-making: assimilation, accommodation, toleration and distantiation. When assimilating, there is a match between the teacher's frame of reference and the innovation, but the new ideas are adapted in such a way that they fit into the own frame of reference. The result is a variation within the own frame of reference, while at the same time important characteristics of the innovation can get lost. In the case of accommodation there is a match between the teachers' frame of reference and the innovation. In the sense-making process the innovation is dominant, resulting in a transformation of the own frame of reference in such a way that it fits in with the innovation. Making sense through processes of toleration or distantiation means there is a mismatch between the teacher's frame of reference and the new situational demands. In the case of toleration the teacher tolerates the innovation in addition to or at the cost of the own frame of reference. Even though the innovation impedes the teacher's own ideas and beliefs, he or she lets the innovation coexist and be dominant at the expense of one's own frame of reference. In the case of distantiation, the teacher totally rejects the innovation and continues to use his or her initial frame of reference. In the context of an innovation, the sense-making process of a teacher can be dominated either by one of these four types of sense-making or by a combination of two types (Luttenberg et al., 2011).

1.2.4 Agency

To give direction to one's process of sense-making and to be able to make choices within that process, a teacher needs to experience a certain degree of agency in his or her work (Coburn, 2004). Agency refers to the extent to which someone feels in control of his or her own actions (e.g., Bandura, 2001; Beijaard, 2009; Metcalfe & Greene, 2007), which Bandura (2001) sees as the essence of being human. The core characteristics of human agency are intentionality, forethought, self-reactiveness and self-reflectiveness: being able

to do things intentionally, to set goals and to create courses of action to reach these goals, to motivate and to self-regulate oneself to act according to one's plans, and to self-examine one's own functioning (Bandura, 2001). Relating agency to teachers' work, agency refers to feeling in control of the choices teachers make within their work and basing these choices upon one's own goals, interests and motivations (Vähäsantanen, Hökkä, Eteläpelto, Rasku-Puttonen, & Littleton, 2008). As teachers need to experience a certain amount of autonomy and room for negotiation within their school to be able to make their own choices (Beijaard, 2009; Coldron & Smith, 1999; Vähäsantanen et al., 2008), agency is shaped by both the individual teacher and the school context (Coburn, 2004; Lasky, 2005).

When teachers experience agency in their work they feel more balanced and in control, and are better able to manage pressures in their work (Day et al., 2007). Agency plays an important role in the development and maintenance of teachers' professional identities (Beijaard, 2009), in particular in times of reform (Lasky, 2005). In the context of an innovation, teachers with a strong sense of agency tend to attribute their successes and failures with the innovation to themselves, while teachers with a lack of agency tend to attribute it to external factors (Marshall & Drummond, 2006). A lack of agency might lead to what Lasky (2005) describes as the negative side of vulnerability: 'people may have no direct control, believe they have no direct control over factors that affect their immediate context, or feel they are being "forced" to act in ways that are inconsistent with their core beliefs and values' (p. 901). Agency can also play a role in offering resistance when a teacher's beliefs conflict with those associated with the innovation (Sannino, 2010) and can therefore even lead to the prevention of organisational change (Vähäsantanen et al., 2008).

1.3 | GENERAL PROBLEM STATEMENT AND RESEARCH QUESTIONS

As can be inferred from the previous sections, the literature indicates that ownership, sense-making, and agency are important concepts in the context of educational innovations. It is, however, still largely unclear what the role of each of these concepts is as well as how they relate and interact. Although it is

often stated that it is important for teachers to feel ownership towards an innovation, it is remarkable how few studies in the context of education can be found in which teachers' ownership has truly been the object of investigation (Breiting, 2008). The process of sense-making and the concept of agency have been studied to some extent, but both sense-making (Spillane et al., 2002) and agency (Datnow, 1998; Lipponen & Kumpulainen, 2011) were also rarely the object of investigation in relation to teachers in the context of an educational innovation. Furthermore, research into the relationships and interactions between the concepts of ownership, sense-making and agency is scarce. The main purpose of this research project was therefore to contribute to a better understanding of teachers' responses to educational innovations, using the concepts of ownership, sense-making and agency. To be able to better understand and interpret teachers' responses to an innovation, more information regarding the possible meanings and forms of appearance of the innovation itself are needed first. Therefore, a clearer picture of the coaching role in innovative SVE (as perceived by teachers) was also strived for in this research project. Altogether, the following research questions will be addressed in this dissertation:

1. What are SVE teachers' perceptions of the coaching role in the classroom?
2. How are ownership, sense-making, and agency manifested in teachers' positioning towards an educational innovation (i.e. the coaching role)?
3. What is the relationship between teachers' positioning towards an innovation (i.e. the coaching role) and their implementation of it as perceived by their own students?
4. Which similarities and differences in teachers' learning experiences related to taking on a coaching role can be found, using ownership, sense-making, and agency as a framework?

1.4 | RELEVANCE OF THE STUDY

The research presented in this dissertation has both theoretical and practical relevance. From a theoretical point of view the study will contribute to the field of teacher learning and professional development by providing a framework to

investigate teachers in the context of educational innovation. It will contribute to the understanding of the role that ownership, sense-making and agency play in the process of changing one's pedagogical practices, in this study taking on a coaching role. The study will furthermore show how these rather complex concepts can be investigated, by translating theory into indicators for each concept and by providing different instruments to study the concepts from several perspectives. The research will also contribute to the body of knowledge about teachers' coaching role – in particular in the context of innovative SVE – which will be based on literature as well as on perceptions of teachers.

The findings of this study will be relevant from a practical point of view as well. It will help to clarify why teachers react differently in times of educational change. Based on the outcomes, suggestions can be made about how teachers' feelings of ownership, processes of sense-making and experiences of agency can be recognised. This can be helpful for those involved in innovation processes in schools that have to guide and implement innovations. These findings can also provide input to professional development trajectories. The research will furthermore address the state of affairs regarding the implementation of the coaching role in Dutch SVE and contribute to developing a clearer picture of this role. Finally, the study describes several instruments, such as a video-stimulated interview, a student questionnaire and a digital log, which can be used by teachers or school leaders to evaluate their own practices and for further professional development purposes.

1.5 | OVERVIEW OF THE DISSERTATION

This dissertation contains four empirical studies. Chapter 2 presents a study on SVE teachers' perceptions of the coaching role. For this purpose a questionnaire was developed asking for teachers' associations with the coaching role, their views on the most important goals regarding this role and typical activities related to the coaching role. The questionnaire was administered online and completed by 109 SVE teachers. The outcomes of the study will deal with: a) each of the elements addressed in the questionnaire

separately (i.e. associations, goals, and activities); b) underlying dimensions in the teachers' perceptions of the coaching role; and c) relationships between teachers' perceptions of the coaching role and teachers' background variables.

Chapter 3 reports on a study describing the positioning of 11 SVE teachers towards the coaching role in the light of ownership, sense-making, and agency. For this purpose semi-structured and video-stimulated interviews were used. The results will address: a) teachers' feelings of ownership towards the coaching role; b) their processes of sense-making of this role; c) their experiences of agency in their work; and d) the relationship between these three concepts.

Chapter 4 describes an exploration of student perceptions of their teachers' implementation of the coaching role. Data were collected by means of a questionnaire completed by 253 students of 10 SVE teachers. The findings will show: a) the extent to which SVE teachers implemented the coaching role, as perceived by their own students; and b) the relationship between these perceptions and teachers' ownership, sense-making and agency regarding the coaching role.

Chapter 5 deals with a study on teachers' learning experiences related to taking on a coaching role, using ownership, sense-making, and agency as a lens to identify and reflect similarities and differences in these learning experiences. Data were collected by using digital logs. Eleven SVE teachers reported on their learning experiences related to the coaching role. The study will present results with respect to: a) the representation of ownership, sense-making, and agency in teachers' reported learning experiences regarding the coaching role; and b) the possibility to explain similarities and differences in teachers' reported learning experiences by their positioning (engaged or reserved) towards the coaching role.

In Chapter 6 the main findings and conclusions that could be formulated from the four studies are presented and discussed. Furthermore, limitations of the studies and directions for future research are provided. The chapter concludes with implications for practice.

Chapters 2 to 5 were written as independent articles, which have been published in or submitted to different journals. As a consequence, some overlap exists in the theoretical backgrounds of the chapters. Furthermore, the term "competence-based education" is not used in the articles.

Internationally, competence-based education can refer to a broad range of educational concepts, which are not always comparable to the Dutch situation. Therefore, instead of competence-based education, *innovative SVE* is used to refer to the changes taking place in Dutch SVE.

CHAPTER 2

TEACHERS' PERCEPTIONS OF THE COACHING ROLE IN SECONDARY VOCATIONAL EDUCATION[4]

ABSTRACT

This chapter describes a study on teachers' perceptions of the coaching role in innovative secondary vocational education in the Netherlands. Data from 109 teachers were collected by means of an online questionnaire, asking for their associations with the coaching role, goals concerning the coaching role, and typical coaching activities. Using multiple correspondence analysis, it was explored whether underlying dimensions could be found in teachers' perceptions of the coaching role. Relations between teachers' perceptions of the coaching role and background variables were also explored. The outcomes revealed that dominant themes in the teachers' perceptions were promoting and supporting students' meta-cognitive skills, creating a positive learning and working atmosphere, and guiding and actively supporting students. Two underlying dimensions regarding the perceptions of the coaching role could be detected. The extremities of these dimensions were interpretable in terms of *learning environment* and *learning process* on the one dimension, and *general development* and *domain-specific development* on the other. Teachers' background variables were not significantly related to their perceptions of the coaching role.

2.1 | INTRODUCTION

A world in which technological developments and professional and social changes occur rapidly, demands for people to react to such changes and to continue to develop themselves during their professional careers (Velde, 1999; Vermunt & Verloop, 1999). Such changes naturally have implications for education. Day (2000) states that "the changing world of the student, the impact of new technologies, and the changing demands of the world of work have implications for the kinds of teaching and learning that will go on in school" (p. 102). In other words, these developments ask for vocational education that prepares students for work and life in such a rapidly changing world. The Dutch national government, in dialogue with the labour market, therefore decided that secondary vocational education (SVE) had to be innovated (Biemans et al., 2009). Central to this innovation is the shift from focusing on knowledge transmission to the facilitation of student learning. For teachers this meant that besides their role as a subject expert, they needed to take on a coaching role (Biemans et al., 2004; De Bruijn & Leeman, 2011; Wesselink et al., 2007).

As the redesign of Dutch SVE is a top-down process regulated by the central government, teachers are expected to somehow make sense of what is being understood by it and, more specifically, by this coaching role. An educational innovation is not a fact, but is always subject to individual interpretation and sense-making. So, teachers confronted with an educational innovation make sense of it by interpreting what the demands and the consequences of the innovation are for themselves, in light of their own frame of reference about education and teaching (Luttenberg, Imants, Van Veen, & Carpay, 2009; Spillane et al., 2002). Although the need to move towards a more coaching role for teachers in the context of SVE seems to be acknowledged in vocational education, a clear picture of what this role should look like in practice is mostly lacking. Moreover, it is unclear how SVE teachers themselves perceive their coaching role. Therefore, the aim of this study is to explore these perceptions. The results of this study may contribute to the development of knowledge about the coaching role of teachers in SVE. Furthermore, it may lead to insights which can be used to support teachers

who have to implement this new role, for example, in the design of training and courses about the coaching role.

2.1.1 Innovative secondary vocational education in the Netherlands

This study took place in the context of SVE in the Netherlands. In SVE students are prepared for starting their working career or for further studies in higher vocational education. SVE studies are often offered at so called *regional educational centres*, educating on average 7 500 students, within the sectors: Care and Welfare, Business and Economics, and Technology. These sectors are subdivided into departments, offering a broad range of vocational trainings. Specific educational centres exist for the Agriculture sector; other vocational schools only offer programmes within one specific area, such as the graphical sector. The vocational trainings differ in duration (from 1 year up to 4 years), difficulty (from level 1 to level 4, with level 4 being the most difficult [5]), and study-route (school-based study-route: 20% to 60% practical/workplace training and the remaining time spent at school, vs. work-based study-route: at least 60% practical/workplace training and the remaining time spent at school) (MBO Raad, 2011).

During the late 1990s, the Social-Economic Council and the Education Council advised the Dutch Government to revise the content and design of Dutch SVE. This advice was based on demands from the labour market, where it was noticed that professions and jobs were changing rapidly (Dutch Inspectorate of Education, 2007). As a result, employees need to continue developing themselves, and react to developments and innovations in their work (Biemans et al., 2004; Biemans et al., 2009; Day, 2000). Both councils expected that by redesigning SVE the gap between school and the labour market would be reduced and students would be better prepared for lifelong learning.

To be able to achieve the aforementioned goals, several core characteristics were formulated as a basis for redesigning SVE. Based on the work of De Bruijn and Leeman (2011), Koopman (2010), Van den Berg and De

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[5] Dutch SVE levels are comparable to the following ISCED levels: 1 = ISCED-2; 2 = ISCED-3C-short; 3 = ISCED-3C-long; 4 = ISCED-3A / 4

Bruijn (2009), and Wesselink et al. (2007), these characteristics can be summarised as follows:

- Learning outcomes are conceptualised in terms of professional competencies, consisting of an integration of knowledge, skills and attitudes. Competencies needed in future working practice are taken as the starting point for curriculum development.
- Learning activities need to take place in workplaces and school contexts similar to the future occupational practice in which authentic or lifelike tasks are used.
- There is a focus on students' future professions and the competencies required to succeed, in order to elicit the development of their professional identity.
- Learning from authentic or lifelike tasks on which students' work is supported by offering required underlying knowledge and training of specific skills. Knowledge and skills are not only learned separately from practical situations, but students are stimulated to acquire and apply knowledge and skills in practical situations. This should lead to more coherence between theory and practice.
- Proven teaching methods (such as whole-class instruction) are related and brought into balance with more experimental practices (coaching students' learning processes). This also means that teachers have to become more flexible in their pedagogy, so that they can connect and cater to individual differences and needs amongst students.
- Students are challenged to develop meta-cognitive skills, such as self-regulation and self-reflection. They are made responsible for their own learning and they have to monitor their own development.
- Students are stimulated to learn cooperatively and to develop collaborative skills.
- Assessment and evaluation are directed at the development of (components of) students' competencies, their meta-cognitive skills, and their professional development and performance in authentic contexts.

Since 2004, several SVE schools have started to experiment with redesigning their learning environment and since August 2010, every SVE school was

obliged to have started with the implementation of the new education (Dutch Inspectorate of Education, 2007). However, De Bruijn and Leeman (2011) showed that the extent to which the above mentioned characteristics were implemented in Dutch SVE, differed considerably between schools and even within schools.

2.1.2 The coaching role of teachers in innovative SVE

The redesign of SVE asked for teachers to take on a more coaching role. This meant they had to focus more on students' career guidance, but also on coaching in the classroom. In career guidance, coaching is aimed at facilitating students in developing an individual learning and career path. This guidance often takes place in one-to-one career conversations, mostly outside the classroom (Mittendorff, 2010). The present study, however, focuses on the teacher's coaching role in the classroom. This means that the guidance takes place in interaction with students who are working on tasks or projects related to competence development within their vocational domain. This interaction can take place when students are working individually or in cooperative groups, or in a whole-class situation. *Classroom* is in this case a broad concept, as in SVE schools classroom can refer to different rooms such as traditional classrooms, practical workplaces, and so called 'open study areas' with for example computers and tables for group work. The aim of the coaching role in the classroom is to support and guide students' learning processes, and in particular their self-regulated and independent learning (e.g., Bakker, 2008; De Bruijn & Leeman, 2011; Van Grinsven & Tillema, 2006). This means that "students are not left to their own devices, as the teacher is available to help them stay on the right track and reflect with them on their results and learning processes" (De Bruijn & Leeman, 2011, p. 699). The teacher in the coaching role can therefore be seen as a facilitator of students' learning processes, anticipating the different (learning) needs of individual students (Iredale & Schoch, 2010). In a literature study on career guidance, Meijers, Kuijpers and Winters (2010) emphasize the importance of a good relationship between the teacher and the student. Several of the characteristics of a successful guidance relationship that they describe, might also apply to the coaching role in the classroom, such as frequent contact, a focus on the student's development, a strong input of the student which is

stimulated by the teacher, offering structure and support, and feeling comfortable with each other (Meijers et al., 2010).

From the literature a broad range of teacher activities can be derived that seem related to the coaching role. Bakker (2008) distinguishes two typical overarching coaching interventions, namely *giving feedback* and *asking questions*. Both these coaching interventions can contain a range of more specific activities. Hattie and Timperley (2007) define feedback as "information provided by an agent (e.g., teacher, peer, book, parent, self, experience) regarding aspects of one's performance or understanding. [...] Feedback thus is a 'consequence' of performance" (p. 81). They state that feedback can be directed at four levels, namely the task level, process level, self-regulation level, and self level. Feedback directed at the task level is focused on how well students understand or perform the task, for example by giving marks. At the process level, feedback is used to inform students on the adequacy of the process they went through to complete the task or create a product, for example by giving them information on the strategies they used to make a calculation. Feedback at the self-regulation level addresses the ways students monitor, direct, and regulate their actions, for example by giving feedback on the way they plan their activities. Finally, feedback at the self level focuses on personal evaluations and affect about the student, containing hardly any task-related information, such as saying 'you're a good student'. Because of this lack of task-related information, feedback at the self level seems not to have much effect on a student's learning process (Hattie & Timperley, 2007).

The second typical coaching intervention that Bakker (2008) distinguishes is asking questions. Questioning can activate students, for example by appealing to their prior subject knowledge (Bolhuis & Voeten, 2001). Just like feedback, questions can also be of different order, such as surface questions and higher-order questions. Surface questions can enhance surface knowing and higher-order questions can enhance deeper understanding (Hattie, 2009). Bolhuis and Voeten (2001) distinguish questions related to subject matter, questions related to the students' learning processes and general questions which are not related to subject matter or the learning process. This division is rather similar to the levels at which feedback can be directed, as proposed by Hattie and Timperley (2007). It seems therefore plausible to also apply these four levels to the coaching intervention

of asking questions. That would result in questions at the task or content level (e.g., 'What is the capital of France?'), questions at the process level (e.g., 'How did you approach this task?'), questions at the self-regulation level (e.g., 'Looking back at how you approached and carried out this task, what would you do differently next time?') and questions at the self or personal level (e.g., 'How are you?').

Besides giving feedback and asking questions, additional coaching-related activities can be found in the literature (e.g., De Bruijn & Leeman, 2011). A third category of typical coaching interventions can therefore be defined, which might be labelled as *giving support*. Concrete coaching activities in this regard are for example modelling (demonstrating how an act can or should be performed), thinking aloud (giving students insights into the thinking processes and strategies of an expert), providing help on demand (leaving the initiative with the student), providing adaptive instruction (providing necessary underlying subject knowledge), actively supporting (giving students extra support or extra challenges when needed) (De Bruijn & Leeman, 2011), and paraphrasing (summarising what a student has said) (Scager & Thoolen, 2006).

Although a clear description of the coaching role in the context of (Dutch) innovative SVE has not yet been provided, several features may be derived from the above-mentioned theoretical framework. First of all, the students' learning processes are seen as the starting-points for the guidance. Second, the teacher is seen as facilitator of students' learning processes, by guiding, supporting and anticipating the different needs of students. A broad range of coaching interventions can be used, but these should especially be focused on improving students' self-regulated and independent learning. Moreover, an important condition for successfully bringing these coaching interventions into practice is a good relationship with the students.

2.1.3 Research questions

The aim of this study is to explore how SVE teachers themselves perceive the coaching role. To get more insight into similarities and differences in these perceptions, it can be useful to explore whether certain dimensions can be found within the underlying perception categories. Descriptions of such dimensions can be helpful in conceptualising complex and interrelated

information, by representing the information in smaller and easier to understand chunks (Rickards, Den Brok, & Fisher, 2005). If such dimensions exist in teachers' perceptions of the coaching role, it can be interesting to see whether teachers with different backgrounds and teaching contexts also have different perceptions of the coaching role. It might for example be the case that teachers teaching lower-level students have different perceptions about the coaching role than teachers teaching higher-level students. Or teachers might think that students who follow the work-based route and come to school only one day a week need a different approach than students who are at school several days a week. The following specific research questions were formulated to lead this study on SVE teachers' perceptions of the coaching role:

1. How do teachers in innovative SVE perceive the coaching role?
2. Which underlying dimensions can be found in teachers' perceptions of the coaching role?
3. What is the relation between teachers' perceptions of the coaching role and their background variables?

2.2 | METHOD

An exploratory study was carried out to obtain insight into teachers' perceptions of the coaching role, possible underlying dimensions, and relations between teachers' perceptions and their background variables. A questionnaire was developed for this purpose, which was administered online. As there was not a clear prior concept of the coaching role and the aim of this study was to get a view on how teachers themselves perceive this role, the questionnaire contained mostly open-ended questions. By using an online questionnaire it was possible to obtain views of a fairly large number of SVE teachers in the Netherlands.

2.2.1 Respondents
Teachers were asked to participate on a voluntary basis. Several strategies were used to recruit respondents for the questionnaire. Managers of different SVE institutions were contacted first. When they were willing to participate, they sent the request with a hyperlink to the questionnaire to the teachers of

their teams and sometimes to managers of other departments. In addition, the network of a technical teacher training institute was used to contact alumni and SVE teachers directly and via the institute's website. An advantage of online administration is that it is easy to disseminate widely the questionnaire; however, non-response rate tracking is very difficult (Andrews, Nonnecke, & Preece, 2003), as it is unclear how often the hyperlink to the questionnaire is forwarded or noticed at the website.

The questionnaire was completed by 109 teachers from 12 different SVE institutions. Ninety-seven respondents belonged to five of the 12 institutions (with a minimum of 11 and a maximum of 25 participating teachers per institution). From the other seven institutions, only one to four teachers per institution participated. The teachers had an average age of 46.6 years, ranging from 23 to 61. Average experience as SVE teacher was 13.1 years, with a minimum of one year and a maximum of 34 years. By far most respondents were from the technology education sector (102), the remaining were teachers from the care and welfare sector (5) and the economics sector (2). As the technology education sector is dominated by male teachers, 90 participants were male, the other 19 were female. Furthermore, 78 respondents mostly taught students following the school-based route and 31 mostly taught students within the work-based route.

2.2.2 Instrument

A questionnaire on the teacher's coaching role was developed for the purpose of this study. Several stakeholders in the field of SVE (such as teacher trainers and SVE experts) were consulted to verify whether the topics included in the questionnaire were relevant to practice. The questionnaire was pre-tested with eight SVE teachers in order to check for comprehensibility and clarity of the questions. Only minor adjustments appeared to be necessary. The final questionnaire was digitalised and administered online.

Several personal background characteristics and information on teachers' profession were asked, namely gender, years of experience as a SVE teacher, their students' qualification levels, and their students' study-routes. Also a task was added to measure teachers' professional role conceptions. The teachers had to distribute 100 points over the following teacher roles: the teacher as a *subject expert* (bases his/her profession on subject matter

knowledge and skills), a *didactical expert* (bases his/her profession on knowledge and skills regarding the planning, execution, and evaluation of teaching and learning processes), and a *pedagogical expert* (bases his/her profession on knowledge and skills to support students' social, emotional, and moral development). The amount of points that were ascribed to a certain role, determined the extent to which one recognised oneself in that role (cf. Beijaard et al., 2000).

An open-ended question was asked about the *associations* evoked when thinking about teacher's coaching role (cf. Wesselink, Biemans, & Mulder, 2007). A minimum of one and a maximum of five associations could be entered.

Respondents were asked about what they thought were the most important *goals* concerning the coaching role in an open-ended question. A minimum of one and a maximum of three goals could be written down. For each goal, the respondents were asked to what extent the goal fitted their work as a teacher (on a 5-point scale, ranging from 1 *hardly* to 5 *very much*).

To get insight into teachers' perceptions of typical coaching related *activities*, they were asked to choose from a list of 17 activities what they found were the most typical for the coaching role. These activities were mostly derived from literature (De Bruijn & Leeman, 2011; Hattie & Timperley, 2007; Scager & Thoolen, 2006) and completed with information from exploratory classroom observations (executed by the first author). The 17 activities could be placed within the three categories of typical coaching interventions described above: *giving feedback* (containing five activities, for example 'giving feedback on the task level'), *asking questions* (containing five activities, for example 'asking questions on the process level') and *giving support* (containing seven activities, for example 'providing help on demand'). Each activity was explained briefly and an example was provided. Participants were asked, per category, to choose the two activities they found most typical for the coaching role and rank them (1 being most typical). Next, they were asked to pick the most typical activity for the coaching role across all three categories.

2.2.3 Data analysis
The data were analysed per research question. To answer the first research question, a separate category system was created for the two open-ended

questions (associations and goals), following a similar procedure for both. The development of the category systems consisted of several steps.

1. Every association/goal was grouped with similar associations/goals.
2. Every group of associations/goals was given a label, using concepts derived from the literature underlying this study and from the data.
3. Groups of associations/goals overlapping too much were combined.
4. Every group of associations/goals was described as a category and illustrated with several examples. A separate category was ascribed to associations/goals that were incomprehensible or needed too much interpretation.
5. The final category system was used to categorise the data.

Part of the data was categorised by a second researcher. Interrater reliability (Cohen's Kappa) between two raters using the category systems for the associations was .81 (108 out of 380 associations) and for the goals .82 (107 out of 290 aims), indicating a satisfactory agreement between the two raters for both category systems. Associations, goals and activities were coded as missing values if an answer was lacking.

After categorising the answers to the open questions, descriptive statistics were carried out to answer the first research question. It included calculating frequencies and percentages of the associations, goals, and typical teacher activities.

To answer the second research question, a multiple correspondence analysis (MCA) was carried out. MCA is comparable to principal component analysis, but the variables to be analysed are categorical instead of quantitative (Abdi & Valentin, 2007). The analysis results in a model with one or more dimensions. By interpreting the extremities of the dimensions, insights can be gained into the underlying structure that might exist in the data. In this case, MCA was used to discover how the categories of the associations, goals and activities were related to each other. That is, to find out which categories of these three variables often occurred together and which teachers had similar associations, goals, and teaching activities, or not.

For the use of MCA, it was necessary to start with some data reduction, as the respondents wrote down different numbers of associations (between one and five) and goals (between one and three). Therefore, for every respondent, only one association-category and one goal-category were

included. The following rules were applied for selection of the overall association-category for each respondent (if more than one association was written down). If all associations belonged to different categories, the category to which the first association belonged was selected. If two or more associations belonged to the same category, that category was selected. If twice, two associations belonged to the same category, the 'first one written down' rule was applied to these four associations. The same approach was used to select the overall goal-category for each respondent. As outliers caused by low-frequency categories tend to distort the solution of MCA (Endedijk, 2010), categories that were assigned only once to an association, a goal or an activity, were excluded from the MCA. Taken together, for each respondent, one association, one goal and three activities were included in the MCA.

To answer the third research question, teachers' mean scores on the dimensions of the MCA were compared with several background variables. The background variables included were gender, years of experience as a SVE teacher, their students' qualification levels, their students' study-routes and professional role conceptions. Years of experience was subdivided into three groups, namely early-career teachers (1-5 years; 33.3% of the respondents), mid-career teachers (6-19 years; 30.6% of the respondents), and late-career teachers (20+ years; 36.1% of the respondents). Students' qualification level was also subdivided into three groups, namely teachers mostly teaching students from the lowest levels (levels 1 and 2; 7.3% of the respondents), teachers mostly teaching students from the highest levels (levels 3 and 4; 37.6% of the respondents), and teachers teaching students from both lowest and highest levels (55% of the respondents). Independent samples t-tests were carried out for gender and students' study-routes. One-way ANOVAs were carried out to compare the mean scores on the dimensions of the MCA with years of experience and students' qualification levels. For the professional role conceptions, correlations were calculated between the three roles and the dimensions of the MCA.

2.3 RESULTS

2.3.1 Teachers' associations, goals, and typical teaching activities regarding the coaching role

2.3.1.1 Associations with the coaching role

In total, teachers reported 380 spontaneous *associations* with the coaching role. On average, each teacher reported 3.5 associations, with a minimum of 1 and a maximum of 5. One teacher did not report any association. Fourteen categories could be detected within the data. The categories are presented in Table 2.1; they show the frequencies and percentages of associations within each category, and examples of associations for each category. By far the most associations were assigned to the category *positive atmosphere*, namely 16.7%, followed by the category *guidance* and the category *responsibility and reflection* (both 10.0%). The fewest associations were assigned to the category *collaboration*, only 1.3%.

2.3.1.2 Goals with regard to the coaching role

In total, teachers reported 290 *goals*. Two teachers did not report any goals. On average, each teacher reported 2.7 goals, with a minimum of 1 and a maximum of 3. The goals teachers found most important concerning coaching in the classroom resulted in 10 categories (Table 2.2). Most goals were assigned to the category *creating a pleasant learning and working atmosphere* (15.2%), closely followed by *promotion of self-regulation and independence* and *increasing student insight* (both 14.8%). *Promotion of collaboration* contained the fewest goals, only 3.4%.

Teachers believed that on average, the goals of the coaching role they mentioned themselves, fitted their work as a teacher very well, as the mean score of all categories together was 4.40 (SD = .752, minimum 1 and maximum 5) and the mean scores per category were between 4.22 (learning-to-learn) and 4.53 (knowledge and competence development).

