Towards a better understanding of teacher educators' professional development: Theoretical and empirical insight into their researcherly disposition

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Voorwoord

Dit proefschrift richt zich op het beter begrijpen van de professionele ontwikkeling van lerarenopleiders, door het theoretisch en empirisch in kaart brengen van hun onderzoekende houding. Net als het onmogelijk is een allesomvattend overzicht te bieden van alle factoren die samenhangen met de onderzoekende houding van lerarenopleiders, is het onmogelijk alle personen te bedanken die op één of andere manier een invloed hebben gehad op de uitwerking van dit proefschrift. Dit proefschrift is ontstaan door de hulp en steun van heel wat collega's, onderzoekers, lerarenopleiders, vrienden en familie. Een aantal van hen wens ik hier in het bijzonder te bedanken.

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Table of contents

1 | General introduction

Effective curriculum development of the highest quality depends upon the capacity of teachers [educators] to take a research stance of their own teaching, or a disposition to examine one's own practice.

Stenhouse (1975, p.156)

Chapter 1

General introduction

Abstract

This chapter serves as a general introduction and delineates the context in which the subsequent chapters of this dissertation are situated. The first part of this chapter presents the research context and the general theoretical background. In particular, the focus is on teacher educators as a unique and heterogeneous occupational group, and the need for a meaningful conceptualisation of teacher educators' professional development. Then, the Flemish teacher education context in which this dissertation is situated is described. Following this, the main research challenges that the field of teacher educators' professional development is facing are discussed. Subsequently, the main research aim, together with the specific research objectives, is presented. The general aim of this dissertation is to gain a better understanding of teacher educators' professional development by offering a theoretical and empirical insight into their researcherly disposition (= *'onderzoekende houding'*). The research objectives are: (1) developing a theoretical framework on teacher educators' researcherly disposition; (2) constructing a self-reported measurement instrument to evaluate teacher educators' researcherly disposition; (3) offering an insight into supporting factors related to teacher educators' researcherly disposition; and (4) exploring the impact of an intervention on practitioner research designed to support teacher educators' researcherly disposition. These four objectives are linked with the overall research design and tackled using three different methodological approaches: quantitative research, qualitative research, and mixed-method intervention research. This introduction pays specific attention to the design of the dissertation, its scientific relevance, and its relation to the teacher education practice. Finally, an outline of the overall structure of the dissertation is presented, which offers an overview of the content of the subsequent chapters and their relation to each another.

Research context

"Professional development of teacher educators is too important not only to teacher education, but also to the educational system as a whole, to be left in a virginal state regarding research and documentation."

(Smith, 2003, pp. 213-214)

Teachers are considered as the most important in-school factor impacting on the quality of student achievement. Based on the results of his internationally well-known meta-study *Visible Learning*, Hattie (2009) suggests that the quality of teachers has a greater impact on the learning of pupils than the quality of the curriculum, the school building or the role of parents. As a result of the widely acknowledged importance of teachers, much attention is given to research and policies related to teacher quality and their professional development, on both a national and an international level (see Berry & Van Driel, 2013; Darling-Hammond, 2013; European Commission, 2010; Loughran, 2014; Merchie, Tuytens, Devos & Vanderlinde, 2016). If the general consensus is that teachers are the most important in-school factor influencing the quality of their pupils' learning, then it seems reasonable to assume that the same is true for teacher educators and the quality of their student teachers' learning. In this respect, similar attention to the quality and professional development of teacher educators can be expected within the international research literature and policy debate. However, until a decade ago, researchers and policymakers paid only limited attention to those responsible for the support of our next generation of teachers: the teacher educators (Lunenberg et al., 2014). Research literature and policy documents have focused mostly on the structures of teacher education and on the relationships between teacher education programmes and student achievements in schools, rather than on teacher educators and their professional development (Lunenberg, Murray & Smith, 2016; Vanassche et al., 2015). Livingston (2014) describes teacher educators as "a hidden and poorly understood occupational group". Similarly, others describe teacher educators as "the neglected factor in the contemporary debate on teacher education" (Snoek & Zogla, 2009, p. 288). Martinez (2008, p. 34) assesses the problems with regard to the current lack of knowledge about teacher educators, their professional practice and their professional development:

> Little systematic research has been undertaken to inform us about fundamental characteristics of the professional lives of this occupational group – their qualifications, their recruitment, their career pathways into

and through the academy, their teaching and research practices, the problems they encounter, or their professional development needs and practices. (Martinez, 2008, p. 35)

In other words, and rather paradoxically, even though the literature includes many studies about teachers and their professional development, little attention is paid to those responsible for (student) teachers' learning and their professional development (Loughran, 2014). As Zeichner (2005, p. 118) explains, this paradox is nourished by the assumption that "if one is a good teacher of primary or secondary school students, this expertise will automatically carry over to one's work with novice teachers". In line with this assumption, teacher educators have been perceived as 'expert teachers' who are 'upgraded' to teaching their subject in a teacher education programme instead of teaching in primary, secondary or higher education (Berry, 2007; Zeichner, 2005). As will be further argued, this assumption needs to be nuanced. However, in keeping up with this assumption, worldwide, the specific nature of teacher educators' work and their professional development has been rather neglected in the research literature and policy documents. Similarly, in practice, there has been limited attention to teacher educators' induction and further professional development (see, for instance, Bates, Swennen & Jones, 2011; Ben-Peretz, Kleeman, Reichenberg & Shimoni, 2011; Cochran-Smith, 2003; Loughran, 2014; Lunenberg, Dengerink & Korthagen, 2014; Vanassche, 2014).

This dissertation addresses this knowledge gap. In particular, we aim to offer both theoretical and empirical insights into teacher educators' professional development. Before presenting the existing research on this topic (see *2. Towards a meaningful conceptualisation of teacher educators' professional development*), teacher educators are defined as a heterogeneous and unique occupational group.

Teacher educators: A heterogeneous and unique occupational group

Teacher educators are defined by the European Commission (2013, p. 8) as "all those who actively facilitate the (formal) learning of student teachers and teachers". This definition is not limited to professionals in higher education who focus on course work, didactics and pedagogy; it means that all professionals responsible for the instruction and supervision of future teachers, all mentors responsible for the support of teachers, and all other professionals involved in the preparation and support of (student) teachers are teacher educators (European Commission, 2013; Shagrir, 2010). In this respect, the European Commission's (2013) definition acknowledges the increased diversification of 'teacher educators'

as an occupational group. It recognises that teacher educators are a group of professionals who can differ significantly from one another in several ways, for example, qualification level (bachelor's degree, master's degree, PhD), (subject) area of specialism, work experience (teachers, lecturers, researchers), contractual arrangements and institutional constraints. Moreover, the definition encompasses a wide spectrum of positions in the educational system, ranging from institution-based teacher educators to school-based teacher educators. Institution-based teacher educators are occupied in tertiary pre-service teacher education programmes and are mainly responsible for the preparation of future teachers. School-based teacher educators, also called 'mentors' or 'workplace facilitators', are occupied in schools and mainly responsible for the on-going support of serving teachers and for facilitating learning of (student) teachers in the workplace (European Commission, 2013). Clear (task) definitions, however, on this particular group of teacher educators are absent in the literature (see Lunenberg, 2014), and differ per country and context (Lunenberg et al., 2014). On the one hand, research on school-based teacher educators (Bullough, 2005; Livingston, 2014) suggests that school-based teacher educators primarily identify themselves with their continuing role as a teacher in the contexts of PK-12 education (i.e. kindergarten, primary education and secondary education). In most cases, only a small part of school-based teacher educators' tasks consists of supporting teachers, and thus being a teacher educator (Bullough, 2005). On the other hand, research on institution-based teacher educators (Berry, 2007; Loughran, 2006; Lunenberg et al., 2014; Murray & Male, 2005) suggests a unique and complex identity 'shift' when one becomes a teacher educator in higher education. The main challenges related to one's transition into higher education involve developing a professional identity as a teacher educator, learning new institutional norms and roles, working with adult learners, and becoming a researcher (Murray & Male, 2005). This 'shift' is also widely acknowledged in the research literature as "moving from being first-order practitioners – that is, school teachers – to being second-order practitioners" (Murray & Male, 2005, p. 126). Compared to working previously in the first-order setting of schools, teacher educators now work in the second-order context of higher education (Murray & Male, 2005). Southworth (1995) argues that this challenging transition results from the lack of alignment between teacher educators' "substantial selves" – who they are, given their experience and professional identity – and their "situational selves" – who they need to be in the new context in which they find themselves (see also Wood & Borg, 2010). This lack of alignment is even more pronounced given the general lack of formal preparation for the role of teacher educator (Berry, 2007; Goodwin et al., 2014). In this respect,

becoming a teacher educator is generally not an intentional career choice (Griffiths, Thompson & Hryniewicz, 2010; Murray & Male, 2005). Generally, teacher educators have been selected as they are (1) experienced teachers; (2) subject specialists (sometimes without a teaching degree, often without having teaching experience in primary or secondary schools themselves); or (3) researchers in education or a related field (Berry, 2016; European Commission, 2013; Vanassche, 2014). In line with Cochran-Smith (2003), we agree that both groups of teacher educators (i.e. school-based teacher educators and institution-based teacher educators) provide significant contributions across the continuum of teacher education, but that they require different approaches in terms of their professional development (Cochran-Smith, 2003; Livingston, 2014). Given the challenges institution-based teacher educators are facing, we are particularly interested in how this group of teacher educators' professional development can be meaningfully conceptualised and supported. Therefore, this dissertation focuses on institution-based teacher educators (subsequently referred to as 'teacher educators') working in pre-service teacher education programmes, whose main responsibility is the education of future teachers. This is also the largest group of teacher educators in Europe (European Commission, 2013; Lunenberg et al., 2014).

To emphasise the distinct nature of teacher educators' work, teacher educators are increasingly described as a unique and autonomous 'profession', or at least as a 'semi-profession', with specific professional development needs different from those of all other professions (cf., for instance, Dinkelman, Margolis & Sikkenga, 2006b; Swennen, Jones & Volman, 2010). In this respect, Verloop (2001) describes seven criteria for being a 'profession' (examples of established professions are, for instance, medicine or law): (1) the profession performs a crucial social function; (2) the profession requires a considerable degree of skill; (3) the practitioner draws on a body of systematic knowledge; (4) the profession requires a lengthy period of higher education; (5) the profession centres on the pre-eminence of clients' interests; (6) professionals have a certain amount of freedom to make their own judgements with regard to what is considered appropriate practice; and (7) the profession is rewarded by high prestige and a high level of remuneration. Lunenberg et al. (2014) applied these criteria to the occupation of teacher educators and concluded that teacher educators have a crucial social function (criterion 1); focus on the pre-eminence of their clients' interests (here: student teachers) (criterion 5); and have a certain amount of freedom to make their own judgements with regard to what is considered appropriate practice (criterion 6).

However, the understanding of the work of teacher educators (criterion 7), the skills that are needed (criterion 2), the body of systematic knowledge for teacher educators (criterion 3), and the lengthy education that is required to become a teacher educator (criterion 4) are still criteria in development (Kelchtermans, Smith & Vanderlinde, 2017). Based on these criteria in development, and in line with Kelchtermans et al. (2017), we prefer to define teacher educators as an occupational group with specific professional development needs, different from other occupational groups, moving gradually to a profession.

Towards a meaningful conceptualisation of teacher educators' professional development

"The professional development of teacher educators must be purposefully conceptualized, thoughtfully implemented, and meaningfully employed."

(Loughran, 2014, p.10)

Research on teacher educators' professional development is still a relatively young field (Lunenberg et al., 2014). In this respect, the research field is described as "under-researched" (Livingston, 2014), with much of the current literature drawing on what is known about teachers' professional development. Over the past two decades, however, researchers increasingly started to study the specific nature of teacher educators' work and, correspondingly, started to develop thoughts on how teacher educators' professional development might be meaningfully conceptualised (e.g. Berry, 2016; Cochran-Smith, 2005; Cochran-Smith & Lytle, 2009; Hadar & Brody, 2016; Kelchtermans, 2013; Kelchtermans et al., 2017; Loughran, 2014; 2016; Lunenberg et al., 2014; Smith, 2015; Vanassche, 2014; Vanassche et al., 2015). Based on this emerging field of research, the next sections first argue that the distinct nature of teacher educators' work as 'teachers of teachers' should be the starting point in conceptualising teacher educators' professional development. Second, when adopting such an approach to teacher educators' professional development, teacher educators' professional development is often conceptualised as a 'research journey'. Third, attention is paid to the contextual situatedness that almost naturally influences teacher educators' understanding of their work, as well as their professional development.

The distinctive nature of teacher educators' work

Teacher educators have rarely been prepared for their vital role as 'second-order teachers' or 'teachers of teachers', and teacher educators' induction into teacher education and their further professional development is seldom supported by in-service formal professional development activities (European Commission, 2013; Loughran, 2014; Lunenberg et al., 2014; Smith, 2003). As a result, most teacher educators do not enter teacher education with a clear understanding of their roles as teacher educators, yet they are expected to develop their competences while working with student teachers (European Commission, 2013). In that transition, it is well recognised that:

> Becoming a teacher educator involves much more than a job title. Even if one becomes a teacher educator at the moment one begins working as a teacher educator, one's professional identity as a teacher educator is constructed over time. Developing an identity and a set of successful practices in teacher education is best understood as a process of becoming. Although the work of teaching has much in common with the work of teacher education, the two positions are significantly different in important ways. (Dinkelman et al., 2006a, p. 6)

In line with this, several authors (Lunenberg et al., 2014; Murray & Male, 2005; Wood & Borg, 2010) suggest that (beginning) teacher educators continue to rely on previously acquired professional identities: they think of themselves primarily as school teachers, as teachers in higher education or as researchers, rather than identifying themselves with their new roles as teacher educators. Notwithstanding their background (e.g. as a classroom teacher, as a subject specialist or as a researcher), teacher educators describe their first years as a teacher educator as being "thrown in at the deep end" (Wilson, 2006) with "feelings of professional unease and discomfort" (Murray & Male, 2005) and a "process of feeling deskilled and disoriented" (Berry, 2016). Teacher educators often perceive their previous professional experiences and knowledge as unsupportive for their new roles as teacher educators (e.g. Berry, 2007; Brandenburg, 2008; Bullock, 2009; Bullough, 1994; Wood & Borg, 2010). To illustrate this, Brandenburg (2008, p. 5) describes her own process of becoming a teacher educator: "My professional uneasiness continued. Clearly, it became apparent that I was required to be more than a classroom teacher, although at that point, I was not quite sure what the more meant".

Explaining the "more" referred to by Brandenburg (2008, p. 5), Murray and Male (2005) introduced the concept of teacher educators as 'second-order practitioners', to distinguish between the work of teachers as 'first-order' practitioners and the work of teacher educators as 'second-order' practitioners. Teachers teach in a first-order situation: they teach their subjects to their students. Teacher educators distinguish themselves from teachers as they are practising 'second-order' teachers or 'teachers of teachers' (Murray & Male, 2005). This fundamental identity shift (Berry, 2016) requires teacher educators to generate a second level of thought about teaching, one that focuses not (only) on content, but on *how* to teach (Loughran, 2011). This argument regarding why the 'how' of teaching is at least as important as the 'what' of teaching involves what Russell (1997) called *'How I teach IS the message'*. As Russell (1997, p. 55) explains, a fundamental aspect of teacher educators' teaching is the need to focus on the "pedagogical turn" in teacher education, or "realising that how we teach teachers may send much more influential messages than what we teach them". This 'pedagogical turn' requires teacher educators to function simultaneously on two levels: (1) the level of what is being taught (the subject matter of teaching); and (2) the level of how it is being taught (the pedagogical approach) (Berry, 2016). In this process, the teacher educator becomes "an embodied amalgam of theory and practice" (Davey, 2013, p. 170) that has to "practice what s/he preaches through modelling and making these tacit aspects of practice explicit for student teachers" (Berry, 2007, p. 12).

Teacher educators' identity as 'teachers of teachers' not only challenges them to model 'good' teaching in their practice, but also requires them to articulate the underlying principles of that practice (Loughran, 2011). Explaining the particular and distinct challenges of teacher educators' work, which "hinges around recognising, responding and managing the dual roles of teaching [content] and teaching about teaching concurrently", Loughran (2006, p. 11) emphasises the need for teacher educators to develop a specific pedagogy of teacher education. In developing this pedagogy, teacher educators must conceptualise their teaching in ways that go beyond content delivery (Loughran, 2006). Specifically, teacher educators have to move beyond 'teaching as telling', sharing 'tips and tricks' and 'successful' teaching experiences with their student teachers. Similarly, Appleton (2002, p. 393) argues that even though student teachers often seek to gather lists of "activities that work" to organise their future teaching practice, teacher educators must go further. In this respect, Loughran (2016, p.257) emphasises that

if student teachers need to understand teaching as more than simple delivery of "what works" teacher educators will need to:

> Embrace what it means to genuinely model teaching for understanding in order to consistently reinforce the development of pedagogical relationships that result in quality learning. Creating opportunities for students of teaching to see into their teacher educators' pedagogical reasoning is crucial in order to illustrate that good practice is not innate, but thoughtfully structured and conducted. To challenge the 'we already do this' view of teaching, teacher education must primarily be a site in which practice is opened up for scrutiny, exploration and research. Teacher educators must be able to illustrate that teaching is more than telling, and learning is more than listening. They must consistently model not just good teaching, but illustrate how that teaching is conceptualised, structured, implemented and reviewed. In that way, the complex and sophisticated nature of teaching can be made clear to students of teaching as they experience it. (Loughran, 2016, pp. 257-258)

In other words, teacher educators' work comprises a unique body of knowledge that requires them to move beyond seeing teaching solely as 'doing' and what has been learned in previous work experiences or study (Berry, 2007; Loughran, 2011). It is about being able to see beyond the tacit dimension of one's knowledge of practice, and being able to explain the fundamental pedagogical underpinnings inherent in supporting meaningful learning (Berry & Russell, 2013; Loughran, 2011; 2016). It is about embracing one's own teaching as being problematic, examining one's own teaching, and explaining its complex nature to one's student teachers (Berry, 2007; Loughran, 2014). In line with Lunenberg et al., (2014) we agree that teacher educators' professional development can be meaningfully interpreted in a number of ways. However, multiple researchers (see for instance, Berry, 2016; Cochran-Smith, 2005; Cochran-Smith & Lytle, 2009; Loughran, 2016; Murray & Male, 2005; Smith, 2015) have argued that a conceptualisation of 'teaching about teaching' as going beyond 'doing' teaching requires teacher educators to become 'researchers' of their own practice (Berry & Russell, 2013; Cochran-Smith & Lytle, 2009; Loughran, 2014; 2016).

Teacher educators' professional development: A research journey

To develop knowledge of their own practice and make tacit aspects of that practice explicit to their student teachers, to other teacher educators and to teacher education in general, a growing number of teacher educators are involved in

various forms of practice-oriented research (Cochran-Smith, 2003). Practice-oriented forms of research include 'teacher research' (Clarke & Erickson, 2003; Cochran-Smith & Lytle, 1999; Mitchell, 2002), 'self-study' (Bullough, 1994; Hamilton, Pinnegar, Russell, Loughran & LaBoskey, 1998; Loughran, Hamilton, La Boskey & Russell, 2004) and 'practitioner research' (Cochran-Smith & Lytle, 2009; Zeichner & Noffke, 2001). All these closely aligned forms of practice-oriented research refer to studies conducted by practitioners themselves to develop knowledge of their own local practice and to inform the broader knowledge base in teacher education (Cochran-Smith & Lytle, 2009; Loughran, 2016; Vanassche, 2014). The *Self-Study of Teacher Education Practices* (S-STEP), one of the American Educational Research Association's (AERA) largest Special Interest Groups (SIGs), is a visible sign of the growing group of teacher educators engaged in research on their own practice (Cochran-Smith, 2005). S-STEP also organises the international biennial Castle Conference on self-study in teacher education. Moreover, it encourages the publication of self-studies in the international peer-reviewed journal on teacher education *Studying Teacher Education: A Journal of Self-study of Teacher Education Practices* (Loughran, 2014) (revised edition in press) and has published its own *International Handbook of Self-Study of Teaching and Teacher Education Practices* (Loughran et al., 2004). Simultaneously, there have been many other efforts to publish studies conducted by practitioners on their professional practice. One of these efforts definitely needs to be mentioned: the *Practitioner Inquiry Series* (editors: Cochran-Smith & Lytle). For over a decade – with the first volumes in the mid-1990s – the *Practitioner Inquiry Series* has published books by practitioner researchers as well as books about practitioner research and its role in different educational contexts. In common, the books in these series challenge the boundaries between theory and practice and offer an insight into how practitioners theorise and understand their work in practice. In addition to these larger-scale initiatives, teacher educators are increasingly writing and publishing about their own teaching experiences in several other outlets (Berry, 2007; Vanassche, 2014). In her book *Tensions in Teaching about Teaching: A Self-study of the Development of Myself as a Teacher Educator*, Berry (2007) clearly shows how conducting research into her own practice as a teacher educator fundamentally shaped, challenged and impacted her identity as a teacher educator.

This growing trend of teacher educators' engagement in research to inform their practice suggests an important conceptualisation of teacher educators' role and a promising way to think about teacher educators' on-going learning and professional development (Cochran-Smith, 2005; Loughran, 2014). In particular, it

suggests that we should think about teacher educators' work as "working the dialectic" (Cochran-Smith, 2005, p.221). This means that teacher educators' role is neither an exclusive researcher role, nor an exclusive practitioner role, but an intertwining and a complementary combination of both: "... It privileges neither research nor practice but instead depends upon a rich dialectic of the two wherein the lines between professional practice in teacher education and research related to teacher education are increasingly blurred" (Cochran-Smith, 2005, p. 221).

To be clear, conceptualising teacher educators' professional development in such a way does not mean that teacher educators should occasionally engage in self-reflection or sporadically explore published research literature (Cochran-Smith, 2003; Loughran, 2014). Instead, it requires practitioners to systematically investigate their own practice to maintain and nurture an 'inquiry as stance' on their practice (Cochran-Smith & Lytle, 2009). In the late 1990s, Cochran-Smith and Lytle (1999) coined the term 'inquiry as stance' to refer to "the process of continual and systematic inquiry wherein professionals question their own and other assumptions and construct local as well as public knowledge appropriate to the changing contexts in which they work" (Cochran-Smith, 2003, p. 24).

The notion of 'inquiry as stance' (Cochran-Smith & Lytle, 1999) draws attention to the significant role that practitioners play in developing local knowledge and theorising their practice, as well as critically interpreting existing theories and research of others, and sharing their findings with the broader community (Cochran-Smith, 2005; Ravitch, 2014). Moreover, it is not a temporary activity, but a fundamental aspect of teacher educators' day-to-day practice, as well as a central element in their vision as professionals (Loughran, 2016). It means that professionals with an 'inquiry as stance' are committed to the systematic investigation and questioning of their practice and its shaping context (Cochran-Smith & Lytle, 2009). Obviously, the need to develop an 'inquiry as stance' is a fundamental aspect in the discussion about the relevance of 'practitioner research' (and other related forms of practice-oriented research); however, these terms are not interchangeable, but complementary (Ravitch, 2014). In this respect, it is important to consider the continual interplay between taking 'inquiry as stance' and engaging in 'practitioner research'. On the one hand, having 'inquiry as stance' refers to an overall habit of mind to investigate one's own practice as a responsible agent of that practice (Cochran-Smith, 2005). During this process, professionals are active learners engaged with various stakeholders in the co-construction of knowledge (Cochran-Smith & Lytle, 2009). On the other hand, 'practitioner research' is a promising methodological research strategy to ground one's 'inquiry

as stance'. This means that by conducting 'practitioner research', practitioners' decisions in their day-to-day practice are supported by rigorously collected and analysed data (Cochran-Smith & Lytle, 2009).

Practitioner research is "the systematic process of collecting, analysing and interpreting information in order to increase our understanding of a phenomenon about which we are interested or concerned" (Leedy & Ormrod, 2013, p. 2). Furthermore, Cochran-Smith and Lytle (2009, pp. 41-45) argue that practitioner research impacts the development and improvement of local knowledge and practice, targets the generation of public knowledge to impact the wider knowledge base, and serves as a promising professional development strategy. Practitioner research involves a cyclical process characterised by seven different steps (Cochran-Smith & Lytle, 2009; Leedy & Ormrod, 2013). The cycle of practitioner research starts with (1) the exploration of a research problem or a question of practice and the formulation of a problem statement, and (2) the identification of a corresponding research question. Then, (3) an appropriate research design is developed that guides (4) the collection of data and (5) the analysis and interpretation of data in order to (6) make conclusions, which can be (7) shared with the broader community. A good reference for a detailed overview of these different steps is Leedy and Ormrod's (2013) *Handbook on Practitioner Research*. Practitioner research can include qualitative and/or quantitative methods and requires research knowledge, skills and an understanding of what comprises data and rigour in research (Cochran-Smith & Lytle, 2009). In other words, practitioner research offers a promising methodological approach to develop inquiry as a habit of mind to investigate one's practice. Framed and approached this way, practitioner research can have the power to be transformative at the individual, interpersonal, communal and institutional level (Cochran-Smith & Lytle, 2009; Ravitch, 2014).

Teacher educators' professional development: Not operating in a vacuum

Over the past ten years, researchers (Berry, 2007; Kelchtermans et al., 2017; Loughran, 2014; Lunenberg et al., 2016; Smith, 2015; Vanassche, 2014; Vanassche et al., 2015) have increasingly emphasised the relevance of accounting for contextual factors in conceptualising teacher educators' professional development. In this respect, the work of teacher educators is embedded in multiple contexts, which include but are not limited to institutions of higher education, cooperating schools, and national and international policies regarding teacher educators' work and professional development (Kelchtermans et al., 2017; Lunenberg et al., 2014; Vanassche et al., 2015). Understanding these multiple contexts is critical to any

understanding of teacher educators' professional development (Kelchtermans et al., 2017; Loughran, 2014; Lunenberg et al., 2016; Smith, 2015; Vanassche, 2014; Vanassche et al., 2015).

On an international level, the increased attention on teacher educators' professional development is reflected in several reports of the European Commission (2012; 2013). In this respect, the European Commission (2013, p. 54) clearly states: "If teachers are the most important in-school factor influencing the quality of students' learning, the competences of those who educate and support teachers must be of the highest order". Similarly, in 2013, the International Forum for Teacher Educator Development (InFo-TED) was founded. The general aim of this recently established forum is to bring together people across the world to exchange research and practice related to teacher educators' professional development (see Kelchtermans et al., 2017; Lunenberg et al., 2016; Vanassche et al., 2015). In their recently published position paper on teacher educators' professional development *Towards an International Forum for Teacher Educator Development: An Agenda for Research and Action*, Kelchtermans et al. (2017) present a model to conceptualise teacher educators' professional development. In doing so, they present an organising framework to map teacher educators' professional development, allow the development of a common language, and present a clear international agenda for research and action (see also Lunenberg et al., 2016; Vanassche et al., 2015).

Several national initiatives specifically focused on teacher educators' professional development have also been initiated across Europe (see Vanassche et al., 2015 for a comparison of initiatives in Norway, Ireland and Belgium). In Israel, for instance, the MOFET Institute, a unique national centre that supports teacher educators' professional development, was established. The MOFET Institute was founded based on the belief that teacher educators have their own unique expertise, which requires specific professional development activities (Kelchtermans et al., 2017). In other countries, systematic and formal initiatives focusing on teacher educators' induction and professional education have been lacking (Goodwin et al., 2014; Murray, 2008). In some countries, however, professional standards or profiles for teacher educators (*Professional Standard of Teacher Educators*, the Netherlands; *Standards for Teacher Educators*, USA; *the Flemish Teacher Educator Development Profile*, Flanders, Dutch-speaking part of Belgium) have been developed. In common, and without being prescriptive, these documents describe the knowledge, skills and attitudes teacher educators need in order to function effectively. Moreover, in the Netherlands, the Dutch National Teacher Education

Association (VELON) has developed a professional accreditation system with a professional portfolio and interviews. This professional registration procedure is linked to the *Professional Standard for Teacher Educators* and provides a tool to assess and develop teacher educators' professional competence. This accreditation system functions as a self-assessment tool and a tool that can be implemented by teacher education institutions as an instrument to guarantee the quality of their programmes (Lunenberg et al., 2016). In Norway, the *Norwegian National Graduate School in Teacher Education* (NAFOL) helps teacher educators to gain a doctorate (Smith, 2015). In this respect, NAFOL not only empowers Norwegian teacher educators as researchers, but also focuses on the development of a national knowledge base in teacher education (Kelchtermans et al., 2017; Smith, 2015; Vanassche et al., 2015). It is clear that these different and distinctive national contexts clearly affect teacher educators' professional development opportunities (Kelchtermans et al., 2017).

Furthermore, institutional contexts, and institutions of higher education in particular, play a significant role in teacher educators' professional development (Berry, 2016; Smith, 2003; Vanassche, 2014). The institutional context is likely to enable and constrain different aspects of teacher educators' work (Zeichner, 2002). Particularly, given the lack of a clear policy on teacher educators' professional development, teacher educators' professional development largely relies – in addition to individual agency in one's own professional development – on chance, goodwill, and support from the teacher education institution (Berry, 2016; Smith, 2003; Tack, Valcke, Rots, Struvyen & Vanderlinde, accepted). In this respect, Vanassche (2014) argues that the context of the teacher education institution with its particular structural and cultural working conditions mediates teacher educators' professional work and thus their professional development opportunities. Berry (2007, p. 52) emphasises that the following conditions in the teacher education institution were crucial for her own professional development process as a teacher educator: "adequate resources in terms of time, funds and the availability of experienced personnel who can work as supportive colleagues with less experienced staff". The micro communities of practice within these already diverse institutional contexts are also shaping forces in teacher educators' work and professional development (Murray, 2008). In other words, in addition to (inter)national influences, the context in the teacher education institution will affect teacher educators' professional development (Kelchtermans et al., 2017).

Moreover, teacher educators are inevitably connected to many other complex networks of different groups and individuals. These groups include, for instance,

educational policymakers, research communities, subject discipline associations, and the teaching professionals, teachers and students in schools (Berry, 2016). These different networks will also give meaning to teacher educators' experiences and meet particular needs regarding their professional development (Kelchtermans et al., 2017).

In their recent review study of international research on teacher educators, Lunenberg et al. (2014) found – at least – six professional roles that teacher educators have to fulfil: teacher of teachers, researcher, coach, curriculum developer, gatekeeper, and broker. In addition to being a 'teacher of teachers' and a 'researcher', teacher educators have at least four other professional roles (Lunenberg et al., 2014) or sub-identities (Vanassche et al., 2015):

(1) *Coach* – this role refers to teacher educators' responsibility to provide support to student teachers both within the institution and in the workplace. A central aspect of this role is therefore facilitating the learning process of student teachers (see, for instance, Hennissen, Crasborn, Brouwer, Korthagen & Bergen, 2010; van Velzen & Volman, 2009).

(2) *Gatekeeper* – this role requires teacher educators to stand guard at the entrance of the teacher profession. Studies about teacher educators' role as a gatekeeper often discuss the tension between promoting active and self-regulated learning on the one hand, and meeting requirements established in standards and profiles for the profession of the teacher on the other hand (see, for instance, Smith, 2010; Tillema & Smith, 2007).

(3) *Broker* – this role requires teacher educators to promote cooperation between the institutions of teacher education and schools. In the research literature, this role is often also described as being a 'facilitator' in stimulating collaboration between different stakeholders involved in education (see, for instance, Willegems, Consuegra, Struyven & Engels, 2016).

(4) *Curriculum developer* – this role refers to teacher educators' task to contribute to the active design and development of a curriculum for teacher education (see, for instance, Lunenberg, 2002; Struyven & De Meyst, 2010).

It is clear that teacher educators do not fulfil all these roles at one moment in their career; nor do these roles belong to specific career phases (Kelchtermans et al., 2017). Instead, they need to be perceived as sub-identities, related to the (different) contexts teacher educators are working in and the different

relationships teacher educators have (Beijaard, Meijer & Verloop, 2013; Meijer, 2013).

Based on the emerging field of research on teacher educators' professional development, we have first argued that the distinct nature of teacher educators' work should be the starting point in conceptualising their professional development. In doing so, it seems promising to understand teacher educators' professional development as the development of an 'inquiry as stance', in which practitioner research can serve as a strategy. Teacher educators' professional development does not involve operating in a vacuum; therefore, it is important to consider the influence of possible contextual factors. In the following section, the Flemish teacher education context – in which this dissertation is situated – is described.

The teacher education context in Flanders

"Flemish teacher educators' professional development has been a lonely enterprise."

(Vanassche et al., 2015, p. 350)

Teacher education in Flanders

Flemish teacher education in 2017 is framed by the 2006 Decree on Teacher Education. The 2006 Decree on Teacher Education is a result of debates that began in 1989 about the reform of teacher education. In 1989, Belgium became a federalised state with three Communities: the Flemish Community (Flanders), the French Community (Wallonia), and the German-speaking Community. Each Community is responsible for its own cultural and personal affairs. This means that in 1989, the Flemish government received full authority for educational policy in Flanders.

In 2006, the Flemish Community enacted a decree on the quality of teacher education with a focus on tackling the theory-knowledge gap and supporting the (further) professional development of (beginning) teachers (Flemish Parliament, 2006, p. 3). Since this decree was enacted, two types of teacher education programme co-exist: (1) the integrated programme and (2) the specific programme. Both programmes result in the same teaching certificate. Table 1 provides an overview of these different programmes, their providers and their content. Colleges of higher education (in Dutch: '*hogescholen*') provide the

'integrated programme' that results in the degree of Bachelor in Education (kindergarten, primary education or secondary education). This programme combines subject matter knowledge, didactical knowledge and extended practical training. The 2006 decree also recognises so-called 'specific programmes' (second and third grade of secondary education) provided by universities (in Dutch: '*universiteiten*'), colleges of higher education and centres for adult education (in Dutch: '*centra voor volwassenenonderwijs*') (see Table 1). The 'specific' teacher education programme is taken after or during a subject-oriented master's programme or as a separate programme for professionals who want to become practice teachers in vocational and technical secondary education.

Table 1. Teacher training programmes in Flanders

	Provider	Programme	Credits*	Content
Teaching-intensive	Colleges of Higher Education	Integrated	180	Extended practical training
				General educational theory
				Subject matter knowledge
		Specific	60	Professional teacher training programme after an initial subject-oriented study
	Centres for Adult Education	Specific	60	Practical teacher training programme for adults with relevant work experience
Research-intensive	Universities	Specific	60	Academic teacher training after a subject-oriented study

*ECTS = European Credit Transfer System

In Flanders, teacher education is not defined by a prescriptive national curriculum. Building on a balance between autonomy and accountability, teacher education institutes have to prove that they pursue and attain basic competencies set out by the Flemish government. In order to respond to urgent social challenges, the 2006 decree introduced a reform of teacher education with a specific focus on diversity, ICT use, language education, teaching in a metropolitan context, and teachers' research competences. Surprisingly, and despite their key role in the education and the further support of (future) teachers, the decree did not pay specific

attention to the role and professional development of teacher educators (Tack, Valcke, Struyven, Rots & Vanderlinde, accepted).

Being a teacher educator in Flanders

As in other countries, attention to teacher educators and their professional development is needed in Flanders (Vanassche et al., 2015). Currently, there is no general agreement that teacher educators need specific and tailored professional development opportunities (Lunenberg et al., 2016). As a result, in Flanders, and in many other European countries (see European Commission, 2013), teacher educators are rarely prepared for their role as teacher educators. This means that becoming a teacher educator does not require a specific teaching certificate, any specific training, a (formal) preparation course, a qualification and/or teaching experience. In other words, there are no preconditioned role demands or requirements regarding the recruitment of a teacher educator in Flanders. Broadly speaking, three pathways typify the entry of Flemish teacher educators: (1) successful classroom teachers become teacher educators and focus for the most part on the practical training components; (2) subject specialists with an initial degree in a subject discipline (e.g. science, mathematics); and (3) so-called 'general educationalists' with a master's degree in educational sciences but generally having no practical teaching experience (Vanassche et al., 2015). Clearly, the work of educating teachers was generally not thought of as requiring any specific expertise or preparation, and the different entry pathways affect teacher educators' understanding of their new role as well as the knowledge they bring to their new job (Vanassche, 2014).

Moreover, Flemish teacher educators' professional development is influenced not only by their former careers, but also by their work contexts (European Commission, 2013; Kelchtermans et al., 2017; Lunenberg et al., 2016; Vanassche, 2014; Vanassche et al., 2015). In this respect, Flanders has a dual system in teacher education, with universities offering a research-based 'academic' teacher training programme and colleges of higher education and centres for adult education providing 'professional' teacher training programmes (see Figure 1). Internationally, these 'professional' programmes are also described as 'teaching-intensive' teacher education programmes, while 'academic' programmes are described as 'research-intensive' teacher education programmes (see Gilroy & McNamara, 2009; Murray et al., 2009). Although colleges of higher education can now set up applied research projects, teacher educators working in non-university settings (colleges of higher education and centres for adult education) are rarely engaged in applied research. In 'academic' teacher training programmes, the

situation is more complicated. On the one hand, university-based teacher educators are academics, teaching subject courses in addition to their core responsibility for conducting fundamental and theory-oriented research. On the other hand, university-based teacher educators can also be practitioners involved in the practical training components of the programme as a part-time job, with their main professional responsibilities located in schools or institutions of higher education, outside the university.

Furthermore, there is no governmental policy setting quality standards or academic/professional development benchmarks for Flemish teacher educators. This is similar to the situation in most European Union member states. Recently, however, *The Flemish Teacher Educator Development Profile* (VELOV, 2012) was developed, updated (VELOV, 2015) and disseminated by the Flemish Association for Teacher Educators (in Dutch: *Vereniging Lerarenopleiders Vlaanderen*; in short: *VELOV*). The profile recognises at least seven important roles for teacher educators to fulfil: teacher of teachers, assessor, researcher, coach, team member, engaged professional, and broker (these roles were largely determined based on the review study of Lunenberg et al, 2014). According to the Flemish Association of Teacher Educators (VELOV, 2015), the profile is flexible, needs to be used as a developmental instrument instead of a selection instrument, and is a useful starting point for self-evaluation, feedback by peers and supervision. The profile was developed to direct individual teacher educators and teams of teacher educators to talk about and give direction to their professional development. This frame of reference helps to focus the pedagogical development of Flemish teacher educators; however, only small-scale initiatives (see, for instance, Tack & Vanderlinde, 2016b; 2016c; Vanassche, 2014) to further develop teacher educators' quality with regard to theory, research and practice have been undertaken (Lunenberg et al., 2016).

The increased need for recognition of teacher educators' important role has recently also been recognised by Flemish policymakers. In this respect, a large-scale policy implementation evaluation study *EVALO* (in Dutch: '*Evaluatie Lerarenopleidingen Vlaanderen*'; in short: *EVALO*) was funded by the government in 2012 to evaluate the implementation of the 2006 decree involving actions to improve the teacher education quality in Flanders (see, EVALO, 2011). The EVALO project was the first large-scale study in Flanders that included a study of teacher educators and their professional development as a cornerstone when evaluating teacher education quality. A secondary analysis with a specific focus on the teacher educator data (see Tack et al., accepted) shows that systematic induction

programmes and continuing professional development initiatives are rarely in place in Flanders. In most cases, the socialisation process of becoming a teacher educator is left to the individual (e.g. for international examples, see Lunenberg et al., 2014; Murray et al., 2009). In this respect, teacher educators state that, overall, little attention is paid to their professional development, and they emphasise the voluntary nature of engagement in professional development activities (Tack et al., accepted; similar to the international trend, see European Commission, 2013; Lunenberg et al., 2014; 2016; Smith, 2003; Zeichner, 2005). In particular, the current supply of professional development activities is too often organised as general professional development activities, as one-off workshops with little long-term impact, without being compulsory and without formal recognition or accreditation (Tack et al., accepted). Flemish teacher educators are therefore expressing an urgent need for a structural organisation of time frames to engage in professional development that is closely linked to their own practices as teachers of teachers (Tack et al., accepted). These activities should be organised as long-term, sustainable, recognised formal professional development trajectories and in collaboration with (international) colleagues. Finally, Flemish teacher educators want to further develop their role as researchers, develop a shared knowledge base on teacher education, and develop an 'inquiring stance' which is currently lacking in most teacher educators' professional practices (Loughran, 2014; Tack et al., accepted).

To sum up, this section described the teacher education context in Flanders and explained what it means to become a teacher educator in Flanders. Similar to most other countries in Europe, attention on teacher educators' professional development is rather limited, and professional development activities are often organised on an ad hoc basis and by chance.

Research challenges

The research field on teacher educators' professional development is facing multiple research challenges. In particular, there is a need for: (1) the development of a common language; (2) large-scale empirical studies; and (3) intervention studies.

Focus on the development of a common language

Several authors have emphasised the importance of developing 'inquiry as stance' (*in Dutch = 'onderzoekende houding'*). For instance, in her dissertation on teacher

educators' professionalism, Vanassche (2014) concludes with a call for a "researcher's attitude" (Vanassche, 2014). Similarly, in discussions on teacher educators' professional development, terms such as "pedagogies of investigation" (Grossman, Hammerness & McDonald, 2009), "a research-oriented attitude" (Lunenberg et al., 2014), and a "research journey" (Loughran, 2014) are used interchangeably in the appeal for teacher educators' ongoing engagement in research to improve their practice. Despite this increased attention, however, the field clearly lacks a common language to define what the adoption of terms such as 'inquiry as stance' (or other related terms) exactly entails (Loughran, 2014). Reflecting on the results of their review study on teacher educators and their professional development, Lunenberg et al. (2014) conclude that: "The literature is unevenly distributed and shows a variety of foci. What is lacking is conceptual coherence, but also clear lines of research and attempts to promote collaboration of researchers. Examples in which researchers try to extend each other's work are rare" (Lunenberg et al., 2014, p. 72).

In line with Grossman et al. (2008), we are convinced that conceptual clarity is a much-needed first step in uniting the community of researchers and practitioners in teacher education. By literally speaking the same language, researchers can build on prior work and communicate their findings more powerfully both to each other and to practitioners and policymakers (Grossman et al., 2008).

Focus on large-scale empirical studies

The research field will require more than a common language to make progress. Currently, the field of research on teacher educators' professional development is characterised by small-scale qualitative studies and essays, and "solid quantitative studies are almost completely absent" (Lunenberg et al., 2014, p. 72). In this respect, measurement instruments to empirically provide an insight into teacher educators' professional development are still lacking (Lunenberg et al., 2014). If we aim to enhance empirical understanding of teacher educators' professional development, investments in the development of common research instruments by means of large-scale survey studies are needed (Cochran-Smith & Zeichner, 2005; Grossman et al., 2008).

Moreover, small-scale studies have highlighted several factors that are related to teacher educators' professional development (e.g. Goodwin et al., 2014; Murray & Male, 2005). Large-scale research that confirms the interplay between these factors and the individual teacher educator's professional development is needed (Grossman et al., 2008). For instance, regarding teacher educators' role as

researchers, the availability of a research infrastructure and a research culture in the teacher education institutions is often mentioned (Lunenberg et al., 2014). However, the relative importance of these aspects still needs to be empirically confirmed.

Focus on intervention studies

Finally, intervention research is needed to investigate the impact of promising professional development strategies (e.g. practitioner research) on teacher educators' professional development. As Lunenberg et al. (2014, p. 75) explain:

> Research should focus on relationships between on the one hand promising activities aiming at the professional development of teacher educators (for example, participating in a training trajectory or carrying out research into one's own practice), and on the other hand at resulting learning processes and outcomes, also in the longer term. (Lunenberg et al., 2014, p. 75)

In other words, high-quality intervention research that also focuses on results in the longer term is currently still lacking in the research literature on teacher educators' professional development.

Research design and overview of the dissertation

Research objectives

Taking into account the research challenges described in the research context of this chapter, the main aim of this dissertation is to gain a better understanding of teacher educators' professional development. In particular, this dissertation attempted conceptual coherence by introducing the concept of 'researcherly disposition' based on the existing literature on teacher educators' professional development. Afterwards, empirical studies were conducted to further our empirical understanding. Developing one's researcherly disposition is considered a key factor in teacher educators' professional development. This main aim is divided into four general research objectives that direct the different studies of this dissertation:

Research objective 1 (RO1):   To develop a theoretical framework on teacher educators' researcherly disposition based on the available literature and empirical research in the field

Research objective 2 (RO2):	To construct a self-reported measurement instrument on teacher educators' researcherly disposition
Research objective 3 (RO3):	To identify factors related to teacher educators' researcherly disposition
Research objective 4 (RO4):	To offer an insight into the impact of a one-year intervention in practitioner research on teacher educators' researcherly disposition

Design of the studies

In order to achieve the research objectives, qualitative, quantitative and mixed-method designs were used. The results presented and discussed in this dissertation are based on four studies (see Table 2): a literature review combined with a qualitative study (Chapter 2), two quantitative studies (Chapters 3 & 4), and one mixed-method study (Chapter 5). The research designs adopted in this dissertation differ significantly from and contribute to the research designs currently applied in teacher educators' professional development research (Lunenberg et al., 2014).

In this dissertation, and related to the first research objective (Study 1 – Chapter 2), conceptual coherence was attempted by first developing a theoretical framework based on the existing literature on teacher educators' professional development and introducing the concept of 'researcherly disposition' as a means to enhance understanding of teacher educators' professional development. This conceptualisation was empirically explored by means of qualitative research to describe differences in teacher educators' researcherly disposition.

Following this, two large-scale quantitative studies were conducted (Studies 2 & 3 – Chapters 3 & 4) to further enhance empirical understanding of teacher educators' researcherly disposition. Both quantitative studies are based on survey data collected from 944 institution-based teacher educators working in teaching-intensive teacher education institutions (centres for adult education and colleges of higher education). Quantitative research allows precise numerical data to be collected from a large number of participants, a research technique which is currently only used sporadically in teacher educators' professional development research (Cochran-Smith & Zeichner, 2005; Lunenberg et al., 2014). Related to the second research objective (Chapter 3), quantitative survey research enabled

measurement instrument development and provided generalizable findings so that inferences could be made for the target population (Creswell, 2003). The data obtained also enabled statistical analysis to assess differences between subgroups of participants (Chapter 3). Related to the third research objective (Chapter 4), relations among variables and with other related variables were assessed by means of quantitative research.

Related to the fourth research objective (Chapter 5), the final study in this dissertation assessed the impact of a one-year intervention on practitioner research on teacher educators' researcherly disposition (Study 4 – Chapter 5) by adopting a mixed-method research approach. In particular, the study fits within an intervention mixed-method framework with an embedded design (Creswell & Clark, 2010; Lewin, Glenton & Oxman, 2009). Within a mixed-method embedded intervention design, the quantitative data collection is recurrently linked to qualitative data collection at multiple points (Creswell & Clark, 2010). Integration through embedding is especially important in interventional advanced designs (Lewin et al., 2009). In our study, qualitative data was integrated before the intervention, during the intervention, and after the intervention. This mixed-method intervention study meets the research field's need for intervention studies, and explores a longitudinal perspective (Loughran, 2014; Lunenberg et al., 2014). Moreover, the mixed-method research approach allows a more holistic understanding of the impact of the intervention on teacher educators' researcherly disposition.

Table 2 provides an overview of the different chapters in this dissertation and describes the research objectives, methodology, data collection and data analysis techniques.

Outline of the dissertation

This dissertation is divided into six chapters. In addition to the *General introduction* (Chapter 1) and the *General discussion and conclusion* (Chapter 6), four empirical chapters (Chapters 1-4) are included. These chapters report on four different empirical studies and are all based on research articles that have been published or submitted for publication in international peer-reviewed journals listed in the Social Science Citation Index (SSCI). Table 2 provides an overview of the different chapters in this dissertation and describes the research objectives, methodology, data collection, and data analysis techniques. Figure 2 presents a schematic overview that visualises the relation between the different chapters.

Chapter 1 provides a general introduction to this dissertation. Firstly, it presents the overall research context in which the dissertation is situated. Following this, an outline of the general theoretical framework and a detailed overview of the research challenges, objectives, design and studies included in this dissertation are provided. To conclude, the theoretical, empirical, methodological and practical relevance of the dissertation is discussed. Parts of this chapter are based on a research article accepted by the *European Journal of Teacher Education* (Tack, Valcke, Rots, Struyven, & Vanderlinde, accepted*)*, a research article published in *Research in Teacher Education* (Tack & Vanderlinde, 2016c), and a research article published in *Tijdschrift voor Lerarenopleiders* (Tack & Vanderlinde, 2016b).

Chapter 2, *Teacher educators' professional development: Towards a typology of teacher educators' researcherly disposition*, focuses on the conceptualisation of teacher educators' researcherly disposition to enhance understanding of teacher educators' professional development. Firstly, and based on a theoretical framework on teacher educators' professional development, teacher educators' researcherly disposition is broadly defined as the habit of mind to engage with research – as both consumers and producers of research – to improve their own practice and contribute to the knowledge base on teacher education. Secondly, and based on a qualitative study with 20 teacher educators, the concept was empirically explored to describe differences in teacher educators' researcherly disposition. Chapter 2 was published in *the British Journal of Educational Studies* (Tack & Vanderlinde, 2014).

Chapter 3 and Chapter 4 present the results of a quantitative survey study conducted with 944 teacher educators. More specifically, Chapter 3, *Measuring teacher educators' researcherly disposition: Item development and scale construction,* reports on the development of a self-reported measurement instrument – the Teacher Educators' Researcherly Disposition Scale (TERDS) – to enhance empirical understanding of teacher educators' researcherly disposition. Taking into account the shortcomings in the emerging field of teacher educator professional development research (which is largely confined to small-scale qualitative studies), a large-scale quantitative survey study (n=944) was conducted. The first part of the chapter reports the results of factor analysis (both exploratory and confirmatory factor analysis). The second part of the chapter explores differences in teacher educators' researcherly disposition across several subgroups of teacher educators using the developed instrument. Chapter 3 was published in *Vocations & Learning* (Tack & Vanderlinde, 2016a).

Table 2. Research design of the different chapters in the dissertation

Chapter	RO	Methodology	Research design and data collection	Data analysis
1		General introduction		
2	RO1	Literature review	Existing literature on teacher educators' professional development	Literature review
		Qualitative research	Teacher educator interviews (n=20)	Comparative analysis
3	RO2	Quantitative research	Teacher educator survey (n=944)	Factor analysis (EFA/CFA)
				Measurement invariance
				Latent mean differences
4	RO3	Quantitative research	Teacher educator survey (n=944)	Structural equation modelling
5	RO4	Mixed-method research	Mixed-method intervention study with intervention group (n=21) and control group (n=17)	
		Quantitative research	(1) Pre-test, immediate post-test, delayed post-test	Analysis of variance (ANCOVA)
				Paired-sample t-tests
		Qualitative research	(2) Interviews (before, immediately after and six months after participation) and observations of the groups sessions, field notes and email conversations	Content analysis
6		General conclusion and discussion		

Chapter 4, *Exploring the relationship between the perceived research infrastructure, the perceived research culture, and teacher educators' researcherly disposition*, focuses on the relationship between teacher educators' perceptions of the existing research culture, the available research infrastructure in their teacher education institution, and teacher educators' researcherly disposition. The main aim of this chapter is to propose a model that explores supporting/hindering factors when developing one's researcherly disposition. In particular, and building upon previous small-scale qualitative studies on teacher educators' professional development, positive relationships between teacher educators' perceptions of the existing research culture, the existing research infrastructure, and teacher educators' researcherly disposition are hypothesised. A large-scale survey study was conducted with 944 teacher educators and structural equation modelling was applied to explore our hypotheses. Chapter 4 refers to an article that has been submitted for publication to the *Journal of Education for Teaching* (Tack & Vanderlinde, under review a).

Chapter 5, *Understanding the impact of an intervention on practitioner research on teacher educators' researcherly disposition: A mixed method study*, explores the impact of an intervention on teacher educators' researcherly disposition. The context for the intervention is a publicly funded collaborative project of three teacher education programmes (i.e. one higher education college, one centre for adult education, and one university-based teacher education programme) in Flanders (Belgium). The project spanned three academic years starting in September 2013 and ending in September 2016. The goal of the project is to develop, implement and study a one-year intervention to support teacher educators' professional development through practitioner research. For this chapter, the second edition of the intervention (2014-2015) is the subject of study. In particular, 25 Flemish teacher educators participated in a one-year intervention where they conducted practitioner research in professional learning communities. Quantitative (pre-test, immediate post-test, delayed post-test) and qualitative data (intake interviews, exit interviews, observations of the group meetings, email conversations) were collected and compared with a control group. Chapter 5 has been submitted for publication in the *Journal of Teacher Education* (Tack & Vanderlinde, under review b).

Chapter 6 provides a general discussion and the conclusion of the presented studies in this dissertation. It synthesises the main findings of the preceding chapters in relation to the research objectives and provides a general reflection on teacher educators' researcherly disposition. This chapter also includes a discussion of the limitations of the studies and presents possible directions for future research. Finally, implications for theory, empirical research, policy and practice are discussed.

Relevance of the dissertation

The four empirical studies in this dissertation were conducted to address a widely recognised international research problem, which is the limited fundamental knowledge and understanding of teacher educators' professional development in general (Bates, Swennen & Jones, 2011; Lunenberg et al., 2014; Vanderlinde et al., 2016), and an understanding of their researcherly disposition in particular. In this respect, this dissertation tackles multiple challenges identified as key challenges for the research field on teacher educators' professional development (Cochran-Smith & Zeichner, 2005; Lunenberg et al., 2014). In particular, the relevance of this dissertation is situated on a theoretical, empirical, methodological and practical level.

From a theoretical point of view, this dissertation adds to the literature by providing a theoretical insight into the concept 'researcherly disposition'. This concept, strongly related to 'inquiry as stance', 'investigative attitude' and 'pedagogies of investigation', offers a promising view on teacher educators' professional development. So far, however, the research literature has not provided a clear and comprehensive understanding of these concepts. Based on the existing research on teacher educators' professional development, this dissertation provides the first analytical framework that enhances theoretical understanding of teacher educators' researcherly disposition (Chapter 2). Moreover, by empirically testing this conceptualisation (Chapter 2 & Chapter 3) and by relating influencing factors (i.e. research culture and research infrastructure) (Chapter 4), this conceptualisation is further enhanced. Finally, this dissertation contributes to the theoretical rationale of conducting practitioner research to support teacher educators' researcherly disposition (Chapter 5). In particular, the design guidelines reported in the intervention study can serve future interventions concerned with teacher educators' professional development.

In addition to theoretical relevance, this dissertation enhances empirical understanding of teacher educators' researcherly disposition. Firstly, a measurement instrument that assesses teacher educators' self-reported researcherly disposition was developed, validated, and disseminated (Chapter 3). The results contribute to a better understanding of teacher educators' researcherly disposition and the developed instrument (Chapter 3) can be used in future research. Moreover, this dissertation provides data on factors that are related to teacher educators' researcherly disposition (Chapter 4). These results are, together with our conceptualisation (Chapter 2), a first attempt to unravel teacher educators' researcherly disposition.

On a methodological level, the research designs adopted in this dissertation add to the research field on teacher educators' professional development. In particular, the quantitative studies (Chapter 3 & Chapter 4) and the mixed-method intervention study (Chapter 5) are innovative, as the current field is characterised by small-scale qualitative studies and essays on teacher educators and their professional development (see Lunenberg et al., 2014).

Last but not least, this dissertation also contributes to teacher educators' practice and the policy debate on teacher educators' professional development. In addition to the development of the measurement instrument (Chapter 3), which can be used in both teacher educators' practice and policy, the intervention study reported in Chapter 5 is worth mentioning. In this respect, this dissertation allowed teacher educators to participate in a one-year intervention on practitioner research. This study makes important suggestions for future interventions and policies focusing on teacher educators' professional development. Not only should interventions such as the one presented in this dissertation be further encouraged and promoted, but also the results suggest the need for a more formal approach to teacher educators' professional development.