Table 2.1
Associations with the coaching role

Category	N	%	Examples of associations
Positive atmosphere	63	16.6 %	*Safe* *Pleasant contact with students*
Guidance	38	10.0 %	*Guide of the learning process* *Guidance*
Responsibility and reflection	38	10.0 %	*Let students work independently* *Ability to cope for oneself*
Motivation and stimulation	34	8.9 %	*Making students enthusiastic* *Encourage*
Help and support	31	8.2 %	*Help students* *Extra support for students*
Cater to students' individual needs	29	7.6 %	*Adapt method to student needs* *Connect to students world of ideas*
Monitoring learning process	27	7.1 %	*Keep an eye on students' progress* *Planning*
Negative utterance	26	6.8 %	*Inefficient* *Time-consuming*
Directing	22	5.8 %	*Directing a student* *Signpost*
Subject expertise	13	3.4 %	*Knowledge transmission* *Discussing difficulties with subject*
(Lack of) structure	12	3.2 %	*Chaos* *Be consistent*
Positive utterance	12	3.2 %	*Fine* *Important*
Change and adaptation	11	2.9 %	*Different way of teaching* *Innovative*
Collaboration	5	1.3 %	*Stimulate collaboration* *Teamwork*
(Incomprehensible)	(19)	(5.0 %)	--
Total	380	100 %	

Table 2.2
Goals with regard to the coaching role

Category	N	%	Examples of goals
Creating a pleasant learning and working atmosphere	44	15.2 %	*Safe haven* *Create peace in the classroom*
Increasing student insight	43	14.8 %	*Learning to reflect* *Make students aware of their learning process*
Promotion of self-regulation and independence	43	14.8 %	*Increasing independence* *Self directedness*
Guiding the learning process	35	12.1 %	*Guiding students* *Support actively*
Centralising individual student	30	10.3 %	*Student-directed* *Connect to student's capacities*
Motivating and stimulating	28	9.7 %	*Stimulating students* *Encouragement*
Future orientation	19	6.6 %	*Graduate* *Everybody needs to reach the finishing line*
Knowledge and competence development	19	6.6 %	*Let students acquire knowledge* *Grow in subject area*
Learning-to-learn	18	6.2 %	*Learning how to learn something* *Teach students to learn efficiently*
Promotion of collaboration	10	3.4 %	*Let students collaborate* *Promoting collaboration*
(Incomprehensible)	(1)	(0.3 %)	--
Total	290	100 %	

2.3.1.3 Typical activities for the coaching role

In Table 2.3, the results with respect to typical *activities* for the coaching role are presented. The table shows the frequencies and percentages of activities teachers found most typical and second most typical within each category, and the frequencies and percentages of activities teachers found most typical overall.

Within the category *asking questions*, 53.2% of the teachers found asking questions at the *process level* the most typical activity relating to their coaching role. Asking questions at the *self-regulation level* was chosen the most as the second most typical activity within this category (48.1%). When adding the frequencies of both answers without discriminating between most

typical and second most typical, asking questions at the *process level* gained the highest percentage (35.5%).

Within the category *giving feedback*, 30.3% of the teachers found giving feedback at the *process level* the most typical activity relating to their coaching role. When asked for the second most typical activity, giving feedback at the *self-regulation level* was chosen most often (33.9%). When adding these frequencies, giving feedback at the *self-regulation level* had the highest percentage (31.2%).

Within the category *giving support*, 27.5% of the teachers found *actively supporting* the most typical activity relating to their coaching role. *Actively supporting* was also chosen the most as the second most typical activity (34.9%) and when adding the frequencies of both answers, *actively supporting* had the highest percentage (31.2%).

When asked for the most typical activity overall with regard to their coaching role, *giving feedback on the self-regulation level* was chosen most often (20.0%), followed by *actively supporting* (14.3%) and *asking questions on the process level* (12.4%).

Summarising, it stood out that the associations and goals teachers mentioned were rather diverse. More agreement was found in the activities they found typical for the coaching role. Overall, the teachers' perceptions of the coaching role mostly related to associations, goals and activities regarding the creation of a positive and pleasant learning and working atmosphere, the promotion and support of students' meta-cognitive skills, and an active guiding role for the teacher.

Table 2.3
Typical teaching activities for the coaching role

Activities	Most typical		Second most typical		Total		Most typical overall	
	N	%	N	%	N	%	N	%
Asking questions								
Questions at process	58	53.2 %	19	17.6 %	77	35.5 %	13	12.4 %
Questions at self-regulation	18	16.5 %	52	48.1 %	70	32.3 %	12	11.4 %
Guided questioning	16	14.7 %	27	25.0 %	43	19.8 %	2	1.9 %
Questions at self or personal	10	9.2 %	9	8.3 %	19	8.8 %	4	3.8 %
Questions at task or content	7	6.4 %	1	0.9 %	8	3.7 %	1	1,0 %
Total	109	100 %	108	99.9 %	217	100.1 %		
Giving feedback								
Feedback at self-regulation	31	28.4 %	37	33.9 %	68	31.2 %	21	20.0 %
Feedback at process	33	30.3 %	34	31.2 %	67	30.7 %	10	9.5 %
Encouraging	26	23.9 %	13	11.9 %	39	17.9 %	10	9.5 %
Feedback at task	11	10.1 %	14	12.8 %	25	11.5 %	1	1.0 %
Feedback at self	8	7.3 %	11	10.1 %	19	8.7 %	5	4.8 %
Total	109	100 %	109	99.9 %	218	100 %		
Giving support								
Actively supporting	30	27.5 %	38	34.9 %	68	31.2 %	15	14.3 %
Help on demand	25	22.9 %	16	14.7 %	41	18.8 %	5	4.8 %
Individual instruction	20	18.3 %	16	14.7 %	36	16.5 %	2	1.9 %
Whole-class instruction	18	16.5 %	4	3.7 %	22	10.1 %	2	1.9 %
Thinking aloud	10	9.2 %	10	9.2 %	20	9.2 %	2	1.9 %
Paraphrasing	3	2.8 %	16	14.7 %	19	8.7 %	0	0.0 %
Modelling	3	2.8 %	9	8.3 %	12	5.5 %	0	0.0 %
Total	109	100 %	109	100.2 %	218	100 %	105	100.1 %

2.3.2 Relations between teachers' associations, goals and typical teaching activities, and underlying dimensions

To answer the second research question, a multiple correspondence analysis was carried out. It included 101 respondents, because eight respondents were excluded from analysis due to a missing value in one of the three variables. The analysis resulted in a two-dimensional solution. Dimension 1 had an eigenvalue of 2.05 and explained 41.0% of the variance. Dimension 2 had an eigenvalue of 1.89 and explained 37.8% of the variance. In Table 2.4, the loadings on the two dimensions of each category included in the analysis can be found. The one-third highest loadings and one-third lowest loadings on each of the two dimensions are presented, respectively, in bold type and underlined (cf. Endedijk, 2010).

On Dimension 1, some of the most negative-scoring categories were feedback at the self level, thinking aloud, questions at the self or personal level, positive atmosphere, guided questioning, whole-class instruction, and creating a pleasant learning and working atmosphere. Some of the most positive-scoring categories on Dimension 1 were paraphrasing, centralising individual student, responsibility and reflection, monitoring learning process, questions at the self-regulation level, increasing student insights, and modelling. On Dimension 2 most negative-scoring categories were, for example, paraphrasing, creating a pleasant learning and working atmosphere, monitoring learning process, questions at the task or content level, responsibility and reflection, future orientation, and questions at the self-regulation level. Some of the most positive-scoring categories on Dimension 2 were modelling, learning-to-learn, change and adaptation, knowledge and competence development, cater to students' individual needs, subject expertise, and guiding the learning process.

By interpreting the extremities of the two dimensions, insights could be gained into the underlying structure of teachers' perceptions with regard to the coaching role. Although the outcomes of the analysis were not totally clear and unambiguous, a certain tendency could clearly be noticed. The negative extremity of Dimension 1 contained categories that mostly concerned contributing to a safe and personal atmosphere in the learning environment. The positive extremity of this dimension contained categories that mostly concerned contributing to and centralising students' learning processes. The

extremities of Dimension 1 might therefore be labelled *learning environment* on the negative extremity and *learning process* on the positive extremity. With regard to Dimension 2, it seemed that both extremities concerned an orientation towards student development, but with a somewhat different focus. The negative extremity of Dimension 2 contained categories that were more or less focused on student development in general, and not so much related to the specific vocational training. The positive extremity contained categories that mostly concerned student development more specifically focussed on competence development closely related to the subject area. The extremities of Dimension 2 might therefore be labelled *general development* on the negative extremity and *domain-specific development* on the positive extremity.

Table 2.4
Outcomes of the MCA

	N overall	Dim 1	Dim 2
Associations			
Positive atmosphere	16	-1.28	-0.08
Guidance	21	0.39	0.25
Responsibility and reflection	7	**0.85**	-0.90
Motivation and stimulation	9	**0.51**	-0.80
Help and support	13	0.20	0.20
Cater to students' individual needs	5	-0.14	**0.98**
Monitoring learning process	6	**0.83**	-1.00
Negative utterance	8	-0.35	0.09
Directing	8	-0.20	-0.21
Subject expertise	4	-0.17	**0.85**
(Lack of) structure	(1)	--	--
Positive utterance	4	-0.26	**0.96**
Change and adaptation	3	0.34	**1.18**
Collaboration	(1)	--	--
Goals			
Creating a pleasant learning and working atmosphere	14	-0.59	-1.05
Increasing student insight	9	**0.71**	**0.58**
Promotion of self-regulation and independence	22	-0.45	-0.32
Guiding the learning process	17	-0.09	**0.65**
Centralising individual student	12	**0.91**	-0.64
Motivating and stimulating	13	-0.02	0.13
Future orientation	7	**0.41**	-0.87
Knowledge and competence development	6	**0.64**	**1.01**
Learning-to-learn	6	-0.51	**2.00**

Promotion of collaboration	(1)	--	--
Teaching activities			
Questions at process	58	0.30	**0.49**
Questions at self-regulation	18	**0.81**	-0.84
Guided questioning	16	-1.21	-0.12
Questions at self or personal	10	-1.43	-0.54
Questions at task or content	7	0.19	-0.93
Feedback at self-regulation	31	0.25	-0.47
Feedback at process	33	**0.50**	0.34
Encouraging	26	-0.26	-0.21
Feedback at task	11	-0.17	**0.60**
Feedback at self	8	-1.98	0.22
Actively supporting	30	0.35	0.30
Help on demand	25	-0.03	-0.24
Individual instruction	20	**0.57**	0.19
Whole-class instruction	18	-0.63	-0.64
Thinking aloud	10	-1.56	**0.39**
Paraphrasing	3	**1.04**	-2.43
Modelling	3	**0.67**	2.47

Note. Only the overall frequencies of the associations' contents, the overall frequencies of the goals and the most typical teaching activity within the categories *asking questions*, *giving feedback* and *giving support* are included in the MCA. Categories with n = 1 were excluded from the MCA.

In Figure 2.1, the respondents are positioned on the dimensions of the solution of the MCA. The teachers are positioned differently on the two dimensions, indicating that within this group of teachers, diverse perceptions about the coaching role existed. Furthermore, the respondents who are positioned more towards *learning environment* seem to differ less from each other on Dimension 2, than the respondents who are positioned more towards *learning process*.
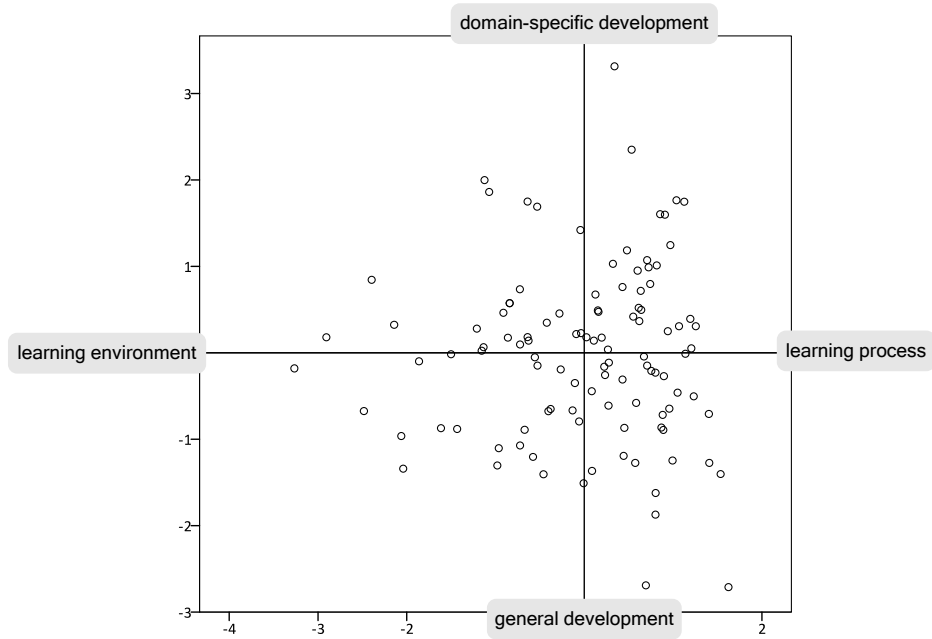
Figure 2.1. Respondents plotted on the two dimensions of the MCA, with the horizontal axis representing Dimension 1 and the vertical axis representing Dimension 2

2.3.3 Teachers' background variables in relation to the underlying dimensions in their perceptions about the coaching role

To study whether differences in teachers' perceptions about the coaching role were related to differences in their background variables, their background variables were plotted within the two-dimension model. The results are presented in Table 2.5. It appeared that none of the differences on both dimensions within any of the background variables were statistically significant.

Table 2.5
Teachers' background variables in relation to the two dimensions

Background variables	Dimension 1		Dimension 2	
	M	SE	M	SE
Gender				
Male	0.01	0.11	-0.04	0.11
Female	-0.06	0.24	0.15	0.20
Difference	$t(107) = 0.28$, $p > .05$		$t(107) = -0.72$, $p > .05$	
Study route				
Work-based	0.16	0.18	0.13	0.16
School-based	-0.07	0.16	-0.06	0.12
Difference	$t(107) = 1.08$, $p > .05$		$t(107) = 0.90$, $p > .05$	
Years of experience				
1-5 years	-0.04	0.19	-0.07	0.16
6-19 years	-0.06	0.17	-0.23	0.18
20+ years	0.06	0.15	0.24	0.16
Difference	$F(2, 105) = 0.15$, p $> .05$		$F(2, 105) = 2.05$, $p > .05$	
Students' qualification levels				
Low (1-2)	-0.24	0.32	0.32	0.25
High (3-4)	-0.05	0.15	0.21	0.16
Low + high	0.06	0.14	-0.20	0.13
Difference	$F(2, 106) = 0.37$, $p > .05$		$F(2, 106) = 2.45$, $p > .05$	

There were hardly any differences on the average dimension loadings of *males* and *females*. There were also hardly any differences on the average dimension loadings of teachers mostly working with students in the *work-based route* and teachers mostly working with students in the *school-based route*. The differences for both gender and study route were not statistically significant on both dimensions. With regard to *years of experience*, there were differences between the three groups on both dimensions, but these were not statistically significant either on Dimension 1 or on Dimension 2. When looking at the *students' qualification levels* with which teachers were mostly working, some differences were noticeable between the three groups on both dimensions, but these were not statistically significant on both dimensions. Finally, regarding teachers' *professional role conceptions*, there was a statistically significant relationship between the role *pedagogical expert* and Dimension 1, r = -.26, p (two-tailed) < .01, indicating that the lower teachers

scored on Dimension 1, the more they would judge themselves as being a pedagogical expert. There was no statistically significant relationship between this role and Dimension 2. Furthermore, there were no statistically significant relationships between the roles *subject expert* and *didactical expert* and the two dimensions.

Taken altogether, differences in teachers' perceptions regarding the coaching role could not be explained by differences in their gender, years of experience as a SVE teacher, their students' qualification levels, their students' study-routes, or their professional role conceptions, except for a weakly negative relationship between Dimension 1 and perceiving oneself as a pedagogical expert.

2.4 | CONCLUSIONS AND DISCUSSION

The aim of this study was to explore how teachers in innovative SVE perceive their coaching role. Most teachers that participated in this study had perceptions that were (to some extent) in line with the features of the coaching role that could be derived from the literature, such as guiding and actively supporting students' learning processes, promoting and improving students' self-regulated and independent learning, and creating conditions for a good relationship with students. Two underlying dimensions were found in the data, of which the extremities were interpreted as *learning environment* and *learning process* for Dimension 1 and *general development* and *domain-specific development* for Dimension 2. Finally, the results of this study showed that differences in teachers' perceptions of the coaching role were not related to differences in their background variables.

Themes such as promoting and supporting students' meta-cognitive skills, creating a positive learning and working atmosphere, and guiding and actively supporting students were common within the teachers' perceptions about the coaching role. It is expected that well developed meta-cognitive skills in students will better prepare students for their future profession and for lifelong learning (Zimmerman, 2002; Zsiga & Webster, 2007), which are important objectives of the redesign of Dutch SVE (Biemans et al., 2004; Biemans et al., 2009; Van den Berg & De Bruijn, 2009). Three of the four

extremities of the two dimensions of the MCA contained categories that related to the promotion and support of students' meta-cognitive skills. Only the extremity *learning environment* did not include meta-cognitive related categories. This might suggest that teachers who are positioned close to that extremity think less about promoting and supporting meta-cognitive skills in their students, when asked about the coaching role. Also, the teachers in this study perceived the coaching role as creating a positive learning and working atmosphere, which also includes a good teacher-student relationship. According to Le Cornu and Peters (2005) a safe learning environment is a prerequisite for students to be able to reflect on their learning process. Categories related to this were represented within all four of the extremities of the two dimensions, but mostly within the extremity *learning environment.* Furthermore, as the teachers in this study perceived guidance and actively supporting as typical aspects of the coaching role, in their view the coaching role does not mean letting students drift free, which is still a common thought about teaching in these kinds of contexts (e.g., Kirschner, Sweller, & Clark, 2006). Instead, as De Bruijn (2004) states, "teachers must find a new balance between guidance and 'let go' so that students are given the space to explore and regulate but, at the same time, do not drown in that space and move on to trial and error behaviour and 'telling stories'" (p. 34).

There were also several aspects related to innovative SVE which seemed underexposed in teachers' perceptions about the coaching role, such as promoting collaboration among students, subject expertise, and knowledge and competence development. Being able to work collaboratively is an important competence, which students need to develop (Van den Berg & De Bruijn, 2009). Moreover, working together with other students is a way of learning in SVE, as collaborative learning can have positive effects on students' meta-cognitive skills (Le Cornu & Peters, 2005; Van Grinsven & Tillema, 2006) and is "important for being lifelong learners and citizens in a knowledge society" (Hmelo-Silver, Duncan, & Chinn, 2007, p. 105). Van den Berg and De Bruijn (2009) in their report on the redesign of Dutch SVE, noticed that collaborative learning was not implemented as much as several other characteristics of the innovation. Teachers' lack of association with collaboration in the context of their coaching role might be an explanation for that. Also remarkable was that the respondents hardly seemed to associate

the coaching role with the subject they were teaching and with the transmission, obtainment and development of knowledge and competence in students regarding that subject. Although the goal *knowledge and competence development* was found to be the goal fitting the work as a teacher the most (4.53 on a five-point scale), associations, goals and activities related to this were only dominant on the extremity *domain-specific development* of Dimension 2.

An overall striking result was the absence of relationships between teachers' perceptions of the coaching role and their backgrounds and teaching contexts. Variables such as gender, age and career stage are often found to be of influence on teachers' thoughts and actions in general (e.g., Beijaard et al., 2000) and their reactions to change in particular (e.g., Hargreaves, 2005). In this study, however, both gender and experience could not explain differences in teachers' perceptions of the coaching role. With regard to teachers' professional role conceptions, there was a weak but significant relationship between perceiving oneself as a *pedagogical expert* (as opposed to a *didactical expert* or a *subject expert*) and perceiving the coaching role as mostly related to the learning environment (the negative extremity of Dimension 1). No other relations were, however, found between the two dimensions and the professional role conceptions. Furthermore, teaching context could not explain differences in teachers' perceptions either. It did not make a difference whether teachers were mostly teaching students of lower or higher levels, or whether they were mostly teaching fulltime or part-time students.

From the results of this study several practical implications can be derived. It seems that the perceptions regarding the coaching role of most SVE teachers who participated in this study are, to some extent, in line with the aims of innovative SVE and the move towards teachers taking on a coaching role. Although behaviour is often not in line with perceptions about teaching (e.g., Yu & Boulton-Lewis, 2008; Zsiga & Webster, 2007), these results can be interpreted as a positive start in the redesign of SVE in the Netherlands. However, there are also several aspects which seem underexposed in teachers' perceptions about the coaching role, such as promoting the collaboration of students, and knowledge development in students. This could be a focus for professional development. Although the outcomes of the MCA were not completely clear, they do reveal that rather diverse views on the coaching role

exist among SVE teachers. Therefore, it seems useful when teachers with different perceptions exchange ideas about the coaching role and inspire each other in further developing this role. In innovative SVE, teachers are expected to be flexible in their pedagogy, so a broad view on how to approach students is very useful.

This study has some limitations. First, the respondents of the questionnaire were almost all teachers from the technology education sector. It could be that their perceptions of the coaching role differ from the perceptions of teachers from, for example, the care and welfare sector. Second, the respondents were mostly male teachers; hence, the sample was not representative of the larger population of SVE teachers in that respect. For future research it could therefore be suggested to study a more representative sample of SVE teachers to gain more insights into teachers' perceptions of the coaching role. Third, it was necessary to apply data reduction in order to perform the MCA. It might be possible that this led to a somewhat different outcome than if all data had been included. For example, it might be argued that it was the specific combination of all associations and goals that a teacher wrote down, which made up his or her perception of the coaching role. Fourth and finally, the interpretation of the outcomes of the MCA was somewhat challenging. There was some overlap in the extremities of the dimensions, meaning that several categories had a relatively high and/or low score on both dimensions (for example *creating a pleasant learning and working atmosphere*, *paraphrasing*, and *responsibility and reflection*). Furthermore, sometimes rather contrasting categories were found within one extremity, making the labelling of the extremities complex. This was especially the case for the second dimension.

The outcomes of the present study therefore ask for further research of teachers' perceptions of the coaching role and possible dimensions within these perceptions. By studying a larger, more varied group of SVE teachers, stronger and more unambiguous underlying dimensions in teachers' perceptions can possibly be found. These could subsequently lead to different teacher profiles with regard to the coaching role. Moreover, to get a broader and more complete view on the coaching role in SVE, insight should be gained into teachers' behaviour. Studying both teachers' perceptions and behaviour in more qualitative in-depth research – for example via interviews and

classroom observations – could result in a rich and complete description of the coaching role, and possible related teacher profiles.

Finally, other research has shown that the coaching role was not yet put into practice as much as other aspects of innovative SVE (De Bruijn & Leeman, 2011; Van den Berg & De Bruijn, 2009). This study showed that teachers' perceptions are, to a certain extent, in line with the aims of the move towards teachers taking on a coaching role. However, we did not investigate how teachers learn about the coaching role and to what extent they put it into practice. Knowing more about these issues could help to improve teachers' skills and professionalism, by supporting them to develop and find a balance between being an expert within their subject area and being a coach who guides their students' learning processes.

CHAPTER 3

TEACHERS' POSITIONING TOWARDS AN EDUCATIONAL INNOVATION IN THE LIGHT OF OWNERSHIP, SENSE-MAKING AND AGENCY[6]

ABSTRACT

The positioning of eleven teachers towards an innovation was studied in the light of ownership, sense-making and agency. Semi-structured and video-stimulated interviews were used for data collection. The findings show that these three concepts are useful for describing similarities and differences between teachers in terms of their positioning towards the innovation. Considerable differences were found between teachers regarding their ownership, sense-making, and agency. Exploring the relations between these concepts revealed that a high degree of agency often went together with a high degree of ownership, but seemed to be moderated by the sense-making process.

3.1 | INTRODUCTION

As teachers are often not involved in the design of educational innovations, their reactions to the implementation of an innovation largely depend on whether they perceive their identities as being reinforced or threatened by the proposed changes (Van Veen & Sleegers, 2006). For some teachers the innovation might fit perfectly within their beliefs about teaching, but for other teachers the innovation might conflict with what they personally desire in their work and what they consider good education. In the latter case, teachers' identities can be affected, as it may lead to tensions between what one personally values in teaching and what is externally demanded (Beijaard et al., 2004; Day et al., 2007). Yet, in both cases it is not a matter of simply accepting or rejecting what is being imposed: teachers actively position themselves in relation to an innovation (Spillane et al., 2002; Vähäsantanen & Eteläpelto, 2009). They make deliberate choices (Coldron & Smith, 1999) and compare their personal beliefs, desires and values in work with the characteristics and demands of the proposed changes (Spillane et al., 2002). Three identity-related concepts seem to play an important role in this process of positioning oneself in relation to an innovation, namely ownership, sense-making and agency (cf. Beijaard, 2009). In this study, these concepts are used as a lens to see how teachers position themselves as regards a specific educational innovation. The central research question driving this study is therefore: how are ownership, sense-making, and agency manifested in teachers' positioning towards an educational innovation?

Ownership, sense-making and agency have in common that they are closely related to teachers' identities, yet all in a somewhat different way. Ownership can be seen more as a facilitator of expressing who one is as a teacher and what one finds important (Pierce et al., 2001). Sense-making involves the interaction between one's identity and the innovation, resulting in maintenance or alteration of one's identity (Luttenberg et al., 2009). Agency, at last, might be seen as a vehicle to give direction to one's career as a teacher and stay true to oneself (cf. Vähäsantanen et al., 2008). By investigating teacher change through the lens of these three concepts, we aim at gaining better understanding of how teachers position themselves towards an innovation. It is hoped that this contributes to current views on teacher

change in the context of educational innovations, and provides insights into the role that ownership, sense-making and agency play in it. The findings will have practical implications for teachers and school leaders, as they help understand differences between teachers' positioning towards educational innovations.

3.2 | CONTEXT OF THE STUDY: TEACHERS' COACHING ROLE IN INNOVATIVE SECONDARY VOCATIONAL EDUCATION

This study has been conducted in the context of secondary vocational education (SVE) in the Netherlands. The vocational trainings in Dutch SVE vary in duration (from 1 year up to 4 years), difficulty (from level 1 to level 4, with level 4 being the most difficult), and study-route (school-based study-route: 20% to 60% practical/workplace training and the remaining time spent at school, vs. work-based study-route: at least 60% practical/workplace training and the remaining time spent at school). The student population is therefore rather diverse, differing in age and abilities. SVE prepares students for starting their working career. Graduates on the highest level of SVE have access to the bachelor programme on higher vocational education.

As professions and jobs were changing rapidly, during the late 1990s the Social-Economic Council and the Education Council advised the Dutch government to revise the content and design of secondary vocational education (SVE) in the Netherlands (Dutch Inspectorate of Education, 2007). The reform was aimed at improving the transition from school to the labour market. Furthermore, it should prepare students for lifelong learning, so that they can continue to develop themselves in their future jobs and react to innovations and developments in their field of work (Biemans et al., 2004; Biemans et al., 2009; Day et al., 2007). The idea was to provide students with self-regulated learning skills that can help them direct their own learning processes (Zimmerman, 2002; Zsiga & Webster, 2007). This trend is also noticeable in other contexts and countries (e.g., Le Cornu & Peters, 2005; Struyven & De Meyst, 2010; Vermunt & Verloop, 1999), especially in vocational education (Nickolaus, Knoll, & Gschwendtner, 2007; Velde, 1999; Yu & Boulton-Lewis, 2008). From 2004 onwards, several SVE schools in the Netherlands started

experimenting with redesigning their learning environment and from August 2010, every SVE school was obliged to have started with the implementation (Dutch Inspectorate of Education, 2007). The extent to which the implementation took place, however, differs considerably between schools and even within schools (De Bruijn & Leeman, 2011).

For teachers, this innovation requires a different role in the classroom. Besides their role as a subject expert, they are expected to take on a coaching role (Biemans et al., 2004; Biemans et al., 2009; Wesselink et al., 2007; Yu & Boulton-Lewis, 2008). The aim of the coaching role is to support and guide students' learning processes, and in particular their self-regulated and independent learning (e.g., Bakker, 2008; De Bruijn & Leeman, 2011). In this study, we concentrate on the teacher's coaching role in the classroom, that is, in interaction with students who are working on tasks, which can be individually, in cooperative groups, or in a whole-class situation. The teacher in the coaching role can be seen as a facilitator of the students' learning processes, anticipating the different (learning) needs of individual students (Iredale & Schoch, 2010). In a previous study, we investigated SVE teachers' perceptions of the coaching role (see Chapter 2). Most teachers who participated in that study had perceptions of the coaching role that were (to some extent) in line with the aims of innovative SVE, although there were also several aspects which seemed underexposed. Promoting and supporting students' meta-cognitive skills, creating a positive learning and working atmosphere, and providing guidance and active support were common themes in the teachers' perceptions. However, we also detected considerable variety in the perceptions of these teachers. In the present study these differences are further investigated in terms of how SVE teachers position themselves towards the coaching role in the light of ownership, sense-making and agency.

3.3 | CONCEPTUAL FRAMEWORK

3.3.1 Ownership
In this study ownership is understood as a mental or psychological state of feeling owner of an innovation, which develops through the teacher's mental and/or physical investment in it (cf. Breiting, 2008; Pierce et al., 2001).

Although teachers feeling ownership towards an innovation is often mentioned as important for its success, ownership seems to be an under-researched concept in the context of educational innovations (Breiting, 2008). Feeling ownership is assumed to lead to integration of the innovation in teachers' working routines (Bergen & Van Veen, 2004) and a continuation of the change process in the future, even when the initiator or any other extrinsic motivation is no longer present (Struckman & Yammarino, 2003). Only if teachers support the ideas of the innovation, and feel the urge or necessity for change, are they willing to invest time and energy in it (Van den Berg & Geurts, 2007). By investing in the creation and development of an innovation, the teacher can identify with it. According to Pierce et al. (2001), 'people use ownership for the purpose of defining themselves, expressing their self-identity to others, and ensuring the continuity of the self across time' (p.300). Teachers feeling a high degree of ownership towards an innovation communicate about it and express their identification with it (Pierce et al., 2003). In short, feeling ownership towards an innovation can be recognised by teachers' support for the innovation, their sense of the necessity for it and their communication about it.

3.3.2 Sense-making

When teachers are confronted with an educational innovation, they make sense of it in the light of their own knowledge, beliefs and experiences, the situation in which they find themselves, and the design and message of the policy for implementing the innovation (Spillane et al., 2002). Teachers' sense-making of an innovation can be defined as 'the interaction between their own frame of reference and the perception of the situational demands that are inherent to innovations, resulting in the personal interpretation of innovations' (Luttenberg et al., 2009, p. 446). This means that sense-making is more than simply interpreting a message. It is an active cognitive and emotional process in which a person attempts to fit the new information into existing knowledge and beliefs (Spillane et al., 2002; Van Veen & Lasky, 2005). Luttenberg et al. (2009) describe four types of sense-making, which are determined by (a) the amount of congruence between the teacher's frame of reference and the situational demands of the innovation and (b) the dominance of either the

teacher's frame of reference or the situational demands of the innovation during the sense-making process.

The first type of sense-making is assimilation, which means that the teacher uses his or her own frame of reference in the sense-making process and adapts the new ideas in such a way that they fit into the existing frame. This results in a variation within his or her frame of reference. The second type of sense-making is accommodation, in which the teacher transforms his or her own frame of reference in such a way that it fits in with the situational demands. The situational demands are predominant in this type. The third type defined is toleration, whereby the teacher accepts the new situational demands but at the same time maintains his or her own frame of reference, which results in different perceptions within the teacher. The last type of sense-making is distantiation, where the teacher totally rejects the situational demands and continues to use his or her initial frame of reference. Different combinations of the four types of sense-making can be found within one teacher (cf. Luttenberg at al., 2009).

3.3.3 Agency

Agency is the extent to which someone feels in control of his or her own actions (Beijaard, 2009; Metcalfe & Greene, 2007). Teachers who experience agency within their work feel in control of the choices they make within their work and that these choices are based upon their own goals, interests and motivations (Vähäsantanen et al., 2008). Agency is thus shaped by both the teacher and the school context (Lasky, 2005), as teachers need to experience a certain amount of autonomy and room for negotiation within their school to make their own choices (Beijaard, 2009; Coldron & Smith, 1999). It is important for teachers to experience agency within their work at least to some extent, as it plays a role in the development and maintenance of their professional identity (Beijaard, 2009). When teachers are confronted with an educational innovation they are expected to adjust their working routines according to the innovation. The degree to which teachers experience agency within their work will probably influence their response to the innovation. For instance, teachers with a high degree of agency and beliefs conflicting with those of the innovation might use their agency to offer resistance to the innovation (Sannino, 2010). On the other hand, when the goals a teacher

values correspond with the goals of the innovation, teachers' sense of agency can be increased (Marshall & Drummond, 2006). In sum, to identify teachers' experiences of agency within their work, it should become clear what their own goals are, how these differ from the goals of their school, and why and how they make choices for certain goals.

3.3.4 Research questions

The following research questions have been formulated to study teacher change with regard to the coaching role through the lens of ownership, sense-making, and agency.

1. To what degree do teachers feel ownership towards the coaching role?
2. How do teachers make sense of the coaching role?
3. To what degree do teachers experience agency within their work as a teacher?
4. How are teachers' ownership, sense-making and agency related?

3.4 | METHOD

3.4.1 Participants

Eleven teachers from two secondary vocational education (SVE) schools in the Netherlands participated in this study. After an introduction and explanation of the study in a team meeting, teachers could agree to participate. Initially, fourteen teachers subscribed, but three of them decided to withdraw after the first interview, because they thought participation was too time-consuming. These three teachers were all from the same school (school 2). The interview data from these teachers were not included in the analysis. All teachers participated on a voluntary basis and their anonymity was guaranteed.

Two of the eleven participants were female and nine male. All teachers worked in the technology education sector. This sector is dominated by male teachers, which explains the predominance of males in this study. On average participants were 42.9 years old, ranging from 34 to 55. They had on average 10.4 years of experience as SVE teachers, with a minimum of 1.5 and a maximum of 25 years. Table 3.1 contains general characteristics of the participants, aliases being used for reasons of anonymity. Four of the 11

teachers were from school 1, all of them working in the same department ("mobility and logistics"). The other seven teachers were from school 2, from two different departments ("mobility and logistics" and "construction techniques").

Table 3.1
General characteristics of the 11 participants

School	Department	Alias	Gender	Age	Years of experience	Subject
1	Mobility and logistics	George	Male	55	25	Automotive and electro technology
		Alice	Female	41	20	Mathematics, physics, chemistry
		Tom	Male	38	4	Two-wheel engineering
		Eric	Male	34	9	Two-wheel engineering
2	Construction technology	Hugo	Male	37	2 (+9)	Construction technology
		Ben	Male	45	1.5	Woodworking and furniture
		James	Male	43	18	Painting
		Steven	Male	51	10	Construction technology; woodworking and furniture
	Mobility and logistics	Suzan	Female	44	3	Citizenship education
		Mark	Male	35	1.5	Automotive technology
		Jon	Male	49	20	Mathematics and economics

Note. Hugo had nine years of experience in other educational settings before he became an SVE teacher.

3.4.2 Schools

The two schools were both so-called "regional educational centres", each educating approximately 10 000 students, within the sectors Care and Welfare, Business and Economics, and Technology. These sectors are subdivided into departments, offering a broad range of vocational trainings.

The teachers from the "mobility and logistics" department of school 1 described their school as innovative with regard to the redesign of SVE. Furthermore, they experienced factors which are supportive in the context of an educational innovation considerably present within their school. The teachers from school 2 were from two different departments, but were both led by the same head of department. Teachers from these departments described their school as moderately innovative with regard to the redesign of SVE and they experienced factors which were supportive in the context of an educational innovation reasonably present within their school.

3.4.3 Instruments

To obtain a complete picture of how the concepts ownership, sense-making and agency are manifested in teacher change towards a coaching role, multiple methods were used for the data collection (cf. Yin, 2003). Combining the data collected with different instruments can be helpful to develop a comprehensive view of complex concepts such as these three (Meijer, Verloop, & Beijaard, 2002). A semi-structured interview and a video-stimulated interview were used for data collection. The semi-structured interview was conducted to study teachers' feelings of ownership towards the coaching role, their sense-making, and their agency within their work, on a general level. The video-stimulated interview was held to study these three concepts on a level closely related to the teachers' behaviour in interaction with students (cf. Lyle, 2003).

3.4.3.1 Semi-structured interview

Several general questions about the teachers' background and work were asked, such as their age, years of experience as an SVE teacher, previous working experience, and the subject they taught. The central part of the interview was set up around the concepts of ownership, sense-making, and agency. For each concept several indicators were derived from the literature. The indicators were:

- Ownership: support for the coaching role, sense of necessity for the coaching role, and communication about the coaching role;

- Sense-making: matching between teachers' frame of reference about the coaching role and the frame of reference of the innovation, and dominance of either frame of reference;
- Agency: teachers' goals, school goals, differences and similarities between teachers' goals and school goals, choices teachers make, and activities performed to reach goals.

These indicators were translated into concrete questions. Table 3.2 shows each concept with its indicators and for each indicator an example question. During the interview follow-up questions were asked if elaboration or clarification was required.

3.4.3.2 Video-stimulated interview

Two to three months after the semi-structured interview, for every teacher approximately 1.5 hours of lessons were video-taped by the first author. Permission for filming in the classrooms was obtained from both school leaders and participating teachers. Students were informed about the purpose of the filming and were given the possibility to position themselves beyond reach of the camera. The first author followed the following procedure to select fragments of the video-taped lesson that served as input for a video-stimulated interview (VSI). The video was divided into fragments. A fragment consisted of an interaction between the teacher and an individual student, a small group of students, or the whole class. A new fragment started when a different interaction took place. Therefore, the length of a fragment could range from a few seconds to several minutes. An observation scheme was used to score per fragment the activities the teacher showed. Three or four fragments were then selected as input for the VSI. The selected fragments either showed a series of teacher activities that was observed several times during the lesson, or a series of activities that was observed only once. By doing this, it was tried to include in the VSI as much as possible of the teacher's repertoire shown in the lesson.

Several days after recording the lesson, the VSI was conducted. The VSI was also set up around the concepts of ownership, sense-making, and agency, but now closely related to the teacher's behaviour in interaction with students. During the VSI, the teacher was first shown one of the selected fragments, after which several questions were asked (cf. Lyle, 2003). Examples

of the questions are: 'Is this behaviour typical of you as a teacher and how you interact with your students?', 'What were you aiming for in this fragment?', and 'Is this behaviour in line with the coaching role? Why?'. When all questions were answered and the teacher had nothing more to add about the particular fragment, the next fragment was shown, until all selected fragments had been discussed.

Table 3.2
Sample questions of the semi-structured interview

Concepts	Indicators	Sample questions
Ownership	Support	*What do you think about the statement that the role of the teacher is changing from that of knowledge transmitter to that of coach?*
	Sense of necessity	*What do you think is the reason the coaching role is becoming more important? To what extent do you agree with that reason?*
	Communication	*Do you ever talk with your colleagues about how they put the coaching role into practice? Do you take the initiative for such conversations?*
Sense-making	Matching frame of reference	*What image do you have about a teacher teaching in a coaching way? What kind of activities does he or she undertake?*
	Dominance frame of reference	*Do you think that your image of the coaching role, and the way you put it into practice, corresponds with what is expected of you regarding the redesign of SVE? Has it always been like that?*
Agency	Teacher's goals	*What are your goals in your work as a teacher?*
	School goals	*What are the main goals of this school?*
	Teacher's goals vs. school goals	*To what extent do your personal goals correspond with the main goals of the school?*
	Choices	*To what extent do you feel that there is room to pursue your own goals in your work?*
	Activities	*What do you do to make sure you can reach the goals that you have in your work?*

3.4.4 Data analysis

The data were analysed within-case and cross-case. For both approaches, following Miles and Huberman (1994), the data were analysed by a process of data reduction, data display, and conclusion drawing and verification.

3.4.4.1 Within-case analysis

A matrix was developed to display the data of each participant systematically. The indicators that guided the semi-structured interview represented the rows of the matrix. The columns represented the data from the semi-structured interview, the data from the video-stimulated interview and representative quotes from both interviews (see Figure 3.1 for an example).

	Indicators	Summary semi-structured interview	Video-stimulated interview	Quote
Ownership	Spirit and support for coaching	Fit of coaching role: When the electronic learning environment was implemented and they stopped whole-class instructions, he felt like he had come home. The coaching role fits him and his previous working experiences.	He's known as somebody that never gives answers, but always asks questions in return. He's enthusiastic about the coaching role. Sees himself as a guide. Is still looking for the balance between guiding and teaching.	'My colleague is a teacher in heart and soul, so when he enters the classroom all students keep silent. And I am originally a guide, so when I enter the classroom everybody starts talking' (video-stimulated interview).

Figure 3.1. Illustration of part of the analysis matrix of one participant

Data entry for each case comprised several steps. While we listened to the audio-taped semi-structured interview, the answer to each question was summarised and entered in the matrix with the appropriate indicator (for example, 'support for coaching'). A representative quote was added when appropriate. In a similar fashion, the VSI was analysed. As the teachers often elaborated on specific events which were not related to their coaching role (for instance, by giving extensive clarification about a certain student's background and history), only the data that applied to their ownership, sense-

making and agency were used. These data were summarised and added to the matrix with the indicator to which they applied. If applicable, representative quotes from the video-stimulated interview were added to the matrix.

To be able to draw conclusions, for each participant an analytic text or portrait was drawn from the matrices (Miles & Huberman, 1994). The portrait reflected the teacher's feelings of ownership towards the coaching role, how he or she made sense of it, and his or her experience of agency within the work. The portrait was illustrated with representative quotes from both interviews. An example of such a teacher portrait is that of Eric:

The teacher felt a high degree of ownership towards the coaching role. He thinks the coaching role fits him and he likes it to learn more about it. Also, he does not see it as a change, but as something that has always been important. He finds it very important to give students individual attention. He communicates a lot with his colleagues about the coaching role and tries to convince them of his standpoints. "That is just in my nature. Especially when I don't understand somebody, why somebody is doing something, then I either want to understand him, or I'd like him to do it the way I want it" (semi-structured interview). Besides that, he also finds it important that there is a balance between his coaching role and his expert role.

He seemed to make sense of the coaching role mainly through assimilation. Coaching has always been important and has hardly anything to do with the redesign of SVE. He sees coaching as creating a group with a shared goal, with a lot of attention to individual students, by motivating, guiding, and following them, and by adjusting his approach to individual students' needs. Colleagues mostly see the coaching role as less extensive and they invest less in creating a group. For him, coaching and the innovation of SVE are largely independent. The innovation provides him with some directions but not precisely how to put them into practice.

The teacher experienced a high degree of agency within his work as a teacher. He finds it important to be able to pursue his personal goals as a teacher and actively takes room to do so. Also, he undertakes activities to develop himself. It frustrates him when he cannot reach his goals. The school provides him with freedom and room, but he also experiences some hindrances in working according to his personal goals.

3.4.4.2 Cross-case analysis

For the cross-case analysis another matrix was developed to display the portraits of all 11 participants systematically together. The participants represented the rows of the matrix and the concepts ownership, sense-making, and agency represented the columns. The portraits were divided into three subparts (representing ownership, sense-making, and agency) and entered in the cells of the matrix. After that, each of the three concepts was studied separately, the teachers with a similar outcome regarding the concept being grouped and similarities and differences both within and between these subgroups identified. Finally, the relations between the concepts were studied by contrasting and comparing the teachers with regard to all three concepts.

3.4.4.3 Reliability

The following were undertaken to ensure reliability of the data analysis (cf. Yin, 2003). The first author analysed all data and made the process verifiable for the other authors. Each step taken in the analysis has been discussed in detail by the four authors. After agreement on the previous step, a decision on a follow-up step was taken. Furthermore, the matrices, teacher portraits and the results were illustrated with representative quotes of the data from both interviews.

3.5 | RESULTS

The teachers could be divided into three subgroups regarding the degree to which they felt ownership towards the coaching role, namely high, moderate, and low. Use of the four types of sense-making described by Luttenberg et al. (2009) meant the teachers could be divided into five subgroups in terms of how they made sense of the coaching role. Furthermore, they also could be divided into three subgroups regarding the degree to which they experienced agency within their work as a teacher, namely high, moderate, and low. Table 3.3 displays an overview of the results per concept for each participant. In the following these results are further explicated per research question.

Table 3.3
Overview of the results per participant and per concept

	Ownership	Sense-making	Agency
George	High	Assimilation – Accommodation	Moderate
Alice	Moderate	Assimilation – Distantiation	Moderate
Tom	High	Assimilation	High
Eric	High	Assimilation	High
Hugo	Moderate	Assimilation – Distantiation	Moderate
Ben	Low	Toleration – Distantiation	Low
James	High	Assimilation	High
Steven	High	Accommodation	Moderate
Suzan	High	Assimilation	High
Mark	Low	Toleration – Distantiation	Moderate
Jon	High	Assimilation – Accommodation	High

3.5.1 Teachers' feelings of ownership towards the coaching role

Seven teachers felt a high degree of ownership towards the coaching role, namely George, Tom, Eric, James, Steven, Suzan and Jon. With regard to support for the innovation, they all indicated that the coaching role fitted them very well and they felt comfortable in this role. George, Steven and Suzan would not even describe themselves as a teacher, but rather as a guide, coach, or parent figure. Eric, Tom, James and Suzan mentioned that, for themselves, they did not see the coaching role as a change, as it had always been important and they had always had that role. Suzan said:

Finally we've understood it! (semi-structured interview).

Furthermore, all of them pointed out that coaching better suited the students or that the students needed such an approach, indicating a sense of necessity for the coaching role. They were all willing to communicate with their colleagues about the coaching role, but felt also hindered in this, for example because their colleagues were not receptive to it.

Two teachers, Alice and Hugo, felt a moderate degree of ownership towards the coaching role. They both indicated that a coaching role suited them, but that it depended on the setting. Alice found coaching mainly important in her role as student mentor and Hugo in project-based working

settings. Both found it important that there remained enough room for knowledge transmission and their subject. On the other hand, both thought that the students needed to be approached in a coaching way, at least partly. Hugo pointed out he sometimes communicated with his colleagues about how they approached the students. Alice hardly communicated at all with her colleagues about the approaches they used in their lessons:

It is more talking about students, like that one is doing well and that one isn't doing anything, more in that manner. Or, that student doesn't belong here; we should make sure to find him or her a better place. That kind of things. But about how we approach students we actually hardly discuss. Because you also know already that one teacher has a totally different approach than the other (video-stimulated interview).

Finally, Ben and Mark felt a low degree of ownership towards the coaching role. They showed little support for the innovation. Although both pointed out that there was more to it than just knowledge transmission and that interaction with students was important, they still attached great importance to knowledge transmission and development of knowledge. A change towards a coaching role was not a necessity for them. They found their students needed whole-class instructions and guidance, because they lacked independence and prior knowledge. Mark's preference for a whole-class approach is well reflected in the following quotation:

How do you want to bring coaching into practice? When you are with a group of 20 students and you are able to regulate the discussion that arises, then you are present yourself. Actually you are doing the same then, just with 20 people at the same time. You might also get 20 different opinions, but if you do it in a regulated way, you are actually also coaching and guiding and including their future work field, just as much as if you do it one-on-one (semi-structured interview).

Ben only communicated with colleagues about the coaching role on their initiative, and Mark's communication with colleagues was mainly about whole-class situations.

Taken together, for teachers feeling a higher degree of ownership the coaching role seemed to belong to their teacher identity, which was apparently not the case with teachers feeling a lower degree of ownership. Also, teachers feeling a higher degree of ownership seemed to attach greater importance to it, as much for themselves as for their students, whereas teachers feeling a lower degree of ownership found coaching was not (always) suitable for their student population.

3.5.2 Teachers' sense-making of the coaching role

Tom, Eric, James and Suzan seemed to make sense of the coaching role mainly through assimilation. There was correspondence between their own frame of reference and that of the innovation. They let their own frame of reference dominate, however, by mainly interpreting the coaching role from their own beliefs. They all saw it as a way of working with students which was generally applicable and did not depend on a certain setting. It seemed that they internalised the coaching role and that it was an approach they automatically switched over to. James phrased it as follows:

So I'm all the time in all kinds of roles and I'm constantly looking for ways to coach. So coaching is much more than telling a student "www dot something and you'll find it" (semi-structured interview).

These four teachers found it important to create a safe learning environment, give their students individual attention and adapt their approach to the individual needs of each student. All four mentioned that their beliefs about the coaching role were different from their colleagues' beliefs, who often saw it less extensive. Finally, for these four teachers their beliefs about the coaching role were mostly independent of the redesign of SVE, as they found for instance that the innovation lacked certain features they found important or that it was unclear how to put the directions provided about innovating SVE into practice.

Two teachers, George and Jon, seemed to make sense of the coaching role mainly through assimilation and (a will towards) accommodation. There was correspondence between their own frame of reference and that of the

innovation. They interpreted the coaching role from their own beliefs, but indicated also that they had changed. Jon observed:

I developed in the past 20 years from transmitting subject matter and explaining as much as possible, to this. And this suits me better I think. That transition just went gradually. Also the first year that you teach, you have a conversation now and then with students with a problem, or without a problem. Those are nice conversations and then you can better understand those students and you hope to be able to advise them. And slowly and surely that expands (semi-structured interview).

The other teacher, George, said he was willing to accommodate more, but did not know how, as he found the frame of reference of the innovation rather unclear. Like the four teachers described above, both Jon and George saw the coaching role as a continuous, ever-present role. Both found it important to pay individual attention to students, and that students really think about the subjects and learn how to put them into practice, instead of learning them by heart. Jon in particular found it important to pay attention to students' study progress, attendance and future orientations. Jon and George had a different view of the coaching role from their colleagues. Yet, Jon seemed to experience this difference to a larger extent than George.

One teacher, Steven, seemed to make sense of the coaching role mainly through accommodation. He said that through schooling he learnt a lot about innovative SVE and the coaching role and therefore had changed a lot compared with when he started working as a teacher, but he was also still searching for how to put the coaching role into practice. He also saw the coaching role as a continuous, ever-present role. He found it important to create a safe and stimulating learning environment, with attention to both the student as a person and the subject he teaches. He found his beliefs about the coaching role were not in correspondence with most colleagues, who interpreted it more narrowly than he did.

Alice and Hugo seemed to make sense of the coaching role through assimilation and some degree of distantiation. For both of them their expert role was to some extent dominant, but differed in how it was. With regard to Hugo there was correspondence between his own frame of reference and that

of the innovation, but only when students worked in a project-based setting. He found the frame of reference of the innovation somewhat unclear, however, as he explained in the following:

Then I think I do really well. But whether that is what they want with the redesign of SVE, I don't know (semi-structured interview).

He saw the coaching role as creating an open and stimulating learning environment, with attention to the students and the work they do. In a whole-class setting he made sense of the coaching role mainly through distantiation, as he was then mostly teaching and not coaching. He found he had different beliefs about the coaching role than most of his colleagues, who interpreted it less comprehensively than he did. With regard to Alice, there seemed to be only partial correspondence between her own frame of reference and that of the innovation, as her expert role and subject were often very dominant in her beliefs about the coaching role. She saw coaching mainly as guiding and supporting students' thinking process when working on tasks. This was something she had to learn, she explained:

Yes, I had to learn this and some years ago I much easier just gave them the answer immediately, or this or that. I think nowadays you see this much more, that most of the time you give them little steps to get to the end product. So that you let them think for themselves (video-stimulated interview).

She thought that her colleagues interpreted the coaching role in the same way she did.

Two teachers, Ben and Mark, seemed to make sense of the coaching role mostly through toleration and distantiation, as their own frames of reference hardly seemed to correspond to the frame of reference of the innovation. On the one hand, their sense-making process seemed a matter of toleration, as both indicated that there was more to their lessons than just whole-class instructions, but they interpred the coaching role in the classroom from the perspective of their expert role and the subject they teach, or treated it as a role outside the classroom. They saw the coaching role as the 'new name' for the student counsellor who has one-to-one conversations with

students about things other than subject matter. Within the classroom, they saw coaching mainly as guiding and supporting students' thinking process when working on tasks. One of them, Mark, preferred to create a learning environment which was mostly directed at whole-class and group interaction, instead of being directed at individual students. On the other hand, how they made sense of the coaching role seemed to be a matter of distantiation, as both indicated they thought not much will change in education, which they also preferred. Ben said, for instance:

How they talk about it, yeah, that is a bit like, yeah, in the future we are only allowed to talk with our students and we're not allowed anymore to explain them anything, so to speak, because they have to search for information themselves. I don't believe in that, but that is the image I get a bit from it. But again, I don't think much will change (semi-structured interview).

Both teachers said their beliefs about the coaching role corresponded with the beliefs of their colleagues, although Mark said his colleagues did not see their own way of teaching as coaching.

Overall, several results stood out with regard to the sense-making processes of these teachers. First, teachers who mainly made sense of the coaching role through assimilation and/or accommodation interpreted the coaching role as a continuous, ever-present role, which was not the case with the teachers whose sense-making process could be (partly) typified as toleration and/or distantiation. Second, the 'assimilation and/or accommodation teachers' indicated that their beliefs about the coaching role were mostly not in correspondence with the beliefs of their colleagues. The 'toleration and/or distantiation teachers', conversely, thought their colleagues had the same beliefs about coaching that they had. Third, quite a number of teachers who made sense through assimilation and/or accommodation said that they found the frame of reference of the innovation rather unclear.

3.5.3 Teachers' experiences of agency within their work

Tom, Eric, James, Suzan and Jon experienced a high degree of agency within their work. Although most of them experienced room provided by the school to pursue their own goals, all of them played a considerably active role in making

use of such space and creating it themselves, for instance by taking initiatives, enforcing possibilities, adapting activities in their work to their own wishes, and investing in their professional development. This was expressed by Suzan in the following quotation:

I have to be honest; I think that my colleagues see me as the one that regularly pushes things through, as that is the only way to get things done (semi-structured interview).

These five teachers seemed mainly to follow their own direction without caring much about the direction their colleagues want to follow. Jon said:

In my opinion you have to work as a team and operate as a team and together you have to do it. And now I'm like, I'm finding my own way and doing my own things (semi-structured interview).

All mentioned that they sometimes experienced hindrances or frustrations, because their school in some way restricted the opportunities to work according to their own goals.

Five teachers, George, Alice, Hugo, Steven and Mark, experienced a moderate degree of agency within their work. All of them experienced room provided by their school to pursue their own goals, made use of this room and also actively searched for possibilities. Contrary to the teachers with a high degree of agency, however, these teachers seemed to accept more easily or showed more understanding of the boundaries the school sets in relation to their working according to their own goals. George explained:

I use the room there is, but I limit myself to the room there is (semi-structured interview).

Also, especially Alice and Mark seemed to be partly led by the opinions or the positions of their colleagues.

One teacher, Ben, experienced a low degree of agency within his work as a teacher. He mainly did what the school expected of him and did not really

have a vision of his own. He adapted himself to the demands and goals of the school.

When you start working at this school they tell you we expect this and this from you. And you adjust yourself to that. And I don't have totally a vision of my own on that; I follow that (semi-structured interview).

In his opinion it was not good to change things individually. Instead he always preferred to discuss everything with the team. In that case he also wanted to be heard in the discussion.

Overall, except for one teacher, the teachers in this study experienced a relatively high degree of agency within their work as teachers. Teachers experiencing a high degree of agency indicated, however, that they were frustrated or hindered sometimes by the organisation or their colleagues in pursuing their own goals, which was not mentioned by teachers experiencing a moderate or low degree of agency. Furthermore, teachers experiencing a moderate or low degree of agency seemed more often to be influenced in some way by their colleagues than were teachers experiencing a high degree of agency.

3.5.4 Relations between teachers' feelings of ownership, sense-making, and experiences of agency

In Figure 3.2 the results of the individual concepts are shown in relation to each other. Seven of the 11 teachers, Tom, Eric, James, Suzan, Jon, George and Steven, are positioned towards the upper left corner of the table, meaning that they felt a high degree of ownership towards the coaching role, experienced a moderate to high degree of agency in their work, and made sense of the coaching role mainly through assimilation, accommodation or both. The other four teachers, Alice, Hugo, Ben and Mark, are positioned more towards the bottom right corner of the table, meaning that they felt a moderate to low degree of ownership towards the coaching role, experienced a moderate to low degree of agency in their work as teachers, and made sense of the coaching role mainly through a combination of assimilation and distantiation, and toleration and distantiation.

	Ownership		
Agency	**High**	**Moderate**	**Low**
High	As (4) As – Ac (1)		
Moderate	As – Ac (1) Ac (1)	As – D (2)	T – D (1)
Low			T – D (1)

Figure 3.2. Relations between teachers' feelings of ownership, sense-making, and experiences of agency
As = assimilation; Ac = accommodation; T = toleration; D = distantiation

In general, the teachers positioned at the top left of the table seemed to be more occupied with their students' overall competence development and well-being, whereas the teachers positioned in the bottom right seemed mainly to be focused on their students' competence development within the technical area they taught. Although within the whole group of participants there were some teachers with only a little teaching experience, it is noteworthy that the two teachers positioned mostly in the bottom right corner, Ben and Mark, both had only 1.5 years of teaching experience at the time of data collection.

3.6 | CONCLUSIONS AND DISCUSSION

This study investigated teacher change towards a coaching role through the lens of teachers' ownership, sense-making, and agency. More specifically, these three concepts were used to describe and compare SVE teachers' ways of positioning themselves towards the coaching role. The findings indicated that these three concepts are useful for describing similarities and differences in terms of how teachers position themselves towards an innovation. Within the group of 11 teachers who participated in this study considerable differences were found in the extent to which they felt ownership towards the coaching role, in the way they made sense of the coaching role and in their experiences of agency in their work. When relating the findings of these 11

teachers, there was a tendency noticeable within this group that those who experienced a moderate to high degree of agency within their work, felt a high degree of ownership with regard to the coaching role, but only when making sense of the coaching role through processes of assimilation and/or accommodation. This might also indicate that a moderate to high degree of agency does not necessarily lead to an innovative teacher, but can result in a teacher who uses his or her agency to reject the innovation, which seemed to be the case with Mark.