(1) LITERATURE REVIEW (2) QUALITATIVE STUDY

QUANTITATIVE SURVEY STUDY

MIXED METHOD INTERVENTION STUDY

CHAPTER 1

General introduction

CHAPTER 2

Teacher educators' professional development: Towards a typology of teacher educators' researcherly disposition

CHAPTER 3

Measuring teacher educators' researcherly disposition: Item development and scale construction

CHAPTER 4

Exploring the relationship between the perceived research infrastructure, the perceived research culture, and the development of teacher educators' researcherly disposition

CHAPTER 5

Understanding the impact of an intervention on practitioner research on teacher educators' researcherly disposition: A mixed-method study

CHAPTER 6

General discussion and conclusion
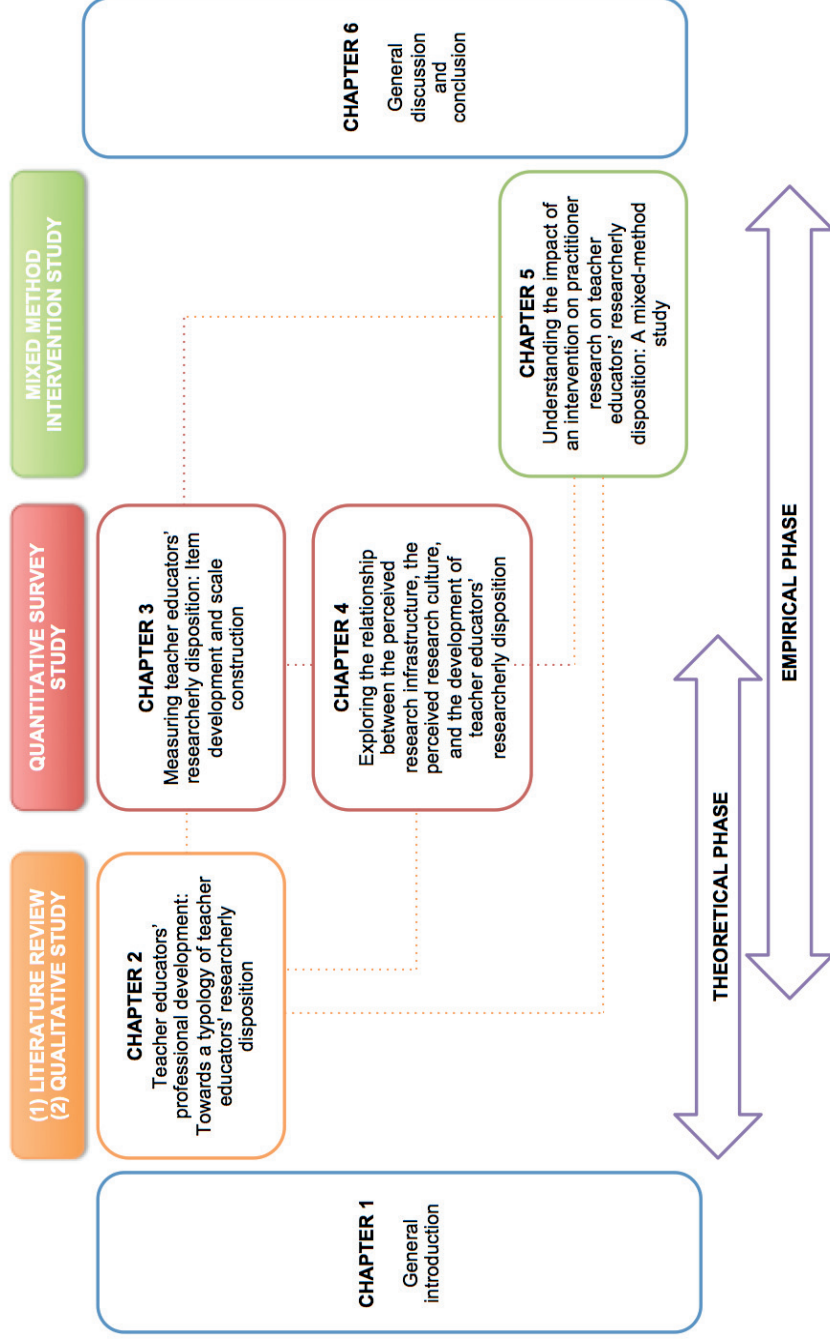
THEORETICAL PHASE

EMPIRICAL PHASE

Figure 1. Schematic overview of the dissertation

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2 | Teacher educators' professional development: Towards a typology of teacher educators' researcherly disposition

Chapter 2

Teacher educators' professional development: Towards a typology of teacher educators' researcherly disposition

Abstract

Since the beginning of the 21st century, the need for teacher educators' – or those who teach the teachers – professional development became increasingly recognised in both policy and research literature. In this respect, a growing body of publications highly stress the teacher educators' task of engaging in research and becoming a teacher educator-researcher. This article assumes that teacher educators' professional development can be conceptualised as the development of a 'researcherly disposition'. A researcherly disposition is defined as the tendency to engage in research and involves an inclination towards research (affective aspect); an ability to engage in research (cognitive aspect); and a sensitivity for research opportunities (behavioural aspect). Twenty in-depth interviews with teacher educators were conducted and analysed in order to empirically explore the concept and assess differences in teacher educators' researcherly disposition. The findings indicate a typology with three types of teacher educators: 'the enquiring teacher educator' (Type 1), 'the well-read teacher educator' (Type 2), and 'the teacher educator-researcher' (Type 3). Based on the proposed definition of a teacher educator's researcherly disposition, each type's disposition towards research is presented. Finally, implications for further research and for future programmes that focus on teacher educators' professional development are discussed.

Introduction

Although there is a worldwide urgent need for highly qualified teacher education, the professional development of teacher educators – those who teach the teachers – was neglected until the end of the 20th century. In this respect, a robust body of research on teachers' professional development emerged (see, for example, Borko, 2004), but research on teacher educators' professional development remains scarce (Loughran, 2014; Lunenberg et al., 2014). At the beginning of the 21st century, Murray (2005) stressed the teacher educators' profession as 'an under-researched and poorly understood occupational group' (p.68).

In this regard, major questions concerning teacher educators' training and professional development have been raised (Bates, Swennen & Jones, 2011; Ben-Peretz et al., 2013; Lunenberg et al., 2014). This is, for instance, clarified in the context of British teacher education, where Arthur (2013) notes that 'the role of English universities in the education of teachers is under serious threat' (p.383). Referring to the non-disputable impact teacher educators have on the quality of teaching and learning in the schools (see for instance, Hattie, 2009; Marzano, Pickering & Pollock, 2001), the European Commission (2013) comes to similar conclusions when stressing the importance of high-quality teacher education.

As a consequence, the significant need for professional development of teacher educators has grown internationally since the beginning of the 21st century, and now receives recognition in both the research (e.g. Bates et al., 2011; Ben-Peretz et al., 2013) and policy literature (e.g. European Commission, 2013). In this respect, the majority of authors have increasingly emphasised that a significant part of a teacher educators' occupation, in addition to teaching teachers, should be to conduct research (Lunenberg et al., 2014). Cochran-Smith (2005) clearly illustrates this twofold goal by stressing that the role of teacher educators 'depends upon a rich dialectic of the two [researcher and teacher of teachers] wherein the lines between professional practice in teacher education and research related to teacher education are increasingly blurred' (p.221). In other words, nowadays, teacher educators are expected to excel in both teaching about teaching and conducting research (Berry, 2007).

As will be argued, the development of a 'researcherly disposition', a concept strongly related to concepts such as 'inquiry as stance' (Cochran-Smith & Lytle, 2009) and 'inquiry habit of mind' (Bruggink & Harinck, 2012), offers a promising view on teacher educators' professional development and takes into account the persistent demands on teacher educators to engage in research (Loughran, 2014;

Vanassche, 2014). However, the current literature does not provide a clear and comprehensive understanding of these concepts, nor does it present empirical work on teacher educators' researcherly disposition. The current study addresses this gap in two steps. First, a theoretical framework is presented wherein teacher educators' researcherly disposition is conceptualised as a triad of inclination towards research (affective aspect), an ability to conduct research (cognitive aspect), and a sensitivity for research opportunities (behavioural aspect). Second, the findings of the study are presented, offering a typology on teacher educators' researcherly disposition with three types of teacher educators: 'the enquiring teacher educator' (Type 1), 'the well-read teacher educator' (Type 2), and 'the teacher educator-researcher' (Type 3).

Theoretical framework

Teacher educators' professional development

Teacher educators are defined by the European Commission as 'all those who actively facilitate the (formal) learning of student teachers and teachers' (2013, p. 8). This broad definition covers a heterogeneous group of professionals who are all involved with the education of teachers but can be occupied in diverse professional work settings. Indeed, this definition encompasses both teacher educators working within institutions of teacher education and mentors who are mainly occupied in schools. Given the large differences between these two groups of teacher educators (e.g. professional work context, qualifications, target group) (see Lunenberg et al., 2014), this article has a focus on institution-based teacher educators. Institution-based teacher educators are mainly involved with the education of future teachers enrolled in a pre-service teacher education programme. Even within this subgroup of teacher educators, there are still differences in expertise and background experiences, as teacher educators are not formally prepared for their role as a teacher educator. Usually one becomes a teacher educator when expertise in a particular field can be proven (Berry, 2007). This implies that a teacher educator's training (qualifications and degree) and previous experiences strongly influence their professional development (Livingston et al., 2009).

Most studies on teacher educators' professional development emphasise that teacher educators' engagement in research is a key component in their professional development (Lunenberg et al., 2014). To highlight the fact that becoming active in research is a fundamental aspect of a teacher educator's learning trajectory, Loughran even describes teacher educators' careers as a

'research journey' (2014, p. 2). He further argues that teacher educators have to engage in research to improve their knowledge about their students learning, their own teaching about teaching and teacher education in general (Loughran, 2014). In this respect, Cochran-Smith (2005, p. 219) uses the phrase 'working the dialectic' to refer to the fact that a teacher educator's role as a researcher is intimately tied to the core of a teacher educator's work: teaching about teaching (Murray and Male, 2005). To put it differently, if teacher educators aim to become better teachers of teachers, they will have to engage in research activities enabling a better understanding of that teaching practice.

However, teacher educators' research engagement cannot be considered an obviously existing part of everyone's practice. In this respect, Livingston et al. (2009) argue that some teacher educators have developed expertise as researchers before or during their work as teacher educators (i.e. by working in an academic environment or by pursuing further academic studies), while others have not. A lack of research experience and/or a lack of clear expectations regarding a teacher educator's role as a researcher can possibly explain why most find it hard to identify themselves as someone with a research role. In addition, the review study by Lunenberg et al. (2014) reveals that those who do consider research to be a part of their work greatly differ in their perceptions of this role. These perceptions range from merely reading published research to conducting research into one's own practice and disseminating these results in research journals or at conferences. Given these different perceptions, clarity regarding what it means to fulfil one's role as a teacher educator-researcher is still needed (Lunenberg et al., 2014).

According to Loughran (2014), fulfilling one's role as a teacher educator-researcher means that teacher educators have to at least be 'smart' consumers of research, able to research their teaching practices and value the importance of a research identity as a teacher educator. In his reasoning, Loughran strongly builds upon the previous work of Cochran-Smith (2003), who describes teacher educators' professional development as the development of an 'inquiry as stance', which refers to 'the process of continual and systematic inquiry wherein they question their own and other assumptions and construct local, as well as public, knowledge appropriate to the changing contexts in which they work' (2003, p. 24). In other words, these authors stress that a teacher educator-researcher should conduct research to serve a two-fold goal: to improve their own practice and knowledge about teacher education, and also to contribute to the broader knowledge base on teacher education. The first goal refers to Cochran-Smith's

(2003) notion of being a creator of 'local knowledge', and the second goal refers to her notion of being a creator of 'public knowledge'. Contributing to the public knowledge base refers to intentionally making public the developed knowledge and its dissemination to the research community in teacher education (i.e. through research reports, articles in professional or academic journals, conference presentations). In other words, besides improving their teaching practice based on results of their own research, teacher educators who aim to fully develop their role as a researcher are also expected to systematically make explicit these research findings and share them with the broader community of teacher education.

Loughran (2014) describes the demands on teacher educators' research activities as three-fold: they need to be linked to the field of teacher education; they need clear connections with their daily practices; and they need to focus on the improvement of student teachers' learning. The research conducted by teacher educators thus largely depends upon their own professional spheres (Vanassche, 2014). This means that the professional concerns of a teacher educator in a particular context will largely determine the research problem one is about to study. For instance, some teacher educators may feel a need to assess the impact of their teaching style on students learning, while others may aim to study the relevance of use of integrated information and communications technology in their classrooms. However, irrespective of the topic of a teacher educator's study, the research has to focus on both the improvement of local teaching practices and its transformation into more public knowledge. In this respect, practitioner research, or 'the intentional and systematic inquiry into one's own practice' (Dinkelman, 2003, p. 8), is often described as a powerful strategy because of its dual focus on both the production of local and public knowledge on teacher education.

The development of a 'researcherly disposition'

The concept 'disposition' can play a key role in explaining successful behaviour, and is therefore a growing and important concept in educational studies (Crick & Goldspink, 2014). A disposition is defined in psychology as a tendency or a habit of mind towards particular patterns or behaviour (Katz & Raths, 1985). Related to this study, teacher educators' researcherly disposition could be roughly described as 'the tendency to engage in research'. However, limiting the definition of a researcherly disposition to its broadest interpretation would imply that this concept could still be critiqued in research on teacher education as 'an unresolved challenge' (Wayda & Lund, 2005, p. 34) or 'a superfluous construct' (Murray, 2007, p. 381) due to its lack of analytical value. Nevertheless, Perkins, Jay & Tishman

(1993) provide an analytical lens through which they deconstruct the concept of 'disposition' into a triad of inclination, sensitivity and ability:

- Inclination refers to 'the person's felt tendency toward behaviour X';
- Sensitivity involves 'the person's alertness to X-occasions';
- Ability covers 'the actual ability to follow through with X-behaviour' (p.8).

By deconstructing the concept of disposition into three inter-related but distinct units of analysis (inclination, sensitivity, and ability), the authors developed an analytical framework to better understand what influences individuals to actually decide to behave, or avoid behaving, in a certain way. In this respect, they concede to definitions on dispositions that often only refer to the inclination aspect. What is more, these authors recognise that 'the trio of inclination, sensitivity, and ability constitute individually necessary and jointly sufficient conditions for behaviour' (p.10). In other words, this framework allows for a starting point to conceptualise teacher educators' researcherly disposition as a comprehensive construct, and thus, initiates a better understanding of what is important in teacher educators' professional development as teacher educator-researchers.

Based on both the description of teacher educators' role as researchers and the concept of a 'triad disposition' (Perkins, Jay & Tishman, 1993), our definition of "teacher educators' researcherly disposition" is the habit of mind of teacher educators to engage in research and thus, to produce both local knowledge and public knowledge on teacher education. This researcherly disposition embodies three interrelated aspects: (1) an ability to conduct research; (2) a sensitivity for research occasions, and (3) an inclination towards research. The first aspect of a teacher educator's researcherly disposition involves an affective dimension, which refers to a teacher educator's inclination or felt tendency towards research. Here, important indicators concern the extent to which a teacher educator values a research-oriented approach towards his/her daily practices, and as such, recognises his/her role as a researcher. The second aspect is of a cognitive nature and refers to a teacher educator's actual ability to conduct research and to contribute to the knowledge base on teacher education. Knowledge and understanding of educational research and research methods are important indicators of this dimension. Finally, the third dimension of a teacher educator's researcherly disposition involves a behavioural dimension, which refers to a teacher educator's sensitivity or alertness for research occasions in his/her daily practices.

By using this conceptualisation of teacher educators' researcherly disposition as a theoretical framework, the research goal of this explorative study is to unravel teacher educators' researcherly disposition by means of a qualitative study with 20 teacher educators. More specifically, we aim to assess whether or not teacher educators' researcherly disposition can be conceptualised according to a 'triad concept', and if differences can be identified among teacher educators' researcherly disposition. Summarised, the goal is to develop a typology that can be used to distinguish different types of teacher educators' researcherly disposition.

Methodology

Context

Semi-structured interviews were conducted with 20 teacher educators from two teacher-training institutions: a Centre for Adult Education ('Centrum voor Volwassenenonderwijs') and a College of Higher Education (University of Applied Courses or 'Hogeschool') in Flanders. Different from universities, these institutions offer professional training in teacher education, whereas universities offer research-based academic training. This means that these institutions of higher education have no real research traditions and their main focus is on the education of professionals. For this study, this implies that none of the teacher educators had been asked to conduct research within his/her occupation as a teacher educator. This is very different from the careers of teacher educators in the United States or Pacific Rim systems, as these teacher educators are all formally expected to combine teaching roles with research roles (Hamilton & Clandinin, 2011).

Participants

Twenty institution-based teacher educators, seven working at the Centre for Adult Education (CAE) and 13 occupied at a College of Higher Education (CHE), were included in this study. These teacher educators were interested in participating in a professional development programme on practitioner research in order to support the development of their researcherly disposition, and thus recognised research as being a part of their occupation.

The mean age of the participants, eight male and 12 female, was 35.5 years (SD=8.28). The majority (n=18) completed their master's degree. The participants' years of experience as teacher educators ranged from three months to 20 years. All of the participants teach in the field of pedagogy. Nine of the participants teach 'general pedagogy'. The other teacher educators teach subject-oriented pedagogy,

such as 'physics', 'English', 'French', 'history', and 'Dutch as a second language' or 'interdisciplinary courses'.

The participants followed different trajectories in becoming teacher educators. Nine participants had experiences as a teacher in compulsory education (CE), whereas the others (n=11) entered the profession without any experience as a teacher in compulsory education. Of these 11 teacher educators, seven started working as teacher educators immediately after obtaining their master's degree and their teaching qualification in teacher education (TE), and the other four began to work as teacher educators after acting as university researchers for a number of years. Of the participants, 12 were familiar with conducting educational research and two had previous experience with practitioner research in the context of a postgraduate course entitled 'School Development'.

Table 1 presents an overview of each participating teacher educator (n=20), presenting their age, work context, qualification and background experiences (in chronological order). Special attention is paid to teacher educators' professional work setting, years of experience in higher education, experiences as a teacher in compulsory education, and experiences as a researcher since several studies (Ducharme, 1996; Murray, 2011) indicate that these characteristics are determining factors in teacher educators' professional development.

Table 1. Overview of the respondents

Name	Age	Institute	Qualification	Background: formal experiences in education (CE/TE) and research
Noah	40	CAE	MA in African Studies, teaching qualification	14 years in CE 2 years in TE 1 year postgraduate course 'School Development'
Daniel	47	CAE	MA in Languages (Dutch, English), teaching qualification	3 years in CE 2 years in non-profit organisations 14 years in TE (of which 8 years combined with part-time task of Head of Department)
Emma	50	CAE	MA in Law, teaching qualification	11 years in higher education as lecturer

				1 year as a research assistant
				16 years in TE (of which 14 years combined with part-time task of Head of Department)
Emily	30	CAE	MA in Education, teaching qualification	6 years as scientific staff at a university
				2 years in TE
Elizabeth	29	CAE	MA in Education, teaching qualification	3 years as scientific staff at a university
				5 years in TE
Jessica	28	CAE	MA in Audiology and Speech-Language Pathology, teaching qualification	5 years in CE (still works part-time in CE)
				3 years in TE
Charlotte	27	CAE	MA in Education, teaching qualification	3 months in TE
Jacob	40	CHE	MA in History, teaching qualification	1 year as scientific staff, 8 years as assistant (PhD degree not obtained)
				7 years in TE
Mason	34	CHE	MA in Engineering and MA in Cultural Sciences, teaching qualification	8 years in TE (of which 6 years was combined with part-time leadership of Research & Development)
Ethan	35	CHE	MA in Audiovisual Arts, teaching qualification	2 months in CE
				6 years in TE (of which 4 years was combined with part-time leadership in Research & Development)
William	31	CHE	BA in Education (primary education)	8 years in CE
				3 years in TE
				1 year postgraduate course 'School Development'

Liam	39	CHE	MA in Education, teaching qualification	8 years in TE
Michael	33	CHE	BA in Education (lower secondary education)	7 years in CE 6 years in TE
Olivia	44	CHE	MA in Languages (Dutch, English)	2 years in CE 7 years as research assistant (PhD degree not obtained) 6 years in TE
Amelia	30	CHE	MA in Education, teaching qualification	6 years in TE
Claire	30	CHE	MA in Education, teaching qualification	6 years in TE
Stella	57	CHE	MA in Philology, teaching qualification	5 years in CE 2 years affiliated with a university as research staff 20 years in TE
Lauren	33	CHE	MA in Languages (Dutch, English), teaching qualification	4 years in CE 8 years in TE
Lilly	27	CHE	MA in Education, teaching qualification	3 years in TE
Katie	27	CHE	MA in Education, teaching qualification	1 year as teaching assistant in a university 3 years in TE (with 1 year part-time in charge for Research & Development)

Note. CAE = Centre of Adult Education; CHE = College of Higher Education; MA = Master; BA = Bachelor; TE = Teacher Education; CE = Compulsory Education (primary education or secondary education)

Data collection

A semi-structured interview protocol was used for the interviews. All questions in the protocol are based on the theoretical framework (cf. supra). The first questions relate to the participants' background characteristics (e.g. age, diploma, professional experiences as a teacher educator, work experience in compulsory education, experiences with research). During the second part of the interview, the participants were asked to explain their understanding of research methods and educational research (cognitive dimension). Other questions attempted to reconstruct the teacher educators' beliefs, motives and attitudes towards conducting research and becoming teacher educator-researchers (affective dimension). Moreover, the participants had to indicate the extent to which they already engage in research. Teacher educators had to provide examples from their daily practices in their answers (behavioural dimension).

The interview protocol was pilot tested with one teacher educator in order to determine limitations within the protocol before the data collection process began (Miles & Huberman, 1994). The pilot respondent was asked (1) to answer each question, and (2) to give feedback on the formulation of each question. Afterwards, the initial protocol was slightly modified.

Data analysis

All interviews (n=20) were conducted by the first author in January 2014. With permission from the interviewees, all interviews were audio-recorded and transcribed before the analysis. After reading the transcriptions several times, all reports were segmented and coded. The text fragments were labelled with descriptive and interpretative codes based on the theoretical framework. All names were removed to protect anonymity when redacting case reports.

The analysis was carried out in two phases. First, a vertical analysis was conducted (Miles & Huberman, 1994) and each individual teacher educator served as unit of analysis. Thus, 20 systematic summarising reports were written, presenting the analysis for each participant in a structured form. Next, these reports were compared during the horizontal analysis (Miles & Huberman, 1994). By adopting the constant comparative analysis (Glaser & Strauss, 1967), the goal of this phase is to look for similarities and differences between the teacher educators. This is an iterative and recursive process, where interpretations are developed, reconsidered and modified if necessary.

With regard to the internal validity (Creswell & Miller, 2000), the authors independently conducted each analysis. Afterwards, the interpretations were

discussed and refined until consensus was reached. Furthermore, a member check was conducted and four participants reviewed the findings and commented on their accuracy (Van Hove & Claes, 2011). By carefully describing the theoretical framework, the research procedure, the data collection, the analysis, the quality of the research process can be critically judged by others.

Findings

The purpose of this study is to explore teacher educators' researcherly disposition by analysing in-depth interview data of 20 teacher educators. Although each teacher educator reported explicitly on the behavioural, cognitive and affective aspect, important differences exist between the teacher educators. More specifically, the analysis reveals a typology with three types of teacher educators: 'the enquiring teacher educator' (Type 1), 'the well-read teacher educator' (Type 2), and 'the teacher educator-researcher' (Type 3). All of the names in the next paragraphs are pseudonyms that refer to the respondents in the study.

Type 1: 'The Enquiring Teacher Educator'

The first type of teacher educator values the teacher educator's role as a researcher. Enquiring teacher educators (Type 1) possess an inclination towards research, which is, for instance, illustrated by the participants' voluntary decision to participate in a professional development programme on practitioner research. However, this first type of teacher educator acknowledges a lack of understanding of research methods and knowledge about research, and neither engages in research activities nor contributes to the knowledge base on teacher education (see Table 2). The lack of understanding and knowledge refers to the cognitive aspect, while the lack of sensitivity for research occasions refers to the behavioural aspect.

Table 2. Teacher educators' researcherly disposition: Type 1 'the enquiring teacher educator'

Type 1	
Cognitive dimension	
Behavioural dimension	
Affective dimension	✓

Enquiring teacher educators (Type 1) are mainly teacher educators who have developed a lot a practical experience during their teaching practices as a teacher in higher education or/and their experiences as a teacher in compulsory education. They are often experienced teachers with full teaching schedules that lack any experience in research. The quotation below clearly illustrates the profile of Type 1 teacher educators:

> I think I cannot call myself a teacher educator. For now, the only thing I do is teach. And being a teacher educator is more than teaching. A good teacher educator thinks about his teaching, discusses it with others, and even studies it. As a teacher educator, you have to be able to systematically look at yourself and ask: How is my teaching? What is well structured? What could be better organised? (Lilly)

Eight of the participating teacher educators are considered Type 1 teacher educators. Four worked as teachers in compulsory education and the others immediately started as teacher educators after graduation. Remarkably, all of these teacher educators perceive this year as a turning point in their career. This means that each of them is facing a critical transition period wherein existential questions on their teaching practices are put forward. These questions mostly relate to the participants' careers as teacher educators and become most prominent when the interviewees explain their interest in participating in the professional development programme:

> At the beginning of this year, I reflected on my three-year occupation as a teacher educator and I decided that this year will be a significant year that determines my future. I am a very passionate teacher, but I doubt if that also counts for my work as a teacher educator. What is a good teacher educator? When do I conform to the identity of a good teacher educator? I guess I am really experiencing a professional identity-struggle. (Lilly)

Or, as one of the participants stressed:

> I have been working for eight years as a teacher educator and I am in need of something new and challenging. A year ago, I started to talk with my colleagues about the idea of conducting research. However, one year later, it is still an idea. (Lauren)

To conclude, Type 1 teacher educators are defined as 'enquiring teacher educators'. They are characterised as being very critical teacher educators that question their own practices and their work as teacher educators. However, they do not engage in systematic research and do not possess the required knowledge.

More specifically, these teacher educators experience a lack of methodological expertise and time to engage in research activities. In other words, these teacher educators will need sufficient time and support to become teacher educator-researchers that fully fit the definition of a 'researcherly disposition'.

Type 2: 'The Well-Read Teacher Educator'

The second type in the typology concerns a teacher educator who strongly values research as a part of his/her occupation (affective aspect). A Type 2 teacher educator has developed the cognitive ability to conduct research throughout the years by gaining knowledge and understanding of research and is quite familiar with literature on the subject of teaching. However, a Type 2 teacher educator does not systematically engage in research about his/her teaching practices, and does not disseminate these findings to the broader community on teacher education. This is summarised in Table 3.

Table 3. Teacher educators' researcherly disposition: Type 2 'the well-read teacher educator'

Type 2	
Cognitive dimension	✓
Behavioural dimension	
Affective dimension	✓

Eight of the participating teacher educators can be described as Type 2 teacher educators. Even though these teacher educators vary widely in age, years of experience as a teacher educator and teaching area, they all have formal experiences with research. Three kinds of experiences were found among these participants: previous experiences as a university researcher (n=3), previous experiences with practitioner research in the context of a one-year postgraduate 'School Development' course (n=2), current experiences with 'Research & Development' in the teacher training institution (n=3). The answers given by the Type 2 teacher educators to questions related to the cognitive aspect demonstrate that they all developed knowledge and understanding of research and learned about research methods. One of the interviewees with a previous research career at a university describes:

> I have worked as a research assistant at the university for seven years. This implies that I learned about literature in my subject (History). I also got the

opportunity to learn about different research methods, as for instance, literature reviews. (Jacob)

This quote also illustrates that one has to be critical when assessing research experiences, knowledge of research methods and the understanding of it. For instance, Jacob has developed a lot of knowledge regarding historical research, but that does not imply that his knowledge on researching teacher education can be taken for granted. Studying teacher education as a teacher educator often requires additional knowledge and experiences.