This last conclusion seems to partly contradict Pierce et al. (2001), who suggested that the amount of control someone has over something relates positively to the degree to which he or she feels ownership towards it. Mark experienced a moderate degree of agency within his work, but felt a low degree of ownership towards the coaching role and made sense of it mainly through the processes of toleration and distantiation. He seemed to use his experience of agency in his work to offer resistance to the innovation, because the innovation conflicted with his identity as a teacher. Sannino (2010) explained, however, that resistance to an innovation is not necessarily something negative, but can be a sign of involvement and development. This might also be the case for Mark and Ben; for both of them their students' well-being was the basis for their opinion about the coaching role. These two beginning teachers believed that the coaching role means that teachers are no longer allowed to provide students with the support, guidance and structure, which they thought their students really need. Yet, most teachers who were positive about the coaching role emphasised the importance of exactly these elements in coaching. Day and Smethem (2009) state that 'although young teachers may be more open to change, they can lack the experience, competence and confidence to fully comprehend and implement change' (p. 149). The beginning teachers in this study might have had less knowledge about the coaching role and how to bring it into practice. This could explain their lack of ownership, as the more a teacher knows about an innovation the deeper his or her relationship with that innovation may be and the stronger their feelings of ownership towards it (Pierce et al., 2001). In teacher education there should therefore be more attention to recent educational innovations that ask for a different pedagogy, in this case more of a coaching role.

A lack of knowledge could not only be assigned to the two teachers with sparse teaching experience. Several other teachers who made sense of the coaching role through the process of assimilation, accommodation, or both, mentioned a lack of clarity about the meaning of the coaching role. Fullan (2007) emphasises the importance of clarity about the goals and means of an innovation, because otherwise teachers simply do not know how to put it into practice. This can lead to what he calls false clarity: an oversimplification of the innovation, which may result in teachers thinking that they are already working according to the innovation. In the light of the results of this study, a lack of clarity about the coaching role might force teachers more or less to make sense of it from the perspective of their own frame of reference. Although in the case of assimilation there is a match between the teacher's frame of reference and that of the innovation, at the same time important aspects of the innovation can get lost in the individual interpretation of the teacher (Luttenberg et al., 2009).

Several teachers in this study, especially teachers feeling a high degree of ownership, experienced a lack of opportunities for collaboration and a lack of interest for the coaching role among their colleagues. A lack of collaboration can lead to individual values and beliefs which in turn can lead either to enactment of traditions, lowering expectations, or to innovating alone (McLaughlin & Talbert, 2001). This seems to be especially the case in school 2, where teachers wanting to develop the coaching role and put it into practice lack connection with their colleagues and possibilities to collaborate, whereas teachers preferring to continue teaching in the way they are accustomed to are able to do so.

An explanation for this lack of connection with colleagues might be what Pierce at al. (2003) call the dark side of ownership. These teachers may unconsciously act too possessively about the innovation and therefore shut out their colleagues. This 'dark side' could also be found in agency. When teachers are experiencing a high degree of agency in their work it could lead to everybody doing it their own way. This asks for good leadership consisting of giving teachers enough room to put their ideas into practice in ways that fit their professional identity and, at the same time, providing teachers with guidelines and boundaries within which they can operate (Fullan, 2007).

From the results of this study several practical implications can be derived. First, this study shows that an educational innovation initiated by the government does not necessarily evoke resistance. If teachers' frames of reference correspond with the frame of reference of the innovation, and they experience enough agency to be able to find their own way in putting the innovation into practice, they can feel a high degree of ownership regarding the innovation. Second, the importance of collaboration in the implementation process of an innovation became clear. Collaboration could help teachers putting up resistance to the innovation to talk about the conflicts they experience between the innovation and their own beliefs, which could also elucidate the similarities instead of only the differences (Sannino, 2010). Also, it can lead to more information and better knowledge about the innovation, which can strengthen feelings of ownership (Pierce et al., 2001). Collaboration may also help to prevent teachers from wandering towards the dark side of ownership, sense-making and agency, and ending up on an 'island' within their school where nobody can reach them anymore. A school in an innovation process therefore needs a school leader who stimulates collaboration and at the same time respects the different identities of individual teachers.

This study has several limitations, but offers opportunities for further research. The teachers participated on a voluntary basis, which may explain why most of them had a moderate to high degree of ownership and that there was correspondence between their own frame of reference and the innovation: voluntary participation in a time-consuming study such as this one means it is likely that those with less favourable opinions about the innovation refused to participate in the study or dropped out. Furthermore, generalisation of the results is difficult as only a small number of SVE teachers participated, all teaching in the technology education sector. Teachers from sectors other than technology should be studied, because they and their students might respond differently towards innovations and towards the coaching role in particular. To be able to generalise more, it would also be useful to study the concepts of ownership, sense-making and agency in different contexts and maybe on a larger scale. Finally, studying these three concepts longitudinally could be useful in order to explore whether they change and, if so, what causes change.

CHAPTER 4

**STUDENT PERCEPTIONS OF THEIR TEACHERS' IMPLEMENTATION OF
AN INNOVATION: DO TEACHERS' OWNERSHIP, SENSE-MAKING,
AND AGENCY MAKE A DIFFERENCE?[7]**

ABSTRACT

The aim of this study was twofold. Firstly, student perceptions of
teachers' implementation of the coaching role were examined.
Secondly, the relationship between these perceptions and teachers'
ownership, sense-making and agency regarding this role was explored.
The data was collected by means of a student questionnaire, completed
by 253 of the students of 10 specific teachers. The findings showed
that these teachers appeared to be implementing their coaching role to
a reasonably strong degree. Moreover, a relationship was identified
between the extent to which this role was implemented and teachers'
feelings of ownership, their processes of sense-making, and their
experiences of agency. The results therefore suggest that ownership,
sense-making, and agency do make a difference in the implementation
of an educational innovation.

4.1 | INTRODUCTION

Educational innovations frequently need to be introduced into teachers' daily teaching practices. This may for instance be a response to the need to use new materials, to change pedagogic methods or to implement new means of assessment. However, although it seems beyond all dispute that teachers play a crucial role in the success of innovations (e.g., Day et al., 2007; Fullan, 2007; Schmidt & Datnow, 2005), they are hardly ever involved in their design (Van Veen & Sleegers, 2006). The implementation of an educational innovation can have a strong impact on a teacher's professional identity (Day, Kington, Stobart, & Sammons, 2006) and its introduction may often mean that renegotiation of this identity will be necessary (Vähäsantanen & Eteläpelto, 2009). How teachers respond to innovations largely depends on whether they perceive their professional identities as being reinforced or threatened by such proposed changes (Van Veen & Sleegers, 2006). Therefore, their responses can be very diverse, from actively sustaining to actively subverting the changes (Datnow, 1998). Either way, teachers generally do not simply accept or reject new innovations (Luttenberg et al., 2009; Vähäsantanen & Eteläpelto, 2009), but tend to actively position themselves in relation to their introduction (Spillane et al., 2002; Vähäsantanen & Eteläpelto, 2009). This involves making deliberate choices (Coldron & Smith, 1999) and balancing their personal beliefs, desires and values regarding education against the characteristics and demands of the proposed changes (Spillane et al., 2002).

This process of positioning oneself in relation to an innovation can be conceptualised by means of three identity-related concepts. These are: teachers' feelings of *ownership* towards an innovation, their *sense-making* of it and their experience of *agency* in their work (cf. Beijaard, 2009). It is assumed that teachers all have their own ways of making sense of an innovation, and that each teacher has a personal interpretation of an innovation (Luttenberg et al., 2009; Spillane et al., 2002; Van Veen & Lasky, 2005). When teachers, in the course of their sense-making process, experience a reasonable degree of congruence between their own values and beliefs and an innovation, it is likely that they will be enthusiastic for the innovation (e.g., Schmidt & Datnow, 2005; Van Veen & Sleegers, 2006). Furthermore, it is to be expected that teachers who experience a high degree of agency will have 'the capacity to

change the existing state of affairs' (Datnow, 1998, p. 10) and that ownership contributes to the sustainability of an innovation (Bergen & Van Veen, 2004; Struckman & Yammarino, 2003). It has, however, not yet been studied in any great detail, whether the extent to which teachers feel ownership towards an innovation (Breiting, 2008), the way they make sense of it (Spillane et al., 2002) and the extent to which they experience agency in their work (Datnow, 1998; Lipponen & Kumpulainen, 2011) separately or jointly make a difference to how an innovation is implemented. Moreover, these three concepts not only have hardly been studied in their own right, research into the relationship between ownership, sense-making and agency is lacking. The present study thus aims to explore whether differences in teachers' ownership, sense-making and agency relate to differences in their implementation of an innovation. After all, real change is change in both conceptions and behaviour (Fullan, 2007). In order to gain understanding of teachers' implementation of an innovation, the focus here is on student perceptions. An important reason for this is that student ratings are based upon a representative sample of their teachers' behaviour (De Jong & Westerhof, 2001). More importantly, it is not so much the teacher's behaviour that influences the learning of students, but how students *perceive* that behaviour (e.g., Hattie, 2009; Könings, 2007; Shuell, 1996).

With these factors in mind, the following key research question was formulated: What is the relationship between teachers' positioning towards an innovation and their implementation of it as perceived by their own students? Answering this question should lead to a better understanding of the differences between teachers with regard to the implementation of educational innovations. Moreover, it will contribute to a better understanding of the role that ownership, sense-making and agency play in innovations. Such knowledge could also have practical implications for teachers and school leaders, as they might help explain the differences in how teachers implement innovations.

4.1.1 Context of the study: teachers' coaching role in innovative secondary vocational education

This study took place in the context of secondary vocational education (SVE) in the Netherlands. Vocational training in SVE varies in duration (from 1 year

up to 4 years), level (from level 1 to level 4, with level 4 being the most advanced), and study-route (school-based study-route: 20% to 60% practical/workplace training and the remaining time spent at school, vs. work-based study-route: at least 60% practical/workplace training and the remaining time spent at school). The student population is therefore rather diverse, differing in age and ability. SVE prepares students for their working career. Graduates at the highest level of SVE are allowed to enter the bachelor programme in higher vocational education.

During the late 1990s, the Social-Economic Council and the Education Council advised the Dutch government to revise the content and design of SVE in the Netherlands. This advice was based on demands from the labour market, where it was noticed that professions and jobs were changing rapidly (Dutch Inspectorate of Education, 2007). Due to the constant developments and innovations in their work, employees need to continuously develop themselves. To prepare students for such a rapidly changing world, the renewed SVE was aimed at improving the transition from school to the labour market and preparing students for lifelong learning (Biemans et al., 2004; Biemans et al., 2009). The characteristics of innovative SVE include, among other things, a focus on future working practice as a basis for curriculum development, learning through authentic or lifelike tasks, focusing on the development of students' meta-cognitive skills, and learning through cooperation (cf. De Bruijn & Leeman, 2011; Koopman, 2010; Wesselink et al., 2007). Since 2004, several SVE schools in the Netherlands have started experimenting with redesigning their learning environment. Eventually, from August 2010, every SVE school was obliged to focus on the implementation of the new education (Dutch Inspectorate of Education, 2007). However, the extent to which SVE has actually reformed education according to these new directions differs considerably between schools (De Bruijn & Leeman, 2011).

The nature of education itself has changed as a result of innovations in SVE, as has the role of the teacher in the classroom. Although teachers remain subject experts, their coaching role is now becoming ever more important. For many teachers this is a new role (Biemans et al., 2009; Wesselink et al., 2007). It concerns the teacher's coaching role *in the classroom*, so interacting with students who are working on tasks, whether individually, in cooperative groups, or in whole-class situations. The word

'classrooms' in the SVE context can refer to different rooms such as traditional classrooms, practical workplaces, or so-called 'open study areas' with computers and tables for group work.

In taking on a coaching role, teachers guide and support students' learning processes, especially their self-regulated and independent learning (e.g., Bakker, 2008; De Bruijn & Leeman, 2011). The teacher can be seen as a facilitator of students' learning processes, anticipating the different (learning) needs of individual students (Iredale & Schoch, 2010). This means that students are not turned adrift, as the teacher will be playing an active role in guiding and supporting their learning process (De Bruijn & Leeman, 2011). The coaching role includes the creation of an appropriate learning environment on the one hand and the use of specific relevant activities on the other hand (see Chapter 2). With regard to the creation of the learning environment, teachers' perceptions of the coaching role (as described in Chapter 2) revealed that the promotion and support of students' self-directed learning, and the creation of a safe learning environment, with attention being paid to establishing a good student-teacher relationship, have been found to be particularly relevant for the coaching role.

Furthermore, in the literature a broad range of activities are described that seem relevant to the coaching role. These activities can be divided broadly into three overarching categories of coaching interventions, namely asking questions, giving feedback (Bakker, 2008) and giving support (cf. De Bruijn & Leeman, 2011; Scager & Thoolen, 2006). As Hattie and Timperley (2007) explain, *feedback* can be directed at four levels, namely the task level, the process level, the self-regulation level and the self level. The same levels seem applicable for the coaching intervention *asking questions* (cf. Bolhuis & Voeten, 2001). Besides giving feedback and asking questions, additional activities that seem relevant for the coaching role are also referred to in the literature, and these can be placed in the category *giving support* (see Chapter 2). Examples of these activities are modelling, thinking aloud, providing adaptive instructions, and actively supporting the student (De Bruijn & Leeman, 2011). The results of the study of teachers' perceptions of the coaching role (Chapter 2) showed that SVE teachers perceived those activities directed at the self-regulation level and the process level as being very typical of the coaching role. Overall, this study showed that the teachers' perceptions

were, at least to some extent, in line with the aims of innovative SVE. However, De Bruijn and Leeman (2011) state that the teacher's coaching role in particular was one of the features of innovative SVE that they had as yet hardly observed in practice. A close look at the positioning of SVE teachers with regard to the coaching role furthermore indicated considerable differences in their feelings of ownership towards that role, their sense-making of it and their experiences of agency in their work (see Chapter 3).

4.1.2 Ownership, sense-making and agency

Teachers' positioning in relation to an innovation can be conceptualised in terms of their feelings of ownership towards it, their sense-making of it and their experience of agency in their work (cf. Beijaard, 2009). Ownership, sense-making and agency are all closely related to teachers' professional identities, though in somewhat different ways. In this section the three concepts will be described from a theoretical perspective. Subsequently, in section 4.1.3, a description of how these concepts pertain to the teachers in our study will be given, based on a summary of the findings of the study as described in Chapter 3.

Ownership towards an educational innovation can be considered as a teacher's mental or psychological state of feeling owner of that innovation, which develops through mental and/or physical investment in it (cf. Breiting, 2008; Pierce et al., 2001). Feeling a degree of ownership towards an innovation is assumed to lead to a successful integration of the innovation into the teachers' working routines (Bergen & Van Veen, 2004) and a continuation of the process of change in the future, even when there are no external rewards attached (Struckman & Yammarino, 2003). However, before investing time and energy in an innovation, teachers should support the ideas of the innovation and feel the urge or necessity for change (Van den Berg & Geurts, 2007). Further investment in the creation and development of an innovation can subsequently lead to teachers identifying themselves with the innovation (Pierce et al., 2001). Teachers who feel a high degree of ownership towards the innovation express this identification with it and communicate with others about it (Pierce et al., 2003). A feeling of ownership might therefore be seen as a way of expressing one's identity as a teacher, in terms of what one finds important and what one identifies with (Pierce et al., 2001).

Sense-making is more than simply interpreting an innovation: it is considered an active cognitive and emotional process in which teachers attempt to fit information derived from innovation into their existing knowledge and beliefs (Spillane et al., 2002; Van Veen & Lasky, 2005). Luttenberg et al. (2009) propose that the course and outcome of this process is determined by (a) the extent to which a teacher's frame of reference *corresponds* with the demands of the innovation and (b) the *dominance* of either the teacher's frame of reference or the demands of the innovation. Combining these two determinants leads to four types of sense-making:

- *Assimilation*: fitting the demands of the innovation into one's own frame of reference, resulting in a variation within the frame of reference instead of a change of frame of reference.

- *Accommodation*: adapting the frame of reference to the demands of the innovation, resulting in a change of frame of reference.

- *Toleration:* tolerating the demands of the innovation both besides and at the expense of the existing frame of reference, resulting in an acceptence of the innovation, even though it may conflict with the existing frame of reference.

- *Distantiation:* rejection of the innovation, leaving the frame of reference unchanged.

In the context of an innovation, the sense-making process of a teacher can be dominated either by one of these four types of sense-making or by a combination of two types (Luttenberg et al., 2009), for example partly by assimilation, and partly by distantiation (see Chapter 3). In short, the sense-making process involves an interaction between a teacher's identity and the innovation, resulting in a maintenance or alteration of that identity.

Teachers who experience *agency* within their work feel in control of the work-related choices they make, which they base upon their own goals, interests and motivations (Vähäsantanen et al., 2008). For teachers to be able to make their own choices, they need to experience a certain amount of autonomy and room for negotiation within their school (Beijaard, 2009; Coldron & Smith, 1999; Vähäsantanen et al., 2008). Agency is thus shaped by both the teacher and the school context (Lasky, 2005; Lipponen & Kumpulainen, 2011). Experiencing a certain degree of agency is important for teachers, because it plays a role in the development and maintenance of their

professional identity (Beijaard, 2009), especially in the context of an innovation. When teachers experience a high degree of agency they feel more balanced and in control, and are better able to manage pressures in their work (Day et al., 2007). In the case of an innovation, teachers with a strong sense of agency tend to attribute their successes and failures with the innovation to themselves, while teachers with a lack of agency tend to attribute it to external factors (Marshall & Drummond, 2006). A lack of agency might lead to what Lasky (2005) describes as the negative side of vulnerability: 'people may have no direct control, believe they have no direct control over factors that affect their immediate context, or feel they are being "forced" to act in ways that are inconsistent with their core beliefs and values' (p. 901). Agency can also play a role in offering resistance when a teacher's beliefs conflict with those associated with the innovation (Sannino, 2010) and can therefore lead to the prevention of organisational change (Vähäsantanen et al., 2008). Agency in relation to identity might therefore be seen as a vehicle to give direction to one's career as a teacher and stay true to oneself in times of change (cf. Vähäsantanen et al., 2008).

4.1.3 Teachers' positioning towards the coaching role

The similarities and differences in how SVE teachers position themselves in relation to the coaching role can be described by means of their feelings of ownership towards the coaching role, their sense-making of it, and their experience of agency in their work (see Chapter 3). The study presented in Chapter 3 revealed considerable differences between the 11 participating SVE teachers with regard to their levels of ownership, sense-making, and agency. Relating the findings of the three concepts indicated that there was a tendency for those who experienced a moderate to high degree of agency in their work to also feel a high degree of ownership towards the coaching role, but only when making sense of the coaching role through processes of assimilation and/or accommodation. A somewhat simplified representation of the results is shown in Figure 4.1.
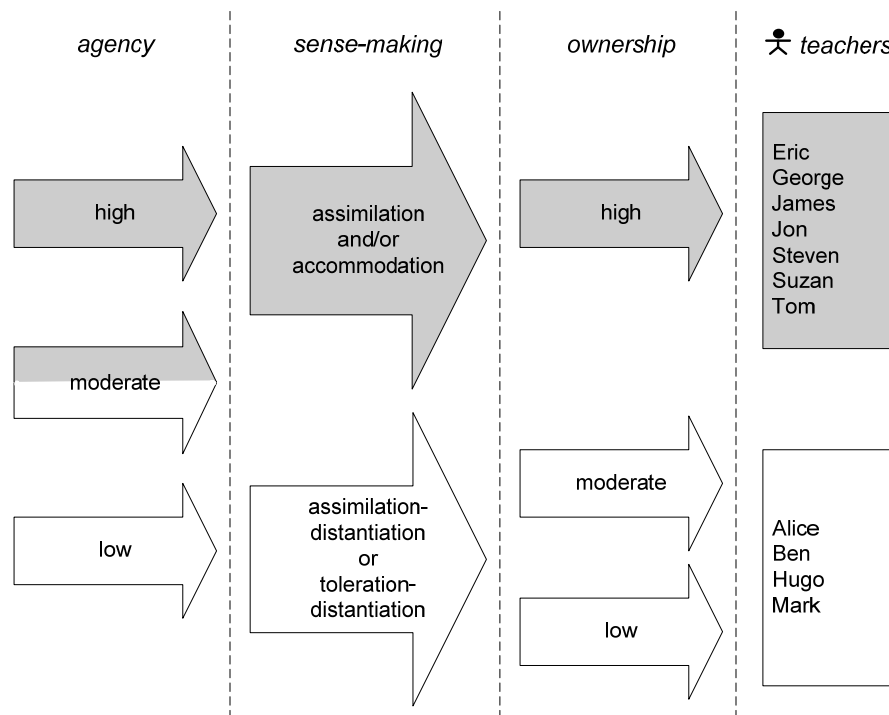
Figure 4.1. Simplified representation of teachers' positioning towards the coaching role

Within this group of 11 teachers, a rough division into two groups could be identified. In Figure 4.1 these two groups are indicated by grey and white colours respectively. The first group (grey in Figure 4.1) felt a high degree of ownership towards the coaching role, experienced a moderate to high degree of agency within their work, and made sense of the coaching role mainly through assimilation, accommodation or both. This group of teachers can be labelled *engaged*. The other teachers (white in Figure 4.1) felt a low to moderate degree of ownership, experienced a low to moderate degree of agency in their work, and made sense of the coaching role mainly through a combination of assimilation and distantiation, or toleration and distantiation. This group can be labelled *reserved*. Within the sample of 11 teachers, there were no teachers who felt, for instance, a high degree of ownership combined with a low experience of agency. Accordingly, for the sake of this study, the division into two groups has been maintained.

From a theoretical perspective, it might be expected that such factors as a high degree of feeling ownership towards the coaching role, making sense of it mainly through processes of assimilation and/or accommodation and experiencing a high degree of agency can increase the chances that teachers actually bring the coaching role into practice and that their students will notice this change. Guskey (2002) states that changes in teachers' behaviour tend to occur before changes in their beliefs and attitudes. Yet, with regard to the coaching role De Bruijn and Leeman (2011) found that implementation tended to lag behind several other aspects of innovative SVE. It is therefore interesting to study whether feelings of ownership, processes of sense-making and experiences of agency indeed are related to differences in ways of implementing the coaching role.

4.1.4 Students' perceptions of teachers' coaching role

In order to gain information on teachers' implementation of the coaching role, this study was focused on student perceptions. As the coaching role is directed at providing students with a safe learning environment and promoting and supporting their self-directed learning, students in particular seem to be able to judge whether their teacher is successfully helping to provide these elements. The advantages of focusing on student perceptions is that these perceptions are based on lengthy experience with the teacher throughout the school year, and that the data collected represents the joint opinions of the students (as opposed to the rating of a single person in case of an external observer) (De Jong & Westerhof, 2001; Den Brok, Bergen, Stahl, & Brekelmans, 2004). Students as young as 12 years old are able to draw a reliable and valid picture of their teacher's behaviour and are able to distinguish between teachers (De Jong & Westerhof, 2001). Examples of studies of Dutch SVE in which student perceptions were used are those of Mittendorff et al. (2011) and Wesselink (2010). Student perceptions appeared to give useful insights into SVE teachers' career guidance behaviour (Mittendorff et al., 2011) and the implementation level of different elements of innovative SVE (Wesselink, 2010). It seems therefore plausible that SVE students will also be able to provide some useful information on their teachers' coaching behaviour.

In general, teachers themselves often have different perceptions of the learning environment and their own behaviour compared to their students (e.g., Biemans, Jongmans, De Jong, & Bergen, 1999; De Jong & Westerhof, 2001; Den Brok, Bergen, & Brekelmans, 2006; Fraser, 2007). Teachers tend to rate themselves more favourably in terms of positive behaviour and less favourably in terms of negative behaviour than their students do (Wubbels & Brekelmans, 2005). This is the so called 'rose-colored glasses' effect (Fraser, 2007, p. 116). More importantly, the learning processes of students are often not so much influenced by the teacher's behaviour itself, but mainly by how students perceive that teacher's behaviour (e.g., Hattie, 2009; Könings, 2007; Shuell, 1996). It might therefore be argued that an educational innovation has only been successfully implemented when the students actually observe the implementation in practice.

4.1.5 Research questions

To study the relationship between SVE teachers' positioning in regard to the coaching role and its implementation as perceived by their students, the following two more specific research questions have been formulated:

1. To what extent do SVE students perceive their teachers have implemented the coaching role?
2. What is the relationship between these perceptions and teachers' ownership, sense-making, and agency regarding the coaching role?

4.2 | METHOD

4.2.1 Participants

In total, 253 students participated in this study. Their mean age was 18.7 years old (SD = 3.76), with ages ranging from 15 to 56. The large majority was male (n = 242) and nine students were female. The students followed different levels and study-routes, but all were in the technology education sector (which explains the large amount of male students in this study).

Table 4.1
General characteristics of teachers and their participating students

Teachers	Eric	George	James	Jon	Steven	Suzan	Tom	Alice	Ben	Hugo
Gender	M	M	M	M	M	F	M	F	M	M
Age	34	55	43	49	51	43	38	41	37	37
Experience	9	25	18	20	10	3	4	20	1.5	11
School	1	1	2	2	2	2	1	1	2	2
Department	ML	ML	CT	ML	ML	ML	ML	ML	CT	CT
Students										
N	31	31	22	14	24	27	23	30	17	34
Age										
Mean	20.19	17.55	21.27	18.57	17.33	17.35	18.22	17.03	18.88	20.36
(SD)	(4.65)	(1.09)	(8.32)	(1.95)	(1.86)	(1.20)	(1.38)	(0.93)	(3.16)	(3.86)
Gender										
Male	30	30	20	14	23	27	23	29	16	30
Female	1	1	2	0	1	0	0	1	1	2
Level										
1	0	0	6	0	2	0	1	1	1	0
2	19	1	12	0	22	10	21	0	13	10
3	12	0	4	0	0	0	0	0	2	6
4	0	30	0	14	0	17	1	29	0	18
Study route										
WB	30	0	16	0	1	1	23	0	17	14
SB	0	31	6	14	22	26	0	30	0	18

Note. ML = mobility and logistics; CT = construction technology; WB = work-based; SB = school-based

Students' perceptions pertained to the implementation of the coaching role of 10 of the 11 teachers who participated in the study described in Chapter 3 (see Figure 4.1). One teacher, Mark, did not return the student questionnaires. Of the ten remaining teachers, two were female and eight male. They had between 1.5 and 25 years of experience as SVE teachers. Between 14 and 34 students per teacher participated. Table 4.1 shows details of the teachers (aliases being used for reasons of anonymity) and their participating students.

After an introduction and explanation of the study in a team meeting, teachers agreed to participate. Permission for participation of the students was obtained through school leaders. All teachers and students participated on a voluntary basis and their anonymity was guaranteed.

Students and teachers were from two SVE schools located in the southern part of the Netherlands. Students and teachers from school 1 were from the mobility and logistics department. Teachers from this department described their school as being innovative with regard to the redesign of SVE. Students and teachers from school 2 were from two different departments, mobility and logistics and construction techniques. Teachers from these departments described their school as moderately innovative with regard to the redesign of SVE.

4.2.2 Data collection

A student questionnaire was developed to investigate students' perceptions of their teachers' implementation of the coaching role. It consisted of 45 items, which were rated on a five-point scale, ranging from 1 *(almost) never* to 5 *(almost) always*. As described in the theoretical background of this study, the coaching role concerns the creation of a certain learning environment on the one hand and the use of specific activities relevant to the coaching role on the other hand. This distinction was therefore also made in the questionnaire.

The creation of the learning environment was reflected in two scales containing 20 items, which were based on two scales of the Inventory of Perceived Study Environment Extended (IPSEE; Könings, 2007; Könings, Brand-Gruwel, Van Merriënboer, & Broers, 2008). The first scale was *self-directed learning*, containing 14 items, measuring teachers' promotion and

support of students' self-directed learning regarding what, how and when they learn. The second scale was *personalisation*, which consisted of six items, measuring teachers' investment in the creation of a safe learning environment and attention to good student-teacher relationships. The items were adapted so that they pertained to one particular teacher, without changing the content of the items. The two scales were reliable, both with a Cronbach's alpha of .84, which is comparable to those reported by Könings (2007), namely .85 and .80 respectively. In Table 4.2, sample items and alphas are displayed for both scales.

The other 25 items were based on a list of specific teaching activities developed in the study described in Chapter 2. The activities could be divided into three overarching categories, namely asking questions, giving feedback and giving support. Asking questions and giving feedback were furthermore broadly directed at four levels: task level, process level, self-regulation level and self level (cf. Bolhuis & Voeten, 2001; Hattie & Timperley, 2007). An exploratory factor analysis was carried out on the 25 teaching activity items to identify possible scales within the items. Based upon the variance explained and the interpretability of the solutions, a two-factor solution was selected (both factors had an Eigenvalue larger than 1). As correlations between the two factors were rather high (see Table 4.3) the oblique rotated solution (Oblimin) was interpreted (Field, 2005). The first factor contained 12 items and could be labelled as *task and process oriented coaching activities*. The second factor contained 6 items and could be labelled as *progress and planning oriented coaching activities*. Examples of items are shown in Table 4.2. Seven items were excluded from further analysis, as those items either loaded on both factors or on none. After removal of those items, the two factors together explained 47.6% of the variance. Both resulting scales were reliable, with Cronbach's alphas of .81 and .89 (see Table 4.2).

The factor analysis did not result in factors that precisely referred to the underlying categories and levels as described above. The first factor contained mostly items at the task level and the process level and the second factor contained mostly items at the self-regulation level. Furthermore, the items that could be classified more as 'non-coaching', such as 'this teacher gives whole-class instruction', did not load on any of the two factors, but did not make up a reliable scale together either.