One teacher educator clearly explains that he is still struggling with why he does not engage in research as part of his teaching practice next to his formal occupation of conducting research:

As being in charge with Research & Development, my role is to promote research within our department and the wider institution. When they want to apply for research funding, I support the writing of their research proposals. However, and that may sound odd, I do not systematically study my teaching practices or try to improve them based on research results. (Mason)

The testimonies of these teacher educators clearly indicate that they value research and most of them actively promote it among colleagues. During the interviews, they all illustrated that they regularly read research related to their field, and they can thus be described as 'smart' consumers of research (Loughran, 2014). However, a Type 2 teacher educator does not actively conduct research regarding his/her own practices (see Table 3). Several reasons for this lack are enumerated, of which, lack of support and research culture in the institution are recognised by all teacher educators as the main factors:

I think every teacher educator needs a research-oriented attitude. But conducting research as a teacher educator and reporting it, that is too time-intensive and we don't have time to do it. (Elizabeth)

Another respondent expanded on the lack of support and argued:

Support is an essential aspect for teacher educators to sustain in researching their own practices. For instance, it is problematic to start a data collection when I have no access to scientific databases as Web of Science. (Noah)

Another teacher addresses this, stating:

> Currently, I miss appreciation within my institution for teacher educators who conduct research. They do not have to praise me each day, but a pat on the back from time to time would be very motivating. (Jacob)

Type 2 teacher educators, or 'well-read teacher educators' often have experiences as researchers or have worked in academic environments. These teacher educators thus have the potential to become teacher educator-researchers. A Type 2 teacher educator is described as a 'well-read teacher educator' because they do read research from time to time and they gained understanding of the research through a variety of research experiences. However, even though they value research as a part of teacher educators' occupation, these teacher educators do not fully own a researcherly disposition as they are not sensitive to research occasions in their daily practices.

Type 3: 'The Teacher Educator-Researcher'

The Type 3 teacher educator fully complies our definition of having developed a researcherly disposition by encompassing sensitivity for research occasions, the actual ability to engage in research, and an inclination towards research (see Table 4).

Table 4. Teacher educators' researcherly disposition: Type 3 'the teacher educator-researcher'

Type 3	
Cognitive dimension	✓
Behavioural dimension	✓
Affective dimension	✓

A minority of the participating teacher educators (4/20) are considered to be this type of teacher educator. A Type 3 teacher educator strongly values a research-oriented attitude towards his/her teaching practices. Moreover, these teacher educators recognise that being a teacher educator-researcher is a vital part of a teacher educators' daily practice (affective aspect). As Olivia argues:

> The world has moved on. Your students change and if you do not dare to study your own practices and the practices of others… Then, teaching becomes very problematic. It is also very elevating on a personal level.

> Without doubt, research has to be part of every teacher educators' practice. (Olivia)

Additionally, Olivia argues further that 'at least a few members of the department should be engaged in research'. She explains this:

> Within our department, I work closely together with five other colleagues. Together we are, what is called, 'a good teacher educator'. In this respect, my weaknesses are covered with the strengths of other colleagues. (Olivia)

Emma, an experienced teacher educator, who also acts as the head of the department in one of the participating teacher education institutions, emphasises that every teacher educator needs at least a 'basic' disposition towards research, which is principally what has been described as 'an inclination towards research, 'the affective aspect' in our theoretical framework. Emma illustrates this as follows:

> Charlotte has recently started to work as a teacher educator. I do not think that we can expect from her that she has developed a lot of experience. But, what I do believe is that every starting teacher educator has to be disposed towards becoming a teacher educator-researcher. Therefore, as Head of Department, I facilitate my staff to explore their role as a researcher by offering them time and support to develop this role, and thus, to participate in professionalization courses. (Emma)

All of the Type 3 teacher educators have gained knowledge and understanding of research and research methods during formal (e.g. PhD study, research staff in a university) and less formal (e.g. engagement in professional learning communities, reading international research journals) experiences with research. These teacher educators developed the knowledge and understanding to become teacher educator-researchers. Emily, for instance, has worked as research staff in a university for six years and studied a subject that is still vivid in her daily practices: teacher education. Next to methodological expertise, she also learned about significant developments in the field of teacher education (i.e. important theoretical frameworks, innovative technologies in education). Emily says:

> I still value my experiences as staff in the university. I have gained expertise on teacher education during those years, which still serves as a fundament for my daily practices. (Emily)

On the other hand, Olivia has worked as a research assistant for seven years. Even though she did not finish her doctoral study, she still appeals to her experiences as a researcher. This illustrates that even though she worked on a specific research

topic that is no longer relevant to her current practice as a teacher educator, she still benefits from it on a methodological level. It is significant, however, that Olivia and Jacob have similar background profiles, but they are categorised as two different types of teacher educators, respectively as 'Type 3' and 'Type 2' teacher educators. Indeed, both of them have developed subject-oriented research expertise (cf. history and English), but Olivia goes substantially further than does Jacob by systematically studying current research needs in her teaching practice and making them explicit by sharing the results with other teacher educators-researchers at international conferences.

As illustrated, the experiences of Olivia and Emily are developed during formal careers as researchers before starting careers as teacher educators. However, an informal way of becoming active in research is also possible, which Emma and Daniel demonstrate. They developed their expertise throughout the years by, for instance, engaging in research on teacher education, participating in professional learning communities and networking with academics in the field.

Finally, the Type 3 teacher educators' abilities to engage in research and their positive inclination towards research are also reflected in their practices. In other words, in their daily practices, these teacher educators are sensitive to occasions where a particular situation could be improved by systematically and intentionally studying it. Indeed, these teacher educators' practices are characterised by regular participation in research activities, such as practitioner research or small-scaled studies on their teaching subject. Moreover, Type 3 teacher educators are often involved in enquiry by reading international research journals. One participant explains:

> I read a lot of research literature related to my own teaching subject. Besides, I participate in professional learning communities to share interesting research literature and findings from [my] own research with other teacher educators. I also try to disseminate research findings in research articles and on conferences. (Daniel)

As Daniel illustrates, this dissemination often takes place by presenting at and attending (inter)national conferences for teacher education or by publishing small-scale studies in professional journals. Emily, in addition, argues that attending conferences is highly stimulating for her work as a teacher educator.

The teacher educators-researchers' engagement in research (Type 3) is based on the moral belief that every teacher educator should be a researcher, and is, moreover, underpinned by their methodological and subject specific expertise in

teacher education. Type 3 teacher educators are teacher educators who continually recognise research needs in their practices and strive to keep themselves posted on current developments in their field. Moreover, they disseminate their work in research journals and try to attend research conferences to contribute to the further establishment of the knowledge base on teacher education.

Conclusions and discussion

In this study, the development of a researcherly disposition by teacher educators is discussed as a promising direction to enhance teacher educators' professional development (Lunenberg, 2014; Vanassche, 2014). Despite its relevance for improving teacher educators' practices, this concept has been underexposed in literature. Teacher educators' researcherly disposition is presented as a concept focussing on the development of a teacher educator's role as both a 'teacher of teachers' and a 'researcher' (Cochran-Smith, 2005). Since a theoretical framework supported by empirical work on this topic is still lacking, this explorative study is a first attempt at providing clarity on the concept of teacher educators' researcherly disposition. As such, the findings of this study add to the body of literature in several ways.

First, a definition regarding teacher educators' researcherly disposition is presented. A teacher educator's researcherly disposition is broadly defined as the habit of mind to engage in research. This description is specified by explaining three components of a teacher educator's researcherly disposition: an affective aspect referring to an inclination or a felt tendency towards research, a cognitive aspect concerning the actual ability to engage in research and a behavioural aspect involving a sensitivity for research occasions. Together, this triad explains why some teacher educators become teacher educator-researchers and others do not. In this respect, a teacher educator-researcher is described as a teacher educator who engages in research on his or her teaching practices, modifies those practices and shares the research findings with the broader community in teacher education.

Second, based on the theoretical framework of teacher educators' researcherly disposition, a typology with three different types of teacher educators can be identified. These types are described as 'the enquiring teacher educator' (Type 1), 'the well-read teacher educator' (Type 2), and 'the teacher educator-researcher' (Type 3). The enquiring teacher educator is a teacher educator who has a 'basic'

disposition towards research. This 'basic' disposition only involves the affective aspect, and refers to a clear recognition and appreciation of a teacher educator's role as a researcher. The well-read teacher educator positively values a teacher educator's role as a researcher and has developed knowledge and understanding of research during (previous) research experiences. However, these teacher educators do not systematically detect occasions to fulfil this research role in their teaching practices. Finally, the teacher educator-researcher is a teacher educator who fully possesses a researcherly disposition as defined in the theoretical framework. This type of teacher educator has the ability to engage in research and naturally conducts research as a teacher educator regarding his/her teaching practices because he/she is convinced that engaging in research is the norm to become a good teacher educator.

Most teacher educators participating in this study could be categorised as 'enquiring teacher educators' and 'well-read teacher educators'. Only a small group of teacher educators are 'teacher educator-researchers'. This is not surprising, as research already indicated that most teacher educators' do not identify themselves with their role as a teacher educator-researcher (Murray & Male, 2005). Moreover, this typology indicates that, in line with previous research (Livingston, 2009; Murray, 2011), teacher educators' personal histories play an important role in defining a teacher educator's researcherly disposition. Indeed, teacher educators' experiences with research mainly determined to what extent a teacher educator was categorised as a 'Type 1' or a 'Type 2' teacher educator.

However, the study also stresses that teacher educators' researcherly disposition can be developed by further supporting each of the three dimensions. In this respect, this study has important implications on the organisation of teacher educators' professional development programmes. First, the definition of teacher educators' researcherly disposition can be used as framework to determine what is required from teacher educators' who aim to become teacher educator-researchers. Second, the typology can be used as self-assessment tool for teacher educators to evaluate their own professional development needs as a teacher educator-researcher. Third, each type of teacher educator will have different professional development needs, implying that both the organisation of these programmes and the support during these programmes (Lunenberg et al., 2014) should be adapted to meet each type's specific needs.

The present study has certain limitations. First, the relatively small sample of this exploratory study, does not allow the results to be generalised to the broader group of teacher educators. It does, however, provide a first and necessary step to

advance insights into teacher educators' researcherly disposition. A quantitative study on this topic could further improve the typology as presented in the findings.

Second, only teacher educators who were interested in conducting research as a teacher educator participated in the study. This implies that a possible fourth type of teacher educators was not yet discovered in the present study. This fourth type could be a teacher educator who has no inclination towards research, no sensitivity for research occasions and no ability to engage in research. It could be hypothesised that a fair number of teacher educators will be categorised as this type, as previous research has shown that most teacher educators do not perceive 'research' to be a part of their daily practices (Lunenberg et al., 2014).

Third, the examination of the 'institutional context' on teacher educators' researcherly disposition is lacking within the scope of the current study, which mainly aimed at exploring the concept 'researcherly disposition'. However, studies (Lunenberg et al., 2014) indicated that the institutional context could be a significant factor in the development of teacher educators' professional development. Therefore, it would be interesting to conduct a follow-up case study with the present sample of teacher educators in order to assess the impact of institutional context and the impact of the professional development programme on their researcherly disposition.

Overall, this study illustrates that developing teacher educators' researcherly disposition requires a deep engagement from teacher educators on a cognitive, affective and behavioural level. It requires teacher educators to intentionally study their practice and explicit the developed knowledge on a local and public level. Moreover, it demands methodological expertise, theoretical knowledge about teacher education and a deep commitment towards one's role as a teacher educator-researcher. In this respect, developing teacher educators' researcherly disposition becomes a powerful tool in enhancing teacher educators' knowledge about their own teaching, their students learning and their knowledge about teacher education.

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3

Measuring teacher educators' researcherly disposition: item development and scale construction

Chapter 3

Measuring teacher educators' researcherly disposition: item development and scale construction

Abstract

This study reports on the development of a self-reported measurement instrument – The Teacher Educators' Researcherly Disposition Scale (TERDS) – to improve understanding of teacher educators' researcherly disposition. Teacher educators' researcherly disposition refers to the habit of mind to engage with research – both as consumers and producers – to improve their practice and contribute to the knowledge base on teacher education. Taking into account the shortcomings of the emerging field of teacher educator professional development research (which is largely confined to small-scale, qualitative studies), a large-scale quantitative survey study (n = 944) was conducted. The first part of the article reports the results of factor analysis (EFA and CFA), which suggest a four-factor structure of teacher educators' researcherly disposition: (1) 'valuing research' (α = .86), (2) 'being a smart consumer of research' (α = .89), (3) 'being able to conduct research' (α = .82), and (4) 'conducting research' (α = .87). Goodness of fit estimates were calculated, indicating good fit. The second part of the article explores differences in teacher educators' researcherly disposition across several subgroups of teacher educators using the developed instrument. Results indicate that having research experience leads to significantly higher scores on each of the subscales. Furthermore, significantly higher scores were found for those with more than 3 years' experience as a teacher educator, as well as for those without (prior) teaching experience in compulsory education. To conclude, the implications for further research and practices related to teacher educators' professional development are discussed.

Introduction

Teacher educators – those who teach the teachers – had been largely ignored in international research literature, policy documents and practice until the beginning of the twenty-first century (European Commission, 2013; Lunenberg et al., 2014). In this respect, Lanier and Little (1986) describe teacher educators as 'a breed apart' (p.12), and argued that 'while it is known that a teacher educator is one who teaches teachers, the composite of those who teach the teachers is loosely defined and constantly changing' (p.6). Despite the urgent need to improve the quality of teachers and teaching worldwide (e.g., Cochran-Smith and Zeichner, 2005), the preparation, organisation and professional development of those responsible for training teachers seems to have been rather neglected (e.g., Bates et al., 2011; Smith, 2003). Teacher educators' professional development is often quite individualised, ad-hoc and organised by chance (Loughran, 2006; Smith, 2010). Moreover, it seems that many teacher educators have to shape their own professional learning trajectory, which frequently leads to 'reinforcement of past (familiar) practices, maintaining loyalty with particular communities, rather than becoming part of a new community of teacher educators with a distinct focus on teaching about teaching' (Berry, 2013, p.6).

One possible explanation for why there is no clear career trajectory for teacher educators (in terms of preparation, entry pathways, induction programmes and formal professional development initiatives) lies in the frequently heard – but wrong – assumption that a teacher educator is a professional who is 'accidentally' teaching his/her subject on a teacher education programme instead of teaching in primary or secondary schools or in higher education (Berry, 2007; Zeichner, 2005). Countering this misunderstanding, Murray and Male (2005) conceptualise teacher educators as 'second-order practitioners' or 'teachers of teachers' with 'second- order knowledge' who are teaching in 'second-order contexts'. This means that, other than teachers in compulsory and higher education, teacher educators are teaching teachers about teaching (the subject matter of teaching) and how this subject matter is taught (the pedagogical approach) (Loughran and Berry 2005; Loughran 2006). In this respect, the nature of teacher educators' work is distinctive, because they must function on multiple levels simultaneously. This means that they have to practice what they preach through modeling and making implicit aspects of their practice explicit for their students (Loughran and Berry, 2005).

The goal of this study is to present the development of a measurement instrument that facilitates a better understanding of teacher educators' professional development. First, a theoretical framework is presented in which teacher educators' researcherly disposition (Tack and Vanderlinde, 2014) is presented as a concept for enhancing understanding about teacher educators' professional development. Next, the methodology and the findings of the study are presented. Taking into account the shortcomings of prior research on teacher educators' professional development which is largely confined to small-scale qualitative studies (e.g., Lunenberg et al., 2014), a large-scale quantitative study with 944 institution-based teacher educators was conducted, resulting in a (1) self-reported measurement instrument of Teacher Educators' Researcherly Disposition (TERDS), and (2) an exploration of differences in teacher educators' researcherly disposition across several subgroups of teacher educators with different background experiences (teaching experience in compulsory education, length of service as a teacher educator and research experience) and professional work contexts (type of teacher education institution).

Theoretical framework

In this article, and framed within the adult theory of transformative learning (Mezirow, 1991) and the cognitive theory on dispositions (Perkins et al., 1993), it is suggested to conceptualize teacher educators' professional development as a transformative journey with a focus on developing a researcherly disposition. Transformative learning has been first introduced by Mezirow (1991) as a change process that transforms perspectives or frames of reference; 'the structures of assumptions through which we understand our experiences. They selectively shape and delimit expectations, perceptions, cognition and feelings' (Mezirow, 1997, p.5). According to the transformative learning theory, learning is initiated with a disoriented experience or 'an event that typically exposes a discrepancy between what a person has always assumed to be true and what has just been experienced, heard or read' which works as 'a catalyst for transformation' (Cranton, 2002, p.66). Transformative change can be the result of a dramatic experience or the product of a series of events over a longer period of time (Mezirow, 1997). This is an on-going dynamic process which can occur when new situations arise or when one encounters new information. Notwithstanding their background (e.g., as a teacher in compulsory education, as a researcher or someone with other relevant experiences for the teacher educator profession), becoming a teacher educator is often also experienced as a disorienting dilemma

(Murray and Male 2005). In this respect, teacher educators – all over the world – describe their first years as a teacher educator as 'thrown in the deep end' (Wilson, 2006) with 'feelings of professional unease and discomfort' (Murray and Male, 2005) and a process of 'feeling deskilled and disoriented' (Berry, 2013). Teacher educators often perceive their previous professional experiences and knowledge as unsupportive for their new role as a teacher educator and hold different perceptions of their tasks and requirements on how to engage in teacher education practices (Lunenberg et al., 2014):

> 'My approach to teaching teachers relied on sharing my practical wisdom of 'what worked' in my high school classroom. However, I soon realised that such an approach was neither viable (student teachers could not simply reproduce what I did), nor desirable (student teachers should not be expected to take on my values as their own). This situation created a sense of dissonance in me. It seemed that my professional experiences and knowledge of teaching high school students has limited usefulness in successfully enacting my new role.' (Berry, 2013, p. 12)

Teacher educators will thus have to renegotiate deeply-held ideas to their work – that have been acquired in previous professional contexts – towards new frames of references, fitting their new professional role of being a teacher educator (Berry, 2013; Loughran, 2014). As has been stated before, teacher educators' role lies mainly in being a second-order practitioner or a 'teacher of teachers'. In order to become this second-order practitioner, developing one's role as a researcher is often promoted (Lunenberg et al., 2014; Loughran, 2014). Engagement in research is inherently linked to the improvement of the teacher educator profession by focusing on (1) the improvement of one's own practice as a teacher of teachers, and (2) the further development of the public knowledge base on teacher education. Teacher educators should be able to conduct research into their own practices; become 'smart' consumers of research (meaning that they have to use existing research, but also be able to critically evaluate it); and value the relevance of research for the teacher educator profession (Loughran, 2014). In this respect, the process of becoming a teacher educator should be perceived as a 'research journey' (Loughran, 2014, p.2), with research as a means to both structure and advance knowledge about teacher education. However, research engagement cannot be considered as an obviously existing part of every teacher educators' practice. In this respect, most teacher educators find it hard to identify themselves as someone with a research role (Lunenberg, et al., 2014). Moreover, some teacher

educators have already developed expertise as a researcher before or during their work as a teacher educator, while others have not.

When it concerns professionals' individual development and their transformation of frames of references in new vocational practices, several authors have emphasized the central role of dispositions (Perkins et al., 1993; Billett, 2005, 2008). Dispositions – as an active and executive component of cognitive processes – are an important explanatory basis in shaping how individuals think, act and play a key role in how individuals tackle problem-solving activities in their vocational practice (Billett, 2008). A disposition is broadly defined in cognitive psychology as a tendency or habit of mind towards particular behaviour (Katz and Raths, 1985). Perkins et al. (1993) argue there are three psychological components in developing a disposition: (1) sensitivity or the person's alertness to X- occasions; (2) inclination or the felt tendency toward behaviour X; and (3) ability or the basic capacity to continue with behaviour X (Perkins et al., 1993). Dispositions are always grounded in personal histories and affected by both earlier and current socially-derived experiences (Billett, 2008). This means that previous experiences and work contexts affect the development of an individual's dispositions. In this respect, professional development within a new professional work context is – in the first place – not about changing the acquired knowledge and concepts itself, but rather transforming their underpinning dispositions (Billett, 2008). Similarly, Loughran (2014) emphasizes the role of teacher educators' dispositions and argues 'when realized, [they] drive a teacher educator's mission in ways that can create greater clarity and a greater likelihood of better aligning teaching intents and actions—a professional learning outcome that fundamentally impacts personal professional development' (p.9).

Inspired by the theory of transformative learning, the cognitive psychological theory on dispositions and taking into account the clear demand of developing one's role as a teacher educator-researcher, teacher educators' researcherly disposition is introduced as a concept to increase understanding of teacher educators' professional development. This concept, which is closely related to concepts such as 'inquiry as stance' (Cochran-Smith and Lytle, 2009) and 'inquiry habit of mind' (Bruggink and Harinck, 2012), has been defined as teacher educators' habit of mind to engage with research – as both consumers and producers of research - to improve their practice and contribute to the knowledge base on teacher education (Tack and Vanderlinde, 2014).

Teacher educators' researcherly disposition can be further conceptualised as a theoretical construct encompassing three interrelated dimensions:

(1) An affective dimension or 'an inclination towards being a teacher educator-researcher' (Tack and Vanderlinde, 2014). This refers to the extent to which a teacher educator values his/her role as a teacher educator-researcher. The affective dimension includes not only valuing engagement with research as a teacher educator, but also believing it is crucial to the teacher educator profession.

(2) A cognitive dimension or 'the perceived ability to be a teacher educator-researcher' (Tack and Vanderlinde, 2014). The cognitive dimension reflects a teacher educator's perceived ability to engage with research as both a consumer and a producer of knowledge. This means that teacher educators have to be – at least – well informed about teacher education research, know what it means to be involved in research as a teacher educator (including how to use, evaluate, critique and interpret research), and be able to conduct research in a manner that contributes to knowledge in the field of teacher education (Cochran-Smith, 2005; Loughran, 2014).

(3) A behavioural dimension or 'the sensitivity to be a teacher educator-researcher' (Tack and Vanderlinde, 2014). This dimension relates to a teacher educator's tendency to engage in research activities as both a consumer and producer of knowledge. On the one hand, this means that teacher educators are inclined to read and use existing research on teacher education to inform their practice. On the other hand, teacher educators need to conduct research into their own practice to produce both local knowledge and public knowledge relevant to teacher education (Cochran-Smith, 2005).

Research purpose

Taking into account the shortcomings of prior research on teacher educators' professional development (e.g., Lunenberg et al., 2014), the purpose of the present study is to enhance empirical understanding of teacher educators' researcherly disposition (Tack and Vanderlinde, 2014). The current study approaches this goal by two phases. The first phase of the study involved the development of a self-reported measurement instrument for evaluating teacher educators' researcherly disposition based on a large-scale survey study with 944 Flemish teacher educators. In the second phase of the study, teacher educators' researcherly

disposition was explored using the developed instrument to test hypothesized differences across subgroups with different background experiences (teaching experience in compulsory education, research experience, length of service as a teacher educator) and professional work contexts (type of teacher education institution). Based on the theories of transformative learning (Mezirow, 1991) and the research on dispositions (Billett, 2008; Perkins et al., 1993), an influence of personal histories and professional work contexts can be expected. In particular, and also taking into account the existing research literature on teacher educators' professional development, it can be hypothesized that:

(1) Teacher educators with research experience will have higher scores than teacher educators without research experience (e.g., Lunenberg et al., 2014);

(2) Teacher educators with more than 3 years of service as a teacher educator will have higher scores than teacher educators with less experience (e.g., Murray and Male, 2005);

(3) Teacher educators professional work context can lead to differences in teacher educators' researcherly disposition (e.g., Lunenberg et al., 2014);

(4) Teacher educators with teaching experience might have lower scores compared to teacher educators without teaching experience (e.g., Berry, 2013; Lunenberg et al., 2014).

Method

Research context

Teacher education in Flanders (the Dutch-speaking part of Belgium) is provided by three different types of higher education institutions: colleges of higher education ('Hogescholen'), centres for adult education ('Centra voor Volwassenenonderwijs') and universities ('Universiteiten'). The teacher education programmes offered by these institutions all result in the same teaching certificate, but whereas colleges of higher education and centres for adult education offer professional training in teacher education, universities offer research-based academic training in teacher education. Even though colleges of higher education have recently started to develop research expertise, the main responsibility of teacher educators in a professional programme in a college of higher education or centres for adult education is the education of future teachers. Teacher educators occupied at a university are often academic researchers with minor teaching responsibilities.

Given these structural differences and the fact that their main occupation of being a researcher, teacher educators working at universities were excluded from this study.

Participants

All teacher education programmes organised by colleges of higher education (n = 50) and centres for adult education (n = 21) in Flanders were contacted to participate in the survey study. Only four teacher education programmes organised by centres for adult education and seven organised by colleges of higher education opted not to participate in the study (due to lack of time and other priorities). Teacher educators from participating institutions were asked to fill in a questionnaire so scales could be constructed in the next step of the research. As an incentive to participate, a comprehensive feedback report was promised if at least 70 % of the teacher educators at the corresponding institution completed the survey. Only teacher educators with a teaching responsibility were asked to participate. Considering fairness of testing (e.g., AERA APA NCME, 2015), teacher educators were given the choice between filling in an online survey or a paper-and-pencil version of the questionnaire.

Questionnaire data were collected from a sample of 944 institution-based teacher educators, resulting in a response rate of 70 %. Twenty-one questionnaires contained missing values (2.2 % of the gross total received).

Phase 1

In order to conduct the exploratory factor analysis (EFA) and confirmatory factor analysis (CFA), the total sample (n = 944) was randomly divided into two equal groups using the odds and evens split method (Tabachnick and Fidell, 2007). The first subsample (n = 472) included 74.8 % female and 25.2 % male respondents. The average length of employment as a teacher educator in the first subsample was 11.2 years, varying from 2 months to 37 years. 81 % of teacher educators in this subsample had no appointment as a researcher within the teacher education institution; however, 38.3 % of the teacher educators mentioned having other relevant experience with research (e.g., during their Bachelor degrees, from attending professionalisation courses on practitioner research, or from having obtained a doctoral degree). The second subsample (n=472) included 75.8 % female and 24.2 % male teacher educators. Their average length of employment as a teacher educator was 10.7 years, varying from 2 months to 38 years. In this subsample, 82 % had no current appointment as a researcher within their teacher

education institution, but 34.5 % had other relevant experience with research as a teacher educator.

Phase 2

The total sample (n=944) was used to investigate differences in teacher educators' perceived researcherly disposition across several subgroups. The sample included 75.3 % female and 24.7 % male respondents. The average length of service as a teacher educator was 10.9 years, varying from 2 months to 38 years. A minority (18.5 %) had an appointment as researcher within their teacher education institution, while approximately one third (36.3 %) reported having relevant experience with research as a teacher educator.

Procedure

Phase 1

Based on the previously described theoretical framework for the development of teacher educators' researcherly disposition (Tack and Vanderlinde 2014), 24 items for evaluating researcherly disposition were formulated, since no appropriate scales have appeared yet in the literature (Lunenberg et al. 2014). All items were independently evaluated by 12 experts and stakeholders in the field of teacher education (both researchers and teacher educators) to evaluate their content validity and clarity. This screening process resulted in an item bank with 24 items, accompanied by a Likert-type answer format. All three dimensions of the framework (affective, cognitive and behavioural) were covered in the questionnaire, with eight items dedicated to each.

Respondents were asked to rate each item separately on a six-point agree-disagree continuum: 0=strongly disagree, 1=disagree, 2=slightly disagree, 3=slightly agree, 4=agree, 5=strongly agree. No uncertain or neutral position was presented in order to force an agree/disagree rating. The term 'research' was also defined in the survey, thereby ensuring that all teacher educators participating would understand this concept in a similar way. We defined research as 'the systematic investigation into and study of materials and sources in order to develop knowledge, new theories or answer questions occurring from practice or policy'. Furthermore, we elaborated on this definition by providing examples of research conducted by teacher educators (see Appendix A for an example of our measurement instrument with instructions).

Phase 2

In order to be able to compare the mean scores of the latent constructs across different groups of teacher educators, it is necessary to test for measurement invariance. Tests for measurement invariance investigate whether an instrument measures the same constructs with the same structure across different groups. If this assumption is true, comparisons are valid and differences between groups can be meaningfully interpreted. If, however, the assumption is not true, comparisons are not meaningful. As such, establishing measurement invariance is a prerequisite for meaningful comparisons across groups (Milfont and Fisher, 2010).

Statistical analysis

Phase 1

The scale construction involved several subsequent steps: (1) an EFA to identify the number of factors, (2) a CFA to examine the stability of the exploratory factor structure, and (3) a reliability analysis to determine the internal consistency of the scales.

For the EFA, an exploratory principal axis factoring analysis was performed, with a promax rotation used to allow correlation between the factors. Several criteria for determining the number of factors were considered: Kaiser's criterion (1960) to retain eigenvalues bigger than one, Cattell's scree test (1966), Horn's parallel analysis (1965), and Velicer's MAP (O'Connor, 2000). Following the recommendations of Hair et al. (2006), all items with loadings of .50 and less were excluded from further analysis. Item(s) were also removed where the factor loadings differed by 0.25 or less on two factors. Such items were considered to have cross-loadings (Nunnally and Bernstein, 1994; Tabachnick and Fidell, 2007).

For the CFA, several fit indices were calculated to determine the adequacy of the fitted model: (a) the χ^2 and p-value, (b) the comparative fit index (CFI), (c) the Tucker-Lewis index (TLI), (d) the root mean square error of approximation (RMSEA), and (e) the standardised root mean square residual (SRMR). Following Hu and Bentler (1999), cut-off values of $\leq$ .06 and $\leq$ .08 for RMSEA and SRMR respectively indicate a good fit. CFI and TLI scores $\geq$ .90 indicate adequate fit, while scores of $\geq$ .95 indicate a good fit.

To test the internal consistency of the instrument, Chronbach's alpha was calculated. Factors with an α of 0.80 are considered reliable (Tabachnick and Fidell, 2007).

Phase 2

After scale construction, tests of measurement invariance (configural, metric and scalar) were performed across four groups (length of service as a teacher educator, research experience, teacher education institution, and experience as a teacher). Measurement invariance can be established by testing the equivalence of factor loadings and thresh- olds successively (Muthén and Muthén, 2011). To determine measurement invariance across subgroups in large samples, it is preferable to report the change in CFI and RMSEA between the unrestricted and restricted models instead of the difference in Chi-square statistics (Chen, 2007; Cheung and Rensvold, 2002). Cheung and Rensvold (2002) recommend using a ΔCFI value higher than .01 to indicate a significant drop in fit. Additionally, Chen (2007) suggests using ΔRMSEA to test for evidence of invariance. The criteria for invariance are ΔCFI ≤ .01, ΔRMSEA ≤ .015.

The tests of latent mean differences were conducted for the groups in which scalar invariance was observed. Assessment of latent mean differences is based on the critical ratio (CR) index, where CR ≥ 1.96 indicates significant differences in the means. The Cohen's d effect size index was also calculated to interpret the magnitude of the mean differences (.20 = small differences, .50 = medium differences, .80 = large differences) (Cohen, 1988).

SPSS 22.0 was used for the EFA and for the internal consistency analysis. MPlus 7 (Muthén and Muthén, 2011) was used for the CFA, the tests of measurement invariance and the tests of latent mean differences.

Results

Phase 1: Item development and scale construction
Exploratory factor analysis

An exploratory principal axis factoring analysis was performed on the data for the first sample (n = 472) to investigate the underlying structure of the 24 items in the developed scale. Based on the first analysis, four items were deleted due to loadings across factors or low communality values. The second analysis was conducted on the remaining 20 items using a promax rotation (oblique rotation), which allows factors to be correlated. As advised by O'Connor (2000), varied standards were used to determine how many factors would be retained, with the

eigenvalues-rule and the scree test both suggesting a four-factor solution. Since these standards sometimes overestimate the number of factors to withhold, a parallel analysis and Velicer's MAP were also conducted. Both tests confirmed the four-factor solution.

The eigenvalues are 7.81, 2.53, 1.80 and 1.06 respectively. Table 1 presents the results of this exploratory factor analysis, in which 20 items load on four factors.

The first of the four factors developed is 'being a smart consumer of research' and assesses the degree to which a teacher educator uses existing research to inform his/her own practice. The second factor is 'being able to conduct research as a teacher educator' and refers to the extent to which a teacher educator thinks he/she is capable of conducting research into teacher education. The third factor is 'valuing research as a teacher educator' and measures the extent to which a teacher educator esteems research-oriented approaches towards his/her daily practice and, as such, recognises his/her role as a researcher. The fourth factor is 'conducting research as a teacher educator' and refers to the degree to which a teacher educator is actively conducting research into teacher education.

Table 1. Results of the exploratory factor analysis (EFA) (n = 472)

	Item	F1	F2	F3	F4
	As a teacher educator...				
1	I often read research literature in educational journals	**.74**	.37	.27	.41
2	My teaching is informed by research	**.79**	.28	.23	.35
3	I systematically improve my own practice based on research literature	**.91**	.29	.27	.45
4	I am inclined to use research literature to solve problems in my teaching practice	**.60**	.24	.29	.30
5	I am familiar with recent research literature concerning the education of future teachers	**.72**	.35	.25	.43
6	I am able to show students the influence of research literature on my teaching practice	**.81**	.48	.29	.43
7	I have enough methodological knowledge to autonomously go through a research cycle (e.g., ask a research question, gather data, analyse and report data, etc.)	.35	**.78**	.36	.49
8	I am capable of presenting and sharing my own research results with other teacher educators (e.g., at conferences	.28	**.81**	.38	.54

and in journals)

9	I am someone who is capable of conducting research	.39	**.86**	.38	.56
10	I do not know how to fulfil my role as a teacher educator-researcher	.30	**.60**	.32	.25
11	Teacher educators have a responsibility towards their students to study their own practice	.28	.30	**.57**	.26
12	Research is essential for the teacher education profession	.33	.35	**.77**	.42
13	A teacher educator who does not recognise his/her role as a researcher is not a good teacher educator	.19	.24	**.79**	.29
14	Teacher educators' role as a researcher has to be one of the most important ones.	.25	.37	**.78**	.43
15	Every teacher educator should regularly conduct research to improve their practice	.24	.44	**.76**	.49
16	Teacher educators should conduct research to contribute to the wider knowledge on teacher education	.22	.32	**.69**	.43
17	I conduct research to improve my own practice	.46	.49	.44	**.76**
18	I have experience with conducting research as a teacher educator	.45	.50	.47	**.87**
19	I conduct research in order to develop knowledge relevant to other teacher educators	.38	.59	.47	**.83**
20	I present at conferences and seminars to share my own research results	.42	.38	.41	**.71**

The numbers in bold represent the factor loadings linked to each factor, respectively F1, item 1 to 6 load on F1).

Confirmatory factor analysis

A confirmatory factor analysis was conducted to evaluate the stability of the four-factor structure with the second sample (n=472). The final model comprises six items for 'being a smart consumer of research', six items for 'valuing research as a teacher educator', four items for 'being able to conduct research as a teacher educator' and four items for 'conducting research as a teacher educator' (see Figure 1). The results show a good fit between the hypothesised model and the observed data ($\chi2$ = 329.6, df = 162, $\chi2$/df = 2.03, p = 0.0000). The overall model fit was assessed using the $\chi2$ test; however, because of its sensitivity to sample size (almost always significant when you have a large sample), other goodness-of-fit were also used (Muthén and Muthén, 2011). The goodness of fit estimates were CFI=.96, TLI=.95, SRMR=.04 and RMSEA = .047, with a 90 % interval of .040 and

.055, indicating good fit. The results suggest that all items load significantly onto the four latent factors. All coefficients were between .53 and .89 and differed significantly from zero at the .001 levels. Correlations between the four factors were high (between .49 and .77) and significant.

As can be seen in Fig. 1, we allowed the residuals (e) to correlate for one pair of items in the 'valuing research as a teacher educator' factor (e15 and e16). We also allowed residuals to correlate for one pair of items in the 'conducting research as a teacher educator' factor (e19 and e20). This led to a decrease in χ2 (from 390.3 to 329.6) compared to the model without correlated residuals. Correlated residuals suggest a substantial overlap between two items. Items 15 and 16 in the 'valuing research as a teacher educator' subscale both have a clear focus on teacher educators' attitudes towards actively conducting research, while the remaining items in the factor more broadly assess teacher educators' attitudes about being a teacher educator-researcher (including being a 'smart' consumer of research). Items 19 and 20 in the 'conducting research as a teacher educator' factor are both specifically related to actively conducting research in order to contribute to the public knowledge base on teacher education, while the remaining items refer to improving one's practice as a teacher educator. Allowing the correlations of these residuals is recommended in several methodological papers and handbooks on education- al research (e.g., Cole et al., 2007; Tabachnick and Fidell, 2007) because they reflect intended features of the research design.

Reliability analysis and descriptive statistics

A reliability analysis was performed on the complete data set (n = 944) to examine the internal consistency of the four factors. The newly constructed scales ('conducting research as a teacher educator', 'being able to conduct research as a teacher educator', 'valuing research as a teacher educator' and 'being a smart consumer of research') were all found to be highly reliable, with Chronbach's alphas *(α)* of .87, .82, .86 and .89, respectively (see Table 2). Table 2 further presents the mean score *(M)* and standard deviation *(S.D.)* for each subscale, ranging from a minimum score of zero to a maximum of five.
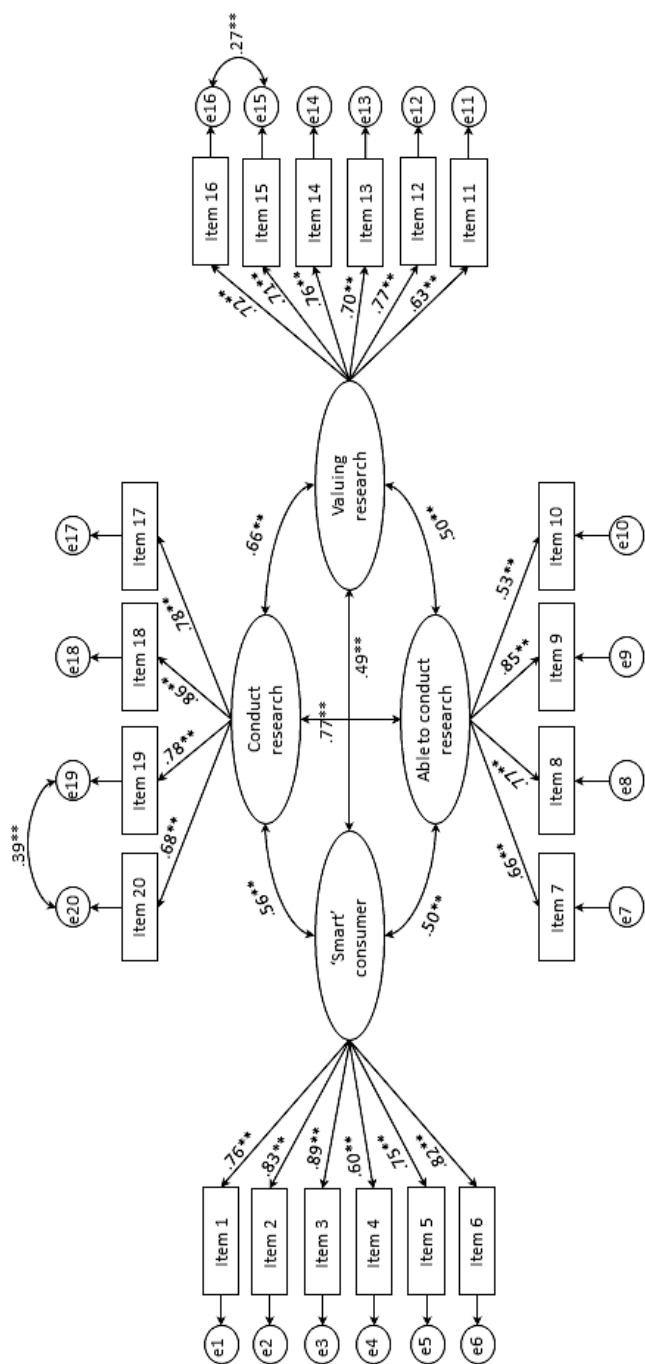
Figure 1. Results of the CFA on items related to teacher educators' researcherly disposition, **p < .001

Table 2. Chronbach's alphas and descriptive statistics of the newly constructed scales

	α	*M*	*S.D.*
Being a smart consumer of research	.89	2.74	1.14
Being able to conduct research as a teacher educator	.82	2.87	0.84
Valuing research as a teacher educator	.86	2.68	1.09
Conducting research as a teacher educator	.87	2.04	0.99

Phase 2: Measurement invariance and latent mean differences

Measurement invariance

In order to enable comparison of the mean scores of the latent constructs across different groups of teacher educators, it was necessary to test for measurement invariance. If measurement invariance is achieved, researchers can accept that different groups of individuals interpret the items and their underlying constructs in similar ways. Three levels of measurement invariance are described (from less constrained to more constrained): (1) configural invariance, (2) metric invariance, and (3) scalar invariance. When configural invariance (1) is achieved, factor loadings on each of the constructs can differ across groups. If only configural invariance is established, it would indicate that teacher educators conceptualise constructs (e.g., conducting research as a teacher educator, being a smart consumer of research, etc.) similarly, but it would not guarantee that individual items are interpreted in the same way. Metric invariance (2), meanwhile, indicates that factor loadings are equal across groups and that items are therefore interpreted in a similar way. However, if the goal is to compare means of latent constructs across groups (as in this research), (3) scalar invariance is needed. If scalar (or measurement) invariance is achieved, differences in means of the observed items can be interpreted as a consequence of the differences in the means of the latent constructs.

The current study attempted to establish scalar invariance between: (1) teacher educators with ≤ 3 years of service and teacher educators with > 3 years of service as a teacher educator; (2) teacher educators with teaching experience and teacher educators without teaching experience in compulsory education; (3) teacher educators working in Centres for adult education and those working in Colleges of

higher education; and (4) teacher educators without research experience and teacher educators with research experience (see Table 3).

To investigate measurement invariance, the change in CFA and RMSEA between the unrestricted and the more restricted model was assessed. The criteria for invariance were ΔCFI $\leq$ .01 and ΔRMSEA $\leq$ .015 (Chen, 2007; Cheung & Rensvold, 2002). As Table 3 shows, scalar invariance is suggested for all groups, including research experience, type of institution, length of service, and (prior) teaching experience in compulsory education. This means that teacher educators across the studied groups interpret our measurement instrument in a consistent manner and that the mean scores of the latent constructs can be compared.

Test of latent mean differences

The test of latent mean differences is used to compare responses between subgroups. In testing for latent mean differences, the estimated mean of one group will be compared to zero, representing the other group. In the present study, teacher educators (1) with $\leq$ 3 years of service, (2) with no experience as a teacher in compulsory education, (3) working in a college of higher education and (4) with no research experience were the reference groups for (1) length of service as a teacher educator, (2) teaching experience in compulsory education, (3) teacher education institution, and (4) research experience respectively. Comparisons of latent mean differences do not enable estimation of the absolute mean in each group, but rather present the mean difference in the latent variables between the groups. Assessment of latent mean differences was based on the critical ratio (CR) index, where CR $\geq$ 1.96 indicates significant differences in the means. A positive CR value suggests that the comparison group has higher latent mean values than the reference group.

Table 3. Results of the tests of measurement invariance by (1) type of teacher education institution, (2) research experience, (3) length of service as a teacher educator, and (4) teaching experience in compulsory education

Multiple Group CFA	Model Fit Indices				Model Comparisons		
	X² (df)	CFI	TLI	RMSEA	Comparison	ΔCFI	ΔRMSEA
Model 1 (configural invariance)	692.46 (324)*	.952	.944	.050			
Model 2 (metric invariance)	722.66 (340)*	.951	.945	.050	Model 2 vs. Model 1	.001	.000
Model 3 (scalar invariance)	779.40 (356)*	.945	.942	.051	Model 3 vs. Model 2	.006	.001
Model 1 (configural invariance)	667.88 (356)*	.949	.940	.048			
Model 2 (metric invariance)	683.10 (340)*	.949	.943	.047	Model 2 vs. Model 1	.000	.001
Model 3 (scalar invariance)	781.94 (356)*	.939	.933	.051	Model 3 vs. Model 2	.010	.004
Model 1 (configural invariance)	718.95 (324)*	.949	.94	.052			
Model 2 (metric invariance)	735.09 (340)*	.949	.943	.051	Model 2 vs. Model 1	.000	.001
Model 3 (scalar invariance)	798.45 (356)*	.943	.939	.053	Model 3 vs. Model 2	.006	.002
Model 1 (configural invariance)	691.59 (136)*	.955	.947	.050			
Model 2 (metric invariance)	692.13 (120)*	.954	.949	.049	Model 2 vs. Model 1	.001	.001
Model 3 (scalar invariance)	414.69 (104)*	.953	.950	.048	Model 3 vs. Model 2	.001	.001

Notes: **p* <.05 / With (1) 709 working in a college of higher education and 190 working in a Centre for adult education; (2) 746 teacher educators with no research experience and 163 teacher educators with research experience; (3) 192 teacher educators with ≤ 3 years of service and 699 with > three years of experience; and (4) 514 teacher educators with teaching experience in compulsory education and 356 without teaching experience in compulsory education – Criteria for invariance model comparison: ΔCFI ≤ .01, ΔRMSEA ≤ .015

Table 4. Test of latent mean differences for (1) type of teacher education institution, (2) research experience, (3) length of service as a teacher educator, and (4) type of teacher education institution

Construct	χ2	χ²/df	TLI	CFI	RMSEA	SRMR	MD	CR (t)	d
Able to conduct research	779.40	2.19	.94	.95	.051	.048	-0.027	-0.317	
Conducting research							-0.242	-2.332*	.25
Valuing research							-0.010	-0.129	
'Smart' consumer of research							0.082	0.856	
Able to conduct research	781.94	2.20	.93	.94	.051	.052	0.902	12.42*	1.31
Conducting research							1.612	12.89*	1.37
Valuing research							0.584	7.47*	0.79
'Smart' consumer of research							0.493	5.649*	0.60
Able to conduct research	798.45	2.242	.94	.94	.048	.052	-0.114	-1.307	
Conducting research							0.110	1.077	
Valuing research							-0.106	-1.373	
'Smart' consumer of research							0.206	2.229*	.11
Able to conduct research	714.68	2.008	.95	.95	.048	.050	-0.088	-1,204	
Conducting research							-0.204	-2,338*	.25
Valuing research							-0.072	-1,113	
'Smart' consumer of research							-0.018	-0,252	

Notes: *p < .05; MD: mean difference, significant if score is bigger than +/- 1.96; d = Cohen d effect size with .25 'small difference', .50 'medium difference', and .80 = large differences

To interpret the mean differences in terms of their magnitude, the effect size index Cohen's d is reported (Cohen, 1988). Table 4 shows the results of the tests of latent mean differences for each factor. Teacher educators with research experiences (n = 163) have significantly higher scores on each of the subscales compared to their counterparts (n = 746) (t between 5.649 and 12.89). The effect size of the mean difference in 'being a smart consumer of research' is moderate (d = .60), but the effect sizes of the mean differences on the other subscales are large (all d .80). Considering their years' of experience, those with more than 3 years' experience as a teacher educator (n = 699) have lower scores for 'valuing research as a teacher educator' and 'being able to conduct research' and higher scores for 'being a smart consumer of research' and 'conducting research' than their counterparts (n=192). However, only the mean differences in 'being a smart consumer of research' (t = 2.229, p < .05) are statistically significant, with the difference having a small effect (d = .11). Teacher educators with teaching experience in compulsory education (n = 514) were found to have lower scores on each of the subscales. However, only the mean differences in the factor 'conducting research as a teacher educator' were statistically significant (t = -2.338, p < .05), with the difference having only a small effect (d = .25). Between teacher educators working in colleges of higher education (n = 709) and those employed at centres for adult education (n = 190), the latter scored significantly lower on the subscale 'conducting research as a teacher educator' (t = -2.332, p < .05). As above, the effect size was small (d = .25).

Discussion & conclusion

Having conducted one of the first large-scale quantitative survey studies on teacher educators' professional development (n=944), this article presents a measurement instrument (TERDS) to measure teacher educators' self-reported researcherly disposition throughout their working lives. This concept, defined as teacher educators' habit of mind to engage with research as both consumers and producers to improve their own practice and contribute to shared knowledge, offers a promising approach to the professional development of teacher educators (Tack and Vanderlinde, 2014).

In the first phase of the study, EFA, CFA and reliability analyses were conducted so that four different factors could be identified: (1) 'valuing research as a teacher educator', (2) 'being a smart consumer of research', (3) 'being able to conduct research', and (4) 'conducting research as a teacher educator'. Goodness of fit estimates were calculated, all indicating good fit. The first of the factors above

refers to the extent to which a teacher educator values his/her role as a teacher educator- researcher. The second reflects the degree to which a teacher educator is able to use existing research to inform his/her practice. The third scale pertains to the extent to which a teacher educator is capable of conducting research into teacher education. Finally, the fourth scale contains items concerning whether or not a teacher educator is actively conducting research into teacher education.

The four-factor structure does not fully align with the theoretically assumed three-dimensional structure. Interestingly, we found that the two scales – 'being able to conduct research' (cognitive dimension) and 'conducting research' (behavioural dimension), both of which related to teacher educators' role as producers of research – could not be combined as a single factor. Further research is thus needed to determine why teacher educators who perceive themselves as capable and ready to conduct research as a teacher educator still do not do so. Reporting on the influence of dispositions on professionals working lives, Billett (2008) argues that dispositions may lead professionals to withhold from putting their capabilities (i.e., being able to conduct research) into action (i.e., conducting research as a teacher educator).

In the second phase of the study, tests for measurement invariance were conducted on the four factors in the TERDS, providing support for full configural, metric and scalar invariance by length of service as a teacher educator, research experience, experience as a teacher and teacher education institution. Teacher educators reported a generally low to neutral level of researcherly disposition on the TERDS instrument. As could be expected (Lunenberg et al., 2014; Cochran-Smith, 2005), teacher educators with research experience score significantly higher on each of the four subscales compared to their counterparts without research experience. Furthermore, in line with previous research (Murray and Male, 2005), teacher educators with > 3 years of experience score significantly higher on the subscale 'being a smart consumer of research'. Working in a college of higher education or having no prior experience as a teacher in compulsory education, moreover, led to significantly higher scores on the subscale 'conducting research as a teacher educator'.

The factor analysis and the internal consistency analysis provide some first evidence on the internal structure of our instrument (AERA APA NCME, 2015). We were also able to establish measurement invariance. In this respect, the current study examined the comparability of the factor structures of the TERDS between four subgroups of teacher educators. Moreover, relevant subgroups' scores were

compared were investigated based on hypothesized differences (AERA APA NCME, 2015). In this respect, this study also provides first steps in validating our instrument. However, the validation process never ends, and future research could possibly focus on response processes or consequences of use or can be related to objective measures of teacher educators' professional qualifications. Furthermore, we want to stress that our test scores are intended to be interpreted as measuring teacher educators' self-reported researcherly disposition, which clearly differs from instruments focusing on the assessment of competences or learning outcomes (e.g., COACTIV studies on teacher competence) (AERA APA NCME, 2015; Kane, 2013).

Further research is required, as this study is subject to a number of limitations and still leaves several issues untouched. First, we have to be aware that the outcomes of the TERDS instrument remain self-reported measures. This implies that teacher educators' answers may have been influenced by social desirability, as is a risk with any form of subjective data collection (Desimone, 2009). However, throughout the process of survey development and administration, several steps were taken to reduce social desirability bias. This included extensive piloting, critical reviews and pretesting by an expert group of researchers and teacher educators. Moreover, we assured respondents in the introduction of our survey that there were 'no right or wrong answers' and guaranteed absolute confidentiality. In this respect, our data collection was trustworthy and not linked to the teacher educators' workplace evaluation, which reduces the incentive for respondents to misrepresent themselves (AERA APA NCME, 2015).

A second limitation of this study was that the measurement instrument developed was tested for teacher educators working on professional teacher education programmes (e.g., at colleges of higher education and centres for adult education). Teacher educators working in these contexts are not typically expected to publish work in relevant academic and professional journals (this is also the case in most European countries; see Lunenberg et al. 2014). Rather, they were mostly educated to be a teacher and got 'promoted' to being a teacher educator. However, in Pacific Rim contexts and the United States, teacher educators are usually educated to be a researcher in a particular area – e.g., psychology, mathematics or languages – and their job at a university includes teaching teachers (see Hamilton and Clandinin 2011; Snoeck and Zogla 2009). Testing the structure of our measurement instrument in a university context could further improve its international applicability. Furthermore, we also believe that it would be valuable to test our measurement instrument for applicability among other professional

educators in higher education. In particular, this instrument has potential to serve occupational groups such as, for instance, academics who educate doctors, nurses and social workers. Like many teacher educators, these professionals also exchange their status as day-to-day practitioners in their original setting for work as educators in higher education institutions (Murray and Male, 2005). As knowledge and understanding of higher education-based professional education and professional educators is still in its developmental stage (Watson, 2000), we strongly recommend a further exploration of this area. In this respect, our items are already formulated to be fairly broad, which facilitates adaptation to new contexts.

Finally, in this article, only a few variables have been related to the TERDS. In the future, we intend to add several additional variables related to the organisational context and personal histories of teacher educators (e.g., research culture and infrastructure of the institution and the motivation of individual teacher educators). (Multilevel) Structural Equation Modeling can be used to help further clarify the relationship between these variables and teacher educators' self-perceived researcherly disposition. In these studies, our newly constructed scales can serve as the dependent variables. Moreover, it would be interesting to conduct intervention studies (e.g., to assess the impact of a professionalisation course) into the conditions (both personal and contextual) under which teacher educators' researcherly disposition changes.

Even though research on teacher educators' professional development has increased over the past decade, most of these studies have been small-scale qualitative studies (Lunenberg et al., 2014). This study clearly tackles this gap by presenting the results of a large-scale quantitative survey based on a self-reported measurement instrument designed to empirically describe teacher educators' self-reported researcherly disposition. More- over, by using the instrument to explore differences between several subgroups of teacher educators, this study enhances empirical understanding of a previously 'undiscovered' and 'neglected' professional group. Finally, given the general character and the overall reliability of the measurement instrument, the same scales could be translated and used to examine other vocational practices.

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4

Exploring the relationship between the perceived research infrastructure, the perceived research culture, and teacher educators' researcherly disposition

Chapter 4

Exploring the relationship between the perceived research infrastructure, the perceived research culture, and teacher educators' researcherly disposition

Abstract

This study examines the relation between teacher educators' researcherly disposition and their perceptions of the existing research culture and research infrastructure in their respective teacher education institutions. Developing a researcherly disposition is a key factor in teacher educators' professional development. Building on previous studies on teacher educators' professional development, positive relationships between teacher educators' perceptions of the existing research culture, the existing research infrastructure, and teacher educators' researcherly disposition were hypothesised. A large-scale survey study was conducted, involving 944 teacher educators working within teaching-intensive teacher education institutions. The results indicate that teacher educators' perceptions regarding the existing research infrastructure are positively associated with the extent to which teacher educators perceive themselves as able to conduct research, to value research, and to conduct research into teacher education. Positive relationships were also identified between the perceived research culture and the extent to which teacher educators reportedly value research and use existing research in teacher education. Finally, significant indirect relationships stress the interplay between teacher educators' perceptions of their respective institutional setting and the development of their researcherly disposition.

Introduction

Internationally, teacher educators are increasingly expected to engage in research, along with their role of supporting (future) teachers, and to 'function simultaneously as both researcher and practitioner' (Cochran-Smith, 2005, p. 219). In the report *Supporting the teacher educator profession for better learning outcomes*, the European Commission (2013, p. 6) stressed that all teacher educators must 'guide teaching staff at all stages in their careers, model good practices, and undertake the key research that develops our understanding of teaching and learning'. Research, as such, is perceived as one of the core tasks of teacher educators, next to their role in supporting and teaching (future) teachers. Similarly, the Flemish (Dutch-speaking part of Belgium) government states that, 'if we aim to improve teacher education, teacher educators will need to be able to theoretically underpin their own practice and develop a research stance' (Departement Onderwijs & Vorming, 2014, p. 10, author's translation). Developing this research stance, also internationally termed 'inquiry as stance' (Cochran-Smith and Lytle, 2009), or a 'researcherly disposition' (Tack and Vanderlinde, 2014), is often promoted as a meaningful conceptualisation of teacher educators' professional development. In short, it refers to 'teacher educators' habit of mind to engage with research—as both consumers and producers of research—to improve their practice and contribute to the knowledge base on teacher education' (Tack and Vanderlinde, 2014, p. 301). Put differently, teacher educators' engagement in research—and the development of one's researcherly disposition—is perceived as a vital aspect of their careers, in addition to being critical to the overall improvement of teacher education (Cochran-Smith, 2005; Klecka, Donovan, Venditti, and Short, 2008; Loughran, 2011, 2014; Lunenberg et al., 2014; Smith, 2011).