Table 4.2
Scales, Cronbach's alphas, number of items, and sample items for the student questionnaire

Scale	Cronbach's alpha	Number of items	Item examples
Self-directed learning	.84	14	*This teacher gives us own responsibility.* *With this teacher we work autonomously.*
Personalisation	.84	6	*This teacher talks individually with us.* *This teacher is interested in our problems.*
Task and process oriented coaching activities	.89	12	*This teacher asks questions about how we handled a task.* *This teacher clarifies what he/she thinks about how we carried out a task.*
Progress and planning oriented coaching activities	.81	6	*This teacher asks questions about the planning of our school work.* *This teacher clarifies what he/she thinks about the way we monitor our study progress.*

Correlations between the four scales ranged between .48 and .66 (see Table 4.3), indicating that the scales were inter-related, yet sufficiently distinctive (De Jong & Westerhof, 2001).

Table 4.3
Inter-correlations of the student questionnaire scales

	(1)	(2)	(3)	(4)
(1) Self-directed learning				
(2) Personalisation	.66			
(3) Task and process oriented coaching activities	.48	.63		
(4) Progress and planning oriented coaching activities	.59	.55	.66	

Note. All correlations are significant at *p*<.01 (2-tailed)

The ten participating teachers each administered the questionnaire to a group of their own students. The purpose of the questionnaire was explained. It was emphasised that all questions pertained to one particular teacher (the one who administered the questionnaire) and that they should keep that teacher in mind while answering the questions.

4.2.3 Data analysis

To answer the first research question, descriptive analyses were carried out. This included calculating mean scores and standard deviations on each of the four scales of the student questionnaire for the whole sample as well as per teacher. A multivariate analysis of covariance (MANCOVA) was carried out to answer the second research question. The effect of possible covariates was first investigated, including: teacher, school, student study level, and student study-route. Only the variable *teacher* appeared statistically significantly related to the dependent variables. Therefore, the other variables were not included in further analyses. The MANCOVA included positioning as grouping variable (so *engaged* and *reserved*), the four scales of the student questionnaire as dependent variables and teacher as a covariate. To investigate whether differences between the two position groups on any of the four scales were significant, Bonferroni-corrected post hoc comparisons were carried out (cf. Field, 2005).

4.3 | RESULTS

4.3.1 Students' perceptions of their teachers' implementation of the coaching role

Table 4.4 presents the overall mean scores and standard deviations on the four scales of the student questionnaire. According to their students, the 10 teachers seemed to have implemented most aspects of the coaching role at a reasonably high level. *Personalisation* was most often perceived with these teachers (M = 4.03).

Table 4.4
Overall means and standard deviations for the student questionnaire scales

Student questionnaire scales	M	SD
Self-directed learning	3.59	0.53
Personalisation	4.03	0.66
Task and process oriented coaching activities	3.70	0.63
Progress and planning oriented coaching activities	3.55	0.69

Note. Scales range from 1 to 5

In Table 4.5, the mean scores and standard deviations of the four scales of the student questionnaire are displayed per teacher. Overall, these results show that James, Tom and Suzan often had the highest mean scores. Hugo, Jon and Steven often had the lowest mean scores. This means that the scores of Eric, George, Alice and Ben lay mostly in between. It is noticeable that it was mostly the same teachers that had either the highest or the lowest scores on each scale. This indicates that students perceived either all of these aspects of the coaching role represented a lot in one teacher, or on the contrary, perceived all of these aspects relatively little within one teacher. So teachers who implemented more of the one also tended to implement more of the other.

Altogether these results indicate that, according to their own students, James, Tom and Suzan implemented the coaching role the most, while Hugo, Jon and Steven implemented the coaching role the least.

Table 4.5
Means and standard deviations (between brackets) for the student questionnaire scales per teacher

	Eric	George	James	Jon	Steven	Suzan	Tom	Alice	Ben	Hugo
Self-directed learning	3.71	3.79	3.92	3.19	3.19	3.74	3.78	3.60	3.53	3.33
	(0.36)	(0.45)	(0.52)	(0.42)	(0.59)	(0.54)	(0.39)	(0.42)	(0.42)	(0.66)
Personalisation	3.91	3.97	4.69	3.82	3.77	4.31	4.30	3.95	3.92	3.72
	(0.51)	(0.72)	(0.39)	(0.66)	(0.71)	(0.48)	(0.40)	(0.52)	(0.59)	(0.84)
Task and process oriented coaching activities	3.83	3.55	4.33	3.60	3.53	4.00	4.00	3.65	3.12	3.33
	(0.50)	(0.65)	(0.54)	(0.55)	(0.43)	(0.47)	(049)	(0.57)	(0.60)	(0.63)
Progress and planning oriented coaching activities	3.61	3.73	4.26	2.94	3.26	3.77	3.74	3.67	3.25	3.04
	(0.52)	(0.62)	(0.59)	(1.00)	(0.43)	(0.65)	(0.50)	(0.60)	(0.48)	(0.62)
Overall mean	3.77	3.76	4.30	3.39	3.44	3.96	3.96	3.72	3.46	3.36

4.3.2 Relation between positioning and implementation

In Figure 4.2 the results of the two groups that differed in their positioning towards the coaching role are displayed per student questionnaire scale. On all scales the *engaged* group had a higher mean score than the *reserved* group. The results of the MANCOVA revealed that the covariate *teacher* was statistically significantly related to the dependent variables, Pillai's Trace = .131, F (4, 221) = 8.31, p < .001. There was also a statistically significant multivariate main effect for *positioning* after controlling for the effect of teacher, Pillai's Trace = .119, F (4, 221) = 7.44, p < .001.
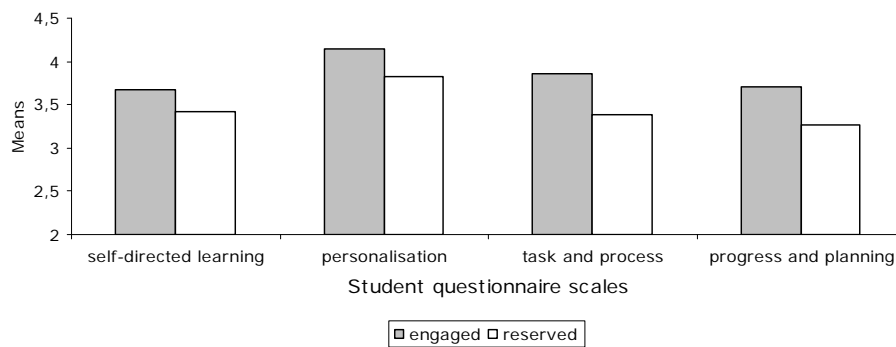
Figure 4.2. Scores of the *engaged* teachers and the *reserved* teachers on the different aspects of the coaching role as perceived by their students

Given the statistical significance of the overall test, the univariate main effects were examined. Statistically significant univariate main effects for *positioning* were obtained for *self-directed learning*, F (1, 224) = 10.24, p < .01, r = .20; for *personalisation*, F (1, 224) = 9.20, p < .01, r = .20; for *task and process oriented coaching activities*, F (1, 224) = 27.54, p < .001, r = .33; and for *progress and planning oriented coaching activities*, F (1, 224) = 18.90, p < .001, r = .27. Altogether, the results showed that the seven teachers in the *engaged* group had statistically significant higher mean scores on the scales *self-directed learning*, *personalisation*, *task and process oriented coaching activities* and *progress and planning oriented coaching activities*, than the three teachers in the *reserved* group. Although effect sizes (between .20 and .33) indicated that only a small to medium part of the variance could be explained

by *positioning* (cf. Field, 2005), these outcomes suggest that, in the perceptions of their own students, the *engaged* teachers had implemented the coaching role to a larger extent than the *reserved* teachers.

4.4 | CONCLUSIONS AND DISCUSSION

The general aim of this study was to gain an understanding of the relationship between teachers' positioning towards an innovation and their implementation of it. More specifically, the extent to which SVE teachers had implemented the coaching role, as perceived by their own students, was examined. Secondly, the relationship between these student perceptions and teachers' positioning in relation to the coaching role was explored. Positioning was expressed in terms of teachers' feelings of ownership towards the coaching role, their sense-making of it, and their experience of agency in their work.

In general, the results indicated that students perceived the aspects of the coaching role that were measured with the student questionnaire were implemented by their teachers to a reasonably strong degree. In particular, the variable *personalisation* obtained a high perception score, so teachers' investment in the creation of a safe learning environment and attention to a good student-teacher relationship. Contrary to de Bruijn and Leeman (2011) who hardly saw the coaching role being implemented in Dutch SVE, the present study showed a more positive picture of its implementation. These results correspond with those of Wesselink (2010), who found that, among other elements of innovative SVE, that coaching on the learning process and on the content was, according to SVE students, implemented to a reasonable degree.

Another noticeable trend within the results was that there were considerable differences between teachers with the highest scores and teachers with the lowest scores, indicating that some teachers had implemented aspects of the coaching role to a larger extent than others. Furthermore, most teachers had either relatively high scores on all aspects of the coaching role or relatively low scores on all aspects, indicating that the aspects of the coaching role are strongly related. Therefore, those teachers who integrated aspects of the coaching role into the learning environment

(promotion and support of students' self-directed learning, and investment in safe learning environment and a good student-teacher relationship) also tended to use more coaching activities (task and process oriented, and progress and planning oriented), or vice versa. This can be partly explained by the relatively high correlations between the four scales.

The results of the examination of the relationship between positioning and implementation indicated that the seven teachers who were labelled as *engaged* showed, according to their own students, that they had taken on the aspects of the coaching role to a statistically significant larger extent than the three teachers who were labelled as *reserved.* Effect sizes, however, revealed that only a small to medium part of the variance could be explained by teachers' positioning. Still, the results showed a tendency indicating that how teachers position themselves in relation to an educational innovation as expressed by their ownership, sense-making and agency, does relate to their degree of implementation of the innovation. This tendency is in line with other studies that show, for example, that teachers' experiences of their professional identities being either reinforced or threatened by an innovation, can to a great extent shape their reactions to it (e.g., Spillane et al., 2002; Vähäsantanen & Eteläpelto, 2009; Van Veen & Sleegers, 2006). It is suggested in the literature that experiencing ownership towards an innovation, the way teachers make sense of it, and their experience of agency are important, but these concepts have hardly ever been explicitly studied (Breiting, 2008; Datnow, 1998; Spillane et al., 2002). The contribution of this study is to explore explicitly what the roles of these concepts are in the context of innovations, instead of only referring to these concepts implicitly. This study implies that these concepts indeed do matter.

The contrasting results for Jon and James were nevertheless striking. Jon had relatively low scores on most of the four scales of the student questionnaire, while James had the highest scores on all scales. However, both felt a high degree of ownership towards the coaching role, experienced a high degree of agency within their work, and made sense of the coaching role mainly through assimilation and/or accommodation. Furthermore, both found themselves in an organisational situation characterised by a severe lack of collaboration with colleagues, especially concerning the redesign of SVE (see Chapter 3). In such cases a teacher can end up innovating alone, without any

assistance in helping the meaning of the innovation become clear, so that the teacher may then not know how to bring it into use (cf. Fullan, 2007). This might have been the case with Jon, but an explanation for the difference between Jon and James could not be found within the data of the present study.

Although the findings of this study offer indications that ownership, sense-making and agency do matter in the context of educational innovations, there may still be alternative explanations for the results. A strong example of such an alternative explanation is outlined by Spillane et al. (2002). They suggest that it is often not clear whether teachers whose beliefs seemed to be in line with an innovation had actually changed their beliefs or that they already held those beliefs prior to the implementation of the innovation. In other words, the question arises whether the teachers in this study that were part of the *engaged* group had really changed their practice because of the redesign of SVE or whether they had already brought the coaching role into practice before the redesign occurred. At least some of these teachers indicated that, for them, the implementation of a coaching role did not really constitute a change and that they had always found such approaches to teaching important (see Chapter 3).

This study has some limitations with regard to the sample and the data collection. Firstly, as only ten teachers participated in this study and these teachers were from a particular educational setting, namely the Technology sector in SVE, the results cannot be broadly generalised. Secondly, the teachers' implementation of the coaching role was measured in terms of student perceptions. We believe this to be a useful and strong method, but it cannot be excluded that a method such as classroom observation might have led to different results.

For future research, we would suggest studying on a larger scale, and in a broader context, the relationship between teachers' positioning towards an innovation and their implementation of it. Furthermore, it could be worth considering combining student perceptions and classroom observations to get a more complete picture of teachers' implementation of the coaching role. Also, ownership, sense-making, and agency were examined here in combination. As support was found for the importance of these three concepts in the context of an educational innovation, it may be worth investigating what the specific

contributions of each of the three concepts could amount to. Subsequently, further research could provide us with valuable knowledge of how ownership, sense-making and agency could be promoted and supported in practice.

From the results of this study, several practical implications can be derived. To a certain extent, support was found for the importance of teachers feeling ownership towards an innovation, the way teachers make sense of it, and their experience of agency in their work. It can therefore be suggested that when large-scale innovations are being introduced, schools should provide teachers with opportunities (such as time, room, and collaboration with colleagues) to develop a feeling of ownership, to make sense of the innovation, and to innovate, while at the same time maintaining and developing their professional identities. In addition, the student questionnaire appeared a reliable and useful instrument to map teachers' implementation of the coaching role. The instrument could be used by teachers as a means to obtain feedback from their students regarding the extent to which they had implemented the different aspects of the coaching role.

CHAPTER 5

TEACHERS' LEARNING EXPERIENCES IN RELATION TO THEIR OWNERSHIP, SENSE-MAKING, AND AGENCY[8]

ABSTRACT

The aim of this study was to investigate similarities and differences in teachers' learning experiences in terms of taking on a coaching role, using the concepts of ownership, sense-making, and agency. Eleven teachers reported in a digital log their learning experiences regarding the coaching role. On the basis of their initial positioning towards the coaching role in terms of their ownership, sense-making, and agency, these teachers were divided into an engaged and a reserved group. Differences were found in the learning experiences both between and within these groups. The digital logs of the engaged teachers showed more ownership than those of the reserved group and their sense-making was more active and explicit. Agency was present in the digital logs of both groups. Within the two groups, differences were found, particularly between teachers in the reserved group.

5.1 | INTRODUCTION

The aim of the present study is to gain understanding of similarities and differences in teachers' learning experiences related to taking on a coaching role in the classroom. From primary to higher education, the indications are that teachers, besides being subject experts, need to take on more of a coaching role (e.g., Geijsel & Meijers, 2005; Iredale & Schoch, 2010; Vermunt & Verloop, 1999; Windschitl, 2002). This means that the learning processes of individual students should constitute the basis for education (Windschitl, 2002), and that teachers should guide and support these learning processes, especially students' self-regulated and independent learning (e.g., Bakker, 2008; De Bruijn & Leeman, 2011). The teacher in the coaching role can therefore be seen as a facilitator of students' learning who anticipates the different (learning) needs of individual students (Iredale & Schoch, 2010). In the Netherlands, this trend is especially relevant in vocational education, where a reform is currently in process that explicitly asks teachers to take more of a coaching role in the classroom (Biemans et al., 2004; De Bruijn & Leeman, 2011; Wesselink et al., 2007). Taking on a coaching role in the classroom can, however, be quite a challenge for teachers. The coaching role is not a well-defined concept; this can make it difficult to interpret and lead to a broad variety of perceptions (Windschitl, 2002; see also Chapter 2). Furthermore, the transition from a principal focus on instruction and knowledge transmission to placing student learning at the centre of education is a fundamental shift (Windschitl, 2002), which may even affect teachers' professional identities (Day et al., 2006; Geijsel & Meijers, 2005).

In this respect, it is surprising that there are so few studies on how teachers learn to take on a coaching role in their everyday classroom practice. Research on teacher learning related to centralising students' learning processes is often focused on investigating the concrete learning activities that teachers undertake in the context of educational change (e.g., Bakkenes, Vermunt, & Wubbels, 2010; Hoekstra, Brekelmans, Beijaard, & Korthagen, 2009). Furthermore, research on teacher learning is often focused on formal professional development, although such trajectories constitute just a small part of their work. Consequently, most teachers are reliant upon learning during their everyday practice (Eraut, 2004; Hoekstra et al., 2009). Therefore,

in the present study teachers' work-based learning experiences related to the coaching role are the central focus. Three identity-related concepts are used as a specific lens to identify and reflect similarities and differences in these learning experiences, namely *ownership*, *sense-making*, and *agency*. These concepts are useful for explaining the different reactions that teachers can have to the implementation of an innovation (see Chapter 3).

Ownership towards an educational innovation can be considered as a teacher's mental or psychological state of feeling owner of that innovation, which develops through mental and/or physical investment in it (cf. Breiting, 2008; Pierce et al., 2001). It is assumed that feeling ownership towards an innovation contributes to its sustainability, as it can lead to a continuation of the process of change in the future and a successful integration of the innovation into teachers' practices (Bergen & Van Veen, 2004; Breiting, 2008), even when no external rewards are attached (Struckman & Yammarino, 2003). Teachers who feel ownership towards an innovation support the ideas of the innovation and feel the necessity for change (Van den Berg & Geurts, 2007). Furthermore, they tend to communicate about it and express their identification with the innovation (Pierce et al., 2003).

Before such a feeling of ownership can develop, however, teachers have to envisage what the innovation means and make sense of the consequences it might have for their own practice. *Sense-making* is considered as an active cognitive and emotional process in which teachers attempt to fit information derived from the innovation into their existing knowledge and beliefs (Spillane et al., 2002; Van Veen & Lasky, 2005). It seems that teachers all have their own ways of making sense of an innovation and that each makes personal interpretations (Luttenberg et al., 2011; Spillane et al., 2002; Van Veen & Lasky, 2005). When, in the course of their sense-making process, teachers experience a reasonable degree of congruence between their own values and beliefs and an innovation, it is likely that they will be enthusiastic about the innovation (e.g., Schmidt & Datnow, 2005; Van Veen & Sleegers, 2006).

Teachers' responses to an innovation are furthermore influenced by their experience of *agency* in their work. Teachers who experience agency within their work feel in control of the work-related choices they make, which they base upon their own goals, interests and motivations (Vähäsantanen et

al., 2008). To be able to make their own choices, teachers need to experience a certain amount of autonomy and room for negotiation within their school (Beijaard, 2009; Coldron & Smith, 1999; Vähäsantanen et al., 2008). Agency is thus shaped by both the teacher and the school context (Lasky, 2005; Lipponen & Kumpulainen, 2011). It is to be expected that teachers who experience a high degree of agency in their work will initiate actions aimed at reaching their work goals and feel in control of situations happening in their classrooms.

In a previous study we looked at how ownership, sense-making, and agency were manifested in teachers' positioning towards the coaching role (see Chapter 3). Semi-structured interviews and video-stimulated interviews were used for data collection. The results revealed that both the degree of ownership felt towards the coaching role and the degree of agency experienced in the work could be described as low, moderate or high. Following Luttenberg et al. (2011), teachers' sense-making of the coaching role was expressed in four types of sense-making:

- *Assimilation*: fitting the demands of the innovation into one's own frame of reference, resulting in a variation within the frame of reference instead of a change of frame of reference.
- *Accommodation*: adapting the frame of reference to the demands of the innovation, resulting in a change of frame of reference.
- *Toleration:* tolerating the demands of the innovation both beside and at the expense of the existing frame of reference, resulting in an acceptance of the innovation, even though it may conflict with the existing frame of reference.
- *Distantiation:* rejection of the innovation, leaving the frame of reference unchanged.

The study showed that the 11 participating teachers could broadly be subdivided into two groups, which were labelled *engaged* and *reserved* (see Figure 5.1).
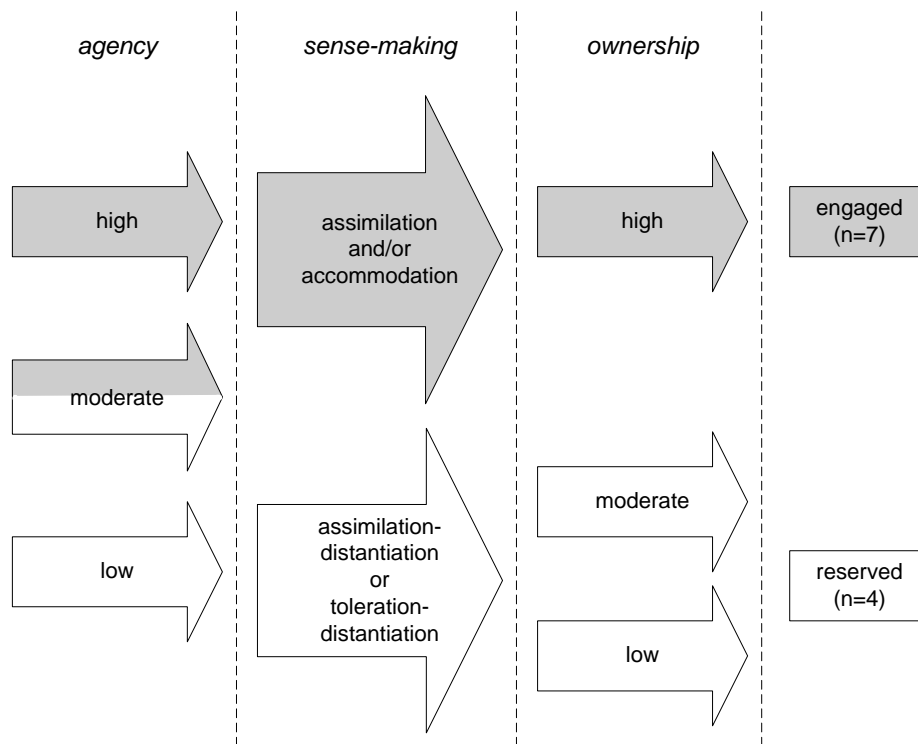
Figure 5.1. Teachers' positioning with regard to the coaching role, expressed by their feelings of ownership, processes of sense-making, and experiences of agency

The *engaged* group (grey in Figure 5.1) contained seven teachers who felt a high degree of ownership towards the coaching role, experienced a moderate to high degree of agency within their work, and made sense of the coaching role mainly through assimilation, accommodation or both. The *reserved* group (white in Figure 5.1) consisted of four teachers, who felt a low to moderate degree of ownership, experienced a low to moderate degree of agency in their work, and made sense of the coaching role mainly through a combination of assimilation and distantiation, or toleration and distantiation.

It has, however, not yet been studied in any great detail if and how teachers' feelings of ownership, their sense-making processes, and experiences of agency make a difference to their work-based learning. The aim of the present study was therefore to find similarities and differences in teachers' learning experiences related to taking on a coaching role, using ownership, sense-making, and agency as a framework. To this end, teachers' reported

learning experiences regarding the coaching role were collected and analysed, with the following two research questions in mind:

1. How are ownership, sense-making, and agency represented in teachers' reported learning experiences regarding the coaching role?
2. Can similarities and differences in teachers' reported learning experiences be explained by their positioning (engaged or reserved) towards the coaching role?

5.2 | METHOD

5.2.1 Participants

Eleven teachers from two secondary vocational education (SVE) schools in the Netherlands participated in this study. After an introduction to and explanation of the study in a team meeting, the teachers agreed to participate. All teachers participated on a voluntary basis.

Two of the eleven participants were female and nine male. All teachers worked in the technology education sector. This sector is dominated by male teachers, which explains the predominance of males in this study. On average, participants were 42.9 years old, ranging from 34 to 55. They had on average 10.4 years of experience as SVE teachers, with a minimum of 1.5 and a maximum of 25 years. Table 5.1 contains general characteristics of the participants (aliases are used for reasons of anonymity). Four of the 11 teachers were from school 1, all of them working in the same department (mobility and logistics). The other seven teachers were from school 2, from two different departments (mobility and logistics and construction techniques).

5.2.2 Instrument

Data were collected by means of digital logs (cf. Bakkenes et al., 2010; Meirink, Meijer, & Verloop, 2007) in which the teachers reported learning experiences pertaining to the coaching role. The concepts of ownership, sense-making, and agency were used as a framework which raised the questions that had to be answered in the reports. Table 5.2 shows the questions, and the concept to which each question related. To provide a rich description of the learning experience, teachers were asked to write their report in a story-

like manner and incorporate the answers to the questions in their description (cf. Meirink et al., 2007). To help with this exercise, the questions were subdivided into questions pertaining to (1) the incident, (2) the cause, and (3) the result (see Table 5.2).

Table 5.1
General characteristics of the 11 participants

School	Department	Alias	Gender	Age	Years of experience	Subject
1	Mobility and logistics	George	Male	55	25	Automotive and electro technology
		Alice	Female	41	20	Mathematics, physics, chemistry
		Tom	Male	38	4	Two-wheel engineering
		Eric	Male	34	9	Two-wheel engineering
2	Construction technology	Hugo	Male	37	2 (+9)	Construction technology
		Ben	Male	45	1.5	Woodworking and furniture
		James	Male	43	18	Painting
		Steven	Male	51	10	Construction technology; woodworking and furniture
	Mobility and logistics	Suzan	Female	44	3	Citizenship education
		Mark	Male	35	1.5	Automotive technology
		Jon	Male	49	20	Mathematics and economics

Note. Hugo had nine years of experience in other educational settings before he became an SVE teacher.

Table 5.2

Questions to be answered in the reported learning experience

		Questions	Concept
Incident	1.	What happened?	--
	2.	Were there others involved in the situation (students, colleagues, etc.)? If so, who were they and what was their role in your experience?	A
	3.	Was it a positive or negative experience?	A
Cause	4.	Why did you have this learning experience?	A
	5.	What was your own role in the realisation of this learning experience? Did you plan the experience or did it happen spontaneously?	A
Result	6.	When and how did you realise that you had learned something?	S
	7.	What does this learning experience mean to you?	S
	8.	How important was this learning experience for you?	O
	9.	What did you do with this experience or what are you going to do with it in the future?	S
	10.	Did you share this experience with others?	O
	11.	(How) does this experience contribute to the (learning) goals that you have for yourself?	A
	12.	Does this learning experience fit you as a teacher? Is this typical of how you learn?	O
	13.	Why did you choose to report this particular learning experience?	O

Note. O = ownership; S = sense-making; A = agency

Despite these instructions, not all teachers managed to write their learning experiences in a story-like manner. The quality and size of the reports therefore varied considerably. Some teachers copied the questions and answered almost in telegram style whereas others wrote several pages with detailed descriptions (see Figure 5.2). These differences are further addressed in the results section.

Non-story-like	Story-like
When came realisation: During the final week. There were quite a few students who did not complete all their work. **What did this mean for you:** That despite the guidance lots of things slipped through that they did not complete. **How important was this learning experience:** Important so I can do it differently next year. (Mark, report 2)	Student is just staring in front of him. Gives an uninterested impression. Is not working and is doing things on his laptop that are not necessary (E-bay, etc.) (missed several schooldays at the beginning of the year). After keeping an eye on him for a while (during 1 hour of whole-class instruction and 30 minutes of independent working) I decide to ask him what's wrong. He tells me the only reason that he's at school is because of compulsory school attendance. I tell him I find that a very surprising reason and that I'd like to have a word with him during the break, so he can explain to me why that is his only reason. (Eric, report 1)

Figure 5.2. Examples of fragments written in a non-story-like manner (left) and in a story-like manner (right)

5.2.3 Procedure

Over a period of nine months the teachers were asked four times to report a learning experience they had pertaining to the coaching role. The teachers were contacted via e-mail approximately once every two months and asked to send in a learning experience. The e-mail contained information on the background of the study, explained what was meant by a learning experience, gave instructions on how to report on a learning experience, and set a deadline for sending in the report. The instructions contained the 13 questions that had to be answered in the report. A reminder was sent when the deadline had passed and the learning experience had not yet been received. When the researcher received a reported learning experience, a quick check was done to see if all questions were addressed. If this was not the case, the teacher was asked to complete it and add the information that was lacking. In total, the teachers sent in 39 learning experiences. Seven teachers completed all four, three teachers sent in three, and one teacher returned only two learning experiences.

5.2.4 Data analysis

The data were analysed in two phases. The first phase contained several steps. First, the 39 reported learning experiences were read thoroughly. Second, using ATLAS.ti 5.2, all reports were divided into fragments based on the 13 underlying questions, resulting in a total of 483 fragments. As the learning experiences were (mostly) written in a story-like manner, more than one of the underlying questions could be addressed in one fragment, and fragments could be partly overlapping. This process resulted in a preliminary category system, with the underlying questions representing the main categories of the system. Furthermore, during this stage notes were taken on possible codes underlying the main categories. The third step resulted in the final category system. In an iterative process going back and forth through the data, a set of codes for each category was constructed. An initial version of the category system was presented to a second researcher, to check for clarity of the formulated codes. Consequent alterations were made to the wording of some codes and (re)formulation of certain decision rules took place (e.g., whether more than one code could apply to one fragment). Using the second version of the category system, both researchers coded 11 learning experiences (one from each teacher) and compared and discussed the findings. After some final alterations, a third version constituted the final category system that was used to code all the fragments. The variation within each of the 12 categories was reflected in three to ten codes (see Tables 5.3, 5.4, and 5.5 for all the categories and underlying codes). The question 'what happened?' was not included in the category system, as this question was really intended to help the teacher writing the story. The categories *others*, *realisation*, *action*, and *typical* (see Tables 5.3, 5.4, and 5.5) were each subdivided into two subcategories, as the underlying question contained two questions (e.g., *when* and *how* the teacher *realised* that he/she had learned something). Within several categories multiple codes could apply to one fragment, so that the total number of codes within that category was higher than the number of fragments (these categories are marked with a note in the tables in the results section). For the subcategory *learning activities* (category *typical*), the data corresponded with the division into learning experiences formulated by Meirink et al. (2007), which was therefore used in the category system. The

second researcher coded a new set of 11 learning experiences, which resulted in an overall agreement between the two researchers of 90%.