However, teacher educators, in the majority of cases, have not been prepared for their roles; moreover, becoming a teacher educator does not require any specific training, induction, or qualification (see European Commission, 2013; Mayer, Mitchell, Santoro, and White, 2001; Murray and Male, 2005). Thus, for many teacher educators, the workplace provides the most likely setting to develop preliminary knowledge related to their specific occupation, which also often entails the development of one's role as a teacher educator-researcher (Lunenberg et al., 2014; Loughran, 2014; Smith, 2011). Broadly speaking, teacher educators can be working in research-intensive teacher education institutions or in teaching-intensive teacher education institutions. Even though both are responsible for the

education of teachers, research-intensive teacher education institutions are in receipt of core research funding, whereas teaching-intensive teacher education institutions do not receive such funding. Only recently, the latter has begun to develop research expertise in small-scale research projects, though they continue to be primarily concerned with the education of new and serving teachers.

As teacher educators mostly lack formal preparation, induction, and professional development opportunities, the support structures and experiences provided by their teacher education institutions are often their primary or exclusive sources of learning for their occupational practice as well as its ongoing development throughout their working lives (Billett, 2001). How these occupational practices are shaped situationally need to be taken into account when evaluating one's development while engaged in the occupation (Billett, 2008). If we seek to understand, influence, or improve workplace learning, the particular teacher education work context should always be considered (Billet, 2008; Ducharme and Ducharme, 1996; Lunenberg et al., 2014; Munn, 2008; Murray, 2002; 2008). In this respect, Davies and Salisbury (2008) argued that a teacher educators' individual development as a teacher educator-researcher is only likely to be sustained if corresponding development takes place at the workplace level, both in terms of research infrastructure and research culture. The presence or absence of a viable research infrastructure in teacher education institutions is the first critical aspect. According to Davies and Salisbury (2008), important features of a strong research infrastructure include a research strategy, a research training and staff development programme, and financial and personnel resources to support research projects. Second, teacher education institutions with strong research cultures tend to be those that are organised as learning communities that value, share, and reflect upon research (Davies and Salisbury, 2008). This will not be the case for teacher educators in less research-rich environments, as these generally provide fewer opportunities for formal and informal mentoring and experiences (Davies and Salisbury, 2008). Certainly, in this regard, and much like the current situation in the UK (Gilroy and McNamara, 2011), in Flanders, a great deal of variance between research-intensive teacher education institutions and teaching-intensive teacher education institutions can be expected, the latter typically being characterized by far less conducive circumstances. This means that the majority of Flemish teacher education programmes do not receive funding for their research activities. In this paper, we are particularly interested in how these teacher educators, working in teaching-intensive institutions, perceive the existing research culture and research infrastructure, and how this, in turn, relates to the

development of their researcherly disposition. Drawing on the current literature on teacher educators' professional development, which is mainly characterised by small-scale qualitative studies or theoretical contributions (Lunenberg et al., 2014), a large-scale study was conducted, involving 944 teacher educators working in teaching-intensive teacher education institutions.

Teacher educators' researcherly disposition

Taking into account the demands of developing one's role as a teacher educator-researcher, several authors have begun to conceptualise teacher educators' professional development as a process requiring the development of an 'inquiry as stance' (Cochran-Smith and Lytle, 2009), 'an investigative attitude' (Vanassche, 2014), or a 'researcherly disposition' (Tack and Vanderlinde, 2014, 2016). Tack and Vanderlinde (2014, p. 301) defined teacher educators' researcherly disposition as 'teacher educators' habit of mind to engage with research—as both consumers and producers of research—to improve their practice and contribute to the knowledge base on teacher education.' Making reference to the cognitive theory of dispositions (Perkins, Jay, and Tishman, 1993), Tack and Vanderlinde (2014) went on to explain its three interrelated but complementary dimensions, describing these as follows:

(1) An affective dimension referring to the extent to which teacher educators believe in the need for a research-oriented approach towards their daily practice;
(2) A cognitive dimension referring to teacher educators' actual ability to conduct research and contribute to the knowledge base on teacher education; and
(3) A behavioural dimension referring to teacher educators' attentiveness to research opportunities in their daily practice.

All dimensions are interrelated and complementary, which means that each of these needs to be fulfilled before real change is enabled. For instance, a teacher educator may have the ability to conduct the research cycle effectively and to find recent research literature in scientific databases (cognitive dimension); he may also find it important to solve a problem in his practice by using a variety means, e.g. by conducting a practitioner research or reading literature related to the topic of interest (affective dimension), but may not recognise the problem as an occasion for conducting research or reading research literature (behavioural dimension). In this hypothetical situation, not all dimensions of teacher educators' researcherly disposition are fulfilled, which, according to the cognitive theory on dispositions

(see Perkins, Jay, and Tishman, 1993), reduces the likelihood of research-led change in a teacher educator's practice.

Hypothesis 1a.   All dimensions (cognitive, behavioural, and affective) of teacher educators' researcherly disposition are mutually positively related.

Moreover, and also in line with the cognitive theory on dispositions (Perkins, Jay, and Tishman, 1993), it is assumed that teacher educators will only recognise those situations in which they can conduct research (behavioural dimension) if they are able to conduct research (cognitive dimension) and if they positively value their role as researchers (affective dimension) (Perkins, Jay, and Tishman, 1993).

Hypothesis 1b.   The behavioural dimension is positively influenced by (1) the cognitive dimension and (2) the affective dimension.

Research culture

Several studies (Borg and Alshumaimeri, 2012; Cochran-Smith and Lytle, 2009; Davies and Salisbury, 2008; Gemmell et al., 2010; Griffiths et al., 2010; Houston et al., 2010; Smith, 2015; Stoll et al., 2006) have stressed the importance of creating a research culture within teacher education institutions so as to support teacher educators' development as teacher-educator researchers. A research culture refers to an overall appreciation of colleagues for emerging research initiatives (Lunenberg et al., 2014). Moreover, teacher education institutions with strong research cultures are often organised as 'communities of scholars' (Ghallagher et al., 2011, p. 884) or 'research communities' (Smith, 2015, p. 45), in which the importance of using and conducting research to improve one's own practice is acknowledged. Teacher educators working in such communities argue that they are able to carry out low-risk research activities (e.g. participate in discussions on research projects, read and discuss relevant research literature, analyse data, and co-present at conferences), helping them to further develop their role as researchers (Harrison and McKeon, 2010; Smith, 2015).

Hypothesis 2a.   Positive perceptions of the existing research culture in the teacher education institution are positively associated with the development of teacher educators' researcherly disposition.

Research infrastructure

Another factor that may stimulate or hinder the development of teacher educators' role as researchers is the (non-)existence of a research infrastructure in the teacher education institution. Research infrastructure refers to the availability of research facilities (Borg and Alshumaimeri, 2012; Cochran-Smith and Lytle, 2009; Davies and Salisbury, 2008; Gilroy and McNamara, 2009; Griffiths et al., 2010; Lin, Wang, Splalding, Klecka, and Odell, 2011; Lunenberg et al., 2010; 2014; Smith, 2015; Vanassche, 2014). Such facilities may include access to journals, physical and financial resources, methodological resources, and expert supervision (Borg and Alshumaimeri, 2012; Griffiths et al., 2010). Institutions with strong research infrastructures also tend to offer protected time to engage in research (Davies and Salisbury, 2008; Griffiths et al., 2010).

Hypothesis 2b.   Positive perceptions of the perceived research infrastructure in the teacher education institution are positively associated with the development of teacher educators' researcherly disposition.

Research goal and questions

Previous research suggests that there is a link between research culture and research infrastructure, on one hand, and teacher educators' researcherly disposition, on the other (cf. Lunenberg et al., 2014; Smith, 2015). The aim of this study is to propose a model of the relationship between teacher educators' perceptions of these conditions in their respective institutions and teacher educators' researcherly disposition (see Figure 1). First, the relationships between the different dimensions of teacher educators' researcherly disposition are explored (Hypothesis 1a and 1b). Second, the relationships with the perceived research culture (Hypothesis 2a) and the perceived research infrastructure (Hypothesis 2b) with teacher educators' researcherly disposition are studied. In line with our hypotheses, the following research questions are addressed:

- How are the different dimensions of teacher educators' researcherly disposition related to each other? (RQ1)
- How are the perceived research culture and the perceived research infrastructure related to the development of teacher educators' researcherly disposition? (RQ2)
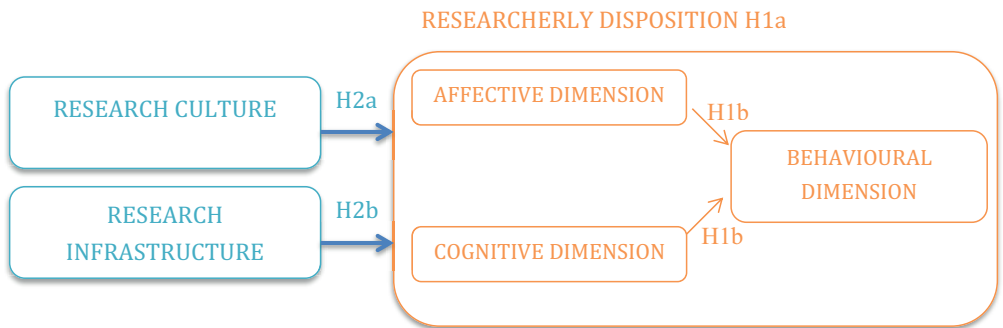
Figure 1. The theoretical model

Method

Context

Three types of higher education institutions in Flanders provide teacher education programmes: universities, centres for adult education, and colleges of higher education. All teacher education programmes lead to the same certificate; however, whereas universities are research-intensive teacher education institutions (typically in receipt of core funding), colleges of higher education and centres for adult education are teaching-intensive teacher education institutions. Although the latter have recently begun to develop research expertise, their main responsibility lies in educating the majority of new and serving teachers. For the scope of this study (see Introduction), only teacher educators from teaching-intensive teacher education institutions were included.

Sample and procedure

All teaching-intensive teacher education institutions (n = 71) in Flanders (of which 50 are colleges of higher education and 21 are centres for adult education) were contacted to participate in the survey study. In total, 43 colleges of higher education and 17 centres for adult education agreed to participate. For the sake of face validity (AERA APA NCME, 2015), the survey was pilot tested with eight experts in the field of teacher education (experienced teacher educators and researchers). Survey data were collected from a sample of 944 teacher educators. Only 21 surveys contained missing values. The characteristics of the final sample include a high proportion (75.3%) of female teacher educators (see Table 1).

Table 1. Sample characteristics

	% (n)
Gender	
Male	24.7 (233)
Female	75.3 (711)
Highest study degree	
Bachelor	9.9 (93)
Master	82.7 (791)
Doctoral degree	6.0 (57)
Teaching qualification	
Yes	96.9 (915)
No	3.1 (29)
Teaching experience	
Yes	59.7 (560)
No	40.3 (384)
Research experience	
Yes	36.6 (345)
No	63.4 (599)
Type of teacher education institution	
College of Higher Education	57.1 (727)
Centre for Adult Education	42.9 (217)

The average length of service was 10.9 years, with periods of service from 2 months to 38 years. A minority of participants (18.5%) was working as researchers within their teacher education institutions (ranging from 0.1 FTE to 0.4 FTE), while approximately one third (36.6%) had research experience.

Measures

Teacher educators' researcherly disposition

A measurement instrument designated as TERDS – and based on the theoretical framework on teacher educators' researcherly disposition (Tack and Vanderlinde, 2014) – was developed to measure this particular attribute (see Tack and Vanderlinde, 2016). The Teacher Educator Researcherly Disposition Scale (TERDS) (Tack and Vanderlinde, 2016) is a 20-item questionnaire assessing teacher educators' researcherly disposition (the items are included in Appendix on page 123). All items are scored on a six-point Likert scale, ranging from strongly disagree = 0 to strongly agree = 5. In contrast with the theoretically assumed three-dimensional structure of teacher educators' researcherly disposition, TERDS has four subscales: (1) 'Valuing research' (six items), (2) 'Being able to conduct research' (four items), (3) 'Conducting research' (four items), and (4) 'Being a smart consumer of research' (six items).

(1) 'Valuing research' (α = .91) refers to the extent to which teacher educators value research-oriented approaches towards their daily practice and 109ecognize their role as researchers (Tack and Vanderlinde, 2016, p. 51). This first subscale fully corresponds with the affective dimension of teacher educators' researcherly disposition.

(2) 'Being able to conduct research' (α = .83) refers to the extent to which teacher educators consider themselves capable of conducting research into teacher education (Tack and Vanderlinde, 2016, p. 51). This subscale corresponds with the cognitive dimension of teacher educators' researcherly disposition.

(3) 'Conducting research' (α = .89) refers to the degree to which teacher educators report being active in conducting research into teacher education (Tack and Vanderlinde, 2016, p. 51). This subscale corresponds with the behavioural dimension of teacher educators' researcherly disposition.

(4) 'Being a smart consumer of research' (α = .86) assesses the degree to which teacher educators use existing research to inform their practice (Tack and Vanderlinde, 2016, p. 51). This subscale combines aspects from (a) the cognitive dimension (being able to use existing research to inform their practice), and (b) the behavioural dimension (actively using existing research to inform their practice) of teacher educators' researcherly disposition.

This implies a slight adaptation of our initial theoretical model (see Figure 2).
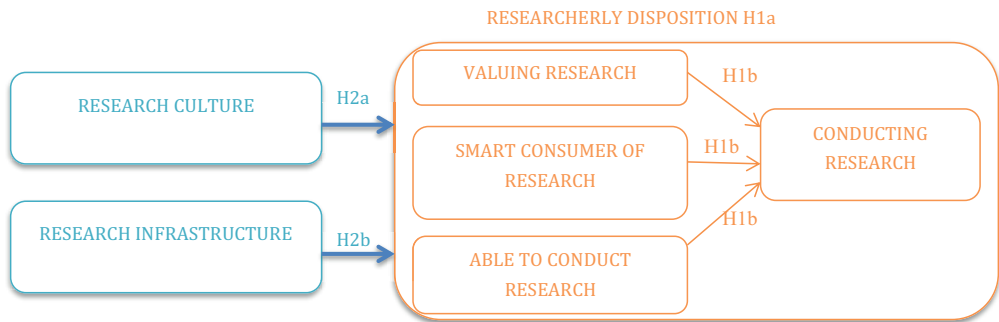

Figure 2. Adaptation of the initially formulated theoretical model

Perceptions of the research culture

The 'Research culture' scale was adapted, for the purposes of this study, from the 'Questionnaire on Teacher Research' (Vrijnsen-de Corte, den Brok, Kamp, and Bergen, 2013), which measures teachers' perceptions of the collegial support and climate for practice-based research. First, instead of using the narrow concept of 'practice-based research', we used 'research' in all items, described as 'the systematic and intentional investigation into and study of materials and sources in order to develop (1) knowledge, new theories or answer questions occurring from (2) practice or (3) policy related to teacher education.' (Also see Tack & Vanderlinde, 2016). Adapted to the Flemish context, examples of possible forms of research were enumerated: practitioner research, research and development projects funded by the government (in Dutch, 'PWO-projecten'), policy-related research, and fundamental research (Appendix see p.123-127). Second, the original scale was developed for teachers working in a school setting, whereas, in our study, teacher educators used the scale to evaluate conditions in teacher educator institutions. The adapted scale has five items, measured on a five-point scale (0 = not, to, 4 = to a very high extent), and assesses teacher educators' perceptions of the support they receive from colleagues and their direct supervisors when seeking to engage in research in their teacher education institutions (e.g. 'At our teacher education institution, teacher educators' engagement in research is taken for granted'). Chronbach's alpha was .81 (see Appendix p.123-127).

Perceptions of the research infrastructure

The 'Research infrastructure' scale was adapted from the 'Questionnaire on Teacher Research' (Vrijnsen-de Corte et al., 2013), which measures teachers' perceptions of the existing organisational structure for performing practice-based research in schools. All items were adapted for the teacher education context and enquired about teacher educators' perceptions of the existing organisational structure, including research budget, resources, and existing policies for performing research in their teacher educator institutions. The adapted scale contains 7 items, rated on a 5-point scale (0 = not, to, 4 = to a very high extent) (e.g. 'At our teacher education institution, resources (e.g. methodological resources, research literature) are available to facilitate my engagement in research)'. Chronbach's alpha was .71 (see Appendix p.123-127).

Data analysis

Because of the hierarchical nature of our data (i.e. the fact that individual teacher educators are nested within teacher education institutions), we investigated whether there was sufficient statistical independence or a salient teacher education level effect. To accomplish this, we separately calculated the intraclass correlation for each dependent variable (i.e. the variables 'Able to conduct research', 'Valuing research', 'Smart consumer of research', and 'Conducting research') and each independent variable (i.e. the variables 'Research culture' and 'Research infrastructure'). Our analysis showed that 5.57% of the variance in 'Conducting research' and less than 4% of the variance in 'Able to conduct research', 'Smart consumer of research', and 'Valuing research' was attributed to the organisational (i.e. teacher education) level. Similarly, only 3.78% of the variance in 'Research infrastructure' and 2.43% of the variance in 'Research culture' was attributed to the teacher education institution level. Moreover, all these variances did not differ significantly from 0. This means that they varied only slightly by teacher educator institutions, and our observations can thus be treated as statistically independent (see also Hox, 2010). Hence, teacher educators' responses were not affected by their teacher education institutions.

Further preliminary analyses showed that the demographic variables of gender, educational qualification, age, and highest study degree were not systematically related to the dependent variables (i.e. 'Conducting research', 'Able to conduct research', 'Valuing research', and 'Smart consumer of research') or the

independent variables (i.e. 'Research infrastructure' and 'Research culture') at a .05 significance level. Therefore, in order to facilitate model estimation, we excluded these demographic variables from all further analyses. We tested all hypotheses using structural equation modelling (SEM), utilising the Mplus 7 software package (Muthen and Muthen, 1998-2002). Compared to hierarchical regression analysis, SEM has two main advantages: (1) SEM permits calculation of and correction for measurement error, and (2) measures of fit of the models under study can be provided. The chi-square test assesses the degree of fit between the model and the data. Furthermore, the root mean square error of approximation (RMSEA) was used to assess model fit. Models with RMSEA < .08 indicate an adequate fit between the model and the data (Browne and Cudeck, 1993). In addition, we calculated the Tucker-Lewis index (TLI), with values higher than .90 suggesting acceptable fit, and values close to .95 (for large samples) being suggestive of a good fit (see Hu and Bentler, 1999). As these indices are dependent on sample size, we also inspected the comparative fit index (CFI) (Marsh, Balla, and Hau, 1996); values for this index should be .90 or higher (Hoyle, 1995).

Results

Descriptive statistics

The descriptive statistics and correlations between the investigated variables are presented in Table 3. For 'Conducting research', the mean is rather low (M = 2.04), but has a high standard deviation (SD = 1.24). This implies that respondents reported little active engagement in conducting research into teacher education; however, answers on this scale show substantial variance. For 'Being able to conduct research', respondents perceive themselves as more or less able to conduct research (M = 2.87), though, again, there is a high variance among participants' answers (SD = 1.05). Both 'Valuing research' (M = 2.68) and 'Being a smart consumer of research' (M = 2.74) have rather low to moderate scores, with moderate standard deviations. For 'Research culture', participants perceive the support from colleagues and their direct supervisors as low to moderate (M = 1.95), with moderate discrepancy (SD = .73). For 'Research infrastructure', participants perceive the existing organisational structure, including the availability of funding, resources, and a supportive policy as low (M = 1.25), with moderate differences among participants (SD = .80). All correlations between the variables were significant and positive (see Table 3).

Measurement model

Before testing the relationships in our proposed model (Figure 2), the measurement model was first examined. The measurement model includes six latent factors ('Conducting research', 'Being able to conduct research', 'Valuing research', 'Smart consumer of research', 'Research culture', and 'Research infrastructure') and 32 observed variables (items). An initial test of the measurement model revealed a satisfactory fit for the data (χ^2 (df =496) = 12596.51; *CFI* = .91; *TLI* = .90; *RMSEA* = .050; *SRMR* = .050). All factor loadings for latent variable indicators related to teacher educators' researcherly disposition ('Conducting research', 'Smart consumer of research', 'Valuing research', and 'Able to conduct research') were significant, ranging from .57 to .89. Therefore, the latent factors were represented by all their respective indicators. Three items (one related to 'Research infrastructure', and two to 'Research culture') exhibited low factor loadings, which indicated a low communality with the rest of the scale. These items were excluded from further analysis.

Structural model

To test our hypotheses, SEM was used. The overall model fit assesses the resemblance of the observed input matrix with the one predicted from the proposed model. The overall goodness-of-fit indices show that the research model provides a satisfactory fit to the data (*CFI* = .93; *TLI* = .92; *RMSEA* = 0.048; *SRMR* = 0.047). The χ^2 value of 11845.11 (*df* = 406) was statistically significant at the <0.0001 significance level. Next, individual relationships were evaluated; specified relationships (Figure 2) were statistically tested using the critical ratio (CR). Non-significant (CR) specified relationships were removed one by one, starting with the highest CR value, and analyses were run again. Three relationships were removed: (1) the relationship between 'Research culture' and 'Able to conduct research' (*p* = .85); (2) the relationship between 'Research culture' and 'Conducting research' (*p* = .32); and (3) the relationship between 'Research infrastructure' and 'Smart consumer of research' (*p* = .11). After removing these non-significant relationships, all remaining relationships were supported (Figure 3). The goodness of fit estimates for the final model were *CFI* = .94, *TLI* = .93, *SRMR* = .047, and *RMSEA* = .050, with a 90% interval of .047 and .053, indicating good fit. The χ^2 value of 13688.671 (*df* = 406) is statistically significant at the <0.0001 significance level. Figure 2 presents all β coefficients in our model. All coefficients are significant (p < .05). The total amount of variance of '*Conducting research*' explained by the predictors was R^2 = .690 (*SD* = .025). Overall, our hypotheses were confirmed and were further refined based on our findings.

Research question 1 (H1a and H1b)

The first research question investigates the different dimensions of teacher educators' researcherly disposition and their underlying relationships. In this respect, the first hypothesis (H1a) was confirmed: all dimensions of teacher educators' researcherly disposition (operationalised as 'Smart consumer of research', 'Valuing research', and 'Able to conduct research') are positively related to each other (with significant correlations between .30 and .44). The second hypothesis related to this research question (H1b) investigates the positive influence of the cognitive and affective dimensions on the behavioural dimension of teacher educators' researcherly disposition. This hypothesis was also confirmed. Positive relationships were found between the extent to which a teacher educator (1) is able to conduct research (β = .506, *SE* = .038, *p* = .000), (2) values research (β = .265, *SE* = .037, *p* = .000), (3) uses existing research (β = .190, *SE* = .037, *p* = .000), and conducts research into teacher education.

Research question 2 (H2a and H2b)

The second research question investigates the relationship between the perceived research culture, the perceived research infrastructure, and teacher educators' researcherly disposition. With regard to the perceived research culture (H2a), two relationships were significant. In this respect, positive relationships were found between the extent to which a teacher educator (1) values research into teacher education (β = .135, *SE* = .081, *p* = .022) and (2) uses existing research in their teaching practice (β = .136, *SE* = .081, *p* = .022), on one hand, and the perceived research culture in their teacher education institution, on the other. Concerning the perceived research infrastructure (H2b), three positive relationships were confirmed. The following relationships were significant: the extent to which a teacher educator (1) conducts research into teacher education (β = .100, *SE* = .081, *p* = .022), (2) perceives him/herself able to conduct research (β = .184, *SE* = .081, *p* = .022), (3) values research into teacher education (β = .123, *SE* = .044, *p* = .002), on one hand, and the perceived research infrastructure in their teacher education institution, on the other.

To refine these analyses further and to establish possible mediations, bootstrapping procedures were used (Hayes, 2013). Next to conventional tests of significance (Table 3), unstandardised indirect effects were computed for each of 1000 samples, and thereafter the 95% interval was computed (see Table 4) (see McKinnon, 2008).

Table 2. Means, standard deviations, range, reliability coefficients (Chronbach's alpha *italicised* on the diagonal), and correlations between the model variables (n=944)

	M	SD	Range	1	2	3	4	5	6
1. Able to conduct research	2.87	1.05	0 – 5	.82					
2. Conducting research	2.04	1.24	0 – 5	.63**	.89				
3. Smart consumer of research	2.68	.91	0 – 5	.41**	.51**	.89			
4. Valuing research	2.74	.95	0 – 5	.43**	.39**	.39**	.86		
5. Research culture	1.95	.73	0 – 4	.07*	.19**	.14**	.17**	.81	
6. Research infrastructure	1.25	.80	0 – 4	.16**	.16**	.08**	.39**	.47**	.75

** Correlation is significant at the .01 level (2-tailed); * Correlation is significant at the .05 level (2-tailed)
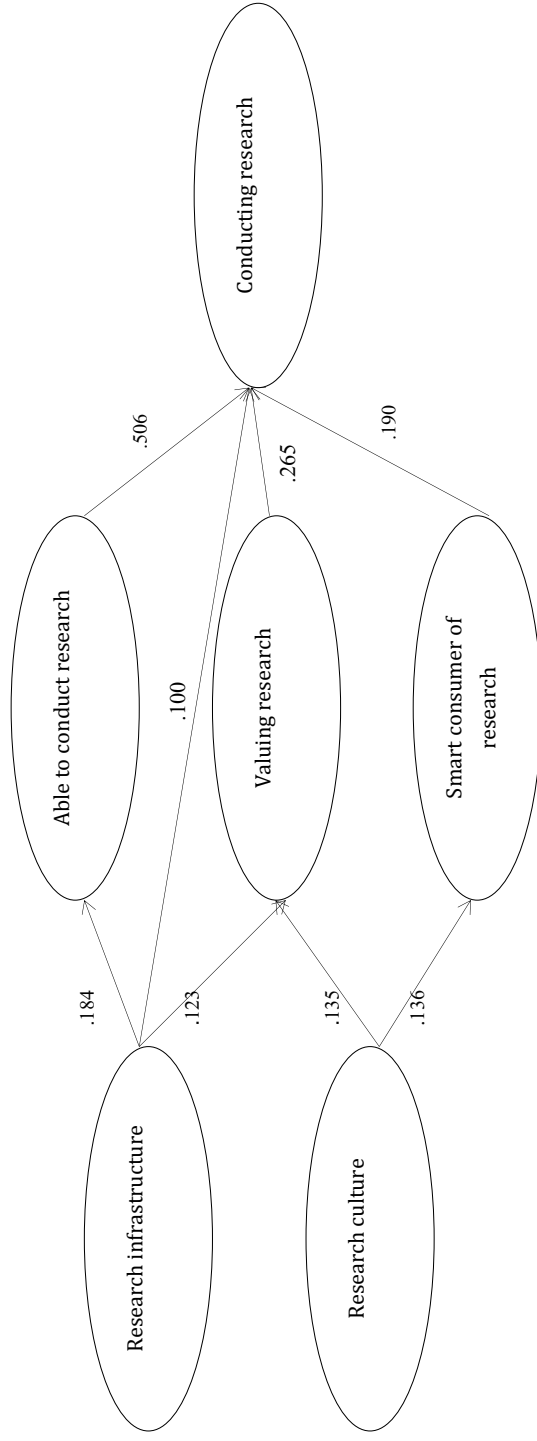
Figure 3. The final model that represents (1) the significant relationships between the different aspects of teacher educators' researcherly disposition and (2) the relationships between the perceived research infrastructure, research, culture and teacher educators' researcherly disposition

Note. All displayed relations are significant at p < 0.05. Correlations between '*Able to conduct research*', '*Smart consumer of research*', and '*Valuing research*' were also significant and vary between .30 and .44.