The second phase of the data analysis was more explorative and descriptive, and comprised two stages. In the first, the coded learning experiences of the teachers in the *engaged* group were compared with those of the *reserved* group (between-groups analysis). For each group the frequencies of codes within each category were studied and per category it was noted which codes had high and which had low frequencies. Then, these notes were compared to see what the similarities and differences between the reported learning experiences of the two groups were regarding each of the three concepts (ownership, sense-making, and agency). In the second stage, a closer look was taken at the digital logs within each of the two groups (within-groups analysis), resulting in a description of remarkable similarities and differences between the digital logs of teachers within the same group. This stage focused more on the content of the digital logs of individual teachers; for example, how teachers interpreted the coaching role.

To ensure the reliability of the second analysis phase, the following measures were undertaken (cf. Yin, 2003). One researcher (first author) analysed the data and made the process verifiable for a second researcher (second author). Each step taken was discussed by the two researchers and together they decided on the follow-up step. The second researcher checked all conclusions drawn by the first researcher, going back and forth through the digital logs and the conclusions, and decided that the conclusions drawn were verifiable. Furthermore, the results were illustrated with representative quotes from the digital logs.

5.3 | RESULTS

5.3.1 Ownership, sense-making, and agency in teachers' reported learning experiences pertaining to the coaching role

Tables 5.3, 5.4, and 5.5 show an overview of the set of categories and codes for each concept, including the number of fragments. To answer the first research question, a global description of the representation of each of the three concepts ownership, sense-making, and agency is given. To answer the

second research question, a description of the similarities and differences between the two groups is given, followed by a more detailed look at the digital logs of the *reserved* teachers and the *engaged* teachers separately.

5.3.1.1 Ownership

With regard to the categories related to feeling *ownership* towards the coaching role several things came to the fore in terms of the observed frequencies of the underlying codes (see Table 5.3 for an overview). Nineteen fragments referred to *sharing* the reported learning experience regarding the coaching role, mostly with one or more colleagues. There were, however, also quite a number of reports in which the experience was not (yet) shared (nine fragments). Fourteen learning experiences were said to be *important* and only once was it stated that the experience was not important. Importance was, however, not mentioned at all in 24 reports. Moreover, several of the learning experiences that were said to be important were not really related to the coaching role, but, for example, were more related to traditional classroom teaching. It was stated in 17 reports that the learning experience fitted the teacher and was *typical* of how he/she learns. In just one report the course of the learning experience was new for a teacher. The teachers were often explicit about the ways of learning which were typical for them. Learning activities they mentioned had to do mostly with learning by doing (eight fragments) and learning through experimenting (seven fragments). The reasons for *choosing* to report a particular learning experience regarding the coaching role were rather diverse. Usually the experience was selected because it was a recent event (nine fragments). Some of the other reasons cited were that the experience was impressive (five fragments) or that it was typical of the profession (five fragments). In just one case the experience was selected because the teacher thought it was instructive. Finally, in general it was striking that the number of learning experiences in which one or more categories related to ownership could not be coded was rather high; the code *not mentioned* was attributed between 15 and 24 times to the categories related to ownership.

Table 5.3
*Categories and codes related to **ownership**, including number of fragments*

Category	Number of fragments
A. Sharing* | *Did you share this experience with others?*	24
Yes	(19)
Colleague	9
Colleagues	7
Executive	2
Student(s)	1
No	(9)
Intention to share	3
Not yet shared	3
Not shared	3
Not mentioned	15 reports
B. Importance | *How important was this learning experience for you?*	15
Important	14
Not important	1
Not mentioned	24 reports
C. Typical | *Does this learning experience fit you as a teacher? Is this typical of how you learn?*	24
C1. Fit	(23)
Fits teacher	17
Can learn in different ways	5
New for teacher	1
C2. Learning activities*	(16)
Learning by doing	8
Learning through experimenting	7
Learning through reflection	5
Learning from others in interaction	5
Learning from others – no interaction	1
Not mentioned C1 and/or C2	15 reports
D. Selection learning experience* | *Why did you choose to report this particular learning experience?*	24
Recent event	9
Impressive	5
Typical	5
Positive experience	4
Instructive	1
Important	1
Because it was asked	1
Proud	1
Not mentioned	16 reports

Note. *Within this category multiple codes can apply to one fragment.

In sum, feeling ownership towards the coaching role was expressed to a certain degree in the reported learning experiences, mostly through sharing of the experience and because the experience fitted the teacher and was typical of how he/she learns. The categories related to ownership, however, were also quite often not referred to in the reported learning experiences.

5.3.1.2 Sense-making

Content analysis of the 39 reported learning experiences focused on the categories related to *sense-making* of the coaching role also gave some notable results. Table 5.4 shows an overview of these categories with the underlying codes for each category. With regard to *when* and *how* teachers *realised* they had learned something, it was reported usually that realisation dawned during the experience (17 fragments) and that it usually came about through teachers noticing that what they were doing had an effect (17 fragments). Within the category *meaning,* the great majority of learning experiences that were reported could be coded as *new insight* (28). In terms of what teachers reported about *actions* they had undertaken or were planning to undertake after the learning experience they had, in most fragments (31) an intention to undertake one or more actions was written down. An achieved action was reported 11 times. The intended or achieved actions were mostly plans to 'do the same thing more often' (20 fragments) or to change current behaviour (12 fragments). In just one report a teacher decided to accept the situation as it was. Compared with the categories related to ownership, the code *not mentioned* was assigned less often to the categories related to sense-making.

In the processes of sense-making of reported learning experiences related to the coaching role, the teachers often came to the conclusion they had gained a new insight, which they usually realised when its effect was apparent. Furthermore, they were often planning to undertake more such actions.

Table 5.4
*Categories and codes related to **sense-making**, including number of fragments*

Category	Number of fragments
E. Realisation* | *When and how did you realise that you had learned something?*	39
E1. When	(29)
During experience	17
After experience	10
In advance	2
During writing	1
E2. How	(34)
Noticed effect	17
Reaction of others	9
Becoming conscious	8
Feel have failed	4
Through reflection	1
Not mentioned E1 and/or E2	6 reports
F. Meaning* | *What does this learning experience mean to you?*	40
New insight	28
Confirmation of insight	14
Recall of insight	1
G. Action* | *What did you do with this experience or what are you going to do with it in the future?*	39
G1. Status	(39)
Intention	31
Done	11
G2. Action	(38)
Do more often	20
Change behaviour	12
Ask for help	6
Inform others	5
Not doing it this way again	4
Accept situation	1
Not mentioned G1 and/or G2	11 reports

Note. *Within this category multiple codes can apply to one fragment.

5.3.1.3 Agency

In Table 5.5 the categories related to *agency* are represented, together with the observed frequencies of the underlying codes. Several things are noticeable. As regards *why* teachers had the learning experience that they reported, the majority of situations (partly) originated from a problem with one or more

students (23 fragments). In only seven reports did the teacher want to try out something new. In almost all cases the teacher's *own role* was active; in 23 reports the teacher actively contributed to the realisation of the learning experience and in 14 reports he/she planned the experience. In only one reported situation was the teacher's own role passive. The experiences described always involved *others*, usually one or more students, who in most cases had an active role in the situation (49 fragments). Nineteen of the reported learning experiences were *judged* as positive and only three as negative. With regard to the contribution of the reported learning experience to *(learning) goals* that teachers had for themselves, they largely reported that these were aimed at improving their approach to students (19 fragments) and at contributing to their own development as a teacher (12 fragments). In three reports the teacher had no (learning) goals for him- or herself. The code *not mentioned* appeared the most within the category *(learning) goals*, namely in 13 reports.

In sum, experiencing agency was expressed in the learning experiences mostly by an active role of the teachers in the reported situations. In only a minority of the reports, however, had the teacher planned the experience. In most reported situations the teacher reacted to something that happened. Furthermore, most learning experiences contributed in some way to the (learning) goals that teachers had for themselves.

Table 5.5
*Categories and codes related to **agency**, including number of fragments*

Category	Number of fragments
H. Why* | *Why did you have this learning experience?*	44
Problem with student(s)	23
Interaction with colleague(s)	6
Own need	6
Unpleasant situation	6
Noticed need with student(s)	5
On request of student(s)	2
Dissatisfaction with student(s)	2
Spontaneous	2
Part of task	2
Try out something	7

I. Own role | *What was your own role in the realisation of this learning experience? Did you plan the experience or did it happen spontaneously?*	38
Actively contributed	23
Planned experience	14
Passive	1
Not mentioned	1 report
J. Others* | *Were there others involved in the situation (students, colleagues, etc.)? If so, who were they and what was their role in your experience?*	67
J1. Others	(67)
One student	26
Students	19
Colleague(s)	13
Parent(s)	5
External	4
Executive	2
J2. Role others	(67)
Active	49
Passive	20
K. Judgement | *Was it a positive or negative experience?*	28
Positive	19
Negative	3
Both positive and negative	3
From negative to positive	3
Not mentioned	11 reports
L. (Learning) goals* | *(How) does this experience contribute to the (learning) goals that you have for yourself?*	28
Improve approach to students	19
Contribute to own development	12
Gaining insight into students	8
Do work right	3
No (learning) goals	3
(Learning) goals unconscious	2
Not mentioned	13 reports

Note. *With this category multiple codes can apply to one fragment.

5.3.2 Explaining similarities and differences in terms of positioning towards the coaching role

In the following, the second research question is addressed in two ways. First, for each concept (ownership, sense-making, and agency) a description is given of the similarities and differences *between* the digital logs of the teachers who were labelled as *engaged* with regard to the coaching role and those who were labelled as *reserved*. Second, a closer look is taken at the *engaged* group and

at the *reserved* group separately, by describing the remarkable similarities and differences found *within* the digital logs of each group.

5.3.2.1 Similarities and differences in feelings of ownership

When the digital logs of the teachers in the engaged group and the teachers in the reserved group were compared, the following points were striking with regard to *ownership*. Overall, the reported learning experiences of the engaged teachers seemed to include somewhat more indicators of feeling ownership towards the coaching role than those of the reserved teachers. When a closer look at several of these indicators was taken, first of all, it appeared that the engaged teachers more often reported *sharing* their experiences, and the reserved teachers were often not explicit about sharing. Both groups indicated in about half of the reports that the learning experience fitted the teacher and was *typical* of how he/she learns, but compared with the reserved group the engaged group was much more explicit in reports about the learning activities that are typical of how they learn. James wrote, for example:

This way of learning is typically something for me. I learn the most from doing and from analysing what I do. Consciousness often develops through talking with colleagues or with my students. I often realise just then what I'm actually doing. (James, engaged, report 4)

Furthermore it was noted that the *reasons* the engaged teachers gave for *choosing* a particular learning experience to report could be described more as coming from the inside, such as:

I brought up this case because it touches on my personal goal and because it exposes my major weakness. (Steven, engaged, report 2)

I am proud of the result. (Eric, engaged, report 1)

I chose this case because it impressed me a lot. (Susan, engaged, report 1)

The reserved teachers, on the other hand, mainly gave reasons that seemed more externally triggered:

When I received your e-mail, I couldn't think of any situation. Until in the end today this experience occurred. (Alice, reserved, report 3)

I selected this learning experience because it happened recently. (Mark, reserved, report 1)

I wrote down this learning experience because it is a combination of my theoretical lessons, the workplace visits and the practical learning experience of what the students do during their workplace learning. (Ben, reserved, report 1)

Finally, the reports of the reserved group, in contrast to those of the engaged teachers, often included a note on the *importance* of the reported learning experience. In most cases, however, the content of the experiences that were said to be important by the reserved group bore little relation to the coaching role, and could therefore not be seen as a sign of ownership towards the coaching role. For example, Alice described a learning experience that had to do with the organisation of her classroom and Mark about going back to more traditional whole-class instructions.

To sum up, the reports of the engaged teachers included somewhat more indicators of feeling ownership towards the coaching role, such as sharing their experiences and choosing to report learning experiences for internal reasons. The reserved group more often made a note on the importance of their reported experiences, but these were not particularly relevant to the coaching role.

5.3.2.2 Similarities and differences in sense-making

With regard to *sense-making*, overall, the digital logs of the engaged teachers revealed a more active and explicit way of making sense of the experiences regarding the coaching role, compared with the digital logs of the reserved teachers. First of all, looking at when and how they *realised* they had learned something, the engaged group reported mostly that they realised during or after the experience that they had learned something, noticing an effect or just becoming conscious of it. Suzan wrote, for example:

I realised during the conversation that I had a learning moment myself. (Suzan, engaged, report 3)

Within the reports of the reserved group, however, it remained largely unclear *when* they realised they had learned something. They were, however, often explicit about *how* they realised they had learned something, which was mostly through noticing an effect or the reactions of others. Alice wrote:

No peak in my correction work at the end of the semester; a satisfied student, who could immediately correct his work. (Alice, reserved, report 1)

For the reserved group the *meaning* of almost all reported experiences was a new insight, whereas for the engaged teachers about half of the experiences led to a new insight and the other half to a confirmation of insight. Teachers wrote, for instance:

The learning point is thus that my intonation, my way of speaking, etc. has great influence on the way the other person responds. (Hugo, reserved, report 2)

This student confirms once again that I have a big mouth but a small heart. (Steven, engaged, report 3)

Finally, it was apparent that the *actions* the engaged teachers mentioned were mostly intentions, although they included some actions already taken. The (intended) actions were usually to do what they did more often or to change one's behaviour. Tom stated:

In the future I will definitely try to keep on motivating students. (Tom, engaged, report 4)

The reserved group were quite often unclear about what they had done or were planning to do with the learning experience. If they did mention it, they reported mostly intentions to act, which were usually to do what they did more often.

In brief, in comparison with the reports of the reserved teachers, the teachers in the engaged group showed a more active and explicit way of sense-making in their reports.

5.3.2.3 Similarities and differences in experiences of agency
Overall, the reported learning experiences of both the engaged teachers and the reserved teachers seemed to include indications of experiencing *agency*, but there were also several important differences in this respect. First of all, in terms of *why* teachers had the learning experiences they reported, for both groups the reasons were diverse, but mainly originated from a problem with student(s):

I checked the questions and discussed the points for improvement with him. After three completed tasks I discovered his work was identical to the work of his classmate that I had assessed a few hours before. (James, engaged, report 3)

Problem student, ADHD and short-tempered. Gets expelled from different lessons because he cannot be controlled in the classroom. (Mark, reserved, report 3)

Apart from problems with student(s), in the reserved group the learning experiences also sprang from teachers' own needs or because teachers wanted to try something out. Hugo wrote, for example:

At that point I decided to inform the students about my situation at home. I asked them to understand that I would need to pick up my mobile phone if I was called during the lesson. (Hugo, reserved, report 1)

In line with the above, the teachers' *own role* in the realisation of the learning experience for the engaged group was largely an active contribution to the situation, whereas the reserved group wrote in over half of the reports that they had planned the situation. Ben wrote, for instance:

My own role in this is that I consciously started it and I opened myself up to it. (Ben, reserved, report 2)

In general, the reported learning experiences were mainly *judged* as positive experiences by both groups.

I found this was a positive experience because now I understand much better that the world of autistic people is totally different from what I thought. (James, engaged, report 1)

Positive experience: back to more whole-class instructions and doing the assignments together. (Mark, reserved, report 1)

The engaged teachers were, however, more explicit in their reports about both their own role in the situation and their judgement of the situation (i.e. positive or negative). Although the reserved teachers seemed to show more initiative in the situations they reported, compared with the engaged teachers they were less explicit about how they judged the experience. Expressing one's responsibility for the success or failure of a situation (i.e. having an active role in a situation and giving a judgement about the situation) is an indication of agency. The digital logs of the engaged group showed more such indications than those of the reserved group.

Others involved in the reported learning experiences for both groups were usually one or more students. Also, colleagues featured in quite some of the reports of the engaged group. In general, others had an active role in the situation. In the reports of the reserved group, the others involved were also mostly active, but there were also quite some situations in which the others were passive.

Finally, the engaged teachers were more explicit about how the experience contributed to their *(learning) goals*; quite a few of the reserved teachers did not mention this. Doing things that contribute to fulfilling one's goals is an indication of agency, and was more obvious in the engaged group. For both groups the (learning) goals were rather diverse, but the predominant trend was to improve the approach to students.

I'm looking for tips and methods with which I can stimulate collaboration in this group and increase the self-confidence of the individual student. (Susan, engaged, report 4)

The aim here is to be better able to guide the student. (Hugo, reserved, report 3)

The engaged teachers also mentioned that the experience contributed to their own development. Jon wrote, for instance:

It is not a typical experience, but it does expand my knowledge and experience. (Jon, engaged, report 3)

It is fair to say that the reports of both groups included indicators of agency, but that these indicators differed. For example, the reserved teachers reported more planned situations, whereas the engaged teachers were more explicit about the contributions of experiences to their goals.

5.3.2.4 A closer look at the engaged group

The engaged group contained seven teachers: Eric, George, James, Jon, Tom, Steven and Suzan. Although they were similar with regard to their feelings of ownership towards the coaching role, their processes of sense-making of this role and their feelings of agency in their work (see Chapter 3), several things stood out within the digital logs of these teachers regarding the content of their experiences and the way they wrote about it.

All reported learning experiences, except the first two by Tom, were more or less related to the coaching role. The first two reports that Tom wrote were about an external workshop offered to his students that turned out to be a flop and about the exam committee at school who criticised the exam pieces completed by his students. Although the great majority of reported learning experiences related somehow to the coaching role, different focuses could be distinguished.

The learning experiences described by Eric, Jon, Tom and George mostly related to students' motivation and study progress, and often concerned one particular student. George, for example, reported the case of a

student who had to repeat the school year and Eric described a student who had lost his motivation. Jon wrote:

The student and I decided that his absence was not acceptable and that he would be required to come to school and complete his work. (Jon, engaged, report 2)

Suzan, on the other hand, focused mostly on the pedagogical side of her coaching role and her students' well-being. She described, for example, twice a one-to-one conversation with a student with personal problems.

By asking open questions the story came out bit by bit: apparently there was something underneath it all and this student was pretty confused. After the conversation he was clearly relieved and we could agree on how to continue in a positive way. (Suzan, engaged, report 3)

Steven's learning experiences were a bit of both, so focussed on students' motivation and study progress as well as on the pedagogical side. He reported a one-to-one conversation with a student about his study progress, but he also reported a discussion with a group of students on how to behave towards each other, to create better contact between himself and the students. The learning experiences of James were very diverse and extensive, often containing several instances of the same topic in one report. He wrote, for example, in one report about experiences he had had with several students with disorders such as autism, and in another about several experiences he had had concerning how to deal with students using computers during the lessons for other purposes than study, such as social media.

It was also notable that all seven teachers showed involvement with their students, but James, Steven and Suzan in particular expressed strong emotions, feelings and concerns about their students:

I found this experience very negative and miserable because I had the feeling I could not ensure safety in the classroom. (Suzan, engaged, report 4)

My pitfall is the fact that I don't want any student to fail when it's not his own fault. This particular one didn't learn this in his previous school and at home he had a weak support base. (Steven, engaged, report 3)

All engaged teachers' digital logs consisted of three or four learning experiences, except for Eric, who sent in just two. The learning experiences were usually written in a story-like manner. Only Jon's were not, and were being remarkable for being relatively short. Suzan's reports were conspicuous because she often added e-mails to her stories. George was rather vague, leaving issues somewhat open-ended.

In sum, the digital logs of the engaged group related to the coaching role for the greater part, but had different foci. All teachers wrote in an involved way about their students, but several teachers in particular. Finally, the way in which the experiences were reported was typically story-like, but different styles could be detected.

5.3.2.5 A closer look at the reserved group

The reserved group included four teachers: Alice, Ben, Hugo and Mark. These four teachers were similar with regard to their feelings of ownership towards the coaching role, their processes of sense-making, and their experiences of agency in their work (see Chapter 3). A closer look at their digital logs, however, revealed some remarkable differences between the teachers within this group with regard to the content of their experiences and the way they wrote about it.

Mark sent in three learning experiences, which were notably short, incomplete and not written in a story-like manner. Although he stated in all reports that the experience was important to him, the contents of his reports had little relation to the coaching role. Instead, it was mostly about going back to more traditional classroom teaching and being more strict and disciplined. He wrote about students in a somewhat negative and distant way:

On the other hand, it is a negative experience because of the feeling that your goodwill is being abused. Students think it'll be all right anyway. That they will

get enough time to repeat the exam. Therefore a lot of things to arrange and a lot of extra time lost on resits. (Mark, reserved, report 2)

Important, now the responsibility lies with the student and not with me. This gives me more peace and the student has to arrange his own affairs. (Mark, reserved, report 3)

Like Mark's, Alice's digital log showed hardly any (positive) emotions, feelings or concern about the students. She did initiate the situations she described and actively tried out new things, but these bore little relation to the coaching role. She concentrated mostly on her subject area and on classroom management issues, such as getting the students to close their laptops during her whole-class instructions and getting them to upload their work in the electronic learning environment.

Ben's and Hugo's digital logs were quite different from those of Alice and Mark. The situations they described were diverse, but much more related to the coaching role. In all their reports they wrote about interactions with students, usually in a positive and concerned way. Hugo wrote, for example, about a funny event that happened between him and some students and Ben about showing interest in the students' experiences during workplace learning. They were also explicit about their own development. Ben wrote, for instance:

This was a pretty complex problem in which a lot of learning moments appeared, from which you can learn a lot. (Ben, reserved, report 3)

In short, a broad distinction could be made between Mark and Alice on the one hand, and Ben and Hugo on the other. Compared with those of Mark and Alice, the reported learning experiences of Ben and Hugo were more relevant in relation to the coaching role and indicated more involvement with their students.

5.4 | CONCLUSIONS AND DISCUSSION

The aim of this study was to map similarities and differences in teachers' learning experiences related to taking on a coaching role, using ownership, sense-making, and agency as a framework. In relation to the first research question, the results showed that indicators of all three concepts were present in the reports to a reasonable extent. Questions related to ownership, in particular, were often not answered in the reports, however. The reports of the engaged teachers showed more indicators of ownership than those of the reserved group. They were, for example, more explicit about sharing their experiences and chose to report particular experiences for mainly internally-oriented reasons. In the reserved teachers' reports, on the other hand, indicators for ownership were quite often not mentioned and externally-oriented reasons were largely cited for reporting their learning experiences. With regard to sense-making it appeared that the reports of the engaged group showed a somewhat more active and explicit way of making sense of their experiences regarding the coaching role than those of the reserved teachers. Agency was reflected in the reports of both groups, but in different ways. The reserved teachers, for example, more often reported having initiated the situations they described, whereas the engaged teachers were more often explicit about how their learning experiences related to the goals they had set for themselves.

Within the engaged group the differences between teachers' digital logs mainly had to do with the different foci teachers seemed to place on their interpretations of the coaching role. Similarities mostly came down to showing involvement with their students. In the reserved group a dichotomy was clearly visible between Mark & Alice and Ben & Hugo. Their digital logs differed mainly with regard to the relevance of the reported learning experiences for the coaching role and their interactions and involvement with students.

The findings of this study indicated that feelings of ownership, processes of sense-making, and experiences of agency play a role in teachers' work-based learning experiences. Not only are these concepts identifiable and expressed by teachers at a more general level (Chapter 3), they are also noticeable at a specific level in teachers' writings about particular learning

experiences. An explanation for this finding can be found in the close relationship between these three concepts and teacher identity. For example, it is suggested that the innovation a teacher feels ownership towards becomes a part of the teacher's identity (Pierce et al., 2001) and that experiencing agency helps a teacher to give direction to his or her career using his or her own goals, interests, and motivations as a guide (Vähäsantanen et al., 2008). A teacher's identity exists of and develops through the interaction of who one is as a person and who one is as a professional (Beijaard, 2009). It is therefore strongly intertwined in a teacher's practice, which also seems to be the case with ownership, sense-making, and agency.

The results of two teachers, Hugo and Ben, were not totally in line with their initial positioning towards the coaching role. This implies instability in their positioning, and possibly even a change. Although Hugo had nine years of work experience in other educational contexts, both teachers were novices in the field of secondary vocational education. In the process of making sense of an innovation teachers compare their own frame of reference with the characteristics and demands of the innovation (Luttenberg et al., 2011; Spillane et al., 2002). Novice teachers in particular are still developing their professional identities by finding out what is expected of them and what they find important themselves (Beijaard et al., 2000). Therefore, they often do not have a clear and stable frame of reference or identity, which could explain why their positioning towards an innovation is also not stable and may yet develop.

It was notable that most of the learning experiences the teachers reported happened spontaneously and that just a minority of the situations were actually planned. This is in line with the study by Van Eekelen, Boshuizen and Vermunt (2005), who also showed that teachers tended to report unplanned learning experiences. Such near-spontaneous and unplanned learning is described by Eraut (2000) as reactive learning, which he positioned on a continuum between implicit learning and deliberative learning. Eraut emphasises the importance of making time to reflect upon such learning experiences, in order to make the experiences explicit. It was remarkable in the present study that these kinds of reactive learning experiences were mainly reported in the engaged group, who experienced a moderate to high degree of agency in their work. Therefore, although these

teachers felt in control of the work-related choices they made and based these choices on their own goals, interests, and motivations (cf. Vähäsantanen et al., 2008), they did not seem to plan much actions that could help them fulfil these goals. A tentative explanation of this finding might be that the teachers in the engaged group experience so much congruence between the coaching role and their own beliefs about teaching and learning that they do no longer feel the need to plan activities to develop their coaching role.

Also remarkable was the broad range of interpretations of the coaching role that could be found in the digital logs. Some teachers reported very diverse learning experiences, indicating that their interpretation of the coaching role was rather broad, whereas other teachers seemed to have much narrower outlooks. Several teachers focused on students' motivation and study progress, others on the pedagogical role and their students' well-being, and yet others on students' workplace experiences. There were also two teachers, Mark and Alice, who mainly focused on more traditional classroom teaching and issues related to their subject and the classroom organisation. Still, they reported these experiences in their digital logs about the coaching role, so apparently that is how they interpret this role. These findings are in line with our previous study on teachers' perceptions of the coaching role, where we also noticed that these perceptions were rather diverse (Chapter 2). For teachers, having good information and better knowledge on the coaching role is nevertheless important: for example, because it can strengthen their relationship with the coaching role and therefore increase their feelings of ownership towards it (cf. Pierce et al., 2001).

Several limitations of this study should be taken into account. First, the digital logs were rather diverse with regard to their content and quality. Not all teachers provided reports that answered all the underlying questions and several teachers did not write their learning experiences in a story-like manner. These differences also provided valuable information, however, such as the sign of (a lack of) feelings of ownership towards the coaching role. For future research it might be advisable to give teachers more information on how to write a learning experience, by providing examples or even training (cf. Bakkenes et al., 2010; Meirink et al., 2007). A second limitation pertains to the generalisability of the results. Only a small group of teachers participated in this study and they were all teachers within the technical domain in

secondary vocational education. Although in this type of education teachers' shift towards a coaching role is currently a hot topic (e.g., De Bruijn & Leeman, 2011), it would be interesting to study whether similar results can be found in other contexts. Moreover, it would be useful to study the concepts of ownership, sense-making, and agency in relation to other educational innovations, as they may be assumed to play a role in any innovation.

Finally, this study has several practical implications. First, the differences in the digital logs of the two groups demand a different approach and focus as regards support for teachers in developing and implementing their coaching role. Although the engaged teachers largely played an active role in their learning experiences, their experiences often occurred spontaneously. These teachers could therefore benefit from time and opportunities to reflect upon those experiences, to be able to make them explicit and meaningful (cf. Eraut, 2000). Within the reserved group a division into two subgroups was apparent. This suggests that not all teachers who at first seem less in favour of an innovation should be treated alike. Some of the reserved teachers might have been willing to learn and implement the innovation but lacked the knowledge to do so or did not realise that they were already on the right track. These teachers could benefit, for example, from positive feedback and support that gives them insight into the progress they are making. Other teachers in the reserved group seemed to use their experience of agency to strengthen active resistance to the innovation. To be able to break this resistance, it is important to get a grip on the reasons for it: are they related to not wanting to change or is there perhaps a lack of knowledge about the innovation? These reasons can be identified, for instance, by using teachers' own learning experiences of the innovation as a starting-point for discussion. Second, as can be concluded from the learning experiences, the teachers could benefit from a clear idea of what is meant by the coaching role and what is expected of them. Collaboration and exchange of learning experiences between teachers could be of great importance in this respect. In the first place they can help in the creation of a more widely shared image and meaning of the coaching role than is the case at present. Also, teachers could share success stories of the coaching role and provide each other with concrete tips and examples of how to bring the coaching role into practice. Third and finally, a digital log for the reporting of learning experiences related to an educational innovation seems

to be a useful instrument for teachers to reflect upon their work-based experiences. Questions related to ownership, sense-making, and agency are helpful for gaining understanding of teachers' positioning towards an innovation.