First, indirect relationship(s) between 'Research infrastructure' and 'Conducting research' were found. Indeed, the relation between the independent variable 'Research infrastructure' and the outcome variable 'Conducting research' is mediated by (1) 'Able to conduct research' ($\beta = .093$, $SE = .024$, $p = .000$) and (2) 'Valuing research' ($\beta = .033$, $SE = .014$, $p = .002$). However, the direct relationship between 'Research infrastructure' and 'Conducting research' remains significant when taking into account the indirect effect of 'Able to conduct research' and 'Valuing research' ($\beta = .0100$, $SE = .031$, $p = .002$). This indicates that 'Able to conduct research' and 'Valuing research' only partially mediate the relationship between 'Research infrastructure' and 'Conducting research'. Second, and in connection with the indirect relationship(s) between 'Research culture' and 'Conducting research', two significant indirect relationships were found: the relation between the independent variable 'Research culture' and the outcome variable 'Conducting research' is mediated by (1) 'Valuing research' ($\beta = .036$, $SE = .015$, $p = .02$) and (2) 'Smart consumer of research' ($\beta = .026$, $SE = .011$, $p = .02$). The direct relationship between 'Research culture' and 'Conducting research' remains non-significant when taking into account the indirect effect of 'Smart consumer of research' and 'Valuing research' ($\beta = .047$, $SE = .033$, $p = .002$), which indicates mediation. Indirect relationships between (1) 'Research infrastructure' and 'Conducting research' through 'Smart consumer of research', and between (2) 'Research culture' and 'Conducting research' through 'Able to conduct research', were found to be non-significant.

Table 3. Significance tests of the indirect (bootstrap) effects of the independent variables

Independent	Mediator	β	95% Confidence interval	
			Lower limit	**Upper limit**
	Valuing research	.033*	.008	.061
	Able to conduct research	.093*	.043	.139
	Smart consumer of research	.026	-.011	.024
	Valuing research	.036*	.023	.155
	Able to conduct research	-.005	-.116	.109
	Smart consumer of research	.026*	.018	.170

Discussion

In both research literature (Lunenberg et al., 2014; Loughran, 2014; Smith, 2015; Willemse et al., 2016) and policy documents (Department for Education and Skills, 2013), it is often stressed that the development of one's role as a researcher is an inherent aspect of teacher educators' job responsibility. Teacher educators should engage in research to better understand and improve their own practice, and to (further) develop the knowledge base on teacher education (Cochran-Smith, 2005). In this respect, developing a researcherly disposition—or a habit of mind to engage in research (Tack and Vanderlinde, 2014) —is often promoted (Tack and Vanderlinde, 2014; Cochran-Smith and Lytle, 2009; Vanassche, 2014). However, there has been less discussion on how teacher educators are empowered to develop this researcherly disposition, or indeed on the way they perceive the support provided in their work settings (i.e. in terms of research culture and research infrastructure) in relation to developing this researcher role (Smith, 2015; Willemse et al., 2016). It can be speculated that the extent to which teacher educators perceive their institutions as prioritising research (characterised by a strong research culture and research infrastructure) will have an impact on the development of teacher educators' researcherly disposition (Davies and Salisbury, 2008; Lunenberg et al., 2014; Willemse and Boei, 2013). This study empirically explored the role of teacher educators' perceptions of the existing research culture and the research infrastructure as main determinants for the development of their researcherly disposition. Up until this study, these relations had not been investigated in large-scale quantitative studies (Lunenberg et al., 2014). Our study had a specific focus on teacher educators based in teaching-intensive institutions – representing the largest group of teacher educators (European Commission, 2013) – whose main responsibility is the education of future teachers. Since teaching-intensive institutions do not have strong research traditions, research is often considered as a rather new, difficult, and challenging task requirement (Gilroy and McNamara, 2009).

Implications for teacher education practice and policy

Overall, teacher educators have rather low scores on the different scales assessing their self-reported researcherly disposition; they perceive the existing research culture as rather low, and rate the research infrastructure in their institutions as virtually non-existent (Lunenberg et al., 2014; Willemse and Boei, 2013; Willemse et al., 2016). The way they perceive the existing research infrastructure is related to the extent to which they report that they (1) value research, (2) perceive

themselves able to conduct research, and (3) conduct research into their teacher education practice. Similarly, the way they perceive the existing research culture is particularly related to the extent to which (1) they value research and (2) use existing research to inform their practice. If our ultimate aim is for teacher educators to conduct research into their daily practice, change will be needed at both the individual level (i.e. teacher educators' researcherly disposition) and the work context level (i.e. research culture and research infrastructure). Moreover, it seems that changes at the individual level are dependent on changes at the work context level. Vice versa, our results also seem to suggest that it is useful to invest in the research culture of a teacher education institution only if teacher educators are also willing to engage in research, assess themselves as able to conduct research, and recognise those situations in which they can conduct research. In this respect, questions are raised about the kind of support that is needed (Murray et al., 2009b; Willemse et al., 2016). For example, if teacher education institutions endeavor to facilitate teacher educators' engagement in research, it is important that teacher educators perceive a positive research culture, characterised by support for their research activities from both their colleagues and their direct supervisors. Moreover, as long as teacher educators need to engage in research over and above full-time teaching requirements, and are denied structural resources to engage in research, it will be difficult to stimulate the (further) development of their researcherly disposition. Only a fundamental restructuring of these contexts is likely to resolve the current situation. Such re-organisation should at least be facilitated by policy-makers, and it is necessary to take long-term perspectives in this regard. In the UK and the Netherlands, the current situation is quite similar to that of Flanders, being characterised by relatively low resources for research in teaching-intensive programmes and offering only local small-scale professional development initiatives (e.g. Gilroy and McNamara, 2009; Lunenberg, Zwart, and Korthagen, 2010; Murray et al., 2009b; Willemse et al., 2016). This low governmental attention for research in teaching-intensive institutions is a matter of serious concern, given the pending reforms aimed at transforming Flemish teacher education in the structure of bachelor's and master's degrees. Even though we strongly encourage the eagerness to transform teaching to largely a master's-level profession, the fact that so many teacher educators (through teacher educators' self-reported researcherly disposition) and teacher education institutions (through teacher educators' perceived research culture and research infrastructure) have been recognised as non-research active is an issue of great concern (Gilroy & McNamara, 2009). In this respect, Gilroy and McNamara (2009) warn that "either these master's programmes are to be taught by staff who are

apparently not research-active or, alternatively, they are only to be offered in education departments with a strong research profile." (Gilroy and McNamara, 2009, p.333).

A first important step—in our view—is to reframe, acknowledge, and promote the kind of research activities that 'matter' for professionals who are predominantly active in the education of future teachers (Munn, 2008). In this respect, and next to fundamental research, applied research *on* teacher education, as well as that which is relevant to teacher education (e.g. practitioner research), should also be recognised as imperative by national and international policy-makers, and, should, accordingly receive funding for its research activities (Murray et al., 2009a; 2009b). The significance of research for these teacher educators should indeed be the improvement of teacher education practices based on research, along with the dissemination of research findings to the wider public. Many teaching-intensive institutions retain strong relations with educational practice and schools through the provision of pre-service and in-service support to (student) teachers.

Second, several—often small-scale and local—initiatives (Christie and Menter, 2009; Leitch, 2009; Murray et al., 2009b; Tack and Vanderlinde, 2016b; Tanner and Davies, 2009; Vanassche, 2014; Willemse and Boei, 2013; Willemse et al., 2016) motivate the desire of increasing 'awareness' of the importance of research at both the individual teacher educator level and the work context level. These initiatives all share the notion that teacher educators' active engagement in research is important in improving their own practice and contributing to the knowledge base on teacher education. To facilitate teacher educators' research engagement, these projects are often organised as 'professional learning communities' or 'research communities' (e.g. Ghallagher et al., 2011; Smith, 2015), in which structural—but often limited to the scope of the project—support (e.g. methodological support or access to research journals) is offered (e.g. Borg and Alshumaimeri, 2012; Lunenberg et al., 2014). Moreover, in all of these projects, teacher educators are recognised as autonomous professionals, responsible for their own professional development. Put differently, these projects focus on both the work context level and the individual level, by furnishing a research infrastructure and building research culture, on one hand, while requiring individuals' agency in their own learning, on the other.

Third, to ensure that the above-described projects are not confined with local boundaries, 'ad hoc' and scope-specific attention should be given to strategies enabling these projects to receive a greater degree of formal recognition and

embedment on a policy level. In this respect, Norway makes it a political priority to provide funding for research and development projects in teacher education. An example of this political priority in action is the establishment of the Norwegian Research School in Teacher Education (NAFOL) (Smith, 2015), a partnership between research-intensive universities and teaching-intensive university colleges. This partnership was established to increase quality in teacher education through a purposeful, strong, and long-standing commitment to conduct research relevant to professional practice, within a national network of collaborating institutions (see http://nafol.net). Second, the MOFET Institute, or the Israeli National Intercollegial Center for the Research and Development of Programs in Teacher Education and Teaching in the Colleges, similarly warrants mention. This institute promotes research in teacher education as an essential aspect of teacher educators' professional development, with the aim of expanding the teacher education research knowledge base and improving teaching and teacher education quality (Shagrir, 2010, see http://mofet.macam.ac.il). Beyond being inspiring, these initiatives may generate important opportunities to establish communal and international teacher educator research networks.

Limitations and implications for further research

First, this study investigated individual teacher educators' perceptions of their occupational practice (i.e. the existing research culture and research infrastructure) in relation to their individual development as researchers (i.e. teacher educators' researcherly disposition). In line with the view expressed by Billett (2001), this strategy was chosen because teacher educators' perceptions of their practice represent an important manifestation of that practice. Self-ratings for the predictors and the outcome variables were thus used, and all data were gathered using one method. We reduced the potential risk of common-method bias (Podsakoff et al., 2003) by guaranteeing respondents' anonymity (i.e. variables in the survey could not be linked to the respondents' identity). However, future research should also try to incorporate more objective analyses of the existing research culture and research infrastructure in teacher education institutions. In keeping with our previous argumentation, these objective measures should differ from the measures used in research-intensive teacher education programmes to assess the existing research culture and infrastructure (e.g. the number of tenured staff and number of ICCS-indexed publications). Moreover, in future research, it could also be useful to assess teacher educators' actual engagement in research in their daily practices.

Second, the teacher education institution was used as the level of analysis in order to test the hierarchical nature of our data. However, future research should possibly consider the immediate work setting, especially the 'micro' communities of practice in which teacher educators do (or do not) participate in research activities (Swennen, Volman, and Jones, 2010). This will also require other data analysis strategies. In this respect, social networking analysis could be applied to first investigate the relations valued most highly by teacher educators.

Third, the results are entirely based on a sample of teacher educators working in teaching-intensive programmes. Further research could explore the extent to which our findings can be generalised to other groups of teacher educators (e.g. teacher educators working in research-intensive universities and school-based teacher educators) as well as to other countries (Livingston, 2014). Fourth, all relationships are correlational, as all factors are measured at one moment in time. Plainly, no causality can be claimed and we cannot exclude the possibility of reciprocal or inverse relationships between certain variables. Further, and consequently, additional longitudinal research is required to form conclusions as to the directions of the model relationships.

Conclusion

The calls for teacher educators' engagement in research as an integral part of their daily practice are demanding, and will certainly continue to be. If we aim to (further) support teacher educators' researcherly disposition in teaching-intensive institutions, changes in the work context need to be implemented. In this respect, teacher educators' perceptions of both the existing research culture and the research infrastructure are strongly related to developing one's researcherly disposition. To put it differently, if we aim to support teacher educators' further development in their role as researchers, the interplay between teacher educators' individual development and their institutional setting must be considered.

Appendix A: Example of TERDS with instructions (English)

In this survey research is defined as 'the systematic investigation into and study of materials and sources in order to develop (1) knowledge, new theories or answer questions occurring from (2) practice or (3) policy'. Research conducted by teacher educators can be practitioner research, practice-based research, research and development projects, policy-related research and fundamental research.

Teacher educators' researcherly disposition

Answer each of the statements.

---	--	-	+	++	+++
Totally disagree	Disagree	Rather disagree	Rather agree	Agree	Totally agree

	As a teacher educator...	---	--	-	+	++	+++
1	I have enough methodological knowledge to autonomously go through a research cycle (e.g., ask a research question, gather data, analyse and report data, etc.)						
2	My teaching is informed by research						
3	Research is essential for the teacher education profession						
4	I am inclined to use research literature to solve problems in my teaching practice						
5	I conduct research to improve my own practice						
6	Teacher educators have a responsibility towards their students to study their own practice						
7	I often read research literature in educational journals						
8	I am capable of presenting and sharing my own research results with other teacher educators (e.g., at conferences and in journals)						
9	I am someone who is capable of conducting research						
10	I am familiar with recent research literature concerning the education of future teachers						

11	I am able to show students the influence of research literature on my teaching practice
12	A teacher educator who does not recognise his/her role as a researcher is not a good teacher educator
13	I systematically improve my own practice based on research literature
14	Teacher educators' role as a researcher has to be one of the most important ones.
15	Every teacher educator should regularly conduct research to improve their practice
16	I conduct research in order to develop knowledge relevant to other teacher educators
17	I do not know how to fulfil my role as a teacher educator-researcher
18	I have experience with conducting research as a teacher educator
19	Teacher educators should conduct research to contribute to the wider knowledge on teacher education
20	I present at conferences and seminars to share my own research results

Perceptions of the research culture (item 1-7) & the research infrastructure (item 8-12)

Answer each of the statements.

--	-	-/+	+	++
Disagree	Disagree		Agree	Totally agree

	At our teacher education program...	--	-	-/+	+	++
1	Research initiatives of teacher educators are appreciated by colleagues					
2	It is obvious that teacher educators perform research					
3	The importance of research for teacher education is recognized					
4	Results of (own) research are used to discuss teacher education					
5	There is a shared vision on conducting research					
6	Our supervisor stimulates me to disseminate the results of my research with the teacher education program (by means of posters, presentations, leaflets, and so on)					
7	Our supervisor shows interest in my research					
8	There is time available for me to conduct research activities					
9	There is a budget available for me to conduct research activities					
10	There is a physical room available for conducting research activities					
11	I have access to 'resources' (such as research literature, journals) for conducting research					
12	There are expert teacher educator-researchers to supervise me with learning to conduct research					

Appendix B: Voorbeeld van TERDS (Nederlandstalig)

Onderzoek wordt in deze vragenlijst gedefinieerd als een gefundeerd zoekproces waar op een systematische en intentionele wijze gegevens worden verzameld, gebruikt en geanalyseerd, met als doel kennis te ontwikkelen. Onderzoek kan primair gericht zijn op het ontwikkelen van nieuwe theorieën of primair tot doel hebben een antwoord te bieden op vragen uit de (eigen) praktijk of het onderwijsbeleid. Onderzoek wordt in deze vragenlijst dus op een brede doch strikte manier geïnterpreteerd, waaronder verschillende vormen van onderzoek een plaats kunnen krijgen. Hierbij denken we bijvoorbeeld aan praktijkonderzoek, waar op systematische manier de eigen professionele praktijk onderzocht wordt met als doelstelling enerzijds deze te verbeteren en anderzijds kennis te ontwikkelen relevant voor collega's. Andere mogelijke vormen van onderzoek zijn praktijkgericht onderzoek, onderzoek in kader van Onderzoek & Dienstverlening, beleidsrelevant onderzoek en onderzoek met oog op theorieontwikkeling.

Onderstaande stellingen hebben betrekking op uw positie ten aanzien van onderzoek. Gelieve bij elke stelling aan te geven in welke mate ze van u voor u van toepassing is door het meest passende antwoord aan te duiden.

0	1	2	3	4	5
Helemaal oneens	Oneens	Meer oneens dan eens	Meer eens dan oneens	Eens	Helemaal eens

		---	--	-	+	++	+++
1	Ik heb voldoende methodologische kennis om een onderzoekcyclus (onderzoeksvraag stellen, data verzamelen, analyseren en rapporteren, …) te doorlopen.						
2	Mijn lessen zijn geïnformeerd door onderzoek.						
3	Onderzoek is onmisbaar in het beroep van lerarenopleider.						
4	Als er zich een probleem voordoet in mijn praktijk, gijp ik naar onderzoeksliteratuur om op zoek te gaan naar een oplossing.						
5	Ik voer onderzoek uit om mijn eigen praktijk te verbeteren.						
6	Lerarenopleiders hebben ten aanzien van studenten de verantwoordelijkheid om op een onderzoekende manier met de eigen praktijk bezig te zijn.						
7	Ik lees vaak onderzoeksliteratuur in wetenschappelijke tijdschriften.						

8   Ik acht mezelf in staat om eigen onderzoeksresultaten te presenteren en delen met collega-opleiders (vb. op conferenties, in tijdschriften).

9   Ik schat mezelf in als een lerarenopleider die goed onderzoek kan doen.

10   Ik ben op de hoogte van recent wetenschappelijk onderzoek over het opleiden van aanstaande leraren.

11   Ik ben in staat om studenten te tonen hoe mijn onderwijspraktijk beïnvloed is door wetenschappelijk onderzoek.

12   Lerarenopleiders die de rol van 'onderzoeker' niet erkennen zijn geen goede lerarenopleiders.

13   Ik pas mijn praktijk systematisch aan op basis van gepubliceerd onderzoek.

14   De rol 'lerarenopleider als onderzoeker' moet één van de belangrijkste rollen van het functioneren van elke lerarenopleider zijn.

15   Iedere lerarenopleider moet gedurende zijn loopbaan geregeld een onderzoek doen dat relevant is voor de eigen praktijk.

16   Ik voer onderzoek uit om kennis te ontwikkelen relevant voor collega-opleiders.

17   Het is me niet duidelijk hoe ik de rol 'lerarenopleider als onderzoeker' kan invullen.

18   Ik heb ervaring met het uitvoeren van onderzoek om mijn eigen praktijk te verbeteren.

19   Lerarenopleiders moeten aan onderzoek doen om bij te dragen tot een publieke gedeelde kennisbasis over het opleiden van leraren.

20   Ik presenteer op conferenties en studiedagen om onderzoekresultaten te delen.

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5

Understanding the impact of practitioner research on teacher educators' researcherly disposition: A mixed method intervention study

Chapter 5

Understanding the impact of practitioner research on teacher educators' researcherly disposition: A mixed method intervention study

Abstract

A mixed-method study was conducted to explore the impact of a one-year intervention on developing teacher educators' researcherly disposition. Developing teacher educators' researcherly disposition is perceived as a key aspect of teacher educators' professional development. During the intervention, 25 Flemish teacher educators conducted practitioner research in professional learning communities. Next to showing a positive impact on the development of teacher educators' researcherly disposition, our findings indicate a broader view on teacher educators' roles by acknowledging their role in contributing to the knowledge base about teacher education as well as in preparing future teachers. Results of the follow-up study confirm the success of the intervention. To conclude, suggestions for designing future interventions on practitioner research aiming to support teacher educators' professional development are discussed.

Introduction

The American Association of Teacher Educators (ATE, 2008, p. 5) broadly defines teacher educators as "anyone who educates teachers". This definition is not limited to professionals in higher education who focus on course work, didactics, and pedagogy but involves all professionals responsible for the instruction and the supervision of future teachers and mentors responsible for the support of teachers and all other professionals involved in the professional preparation and support of (student) teachers (ATE, 2008; Shagrir, 2010). Teacher educators are, thus, a heterogeneous group of professionals and role models for (student) teachers (Lunenberg, Korthagen, & Swennen, 2007). In addition to their important role in teacher education, teacher educators play a vital role in developing the body of knowledge on teacher education (i.e., the theoretical underpinnings of teacher education: psychology, sociology, educational sciences, pedagogy and didactics, and the theory of practical work) (Shagrir, 2010; Smith, 2003). Hence, Cochran-Smith (2003) stress on the need to pay more attention to teacher educators' expertise and to how they can be supported to address the increasing demands of supporting teachers for teaching.

Most teacher education systems around the world do not oblige any special training, induction program, or qualification (Murray, 2008; Goodwin et al., 2014). In this respect, teacher educators significantly contrast, as an occupational group from all other existing occupational groups, in which the practitioner needs to undergo extensive training, engage in professional development activities, be informed of the knowledge base in its particular expertise, and contribute to its further development (Shagrir, 2010). In many countries, teacher educators are not even required to have a teaching certificate, have any teaching experience, or obtain an academic degree (European Commission, 2013). It may be clear that this general lack of preparation courses, induction programs, and further professional development trajectories, raises significant questions about teacher educators' quality and professional development in both research literature (Lunenberg, Dengerink, & Korthagen, 2014) and policy documents (Cochran-Smith & Zeichner, 2005; European Commission, 2013; Roth & Swail, 2000). Professional development initiatives for teacher educators are limited and often characterized by general on-off workshops with little long-term impact and with a limited focus on teacher educators' own practices (Tack, Valcke, Rots, Struyven, & Vanderlinde, accepted; Berry, 2007; Loughran, 2014). Furthermore, given the general lack of a clear policy on teacher educators' professional development, teacher educators'

professional development mostly remains ad-hoc and depends on chance and goodwill, both from the individual teacher educator and teacher education institution (Tack et al., accepted; Goodwin et al., 2014). Given the current situation, some promising local initiatives have recently been introduced, focusing on teacher educators' professional development—often initiated by teacher educators themselves—in Israel (Shagrir, 2010), England (Harrison & McKeon, 2008; Murray, 2008; Murray et al., 2009a; Murray et al., 2009b), the Netherlands (Koster, Dengerink, Korthagen & Lunenberg, 2008), Norway (Smith, 2015), Canada (Gallagher, Griffin, Ciuffetelli Parker, Kitchen, & Figg, 2011), and Belgium (Vanassche, Rust, Conway, Smith, Tack & Vanderlinde, 2015; Tack & Vanderlinde, 2016b; Vanassche & Kelchtermans, 2016). Looking across these initiatives, it seems that teacher educators' professional development needs to be conceptualized as a process of inquiry (Loughran, 2014), an inquiry as stance (Cochran-Smith & Lytle, 2009), the development of a researcherly disposition (Tack & Vanderlinde, 2014; 2016a), or teacher educators becoming active scholars (Vanassche, 2015). However, intervention research that focuses on relations between these promising initiatives and learning processes and outcomes in the longer term, is still lacking (Lunenberg et al., 2014, p. 75). In general, professional development studies in higher education (Lawless & Pellegrino, 2007; Rienties, Brouwer & Lygo-Baker, 2013; Stes, Min-Leliveld, Gijbels, & Van Petegem, 2010) yearn for stronger research on the effects of professional development. Further, Rienties and colleagues (2013, p. 122) urge that we need "to move the focus of research on professional development from mere learning satisfaction of a particular training program to an understanding of whether professionals actually learnt something that was relevant, valuable and applicable to their daily practice."

In this article, this gap is addressed by applying a mixed-method advanced intervention research design to investigate the impact of a practitioner research intervention on teacher educators' researcherly disposition. Teacher educators' researcherly disposition is used to enhance understanding about teacher educators' professional development (Tack & Vanderlinde, 2014; 2016a).

Theoretical framework

Teacher educators' professional development

Teacher educators' professional development attracted attention internationally only since the end of the twentieth century and is now acknowledged in both the research (e.g., Lunenberg et al., 2014) and policy literature (e.g., Cochran-Smith & Zeichner, 2005). In this respect, limited knowledge is available about the nature of teacher educators' professional development (Smith, 2015). Improving the quality of teacher education requires a thorough understanding of teacher educators' professional development and how it can be usefully conceptualized (Loughran, 2014). In line with Kelchtermans (2013) and Vanassche and colleagues (2015), we argue that a teacher educator's actual practice should be the starting point in conceptualizing teacher educators' professional development. Many studies suggest that teacher educators know and learn about their practice by becoming researchers of their practice (Cochran-Smith, 2005; Loughran, 2014). Loughran (2014) stresses that teacher educators' engagement in research is a vital aspect of a teacher educator's career and describes their learning trajectory as a "research journey" (p.2). He further argues that research should be used to develop knowledge about teacher education, where research is a means to improve teacher educators' knowledge about (future) teachers' learning, their own teaching about teaching practice, and teacher education as a whole (Loughran, 2014). Similarly, Goodwin and colleagues (2014) stress that teacher educators' need to "examine and inform the pedagogy of teacher educating (as distinct from the pedagogy of teaching), as well as be an active member of the larger school committed to the development and advancement of policies, practices and programs focused on educating teachers" (p.285). Murray and colleagues (2008, p. 42) argue that "good teacher educators will be expert teachers of teachers, as well as scholars involved in the production of different forms of new knowledge in their field." Therefore, developing teacher educators' role as a researcher is considered a crucial factor in the professional development of teacher educators and the improvement of teacher education (Lunenberg et al., 2014).

Taking into account these demands of developing one's researcher-role as a teacher educator, several authors have started to conceptualize teacher educators' professional development as developing an "inquiry as stance" (Cochran-Smith, 2005), an "inquiring habit of mind" (Bruggink & Harinck, 2012), "an investigative attitude" (Vanassche, 2014), or a "researcherly disposition" (Tack & Vanderlinde, 2014). Tack and Vanderlinde (2014) defines teacher educators' researcherly

disposition as "teacher educators' habit of mind to engage with research—as both consumers and producers of research—to improve their practice and contribute to the knowledge base on teacher education" (Tack & Vanderlinde, 2014, p.301). An explanation of its three inter-related dimensions further specifies this definition (p.301):

(1) An affective dimension referring to the extent to which teacher educators believe in the need of a research-oriented approach towards their daily practices and, as such, recognizes their role as researchers,

(2) A cognitive dimension referring to a teacher educators' actual ability to conduct research and contribute to the knowledge base on teacher education, and

(3) A behavioral dimension referring to teacher educators' alertness to research opportunities in their daily practices.

Practitioner research—a promising strategy?

Practitioner research is often promoted as a strategy to support teacher educators' professional development (Cochran-Smith & Lytle, 2009; Dinkelman, 2003; Gallagher et al., 2011; Loughran & Berry, 2005). Practitioner research is the intentional and systematic study of one's professional practice (1) to improve one's own practice and knowledge about teacher education and (2) to contribute to the broader knowledge base on teacher education (Cochran-Smith & Lytle, 2009; Loughran, 2011). Practitioner research focuses on both the improvement of professionals' individual practices and the development of public knowledge in a particular field; i.e., teacher education (Loughran, 2014). Despite its promising character, teacher educators' engagement in (practitioner) research is not an evidently present aspect of every teacher educator's practice (Lunenberg et al., 2014). Instead, most often find it hard to identify themselves as someone with a research role (Jaruszewicz & Landrus, 2005) and tend to prioritize contact with students over conducting research (Griffiths, Thompson, & Hryniewicz, 2010). Moreover, conducting systematic research into one's own practice is a rather new task responsibility for most teacher educators in Europe (Tack & Vanderlinde, 2016a; Lunenberg, Zwart, & Korthagen, 2010; Murray & Male, 2005). Furthermore, teacher educators who perceive themselves as having a researcher role, largely vary in their perceptions of this role. Some think teacher educator-researchers need to read published research in academic journals while others believe it is about conducting research into their own practice or sharing results in

professional journals and/or conferences (Lunenberg et al., 2014). Additionally, several studies (Gemmell, Griffiths, & Kibble, 2010; Griffiths et al., 2010; Jaruszewicz & Landrus, 2005) have highlighted that a lack of time, support, and information tends to limit research into one's own practice. Some authors (Gemmell et al., 2010; Houston, Ross, Robinson, & Malcolm, 2010) add that—usually—a research culture is absent within teacher education institutions.

Given the abovementioned obstacles and struggles, several authors (Lunenberg et al., 2014) stress that teacher educators' practitioner research needs to be supported by a professional learning community. Cochran-Smith and Lytle (2009) further explain that conducting practitioner research in professional learning communities is about the following:

> "Practitioners pose problems of practice that require studying their own students, classrooms, schools, programs, colleges, universities and communities. They collect intentionally and examine systematically a wide range of data sources including but not limited to student work. They work collaboratively to construct and reconstruct subject matter and curriculum, to examine critically content standards and the assessments and rubrics that accompany them, to act as critically conscious readers and consumers of materials and programs, and to develop ecologically valid approaches to identifying and interpreting a range of significant educational outcomes." (Cochran-Smith & Lytle, 2009, p. 141)

According to them, practitioner research should be preferably conducted in professional learning communities because both concepts share five important common features that focus on the improvement of teacher education (Cochran-Smith & Lytle, 2009, p. 52). Specifically, they view research as a central way to (p. 52):

1) understand and improve teaching and teacher education;
2) transform practitioners' practice from a private activity into a local activity, with many of its aspects visible and thus open to discussion and critique by others;
3) involve communities of new and experienced practitioners working together over time around joint goals;
4) see the cultures of learning institutions as complex webs of norms; expectations; relationships; and layers of history that mediate and shape practitioners' interpretive frameworks, practices, and strategies; and

5) improve the learning experiences and outcomes of (student) teachers and other learners.