CHAPTER 6

CONCLUSIONS AND DISCUSSION

6.1 | BRIEF OVERVIEW

The central aim of the research presented in this dissertation was to contribute to a better understanding of teachers' responses to educational innovations, by gaining knowledge on the role that ownership, sense-making, and agency play in these innovations. The study was conducted in the context of secondary vocational education (SVE) in the Netherlands, where teachers, due to a large-scale reform, are supposed to implement a coaching role in the classroom. First, teachers' perceptions of the coaching role were studied (Chapter 2). Second, teachers' positioning regarding the coaching role was studied in the light of their feelings of ownership towards the coaching role, their processes of sense-making of this role and their experiences of agency in their work (Chapter 3). Third, it was explored whether a relationship could be found between teachers' ownership, sense-making and agency and their implementation of the coaching role, as perceived by their own students (Chapter 4). Finally, teachers' learning experiences with taking on a coaching role were studied in relation to their ownership, sense-making and agency (Chapter 5). In this final chapter the main findings and conclusions that could be formulated from the four studies are presented and discussed. Furthermore, limitations of the studies and directions for future research are provided. The chapter concludes with implications for practice.

6.2 | MAIN FINDINGS AND CONCLUSIONS

6.2.1 SVE teachers' perceptions of the coaching role in the classroom

Teachers' perceptions of the coaching role in the classroom (research question 1) were studied by means of an online questionnaire, asking teachers (n=109) to report spontaneous associations, important goals and typical activities related to the coaching role (Chapter 2). The associations and goals were asked by open-ended questions and categorised into 14 and 10 categories respectively. The activities were presented as a list with a total of 17 activities, pertaining to three overarching categories, from which teachers chose the most typical for the coaching role. Looking at the associations, goals and

typical activities that the teachers mentioned most, the following overarching three themes regarding the coaching role came to the fore:

- Actively guiding and supporting students' learning processes (including categories such as "guidance", "guiding the learning process" and "actively supporting");
- Promoting and improving students' self-regulated and independent learning (including categories such as "responsibility and reflection", "promotion of self-regulation and independence" and "feedback at self-regulation level");
- Creating conditions for a good relationship with students (including categories such as "positive atmosphere" and "creating a pleasant learning and working atmosphere").

These themes are generally in line with the characteristics of innovative SVE and more specifically with the literature on teachers' coaching role. There were, however, also several aspects relevant to innovative SVE which seemed underexposed in teachers' perceptions of the coaching role, such as student collaboration, the development of subject knowledge and competence, and learning in authentic contexts.

The associations, goals and activities reported by the teachers were analysed with a multiple correspondence analysis (MCA) to find out whether certain underlying dimensions could be found in the data. The analysis resulted in a two-dimensional solution. Looking at the positioning of the categories on the two dimensions, the four extremities could be interpreted. The extremities of the first dimension were interpreted as "learning environment" on the one end (including categories related to contributing to a safe and personal atmosphere in the learning environment) and "learning process" on the other end (including categories related to contributing to and centralising students' learning processes). The extremities of the second dimension were labelled "domain-specific development" (including categories related to students' competence development closely related to their vocational area) and "general development" (including categories related to student development in general).

To investigate whether the differences in teachers' perceptions of the coaching role were related to differences in teacher background variables, these variables were plotted in the two-dimension solution. No relations could

be found when looking at gender, years of experience, students' qualification levels, students' study-routes, and professional role conceptions. Only a weak relationship between learning environment (Dimension 1) and pedagogical expert (role conception) was found, indicating that the more teachers would judge themselves as being a pedagogical expert, the more their perceptions of the coaching role relate to contributing to a safe and personal atmosphere in the learning environment.

It could be concluded overall that teachers' perceptions were, at least partly, in line with the features of the coaching role that were derived from the literature, namely active guidance and support of students' learning processes, promotion of students' self-regulated and independent learning, and providing conditions for a good learning atmosphere and teacher-student relationship. However, as could be concluded from the results of the MCA, teachers' perceptions were also rather diverse and had different foci (i.e. learning environment vs. learning process and domain-specific development vs. general development). These differences in perceptions could hardly be attributed to differences in teachers' background variables.

6.2.2 The manifestation of ownership, sense-making, and agency in teachers' positioning towards an educational innovation (i.e. the coaching role)

How ownership, sense-making and agency are manifested in teachers' positioning towards the coaching role (research question 2) was studied by means of semi-structured interviews and video-stimulated interviews, conducted with 11 teachers (Chapter 3). Both degree of feeling ownership and degree of experiencing agency could be differentiated at three levels, namely high, moderate and low. Processes of sense-making were described in terms of assimilation, accommodation, toleration and distantiation (cf. Luttenberg et al., 2011).

Seven teachers felt a high degree, two a moderate degree and another two a low degree of ownership towards the coaching role. For teachers with a higher degree of ownership the coaching role seemed to match with their teacher identity. Also, they attached greater importance to this role – both for themselves and their students – compared to teachers feeling a lower degree of ownership.

Five teachers experienced a high degree, five a moderate degree and one a low degree of agency within their work. Experiencing a high degree or a moderate degree of agency was associated with experiencing room provided by the school to pursue one's goals and playing an active role in making use of such space and creating it oneself. While teachers experiencing a high degree of agency sometimes experienced hindrances and frustrations by the restrictions the school imposed on them, the teachers with moderate agency accepted such boundaries more easily. Furthermore, teachers experiencing a low or moderate degree of agency seemed more influenced by their colleagues.

The teachers made sense of the coaching role through the following single or combined processes: assimilation (n=4), assimilation and (a will towards) accommodation (n=2), accommodation (n=1), assimilation and (partly) distantiation (n=2), and toleration and distantiation (n=2). Teachers making sense through processes of assimilation and/or accommodation interpreted the coaching role as a continuous, ever-present role, and indicated that their beliefs about the coaching role differed from those of most colleagues. Several of them, however, found the frame of reference of the innovation actually rather unclear. The teachers making sense (partly) through distantiation and/or toleration saw the coaching role not as continuously relevant in their practice, and thought their colleagues had similar ideas about the coaching role as they had themselves.

Combining the three concepts (ownership, sense-making, and agency) showed that the teachers who experienced a moderate to high degree of agency within their work, also felt a high degree of ownership towards the coaching role, but only when making sense of the coaching role through processes of assimilation and/or accommodation.

It could be concluded that the concepts of ownership, sense-making and agency were manifested in different ways in teachers' positioning towards an innovation, in this case the coaching role. Considerable differences were found in teachers' feelings of ownership towards the coaching role, their processes of sense-making of it, and their experiences of agency within their work. Exploring the relations between these concepts revealed that a high degree of agency often went together with a high degree of ownership, but seemed to be moderated by the sense-making process. Therefore, these

concepts appeared to be useful for describing (similarities and differences in) teachers' positioning towards an innovation.

6.2.3 The relationship between teachers' positioning towards an innovation (i.e. the coaching role) and their implementation of it as perceived by their own students

The relationship between teachers' positioning towards the coaching role (in terms of ownership, sense-making, and agency) and their implementation of it as perceived by their students (research question 3) was examined through student perceptions, using a questionnaire completed by 253 students of 10 teachers[9] (Chapter 4). Based on the literature and the findings of study 1, the conclusion could be formulated that the coaching role seemed to include the creation of an appropriate learning environment on the one hand and the use of specific relevant activities on the other. These insights were used as input for the student questionnaire. The questionnaire consisted of four scales, namely *self-directed learning* (measuring teachers' promotion and support of students' self-directed learning), *personalisation* (measuring teachers' investment in the creation of a safe learning environment and good student-teacher relationships), *task and process oriented coaching activities* (measuring teachers' use of coaching activities at the task level and at the process level) and *progress and planning oriented coaching activities* (measuring teachers' use of coaching activities at the self-regulation level).

Overall, in their students' view, the teachers had implemented these different aspects of the coaching role to a reasonably strong degree. Especially "personalisation" was perceived very often by these teachers' students. It was furthermore found that there was a considerable correlation between the four scales, so that usually teachers either had relatively high scores or relatively low scores on all scales.

To explore the role of ownership, sense-making and agency in relation to teachers' implementation of the coaching role, the ten participating teachers were divided into two groups, which were labelled *engaged* and *reserved*.

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[9] The same teachers as those who participated in the study presented in Chapter 3, apart from one teacher (Mark) who did not return the student questionnaires and was therefore not included in this study.

Teachers in the engaged group (n=7) felt a high degree of ownership towards the coaching role, made sense of it mainly through processes of assimilation and/or accommodation and experienced a moderate to high degree of agency within their work. The teachers in the reserved group (n=3) felt a low to moderate degree of ownership towards the coaching role, made sense of it mainly through processes of assimilation and distantiation or toleration and distantiation and experienced a low to moderate degree of agency within their work. The results showed that the teachers in the engaged group had significantly higher scores on all four scales of the student questionnaire than the teachers in the reserved group.

It could be concluded that, according to their own students, the engaged teachers had implemented the coaching role to a significantly stronger degree than the teachers in the reserved group. In other words, teachers' positioning towards the coaching role – as expressed by their ownership, sense-making and agency – did relate to their degree of implementation of the coaching role.

6.2.4 Teachers' learning experiences related to taking on a coaching role, using ownership, sense-making, and agency as a framework

Using the concepts of ownership, sense-making and agency, similarities and differences in teachers' learning experiences related to taking on a coaching role were investigated (research question 4). Data were collected by means of digital logs. Eleven teachers[10] reported in a digital log their work-based learning experiences regarding the coaching role. The teachers were again divided into an engaged (n=7) and a reserved group (n=4) on the basis of their initial positioning towards the coaching role in terms of their ownership, sense-making, and agency (see Chapter 3). Comparisons were made both between and within the two groups.

The between-groups analysis revealed the following. The engaged teachers showed somewhat more indicators of ownership in their reports, such as sharing the experience with others, and choosing to report a particular learning experience based on more personal reasons (e.g., being

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[10] The same teachers as those who participated in the studies presented in Chapters 3 and 4.

proud, being impressed, finding it important). The reserved teachers, on the other hand, showed fewer indicators of ownership in their reports. For example, they often did not discuss the questions related to ownership, they chose to report particular learning experiences for mostly external reasons (e.g., this recently happened; I couldn't come up with something else; because you asked me to do this), and the experiences they indicated as important often bore little relation to the coaching role. Compared with the reserved teachers, the reports of the engaged teachers showed a more active and explicit way of sense-making, for example by reporting when and how they realised they had learned something, and by discussing their planned or performed actions as a consequence of the learning experience. Agency, finally, could be recognised in the reports of both groups, but in different ways. The reserved teachers, for example, reported more often wanting to try something out and having initiated the situations they described. The engaged teachers, on the other hand, more often discussed how their learning experiences related to the goals they had for themselves, and expressed more often their responsibility for the success or failure of a situation.

The within-groups analysis showed the following. Within the engaged group teachers had different foci with regard to their interpretations of the coaching role, focussing for example on students' motivation and study progress, or on the pedagogical side of coaching and students' wellbeing. Furthermore, some differences were found in the manner of reporting (e.g., short, extensive, story-like or non-story-like). Their reports did, however, all include signs of (strong) involvement with their students. Within the reserved group a clear dichotomy existed between the four teachers. Two teachers' reports bore little relation to the coaching role, and indicated rather distant relationships with students. The other two teachers' reports were more related to the coaching role, and usually showed a positive and concerned way of writing about students. So, despite the fact that at the beginning of the research project all four teachers clearly belonged to the reserved group (see Chapter 3), the reports of two of them showed more similarity to those of the engaged teachers.

To conclude, the reported learning experiences of the engaged teachers showed more ownership than those of the reserved group and their sense-making was more active and explicit. Agency was present in the digital

logs of both groups. The two groups were, furthermore, not homogeneous. Especially in the reserved group differences were found. The study therefore indicated that feelings of ownership, processes of sense-making and experiences of agency play a role in teachers' work-based learning experiences. It could also be concluded, however, that even though teachers position themselves similarly, they do not necessarily report comparable learning experiences.

6.3 | DISCUSSION OF THE MAIN FINDINGS

6.3.1 Teachers' coaching role

Getting a better understanding of the coaching role was the central focus in the study presented in Chapter 2, but the findings in the other chapters also contributed to this point. It can be concluded that a diversity of interpretations of the coaching role exists among Dutch SVE teachers. This appeared from the teachers' perceptions that were investigated in Chapter 2, as well as from the interviews in which teachers mentioned they did not have a clear image of what was expected from them in the coaching role (Chapter 3) and from the digital logs where a broad range of interpretations of the coaching role were visible (Chapter 5). Based on the literature and the perceptions of the teachers, nevertheless, several core features of the coaching role could be detected, namely: a) the students' learning processes and competence development are the central point of departure, b) students are guided and supported in an active and anticipating way, c) students' self-regulated learning is promoted and supported, and d) a safe learning climate, including a good teacher-student relationship, is required as a prerequisite for features a, b, and c.

These core features are, to a great extent, in line with literature on teachers' coaching role in innovative SVE (e.g., Bakker, 2008; De Bruijn & Leeman, 2011; Meijers et al., 2010; Mittendorff et al., 2011). Moreover, they were confirmed by teachers' overall perceptions. It is remarkable, however, how little consensus on the coaching role existed among individual teachers. Even teachers within the engaged group seemed to have distinctive ideas about it. Innovative SVE asks for teachers to anticipate the needs of individual

students, which assumes they have to make use of their coaching role in different ways. Furthermore, from the perspective of sense-making, it is logical that different interpretations of the coaching role exist. However, for the successful implementation of the coaching role, teachers need to know what is expected from them (cf. Fullan, 2007).

The aspects of the coaching role that were measured with the student questionnaire (Chapter 4) were implemented to a rather strong degree, but that counted especially for the engaged teachers. It might be concluded that – compared to, for example, the findings presented by De Bruijn and Leeman (2011) who hardly saw the coaching role being implemented in Dutch SVE – the present study showed a slightly more positive picture of the implementation of the coaching role. This conclusion is, however, based upon just a small sample of the population of SVE teachers, who may even be particularly positive about the coaching role. Looking at the different perceptions that came to the fore through the online questionnaire (Chapter 2), it is to be expected that differences also exist in the degree of implementation, as indicated by the differences between the engaged group and the reserved group. Therefore, to increase chances of successful implementation of the coaching role in innovative SVE, developing a clear and shared image of the coaching role should get first priority.

6.3.2 The essence of sense-making and ownership

From the results of this study, it can be concluded that the concepts of ownership, sense-making, and agency can offer a valuable perspective from which to describe and explain teachers' responses to educational innovations. Considerable differences could be found in teachers' feelings of ownership towards the coaching role, their process of sense-making of it, and their experiences of agency in their work. But are all concepts equally important or is one more important than the others? Or is it exactly a combination of the concepts?

Although the teachers in the engaged group were different in their sense-making processes (i.e. assimilation, accommodation, or both), their common denominator was the match between their own beliefs about teaching and their perceptions of what was expected from them in the coaching role. This match distinguished them from the reserved teachers, who experienced a

(partial) mismatch. The essence of teachers' responses to innovations might lie in this "match". Various researchers emphasised the importance of congruence between the innovation and a teacher's frame of reference (Luttenberg et al., 2011), identity (Beijaard et al., 2004; Van Veen & Sleegers, 2006), pre-existing beliefs and practices (Coburn, 2004, 2006), or personal practical theories (Feldman, 2000; Gess-Newsome, Southerland, Johnston, & Woodbury, 2003). All these researchers showed that such congruence leads to more positive responses by teachers. Similar results were found in this study, as the teachers in the engaged group seemed ahead (Chapter 4), and maybe even more involved (Chapter 5), in their development towards the coaching role, as compared to those in the reserved group.

Gess-Newsome et al. (2003) explain that such a match does not necessarily lead to teachers truly implementing an innovation into their teaching practice. A reason may be that they think they already teach according to the innovation or that they lack the knowledge to put it into practice. For instance, in the present study Jon was part of the engaged group, but compared to the other teachers in the engaged group, he did not implement the coaching role to such a strong degree, according to his own students. Teachers like Jon could benefit from a critical friend who elucidates the mismatch between what one says to find important and what one truly does in the classroom (Feldman, 2000; Gess-Newsome et al., 2003). In the case of Jon that could indeed be helpful, as he pointed out lacking collaboration with colleagues. An explanation for the fact that most teachers in the engaged group did however implement the coaching role, can be found in the feelings of ownership towards the coaching role present within this group. When teachers feel ownership, the innovation becomes part of the teachers' identity (Pierce et al., 2001) and gets integrated in their working routines (Bergen & Van Veen, 2004; Breiting, 2008). It can therefore be assumed that teachers who experience congruence between an innovation and their frame of reference, should be stimulated and supported to develop a feeling of ownership towards the innovation, so as to increase the chances of true implementation. To develop a certain degree of ownership, it is important, for example, to have direct interest in the innovation, participate in goal setting, deliver input in the process, and recognise one's ideas back in the result (Breiting, 2008).

When an educational innovation is being introduced, there are usually also many teachers who experience a mismatch between their personal frame of reference and the innovation, such as the teachers in the reserved group (partly) did. According to Feldman (2000) 'teachers may accept new practical theories, consonant with reform, if they are *discontent* with their old practical theories and they find the new ones *sensible, beneficial,* and *enlightening*' (p. 613; italics in the original). In other words, a prerequisite for changing one's teaching practice is the experience of (pedagogical) dissatisfaction with one's current teaching (Gess-Newsome et al., 2003). Next, teachers should then be convinced that the proposed innovation can be the solution to their dissatisfaction. It might again be hypothesised that the development of some ownership is important for this. That would suggest a mutual, reinforcing relationship between a "match" and ownership: on the one hand by experiencing a match, teachers might more easily develop ownership, whereas on the other hand, developing first some ownership might decrease the gap between one's personal frame of reference and the innovation, causing some dissatisfaction with current practice and eventually leading to a match.

6.3.3 Agency in relation to ownership and sense-making

In this study considerable differences in teachers' feelings of ownership towards the coaching role and their processes of sense-making were found. The differences in teachers' experiences of agency in their work were usually somewhat smaller. In line with paragraph 6.3.2, it seems that in teachers' responses to an educational innovation, especially the concepts of ownership and sense-making are distinguishing features. A moderate degree of experiencing agency appeared, for example, in both the engaged and the reserved group. Ownership and sense-making are both very specific for a certain innovation. A teacher who feels ownership towards the coaching role, for instance, does not necessarily develop ownership towards any innovation that is being initiated. Although agency seems to be a more general feature in teachers' work (cf. Bandura, 2001; Beijaard, 2009; Coldron & Smith, 1999; Lipponen & Kumpulainen, 2011; Sloan, 2006), the implementation of an innovation can nevertheless impact upon teachers' experiences of agency (Day et al., 2007; Vähäsantanen & Eteläpelto, 2009). A top-down implemented innovation can cause teachers to feel that their values in work and even their

identity are being threatened. Vähäsantanen and Eteläpelto (2009) found in their study on vocational teachers in the context of a large-scale top-down implemented reform that 'some teachers felt the requirements for change to be a threat to their actual professional identity, with the reform being likely to prevent them from exercising their professional selves' (p. 28).

At the same time, teachers' experiences of agency also influence their responses to innovations. Teachers who experience agency tend to attribute their success and failure with the innovation to their own actions, and are therefore more involved in their development towards the innovation (Marshall & Drummond, 2006). This was also shown in the digital logs of the engaged teachers (Chapter 5). A lack of experiencing agency or a severe decrease in agency can cause what Lasky (2005) described as vulnerability. She explains that vulnerability can cause people to 'feel they are being "forced" to act in ways that are inconsistent with their core beliefs and values. Rather than willingly opening themselves up emotionally in such situations, they may in fact withdraw, or close themselves off in a defensive or protective stance. Such a closed stance inhibits learning' (p. 901).

In teachers' sense-making processes, experiencing agency also plays a crucial role. In the research literature on sense-making, teacher agency is often explained as a prerequisite for the sense-making process (Luttenberg et al., 2011; Spillane et al., 2002). To be able to compare one's personal frame of reference with the characteristics of an innovation, and making deliberate choices in that process, asks for teachers who experience agency (Coldron & Smith, 1999). Similarly, Pierce et al. (2001) proposed that ownership increases when the amount of control increases. It seems that a certain degree of experiencing agency in one's work is needed to develop some ownership towards an innovation. When teachers lack agency in their work, it is unlikely that they will bring their individuality into the implementation process and that they will feel they left their 'fingerprint' (Breiting, 2008, p. 161) in the innovation. On the contrary, agency does not necessarily lead to ownership, as we found in our study. Contradicting Pierce et al. (2001), we saw a teacher who experienced a moderate degree of agency felt hardly any ownership towards the coaching role. In other words, experiencing agency can also be used by teachers as a means to offer resistance to an innovation (Sannino, 2010; Sloan, 2006; Spillane et al., 2002; Vähäsantanen et al., 2008). In short,

it can be concluded that although agency is a more general disposition of teachers, it also plays an important role in their responses to an innovation and in particular in relation to ownership and sense-making.

6.3.4 Balance in ownership, sense-making, and agency

Although the results of the research revealed the importance of ownership, sense-making, and agency in teachers' responses to the implementation of the coaching role, it can also be concluded that a certain balance in giving expression to these concepts should be strived for. It seems, for example, that a teacher can also feel too much ownership. Pierce et al. (2003) warn for what they call a dark side of ownership: being overly possessive of the innovation, unwilling to share it with others and even feeling the need to keep exclusive control of it. This might develop when opportunities to collaborate in the implementation process are lacking. Some signs of this dark side could also be found in the present study. For example, several teachers who felt a high degree of ownership indicated that they had difficulties to find connection and collaboration with their colleagues. These teachers were therefore mainly left to their own devices in developing their coaching role. Although these teachers claimed to be willing to collaborate, they might have also (unconsciously) acted too possessively about the coaching role, shutting their colleagues out.

Sense-making mainly through assimilation can also have negative consequences for the implementation process. Teachers may select only the aspects of an innovation that they can easily fit in their current teaching practice, as a result of which important aspects of the innovation are left aside (e.g., Coburn, 2004; Feldman, 2000; Klein et al., 2006; Luttenberg et al., 2011). True change may then fail to occur (Gess-Newsome et al., 2003) despite the positive perceptions. Although in the present study this negative consequence of assimilation was hardly found, it is nevertheless important to be aware of in times of reform.

Experiencing too much agency also seems problematic. It can lead to teachers feeling adrift, especially when they lack self-direction (Hoekstra, Korthagen, Brekelmans, Beijaard, & Imants, 2009). Furthermore, too much agency may lead to all teachers going their own way, without taking into account the goals and vision of the school (cf. Vähäsantanen et al., 2008). In this study, there was the case of Mark, who experienced a moderate degree of

agency in his work and at the same time continued largely to teach in a more traditional way. He was an example of a teacher who used his agency to offer resistance to the implementation of the innovation, as was also described in section 6.3.3.

6.3.5 The interface between teacher and context

Richardson and Placier (2001) stressed the need for research on the interface between individual teachers and their school contexts for a better understanding of teacher change. Research on teacher identity as well as on the concepts of ownership, sense-making, and agency can contribute to a better understanding of teacher change, as these concepts seem to operate exactly on this interface. A context which is highly structured and characterised by the presence of strong rules, norms, laws and hierarchy can, for example, hinder the development of ownership (Pierce et al., 2003). Sleegers et al. (2009) explained that the process of sense-making is, besides an individual process, 'shaped by social interaction with others, leading to the development of shared meanings or shared frames of references' (p. 154). The idea that sense-making is an individual as well as a social process is widely agreed upon (e.g., Coburn, 2004, 2006; Kelchtermans, 2005; Luttenberg et al., 2011; Spillane, 1999; Spillane et al., 2002). Similarly, a teacher's experience of agency in work is shaped by both the individual teacher and the school context (Coburn, 2004; Lasky, 2005), as teachers need to experience and make use of autonomy and room for negotiation within their school to be able to make their own choices (Beijaard, 2009; Coldron & Smith, 1999; Vähäsantanen et al., 2008).

In the present study emphasis was predominantly put on these concepts from an individual teacher perspective. Yet, the contexts and social structures that the participating teachers found themselves in were present in the study. Below several of the participating teachers will therefore be discussed briefly from the perspective of their contexts and social structures.

Two teachers, Tom and Eric, worked at the same school and together they formed the core of a small team of teachers. Both had their own groups of students, but shared a big classroom where they were both teaching at the same time. In the implementation process of innovative SVE their head of the department gave them the role of "pioneers" within the department. This gave

them the opportunity to set goals, form strategies, develop learning materials, etc., resulting in ownership and agency. Shared sense-making as described by Sleegers et al. (2009) was well reflected in these teachers, as compared to the great variety in teachers' perceptions of the coaching role that were found in this study, it was remarkable how similar these two teachers' beliefs about the coaching role were. Nevertheless, having this pioneering role in the department also made them experience the boundaries of their agency: less innovative colleagues, rules and procedures, and insecurity about whether they were doing the right thing sometimes caused frustrations and hindrance in their work.

At the other school there was the case of James. He was extremely eager to learn everything about innovative SVE, willing to develop his coaching role, and very pleased to participate in the research project. Like Tom and Eric, James gained a lot of freedom to experiment with the implementation of innovative SVE, which gave him the opportunity to develop a lot of ownership and agency. However, he was totally left on his own to do so. His classroom and practical workplace were situated in an annex, literally across the street of the main building. He experienced a severe lack of social interaction with colleagues, who moreover were not interested in hearing about his stories. As he had no opportunities for shared sense-making within his own school, he sought out those possibilities outside by going to conferences and meetings with teachers from other schools. So although his context provided him with a lot of possibilities to develop ownership and agency, it seems questionable whether such situations are desirable.

Finally, the case of Mark also could provide more understanding on the role of the context in ownership, sense-making, and agency. Mark was a beginning teacher in the mobility and logistics department. His department had tried to implement innovative SVE for two years, but the majority of the teachers decided that it was not working and not suitable for their student population. The head of department agreed upon a voting, and as the large majority voted against innovative SVE, they decided to go back to more traditional, predominantly whole-class instructions. Mark's sense-making of the coaching role was clearly shaped by the interactions with his colleagues. He felt no ownership towards the coaching role, as he was simply not occupied with it. Although largely under the influence of his colleagues, he did

experience some agency in his work, as the head of department usually let him free to pursue his own goals.

6.4 | LIMITATIONS AND FUTURE RESEARCH

As research on the concepts of ownership, sense-making, and agency as well as research on the coaching role in innovative SVE is scarce, the present study had a descriptive and exploratory character. A more in-depth approach was chosen, studying a small group of teachers on different aspects related to these concepts. The rather small and specific samples, however, affects the generalisability of the research. All participating teachers (and their students who participated in the study presented in Chapter 4) were from the technology education sector. Furthermore, they were predominantly male, as the teacher and student population in the technology sector of Dutch SVE is dominated by males. Including teachers from other sectors in SVE – for example the care and welfare sector which is dominated by females – might have led to different results. Especially with regard to teachers' perceptions of the coaching role this might have been the case, as other studies showed differences between male and female teachers in coaching (e.g., Mittendorff et al., 2011). Future research could contribute by further investigating the coaching role and the possibility and content of different teacher profiles related to this role. This could be done, for example, by investigating the perceptions and behaviours of a larger and more varied group of SVE teachers, and combining those findings with knowledge from literature on the coaching role.

For the studies described in the Chapters 4 and 5, the teachers were divided into two groups based upon a combination of their feelings of ownership, processes of sense-making, and experiences of agency. In Chapter 3 it was shown, however, that three levels of degree of ownership and degree of agency and even five different processes of sense-making could be detected with these 11 teachers. The differences between these levels were sometimes subtle, but nevertheless apparent. Teachers within both groups thus differed from each other with regard to their ownership, sense-making, and agency, but due to the small sample these differences could not be taken into account

in all studies. The subtle differences between teachers with regard to these three concepts might, however, contain valuable information that helps to better understand teachers' responses to innovations.

Future research should therefore be directed at further exploration of the individual concepts, as well as the relations between the three concepts. To reach a better understanding of the role that each of these concepts play in teachers' responses to innovations and how they relate to each other, both quantitative large-scale and qualitative in-depth research should be done. In future studies an attempt could be made to translate indicators of the concepts, for example, to questionnaire scales. Furthermore, they could be studied in different contexts and in relation to other educational innovations.

As discussed in section 6.3.5, in this study the concepts of ownership, sense-making, and agency were mainly approached from an individual teacher perspective, whereas the literature on these concepts often emphasises the social aspect. Future research should therefore take the individual teachers as well as the social interactions and the context into account. This could be done, for instance, by investigating a complete team of teachers. Focussing more on the role of the individual teacher and the context, including social interactions, could result in a more complete understanding of teachers' responses to educational change.

Eventually, 14 teachers agreed to participate in the in-depth study, but three of them dropped-out after the semi-structured interview (Chapter 3). In the interview, at least two of them gave the impression of being reserved with the coaching role. Consequently, the number of teachers in the reserved group was rather small (n=3 in Chapter 4 and n=4 in Chapter 5), and also unequal to the number of teachers in the engaged group (n=7). Moreover, as we were reliant upon voluntary participation of teachers, most teachers who agreed and continued to participate were, at least to some extent, positive about the implementation of the coaching role. This may have depicted the state of affairs concerning the coaching role more positive than it actually is. Also, little knowledge was gained on the role that ownership, sense-making, and agency play in teachers who resist implementing the coaching role. Although it can be rather difficult to realise, it would be valuable in future research to attempt studying in-depth teachers who offer resistance to an innovation. It would especially be interesting to follow those teachers for a

longer period to see whether changes occur and, if so, to get a grip on what causes such changes.

Finally, the present study provided indicators for how to recognise feelings of ownership, processes of sense-making, and experiences of agency. Yet, it did not show how teachers developed from the perspective of these concepts and how this development could be promoted. Furthermore, research on the developmental aspect based on these concepts is scarce. Studying the development of feelings of ownership, different processes of sense-making, and experiences of agency, and factors influencing their development would therefore be a valuable addition to the findings of this study.

6.5 | IMPLICATIONS FOR PRACTICE

The findings of this research indicated that a certain degree of ownership, congruence between teachers' personal frames of reference and that of the innovation, and a certain degree of agency may contribute to the successful implementation of an innovation. Teachers should, therefore, be facilitated in developing themselves with regard to these concepts. This can be done, for instance, by involving them in translating the innovation into their own practice and allowing them to leave their fingerprint on it. Also, teachers should be challenged to make their own goals and values in work explicit, and compare those with the assumptions of the innovation. For teachers who experience that their own frame of reference does not match with the frame of reference of the innovation, attention should be drawn to the similarities instead of only focussing on the differences. A balance in ownership, sense-making, and agency should, however, be strived for, preventing that it all gets "too much". Teacher collaboration can play a central role here. When teachers collectively translate and implement an innovation, there is little room for getting too possessive of the innovation, as the ownership is shared. Also, collaboration can help in making sense of an innovation, by together deciding upon what the important characteristics of the innovation are and how these can be implemented in the specific context they find themselves in. Finally, collaboration can prevent the teachers in a school from just going their own way. In sum, it should on the one hand be prevented that teachers get too far

ahead, ending up on an island innovating alone, whereas on the other hand teachers should not be left behind, sticking to their traditional practices.

Teachers' perceptions of the coaching role were diverse and especially teachers in the engaged group indicated that it was rather unclear to them what was expected from them with respect to the coaching role. Based on the literature and the findings of this study, an overview could be provided with the core features of the coaching role. These features could be used as a starting point for teachers to communicate conceptions and underlying assumptions.

This study brought forth several instruments that can be useful for the professional development of teachers who have to implement a coaching role in the classroom. Teachers indicated they learned a lot from the video-stimulated interviews. Professional development trajectories could be developed, using classroom observations followed by such video-stimulated interviews conducted by an external observer. To promote collaboration, teachers could also use this technique, for example, in a peer coaching trajectory. Furthermore, the student questionnaire (Chapter 4) appeared to be a reliable and useful instrument to get information about teachers' implementation of the coaching role. It could be used, for instance, as a means to get feedback from students regarding the extent to which teachers have implemented different aspects of the coaching role. Also, teachers could complete the questionnaire themselves, to compare their own views with the perceptions of their students. This could provide teachers with directions for further development. The digital logs, finally, help teachers to make their work-based learning experiences explicit and reflect upon these experiences. Also, such reported experiences could be used as a starting-point for discussing teachers' positioning towards an innovation.

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TEACHERS AND INNOVATIONS: ON THE ROLE OF OWNERSHIP, SENSE-MAKING, AND AGENCY

Teachers play an important role in the implementation of educational innovations. There is, however, great diversity in teachers' responses to innovations. Why these responses can be so different is still largely unknown. The study described in this dissertation aims at contributing to a better understanding of teachers' responses to educational innovations. There is increasing attention for the role of teachers' professional identities in the context of change and innovations in education. In this dissertation a specific lens was used to study in-depth three concepts that seem to play an important role in teachers' responses to innovations from an identity-perspective, namely ownership, sense-making, and agency.

Ownership refers to the mental or psychological state of feeling owner of an innovation, which can develop by teachers' mental and/or physical investments in the innovation. Teachers who feel ownership towards an innovation support the innovation, feel the urge and necessity for change, and express their identification with the innovation. *Sense-making* is defined as an active process in which teachers attempt to relate the innovation to their existing knowledge, beliefs, and experiences. In this study the sense-making model by Luttenberg et al. (2011) was used. This model contains four types of processes of sense-making, which are determined by: a) the degree of congruence between the innovation and the teacher's frame of reference (i.e. knowledge, beliefs and experiences), and b) the dominance of either the innovation or the own frame of reference during the sense-making process. The resulting four types of sense-making processes are assimilation (congruence, own frame of reference dominant), accommodation (congruence, innovation dominant), toleration (no congruence, innovation dominant), and distantiation (no congruence, own frame of reference dominant). *Agency* refers to the extent to which someone feels in control of his or her own actions. Teachers who experience agency in their work feel in control of the choices they make within their work and base these choices upon their own goals, interests, and motivations. The concepts of ownership, sense-making, and

agency were used in this study to explore, reflect and explain differences in teachers' perceptions, positioning, implementation, and learning in relation to an innovation.

The specific educational innovation that was of central focus in this dissertation pertains to the change toward a more *coaching role* of the teachers in the classroom. The research was conducted in the context of secondary vocational education (SVE; in Dutch: mbo) in the Netherlands. Currently, Dutch SVE finds itself in a time of educational changes. These changes are characterised by, among other things, a focus on future working practice as a basis for curriculum development, learning through authentic or lifelike tasks, a focus on the development of students' meta-cognitive skills, and learning through cooperation. As a consequence, teaching practices at SVE schools change considerably and teachers' coaching role is becoming more important.

This dissertation consists of four partial studies, addressing the following research questions:

1. What are SVE teachers' perceptions of the coaching role in the classroom?
2. How are ownership, sense-making, and agency manifested in teachers' positioning towards an educational innovation (i.e. the coaching role)?
3. What is the relationship between teachers' positioning towards an innovation (i.e. the coaching role) and their implementation of it as perceived by their own students?
4. Which similarities and differences in teachers' learning experiences related to taking on a coaching role can be found, using ownership, sense-making, and agency as a framework?

Teachers' perceptions of the coaching role in the classroom

Chapter 2 presents a study on SVE teachers' perceptions of the coaching role. A questionnaire was developed asking for teachers' associations with the coaching role, their views on the most important goals regarding this role and typical activities related to the coaching role. The questionnaire was administered online and completed by 109 SVE teachers. Three overarching themes came to the fore when looking at the associations, goals and typical activities that the teachers mentioned most:

- actively guiding and supporting students' learning processes;

- promoting and improving students' self-regulated and independent learning;
- creating conditions for a good relationship with students.

The reported associations, goals and activities were analysed with a multiple correspondence analysis to find out whether certain underlying dimensions could be found in the data. The analysis resulted in a two-dimensional solution. The extremities of the first dimension were interpreted as "learning environment" on the one end (including categories related to contributing to a safe and personal atmosphere in the learning environment) and "learning process" on the other end (including categories related to contributing to and centralising students' learning processes). The extremities of the second dimension were labelled "domain-specific development" (including categories related to students' competence development closely related to their vocational area) and "general development" (including categories related to student development in general). Teachers' background variables were plotted in the two-dimension solution, to investigate whether the differences in teachers' perceptions of the coaching role were related to their background characteristics. No relations could be found between the two dimensions and gender, years of experience, students' qualification levels, students' study-routes, and professional role conceptions. Only a weak relationship between "learning environment" (Dimension 1) and the role conception of being a pedagogical expert was found, indicating that the more teachers judged themselves as being a pedagogical expert, the more their perceptions of the coaching role related to contributing to a safe and personal atmosphere in the learning environment.

The manifestation of ownership, sense-making, and agency in teachers' positioning towards an educational innovation (i.e. the coaching role)
Chapter 3 reports on a study describing the positioning of 11 SVE teachers towards the coaching role in terms of ownership, sense-making, and agency. For this purpose, semi-structured and video-stimulated interviews were used. The concepts of ownership, sense-making and agency were manifested in different ways in teachers' positioning towards an innovation, in this case the coaching role. Both the degree of feeling ownership and the degree of experiencing agency could be differentiated at three levels, namely high,

moderate and low. Processes of sense-making were described in terms of assimilation, accommodation, toleration and distantiation. Considerable differences were found in teachers' feelings of ownership towards the coaching role, their processes of sense-making of it, and their experiences of agency within their work. Exploring the relations between these three concepts revealed that teachers who experienced a high degree of agency in their work often felt a high degree of ownership, but only when making sense through processes of assimilation and/or accommodation. It was concluded that these concepts appeared useful for describing (similarities and differences in) teachers' positioning towards an innovation.

The relationship between teachers' positioning towards an innovation (i.e. the coaching role) and their implementation of it as perceived by their own students

Chapter 4 describes an exploration of the relationship between teachers' positioning towards the coaching role (in terms of ownership, sense-making, and agency) and their implementation of it as perceived by their students. Data were collected by means of a questionnaire completed by 253 students of 10 SVE teachers. The questionnaire consisted of four scales, namely *self-directed learning* (teachers' promotion and support of students' self-directed learning), *personalisation* (teachers' investment in the creation of a safe learning environment and good student-teacher relationships), *task and process oriented coaching activities* (teachers' use of coaching activities at the task level and at the process level) and *progress and planning oriented coaching activities* (teachers' use of coaching activities at the self-regulation level). Overall, in their students' views, the teachers had implemented these different aspects of the coaching role to a reasonably strong degree. Especially "personalisation" was perceived very often by these teachers' students. It was furthermore found that there was a considerable correlation between the four scales and that teachers usually either had relatively high scores or relatively low scores on all scales. To explore the role of ownership, sense-making and agency in relation to teachers' implementation of the coaching role, the 10 participating teachers were divided into two groups, which were labelled *engaged* and *reserved*. Teachers in the engaged group (n=7) felt a high degree of ownership towards the coaching role, made sense of it mainly through

processes of assimilation and/or accommodation and experienced a moderate to high degree of agency within their work. The teachers in the reserved group (n=3) felt a low to moderate degree of ownership towards the coaching role, made sense of it mainly through processes of assimilation and distantiation or toleration and distantiation and experienced a low to moderate degree of agency within their work. The results showed that the teachers in the engaged group had statistically significantly higher scores on all four scales of the student questionnaire than the teachers in the reserved group.

Teachers' learning experiences related to taking on a coaching role, using ownership, sense-making, and agency as a framework

Chapter 5 deals with a study on teachers' learning experiences related to taking on a coaching role, using ownership, sense-making, and agency as a lens to identify and reflect similarities and differences in these learning experiences. Eleven teachers reported their work-based learning experiences regarding the coaching role in a digital log. The teachers were again divided into an *engaged* (n=7) and a *reserved* group (n=4) on the basis of their initial positioning towards the coaching role in terms of their ownership, sense-making, and agency. Comparisons were made both between and within the two groups. The between-groups analysis revealed that the reported learning experiences of the engaged teachers showed more ownership than those of the reserved group and that their sense-making was more active and explicit. Agency was present in the digital logs of both groups. The within-group analysis revealed that the two groups were not homogeneous. Especially within the reserved group differences were found, such as the extent to which the reported learning experiences bore relation to the coaching role and the way in which the teachers wrote about students. The overall conclusion of the study was that feelings of ownership, processes of sense-making and experiences of agency play a role in teachers' work-based learning experiences. It could also be concluded, however, that even if teachers position themselves similarly, they do not necessarily report comparable learning experiences.

General conclusions and discussion

In chapter 6 the main findings and conclusions that could be formulated from the four studies are presented and discussed. The discussion focussed on

teachers' coaching role, the essence of sense-making and ownership in teachers' responses to innovations, and agency in relation to ownership and sense-making. Moreover, the discussion goes into the importance of finding balance in the three concepts and the interface between the teacher and his/her context. The chapter furthermore addressed limitations of the studies, directions for future research, and implications for practice. The results of the studies were possibly affected by the size and the nature of the samples, the division of the teachers into two groups, and the focus on mainly the individual teacher perspective. Future research could, for example, further investigate the coaching role and the possibility and content of different teacher profiles related to this role. Also, future research should be directed at further exploration of the concepts of ownership, sense-making, and agency individually as well as the relations between these three concepts, taking both the individual teachers and their social interactions and context into account. Finally, studying the development of feelings of ownership, different processes of sense-making, and experiences of agency as well as factors influencing that development, would be a valuable addition to the findings of this study. The findings of this research brought to the fore several implications for practice. It is indicated that a certain degree of ownership, congruence between teachers' personal frames of reference and that of the innovation, and a certain degree of agency may contribute to the successful implementation of an innovation. Teachers should, therefore, be facilitated in developing themselves with regard to these concepts. A balance in ownership, sense-making, and agency must, however, be strived for, preventing that it all gets "too much". Teacher collaboration can play a central role here. Furthermore, an overview was provided with the core features of the coaching role. These features can be used as a starting point for teachers to communicate conceptions and underlying assumptions. Finally, this study brought forth several instruments that are useful for the professional development of teachers, especially in relation to the implementation of a coaching role in the classroom.

DOCENTEN EN INNOVATIES: OVER DE ROL VAN EIGENAARSCHAP, BETEKENISGEVING EN AGENCY

Docenten vervullen een belangrijke rol bij de implementatie van een onderwijsvernieuwing. Er bestaat echter een grote diversiteit aan reacties van docenten op vernieuwingen. Over de redenen waarom deze reacties zo verschillend kunnen zijn, is nog relatief weinig bekend. Het onderzoek dat beschreven wordt in dit proefschrift beoogt onder meer bij te dragen aan een beter begrip van de reacties van docenten op onderwijsvernieuwingen. Er is een toenemende aandacht voor de rol van de professionele identiteit van docenten in de context van veranderingen en vernieuwingen in het onderwijs. In dit proefschrift zijn vanuit een professioneel identiteitsperspectief drie concepten diepgaand onderzocht die een belangrijke rol lijken te spelen bij de reacties van docenten op vernieuwingen, namelijk *eigenaarschap* ('*ownership*'), *betekenisgeving* ('*sense-making*'), en '*agency*' (deze term wordt hier onvertaald gelaten, omdat hiervoor geen geschikt Nederlands equivalent is).

  Eigenaarschap verwijst naar de mentale of psychologische toestand waaruit blijkt dat een docent zich eigenaar voelt van de vernieuwing en die zich kan ontwikkelen door mentale of fysieke investering in de vernieuwing. Docenten die zich eigenaar voelen van een vernieuwing staan achter die vernieuwing, ervaren de behoefte eraan, zien de noodzaak ervan in en geven uitdrukking aan hun identificatie met de vernieuwing. *Betekenisgeving* wordt gedefinieerd als een actief proces waarin docenten pogen de vernieuwing te relateren aan hun bestaande kennis, opvattingen en ervaringen. In dit onderzoek is gebruik gemaakt van het model van betekenisgeving van Luttenberg et al. (2011). Dit model bestaat uit vier typen processen van betekenisgeving, die worden bepaald door: a) de mate van overeenstemming tussen de vernieuwing en het referentiekader van de docent (diens kennis, opvattingen en ervaringen) en b) de dominantie van de vernieuwing dan wel die van het eigen referentiekader tijdens het proces van betekenisgeving. De resulterende vier typen processen van betekenisgeving zijn: assimileren (overeenstemming, eigen referentiekader dominant), accommoderen (overeenstemming, vernieuwing dominant), tolereren (geen overeenstemming,

vernieuwing dominant), en distantiëren (geen overeenstemming, eigen referentiekader dominant). *Agency* verwijst naar de mate waarin iemand controle ervaart over zijn of haar eigen handelen. Docenten die agency in hun werk ervaren, vinden dat ze controle hebben over de keuzes die ze maken binnen hun werk en baseren deze keuzes op hun eigen doelen, interesses en motivaties. De concepten eigenaarschap, betekenisgeving en agency zijn in dit onderzoek gebruikt om verschillen en overeenkomsten in de percepties, positionering, implementatie en het leren van docenten in relatie tot een vernieuwing te verkennen, weer te geven en te verklaren.

De specifieke onderwijsvernieuwing die centraal stond in dit proefschrift betreft de verandering van docenten naar een meer *coachende rol* in de klas. Het onderzoek is uitgevoerd in de context van het middelbaar beroepsonderwijs (mbo) in Nederland. Momenteel bevindt het Nederlandse mbo zich in een tijd van onderwijskundige veranderingen. Deze veranderingen worden onder andere gekenmerkt door een focus op het toekomstige beroepenveld in het curriculum, leren aan de hand van authentieke opdrachten of opdrachten die de werkelijkheid zoveel mogelijk benaderen, aandacht voor de ontwikkeling van metacognitieve vaardigheden en samenwerkend leren. Hierdoor verandert het lesgeven in het mbo aanzienlijk en wordt de coachende rol van docenten belangrijker.

Dit proefschrift bestaat uit vier deelstudies, waarmee de volgende onderzoeksvragen worden beantwoord:

1. Wat zijn de percepties van docenten in het mbo ten aanzien van de coachende rol in de klas?

2. Hoe manifesteren eigenaarschap, betekenisgeving en agency zich in de positionering van docenten ten aanzien van een onderwijsvernieuwing (i.c. de coachende rol)?

3. Wat is de relatie tussen de positionering van docenten ten aanzien van een onderwijsvernieuwing (i.c. de coachende rol) en hun implementatie hiervan, zoals waargenomen door hun eigen studenten?

4. Welke overeenkomsten en verschillen zijn er in de leerervaringen van docenten met betrekking tot de coachende rol vanuit het perspectief van eigenaarschap, betekenisgeving en agency?

Percepties van docenten ten aanzien van de coachende rol in de klas

In Hoofdstuk 2 wordt een deelstudie beschreven naar percepties van docenten in het mbo met betrekking tot de coachende rol. Er is een vragenlijst ontwikkeld waarin docenten gevraagd werd naar spontane associaties met de coachende rol, de belangrijkste doelen van coachen in de klas, en de meest kenmerkende activiteiten bij het vervullen van de coachende rol. De vragenlijst is online afgenomen en ingevuld door 109 docenten. Op basis van de associaties, doelen en kenmerkende activiteiten die het meest genoemd werden door de docenten konden drie overkoepelende thema's onderscheiden worden, namelijk:

- actief begeleiden en ondersteunen van het leerproces van studenten;
- bevorderen en verbeteren van het zelfregulerend en zelfstandig leren van studenten;
- creëren van omstandigheden ter bevordering van een goede relatie met studenten.

De gerapporteerde associaties, doelen en activiteiten zijn geanalyseerd met behulp van multipele correspondentie-analyse om na te gaan of bepaalde onderliggende dimensies gevonden konden worden in de data. De analyse resulteerde in een tweedimensionaal model. De uitersten van de eerste dimensie zijn geïnterpreteerd als 'leeromgeving' (bevat categorieën die betrekking hebben op het bijdragen aan een veilige en persoonlijke sfeer binnen de leeromgeving) en 'leerproces' (bevat categorieën die betrekking hebben op het bijdragen aan en centraal stellen van het leerproces van studenten). De uitersten van de tweede dimensie zijn aangeduid als 'domeinspecifieke ontwikkeling' (bevat categorieën die betrekking hebben op de competentieontwikkeling van studenten gerelateerd aan hun vakgebied) en 'algemene ontwikkeling' (bevat categorieën die betrekking hebben op de meer algemene ontwikkeling van studenten). Achtergrondkenmerken van docenten zijn vervolgens binnen dit tweedimensionale model geplot om te onderzoeken of verschillen in de percepties van docenten ten aanzien van de coachende rol gerelateerd konden worden aan deze kenmerken. Er konden geen statistisch significante relaties aangetoond worden tussen de twee dimensies en de docentkenmerken geslacht, jaren ervaring, niveau van studenten waaraan men het meeste lesgaf, leerweg van studenten waaraan men het meeste lesgaf en professionele rolconcepties. Er werd alleen een zwakke relatie gevonden

tussen 'leeromgeving' (Dimensie 1) en 'pedagogisch expert' (rolconceptie), wat erop wijst dat hoe meer docenten zichzelf zien als pedagogisch expert, hoe meer zij de coachende rol relateren aan het bijdragen aan een veilige en persoonlijke sfeer binnen de leeromgeving.

De manifestatie van eigenaarschap, betekenisgeving en agency in de positionering van docenten ten aanzien van een onderwijsvernieuwing (i.c. de coachende rol)

In Hoofdstuk 3 is een deelstudie beschreven naar de positionering van 11 docenten in het mbo ten aanzien van de coachende rol op basis van de concepten eigenaarschap, betekenisgeving en agency. Voor de dataverzameling zijn semigestructureerde en videogestimuleerde interviews ingezet. De concepten eigenaarschap, betekenisgeving en agency manifesteerden zich op verschillende manieren in de positionering van docenten ten aanzien van de coachende rol. Zowel in de mate van het voelen van eigenaarschap als in de mate van het ervaren van agency konden drie niveaus worden onderscheiden, namelijk laag, middelmatig en hoog. Processen van betekenisgeving konden worden beschreven in termen van assimileren, accommoderen, tolereren en distantiëren. Aanzienlijke verschillen werden gevonden in gevoelens van eigenaarschap van de docenten, hun processen van betekenisgeving en hun ervaringen van agency in hun werk. Bij het verkennen van de relaties tussen deze drie concepten bleek dat docenten die een hoge mate van agency in hun werk ervoeren ook vaak een hoge mate van eigenaarschap voelden, maar alleen als hun proces van betekenisgeving gekarakteriseerd kon worden als assimileren en/of accommoderen. Geconcludeerd kon worden dat deze drie concepten bruikbaar zijn voor het beschrijven van (overeenkomsten en verschillen in) de positionering van docenten ten aanzien van een vernieuwing.

De relatie tussen de positionering van docenten ten aanzien van een vernieuwing (i.c. de coachende rol) en de implementatie hiervan zoals waargenomen door hun eigen studenten

Hoofdstuk 4 beschrijft de relatie tussen de positionering van docenten ten aanzien van de coachende rol (in termen van eigenaarschap, betekenisgeving, en agency) en hun implementatie hiervan zoals waargenomen door hun eigen

studenten. Data werden verzameld met behulp van een vragenlijst die door 253 studenten van 10 docenten in het mbo werd ingevuld. De vragenlijst bestond uit vier schalen, namelijk *zelfgestuurd leren* (bevorderen en ondersteunen van het zelfgestuurd leren van studenten), *personalisatie* (investeren in het creëren van een veilige leeromgeving en een goede student-docent relatie), *taak- en procesgeoriënteerde coachingsactiviteiten* (gebruikmaken van coachingsactiviteiten op taakniveau en procesniveau), en *coachingsactiviteiten gericht op voortgang en planning* (gebruikmaken van coachingsactiviteiten op het niveau van zelfregulatie). In het algemeen hadden de docenten deze verschillende aspecten van de coachende rol – in de ogen van hun studenten – in tamelijk grote mate geïmplementeerd. Met name 'personalisatie' werd door de studenten van deze docenten erg vaak waargenomen. Verder bleek dat er een aanzienlijke correlatie bestond tussen de vier schalen en dat een docent meestal ofwel relatief hoge scores ofwel relatief lage scores op alle schalen had. Om de rol van eigenaarschap, betekenisgeving en agency in relatie tot implementatie van de coachende rol te onderzoeken, werden de 10 deelnemende docenten verdeeld in twee groepen: een *betrokken* en *gereserveerde* groep. Docenten in de betrokken groep (n=7) voelden een hoge mate van eigenaarschap ten aanzien van de coachende rol, hun proces van betekenisgeving werd met name gekenmerkt door assimileren en/of accommoderen en zij ervoeren een middelmatige tot hoge mate van agency in hun werk. De docenten in de gereserveerde groep (n=3) voelden een lage tot middelmatige mate van eigenaarschap ten aanzien van de coachende rol, hun proces van betekenisgeving werd met name gekenmerkt door assimileren en distantiëren of tolereren en distantiëren en zij ervoeren een lage tot middelmatige mate van agency in hun werk. Uit de resultaten bleek voorts dat de docenten in de betrokken groep statistisch significant hoger scoorden op alle vier de schalen van de studentvragenlijst dan de docenten in de gereserveerde groep. De docenten in de betrokken groep hadden, volgens hun eigen studenten, de coachende rol dus in grotere mate in de praktijk gebracht dan de docenten in de gereserveerde groep.

Leerervaringen van docenten met betrekking tot de coachende rol vanuit het perspectief van eigenaarschap, betekenisgeving en agency

Hoofdstuk 5 behandelt een deelstudie naar de leerervaringen van docenten met betrekking tot de coachende rol, waarbij eigenaarschap, betekenisgeving en agency als focus werden gehanteerd om overeenkomsten en verschillen in deze leerervaringen weer te geven. Hiertoe rapporteerden elf docenten hun werkgerelateerde leerervaringen met betrekking tot de coachende rol in een digitaal logboek. De docenten werden wederom in de *betrokken* (n=7) en *gereserveerd* (n=4) groep verdeeld op basis van hun positionering aan het begin ten aanzien van de coachende rol in termen van eigenaarschap, betekenisgeving en agency. Er is zowel binnen als tussen de twee groepen gekeken naar overeenkomsten en verschillen in de gerapporteerde leerervaringen. Uit de analyse tussen de groepen bleek dat de gerapporteerde leerervaringen van de betrokken docenten meer eigenaarschap vertoonden dan die van de gereserveerde groep en dat hun betekenisgeving actiever en explicieter was. Agency was aanwezig in de digitale logboeken van beide groepen. Uit de analyse binnen de groepen bleek dat de twee groepen niet homogeen waren. Vooral binnen de gereserveerde groep werden verschillen gevonden, waaronder de mate waarin de leerervaringen relevant waren voor de coachende rol en de manier waarop men over studenten schreef. In het algemeen kon geconcludeerd worden dat gevoelens van eigenaarschap, processen van betekenisgeving en ervaringen van agency een rol spelen in de werkgerelateerde leerervaringen van docenten. Er kon echter ook geconcludeerd worden dat, ook al positioneren docenten zich vergelijkbaar, zij niet noodzakelijk vergelijkbare leerervaringen rapporteren.

Algemene conclusies en discussie

In Hoofdstuk 6 zijn de belangrijkste bevindingen en conclusies die op basis van de vier deelstudies geformuleerd konden worden gepresenteerd en bediscussieerd. De discussie spitst zich toe op de coachende rol van docenten, de essentie van betekenisgeving en eigenaarschap in de reacties van docenten op onderwijsvernieuwingen en agency in relatie tot eigenaarschap en betekenisgeving. In de discussie wordt voorts ingegaan op het belang van het vinden van een balans in de drie concepten en op het raakvlak van de docent en diens context. In het hoofdstuk wordt tevens ingegaan op de beperkingen

van het onderzoek, worden suggesties gedaan voor toekomstig onderzoek en implicaties gegeven voor de praktijk. De resultaten van het onderzoek zijn mogelijk beïnvloed door de omvang en aard van de samples, de verdeling van de docenten in twee groepen en de focus op voornamelijk het individuele docentperspectief. Toekomstig onderzoek zou bijvoorbeeld gericht kunnen zijn op het verder bestuderen van de coachende rol en kunnen ingaan op de mogelijkheid tot en inhoud van verschillende docentprofielen gerelateerd aan deze rol. Ook zouden de concepten eigenaarschap, betekenisgeving en agency op zichzelf verder onderzocht kunnen worden evenals de relatie tussen deze drie concepten, waarbij zowel individuele docenten als hun (sociale) interacties in en met de context meegenomen worden. Tot slot zou het onderzoeken van de ontwikkeling van gevoelens van eigenaarschap, verschillende processen van betekenisgeving en ervaringen van agency enerzijds en factoren die daarop van invloed zijn anderzijds een waardevolle aanvulling op de resultaten van dit onderzoek zijn. De bevindingen van dit onderzoek hebben een aantal implicaties voor de praktijk aan het licht gebracht. De resultaten duiden erop dat een bepaalde mate van eigenaarschap, congruentie tussen het persoonlijke referentiekader van docenten en de vernieuwing, en een bepaalde mate van agency kunnen bijdragen aan de succesvolle implementatie van een onderwijsvernieuwing. Docenten zouden vanuit het perspectief van deze concepten gefaciliteerd moeten worden in hun ontwikkeling. Er moet echter ook gestreefd worden naar een balans in eigenaarschap, betekenisgeving en agency, zodat voorkomen wordt dat het allemaal "te veel" wordt. Samenwerking tussen docenten kan hierbij een centrale rol spelen. Het onderzoek heeft daarnaast een overzicht van de relevante kenmerken van de coachende rol opgeleverd. Deze kenmerken zouden gebruikt kunnen worden als uitgangspunt voor docenten om hun concepties en onderliggende assumpties ten aanzien van deze rol onder woorden te brengen. Tot slot heeft dit onderzoek een aantal instrumenten voortgebracht die gebruikt kunnen worden bij de professionele ontwikkeling van docenten, met name bij de implementatie van de coachende rol in de klas.

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Ketelaar, E., Beijaard, D., Boshuizen, H. P. A., & den Brok, P. J. (2012). Teachers' positioning towards an educational innovation in the light of ownership, sense-making and agency. *Teaching and Teacher Education, 28*, 273-282.

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CURRICULUM VITAE

Evelien Ketelaar was born on 8 September 1982 in Eindhoven, the Netherlands. After finishing higher general secondary education (havo) in 1999, she lived in Mont-Laurier, Québec, Canada for one year, where she attended high school. In 2001, she finished pre-university education (vwo) and started studying Psychology at Maastricht University. As a part of her studies, she studied five months at Stellenbosch University in South Africa in 2004. She obtained her master's degree in Educational Psychology in 2006. Her master's thesis described a study on the effectiveness of a traffic safety program. She started her PhD project at Fontys University of Applied Sciences and Eindhoven School of Education (Eindhoven University of Technology) in 2007 of which the results are presented in this dissertation. Since 2011, she works as educational consultant at Sint Lucas in Boxtel, the Netherlands.

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