Summarized, professional learning communities can enable teacher educators to conduct practitioner research to improve one's own practice in communities where trust is being nurtured and regular coaching, advice, and feedback is provided (Zellermayer & Margolin, 2005). Finally, professional learning communities need to be supported and facilitated by experienced teacher educators (Lin, Wang, Spalding, Klecka, & Odell, 2004; Vanassche & Kelchtermans, 2016). These facilitators, who are often teacher educators with expertise as (practitioner) researchers (Griffiths et al., 2010), should offer emotional support and methodological help and identify resources needed for participants' research activities. This kind of support can take many forms, ranging from taking care of physical and financial resources and the availability of experts to formal and informal acknowledgement (Lunenberg et al., 2010).

Research question

Based upon the theoretical framework and in the context of our intervention, the following research question was formulated: *What is the impact of a practitioner research intervention on the development of teacher educators' researcherly disposition?*

Methodology

Research design

This study fits within an intervention mixed-method framework with an embedded design (Creswell, 2003). This design recurrently links quantitative data collection (primary data collection) to qualitative data collection (secondary data collection) at multiple points (Creswell & Clark, 2010). In this study, qualitative data are integrated before, during, and after the intervention (see Figure 1). Before the intervention, qualitative intake interviews are linked to quantitative pre-tests to better understand the context of the intervention that could influence the outcome and to explain the results after the intervention. During the intervention, qualitative field notes and observations were gathered and analyzed to enhance

understanding about the participants' experience. After the intervention, qualitative exit interviews are linked to quantitative post-tests to evaluate the impact of the intervention on teacher educators' researcherly disposition (Tack & Vanderlinde, 2016a; Creswell & Clark, 2010).
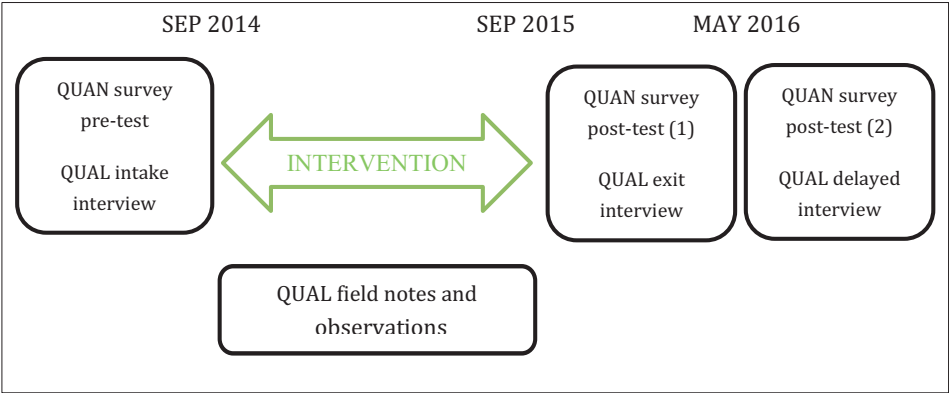

Figure 2. Overview of the mixed-method intervention study

The intervention

The context for this intervention was a project of three teacher-training programs (i.e., a university-based teacher education program, a teaching-intensive program at a higher education college, and a teaching-intensive program at a center for adult education) in Flanders (the Dutch-speaking part of Belgium) (Tack & Vanderlinde, 2016b also provides a detailed overview of the intervention and its design principles). The project covered three academic years from September 2013 to September 2016. The project targeted the development, implementation, and study of an intervention to support institution-based teacher educators' professional development through practitioner research. The development of the intervention was based on earlier interventions in teacher education, i.e., Tack & Vanderlinde (2016b), Lunenberg and colleagues (2010), Murray and colleagues (2009a; 2009b), Rienties and colleagues (2013), Stes and colleagues (2010); Vanassche and Kelchtermans (2016). In particular, the following design principles were used:

- First, and based on the notion that professional development is more meaningful to professionals when they have ownership of its content and process (Borko, 2004; Loughran, 2014; Merchie, Tuytens, Devos &

Vanderlinde, 2016; Tack & Vanderlinde, 2016b; Vanassche, 2014), an intervention was designed that responded to teacher educators' self-identified needs and interests. Therefore, all participants had chosen their own subject of study, linked to their own practice as a teacher educator.

- Second, in line with Cochran-Smith & Lytle (2009), an intervention was designed that allowed teacher educators to work in professional learning communities so as to build on the qualities of the collaborative and collegial relationships in an active, meaningful, and safe learning environment (Borko, 2004). Teacher educators were divided in three groups (each group involving about eight teacher educators). Different from traditional professional learning communities (Stoll, 2006), however, our professional learning communities were organized as inter-institutional ones to allow discussion with peers from different institutions (Lunenberg et al., 2014). Two facilitators (part of the wider project group) assisted each professional learning community—they work as teacher educators and have expertise in conducting and facilitating practitioner research. The facilitators played key roles in providing support to their groups during the intervention, as explained in other publications (Hurtekant & Pauwels, 2016; Merchie et al., 2016).

- Third, the intervention was based on the belief that changing teacher education practices takes time and demands extended and intensive programs (Merchie et al., 2016; Desimone, 2009; Lawless & Pellegrino, 2007; Rienties et al., 2013). Therefore, the intervention was designed to last a full academic year, with enough time and autonomy for teacher educators to learn and work at their own pace, with a contact time of at least 36 hours. The intervention began in September 2014 with individual intake interviews. Next, the teacher educators participated in seven group meetings, per the steps of practitioner research (see Table 1). One year after the intervention started (September 2015), exit interviews were conducted. After successfully passing the module, the participants were handed a certificate as evidence of their professional development engagement (Lunenberg et al., 2010).

Table 1. Overview of the group meetings

Session	Activity	When
1	Orientation: what is practitioner research?	November
2	Problem statement + research questions	December
3	Research plan + research method exploration	January
4	Data collection	March
5	Data analysis	April
6	Conclusion	May
7	Presentation/Sharing	August

- Based on previous evidence (Tack & Vanderlinde, 2016b; Maguire, 2000; Murray et al., 2009a; Murray et al., 2009b; Sikes, 2006), which stresses on the time pressure and limited opportunities for teacher educators to conduct research, a high degree of structure was provided in the intervention (i.e., appropriate scheduling of the group meetings). Attending all meetings was expected, if possible, and the involved Heads of Departments were asked to facilitate the participants' attendance during the meetings.
- In between the meetings, teacher educators could work on their assignments and discuss their practitioner research with other participants in asynchronous discussion forums (Prestridge, 2010; Rienties et al., 2013). These discussion forums were organized in a virtual environment that offered the additional advantage of storeroom and easy access to related research literature and methodological resources (Murray et al., 2009b). This means between the meetings, teacher educators were able to learn from each other, at their own convenience (Rienties et al., 2013). The group meetings were complemented with individual meetings with the facilitators (on- and offline), e-mails, and telephonic conversations. During these one-on-one meetings, support was tailored to the participants' individual needs during the different stages of practitioner research. Activities during these individual meetings included, for example, providing support in the development of an interview guideline or providing support in finding adequate research literature related to the topic or methodology of their study (Vanassche & Kelchtermans, 2016).

Participants

Forty-five institution-based teacher educators who showed interest in participating in the intervention on practitioner research were appointed to the intervention (n = 25) or control condition (n = 20). Teacher educators in the intervention condition participated in 2014–2015 in the intervention on practitioner research to further develop their researcherly disposition. Teacher educators in the control condition (n = 20) continued their current teaching repertoire throughout the period of the study and took part in a delayed intervention, organized immediately after the first post-test (2015–2016). Four teacher educators dropped out from the intervention (owing to time constraints, format of the sessions, and personal affairs) and three teacher educators in the control group did not participate in the post-test and were excluded from further analysis. The final sample consisted of 21 teacher educators in the intervention group and 17 in the control group. The mean age of teacher educators was 35.8 years (SD = 7.6) in the intervention group and 38.6 years (SD = 6.5) in the control group. The participants were asked about their gender, highest educational degree, years' working as a teacher educator, and the teacher education institution they were part of. Moreover, they were asked to indicate whether they had a teaching qualification, earlier teaching experiences, and prior research experience (Table 2). The Chi-square test results showed that the intervention and control groups were similar with regard to gender, educational degree, type of teacher education institution, teaching qualification, earlier teaching experiences, and research experiences.

Data collection

(Primary) Quantitative data collection

This study conceptualized teacher educators' professional development as developing a researcherly disposition (see theoretical framework) (Tack & Vanderlinde, 2014; 2016a). Accordingly, to gain quantitative insight into teacher educators' researcherly disposition, the Teacher Educators' Researcherly Disposition Scale (TERDS) (Tack & Vanderlinde, 2016a) was used before and after the intervention. The TERDS (Tack & Vanderlinde, 2016a) is a 20-item questionnaire that is used to assess teacher educators' self-reported researcherly disposition. The TERDS has four subscales: (1) "Valuing research," (2) "Being a smart consumer of research," (3) "Being able to conduct research," and (4) "Conducting research" (also see Tack & Vanderlinde, 2016a).

Table 2. Descriptive data for the intervention group (n =21) and the control group (n =17)

	Group	
	Intervention [a] (n)	Control [b] (n)
Gender		
Male	2	1
Female	19	16
Highest study degree		
Bachelor	4	2
Master	15	14
Doctoral degree	2	1
Teaching qualification		
Yes	21	16
No	0	1
Teaching experience		
Yes	14	9
No	7	8
Research experience		
Yes	5	5
No	16	12
Type of teacher education institution		
University	1	0
College of Higher Education	12	11
Centre for Adult Education	8	6

[a] Intervention group (n = 21). [b] Control group (n = 17).

Table 3. Overview of the subscales "Able to conduct research," "Conduct research," "Value research," and "Smart consumer of research," including example items; information about the number of items; and alpha coefficients on the pre-test (September 2014), immediate post-test (September 2015), and delayed post-test (May 2016)

	Example item	Items	Alpha Pre-test (Sep 2014)	Alpha Post-test (Sep 2015)	Alpha Post-test (May 2016)
Researcherly disposition					
Able to conduct research	I am capable of presenting and sharing my own research results with other teacher educators (at conferences and in journals).	4	.83	.84	.87
Conduct research	I conduct research in order to develop knowledge relevant to other teacher educators.	4	.89	.87	.86
Value research	Teacher educators have a responsibility towards their students to study their own practice.	6	.91	.87	.88
Smart consumer of research	I often read research literature in educational journals.	6	.86	.84	.81

The first subscale, "Valuing research," assesses the degree to which participants value research-oriented approaches towards their daily practices and recognize their role as researchers (6 items) (Tack & Vanderlinde, 2016a). The second subscale "Being a smart consumer of research" measures the extents to which teacher educators use existing research to inform their own practice (6 items). The third subscale "Being able to conduct research" indicates the degree teacher educators consider themselves capable of conducting research into teacher education (4 items). The fourth subscale "Conducting research" assesses the extent to which participants are actively conducting research into teacher education (4 items). The respondents were asked to specify their agreement with each item on a six-point Likert scale, ranging from strongly disagree = 0 to strongly agree = 5 (Tack & Vanderlinde, 2016a). Table 3 provides an overview of the subscales, including example items, information about the number of items, and alpha coefficients—all indicating good reliability—on the pre-test, immediate post-test, and delayed post-test.

The participants in both groups completed both the surveys held in September 2014 (pre-test) and September 2015 (immediate post-test). Additionally, the intervention group took part in the survey again eight months after the intervention (May 2016) (delayed post-test).

(Secondary) Qualitative data collection

Five qualitative data sources were used to better understand the nature of the participants' experience and to further clarify the results after the intervention was completed: intake interviews, exit interviews, follow-up interviews, field notes and observations during the group sessions, and email conversations between the facilitators and participants.

The questions in the intake interviews (n = 21), exit interviews (n = 21), and follow-up interviews (n = 18) were based on Tack & Vanderlinde (2014) their conceptualization of teacher educators' researcherly disposition. The intake interviews (n = 21) were carried out to understand the teacher educators' background, expertise, and current involvement in research, covering (1) questions related to participants' background characteristics and (2) to their researcherly disposition (Tack & Vanderlinde, 2014). Regarding the latter aspect, the participants were asked (a) to which extent they value their role as a teacher educator-researcher (affective dimension), (b) to which extent they feel able to conduct and assimilate research into teacher education (cognitive dimension), and

(c) to which extent they use and conduct research into teacher education (behavioral dimension) (for more details about the interview protocol and its use, see Tack & Vanderlinde [2014]). The focus of the exit interviews (n = 21) and follow-up interviews (n = 18) was an evaluation of the participants' learning processes during the intervention. Again, questions assessing the affective dimension, cognitive dimension, and behavioral dimension of teacher educators' researcherly disposition were included (see Tack & Vanderlinde, 2014), e.g., "How would you describe your role as a researcher?" and "What is your expertise with research related to teacher education?" During the follow-up interviews, key questions from the exit interviews were repeated and the participants were asked whether they had used their experiences from the intervention after the project, what supported or impeded follow-up, and so on (Tack & Vanderlinde, 2016a; 2016b). To ensure credibility, the first author observed each group session. During these observations, field notes were gathered. The field notes consisted of what Bodgan & Biklen (1992) described as "the written account of what the researcher hears, sees, experiences and thinks in the course of collecting and reflecting on the data in a qualitative study" (p.111). The field notes were both descriptive (i.e., structure of the sessions, number of participants, activities) and interpretative (i.e., the research question and the theoretical framework). Similarly, all email conversations were collected for further analysis.

Data analysis

The process of data analysis included three steps: (1) the (primary) quantitative data analysis, (2) the (secondary) qualitative data analysis, and (3) the mixed-method analysis to determine how and in what way the secondary data support or augment the primary data (Creswell & Clark, 2010). Regarding the internal validity of this study (Creswell & Miller, 2000), each analysis was conducted individually by the two authors. Interpretations were compared, deliberated, and further developed until unanimity was obtained. During a member check, eight participants reviewed both the quantitative and qualitative findings and commented on their accurateness.

(Primary) Quantitative data analysis

The TERDS questionnaire was completed before, immediately after, and eight months after participation in the intervention. All participants who successfully completed the intervention (*n* = 21) filled in the post-test questionnaire. Descriptive statistics were calculated for each subscale to compare the initial

responses in both the intervention (n = 21) and control groups (n = 17). Analysis of Covariance (ANCOVA) was employed to quantitatively analyze the impact of the intervention. The main purpose of ANCOVA was to adjust the post-test means for differences among groups (i.e., intervention and control group) in the pre-test because such differences are likely to occur in natural settings with intact groups (Dimitrov & Rumrill, 2003) (Table 4). Further, partial eta square (η_p^2) served as a measure of effect size (Richardson, 2011), which is considered small at .01, medium at .06, and large at .14.

A delayed post-test, 8 months after participation (May 2016), was completed by 18 teacher educators of the intervention group (response rate: 86%) to explore longer-term effects of the intervention (see Table 5). Teacher educators from the control group could not participate in the delayed post-test as they were already in the process of completing a delayed edition of the intervention at the time of data collection (May 2016). Paired samples t-tests were conducted to determine whether intervention effects were maintained, augmented, or weakened over time (see Table 5). Cohen's d was used to interpret the mean differences between pre- and post-test scores in terms of their size (Cohen, 1977) (Tables 4 and 5).

(Secondary) Qualitative data analysis

With permission from the participants, all interviews, field notes of the observations from the group sessions, and emails between facilitators and participants were available for further data analysis. Interviews were audio-recorded and transliterated before analysis. After reading the transcripts numerous times, all individual transcripts were segmented and coded. Based on individual coding of the transcripts, categories (i.e., affective, cognitive, and behavioral dimensions) were established related to the research question and the (primary) quantitative data.

Linking quantitative and qualitative data analysis results

In the final step, the qualitative findings were linked to the quantitative results to support, contextualize, and enhance the initial results and to provide in-depth information about the impact of the intervention on teacher educators' researcherly disposition (Creswell & Clark, 2010).

Results

Baseline assessment

The participants' first responses (September 2014) on the four dependent measures ("Able to conduct research," "Conduct research," "Value research," and "Smart consumer of research") were subjected to descriptive statistical tests (Table 4; Figure 2). Before the start of the intervention (September 2014), at a cut-off value of 3.0 for the TERDS instrument, 84.2% of the participants reported that they did not conduct research in their practice. Likewise, 52.6% of the participants indicated that the use of existing research to inform their own practice was limited. About 50% of the participants stated that they had limited expertise with regard to conducting research into their own practices, while 53% were rather positive about the extent to which they valued their role as a researcher.

This finding corresponds with the qualitative findings from the intake interviews. All participants volunteered to join the intervention and were motivated to change their current practice based on practitioner research. However, most participants stressed that they had not been actively involved in research into their own practices even though they believed they were able to do so. Time constraints, fully loaded teaching timetables, lack of resources (both financial and methodological), and lack of peer support to conduct research were enumerated as important factors hindering engagement in research. One participant stated, "I am very happy with this opportunity. Even though I have always appreciated practitioner research as a professionalization strategy, I did not have the energy to start on my own."
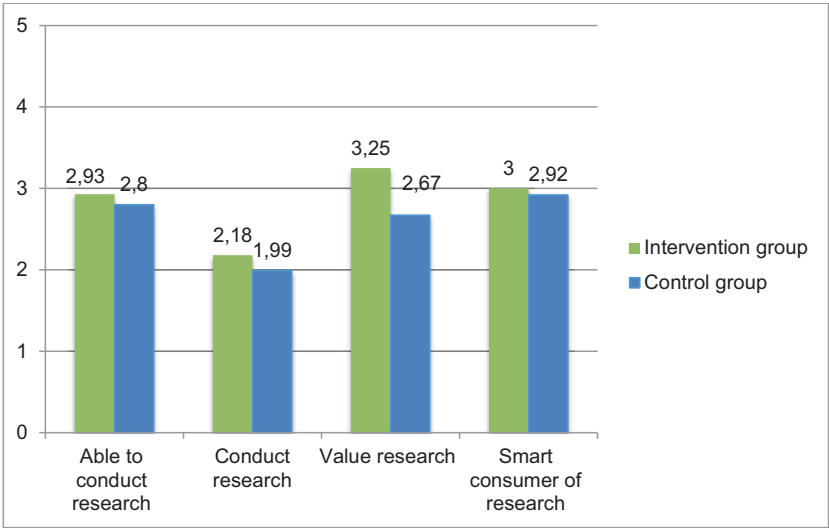
Figure 2. Graphic representation of means on the pre-test for control group (blue) and intervention group (green) on "Able to conduct research," "Conduct research," "Value research," and "Smart consumer of research"

Impact of the intervention on teacher educators' researcherly disposition

To control the influence of participants' perceived understanding before the intervention, ANCOVA was carried out with a covariate of pre-test scores. Assumptions for ANCOVA were met; no statistically significant differences were found at pre-test measurement between the intervention and control groups for "Able to conduct research," "Conduct research," and "Smart consumer of research" at the .05 levels and for "Valuing research" at the .01 level (Table 4). The analysis indicates large positive effects at post-testing in favor of teacher educators' who participated in the intervention regarding "Conducting research," $F (1,37)$ = 14.63, p = .001, η_p^2 = .405. Similarly, large positive effects occurred in favor of teacher educators in the intervention group regarding "Smart consumer of research," $F (1,37)$ = 8.89, p = .005, η_p^2 = .202. The effects on "Able to conduct research" ($F (1,37)$ = .123, p = .728, η_p^2 = .004) and the effects on "Valuing research" revealed no statistically significant results ($F (1,37)$ = .795, p = .379, η_p^2 = .022). Indeed, immediately after the intervention, the participants reported that they conducted significantly more research into their own practice and used significantly more existing research to inform their practice (Figure 3).

The results of the quantitative analysis are also reflected in the qualitative findings, providing additional explanation and in-depth understanding of the perceived changes.

Regarding "Conducting research" ($M_{pretest}$ = 2.18; $M_{posttest}$ = 3.10; $F(1,37)$ = 14.63, p = .001, η_p^2 = .405), most participants (n = 16) mentioned during the exit interviews that, in line with the quantitative results (Table 5), they would be more likely to conduct research in their daily practice. One of the participants stated the following:

> "I am going to continue this practitioner research. I still have to finish a follow-up interview with my students to evaluate the syllabi I have developed during the intervention. If possible, I would be very willing to present my study to other teacher educators who also have an interest in differentiated instruction."

However, most participants (n = 17) also wondered whether it would be possible to engage in research after completion of the intervention. Some participants were afraid that their plans to further conduct research on a regular basis would not culminate into concrete action. One of the participants summarized this concern as follows during the exit-interview:

> "Despite all the plans, I really doubt to which extent it will be possible to further conduct research and present at research conferences once the prolonged structural support diminishes. I cannot guarantee you that within a year, I will have new research plans or activities."

The prolonged structural support refers mainly to the intensive support from the facilitators, the planned meetings, support from colleagues in the professional learning communities, and the assignments linked to the steps of practitioner research. Besides the lack of structural support as a possible barrier to the continuation of practitioner research, the participants also stressed that engagement in research should be a formal part of teacher educators' occupation. In one of the group sessions, a participant stated the following:

> "Our further professional development and engagement in research should be a formal part of our job responsibility. 'Dedicated' research time should be timetabled because this would help me preserve research time and actually give me 'permission' to conduct research."

Table 4. Pretest means, adjusted post-test means, and standard deviations for control group and intervention group and analysis of covariance results of "Able to conduct research," "Conduct research," "Value research," and "Smart consumer of research"

	Pre-test		Post-test			*F*	*p*	η_p^2
	Control group	Intervention group	Control group	Intervention group				
	M (SD)	*M (SD)*	*M adj (SD)*	*M adj (SD)*				
Able to conduct research	2.80 (.74)	2.93 (.91)	2.78 (.52)	2.76 (.73)		.123	.728	.004
Conduct research	1.99 (.80)	2.18 (1.02)	2.09 (.85)	3.10 (.94)		14.63	.001	.405
Value research	2.67 (.66)	3.25 (.79)	2.85 (.73)	3.41 (.66)		.795	.379	.022
Smart consumer of research	2.92 (.99)	3.00 (.88)	2.80 (.91)	3.31 (.74)		8.89	.005	.202

Furthermore, almost all the participants (n = 18) linked their "active role" as a researcher to being a model to their students. One of them stated the following at the exit-interview:

> "It is not only about improving our own practice; it is also about seriously considering our own professional development. But—and that's a thing we cannot forget—it is essential given our role as models to future teachers. If they are expected to set up small-scale research projects in their classrooms, how can we not conduct research into our own practices?"

The participants expect that it will be easier to be a "Smart consumer of research" than to actively conduct research themselves (*M pretest = 3.00; M posttest = 3.31; F (1,37) = 8.89, p = .005, η_p^2 = .202*). Although the effect size was moderate (compared to a large effect size on the subscale "Conducting research"), the participants were unanimously convinced during the exit-interviews that they will continue to read and use scientific research in their work:

> "It already changed my teaching practice during the intervention. My students even noticed. I try to ground my lessons in research literature and provide them references of scientific articles and documents afterwards."

Also, during the group meetings, the participants reported a stronger use of research to inform their practice on a regular basis. For instance, during the second session, one of the participants stated:

> "I read an article about how to motivate large groups of students during the lessons. Even though it is not the subject of my own practitioner research, I became interested in the topic because of the practitioner research of X [who is conducting a practitioner research related to that topic]."

Moreover, the participants often mailed the facilitators for full access to a research article or asked advice on research literature they could read related to their research topic or their research method.

Regarding the aspect of "Valuing research," a slight increase was found after participation in the intervention on the quantitative post-test (*M pretest = 3.25; M posttest = 3.41; F (1,37) = .795, p = .379, η_p^2 = .022*). However, based on the qualitative data analysis, it can be concluded that an important change had taken place during the intervention, concerning the extent to which teacher educators value their role as a teacher educator-researcher. During the intake interviews, most participants believed in the relevance and need for research to underpin teacher education.

During the exit interviews, a mind-shift seemed to occur. When discussing the value of research, most participants inherently referred to the importance of research to improve their own practice as a teacher educator. To illustrate this mind-shift, a participant's responses during the intake and exit interviews are compared below:

> "We live in the 21st century, and teacher education is continuously changing and the demands for future teachers are continuously changing. Research is a useful instrument to keep teacher education up-to-date about these changes." (intake interview)

> "I need to keep abreast of research literature on innovations in teacher education and explicitly study my own decisions in practice, based on the belief that—as a teacher of teachers—I am responsible for the quality of the education of future teachers." (exit interview)

Most participants were convinced of the importance of research, in general, from the beginning of the intervention, but the specific need of research to improve their own practice as a teacher educator only emerged at the end of the intervention. Furthermore, several participants (n = 12) also argued that developing one's role as a researcher is a fundamental aspect for growing into the other roles and related responsibilities as teacher educators (Lunenberg et al., 2014). One of the participants stated the following during the exit-interview:

> "Everything is dependent on the extent to which you fulfill your role as a teacher educator-researcher. We are expected to become gatekeepers, brokers, curriculum developers... According to me, there can be no fulfillment, strengthening, or improvement of any of these roles, if you are not thinking as a teacher educator-researcher. For example, how can you implement curriculum changes, without understanding, based on research, why these changes are important? And for the role of the broker, how can that role exist without developing one's role as a researcher, thinking about disseminating research results to schools...?"

Because of the qualitative data analysis, we were able to understand the slight decrease on the subscale of "Able to conduct research" ($M_{pretest}$ = 2.93; $M_{posttest}$ = 2.76; $F(1,37)$ = .123, p = .728, η_p^2 = .004) after participation in the intervention. Almost all the participants had at least a Master's degree (Table 2), resulting in a Master's thesis upon completion of their study. During the intake interviews, it was apparent that these previous experiences led to increased confidence when

estimating one's own ability to conduct research into teacher education. After the intervention, the teacher educators were more "realistic" when assessing this aspect:

> "I thought it was only a matter of refreshing previously acquired skills and knowledge, but I was wrong. Conducting practitioner research requires specific methodological skills. I have learned how important it is to take time to formulate a good research question. […] I learned about alternative data collection methods I had never heard of before."

Moreover, an analysis of the email-conversations between the participants and facilitators of the project showed that the problems the participants were faced with during the intervention were mostly related to the participants' being able to conduct research. Thus, the questions were, for instance:

- "What will my role be as a researcher during the focus groups I will organize? Which analysis is appropriate?"
- "How many interviews need to be conducted to answer the research question?"

Furthermore, based on the analysis of the observations during the group sessions, the uneasiness of conducting research into teacher educators' own practice was often confirmed:

> "It's like getting out of your comfort zone. I really feel unsure about what I am doing and where I am going to…"

> "I am studying at my own practice and that makes me very vulnerable."

However, during the exit and follow-up interviews, the teacher educators' indicated that these uncertainties disappeared once the research process was completed:

> "Afterwards, when reflecting upon my participation, I saw the bigger picture. And I really believe all different steps are important—even though they are accompanied with doubts and struggles…"

In sum, immediately after participation in the intervention, the participants reported a higher use of research, were more actively involved in conducting research, had a changed and more integrated view on their role as a teacher educator-researcher, and had a more realistic idea about the extent to which they were able to conduct research.

Exploring relative long-term effects of the intervention on teacher educators' researcherly disposition

Eight months after participation (May 2016) a delayed post-test was completed by 18 participants of the intervention group (response rate: 86%) to explore long-term effects of the intervention. The descriptive statistics show that those who participated in the intervention had higher scores on the subscales of "Conduct research," "Value research," and "Smart consumer of research" on both post-tests than on the pre-test (Tables 4 & 5). Moreover, the scores on the subscale "Able to conduct research" decreased on both post-tests. The descriptive statistics show a decrease on the scale "Conduct research" on the delayed post-test, as compared to the immediate post-test, and an increase on the scales "Able to conduct research," "Value research," and "Smart consumer of research." All changes between scores on the immediate (September 2015) and delayed post-test (May 2016) were non-significant (Table 5).

Table 5. Means, standard deviations, t-tests, and effect sizes for intervention group post-test scores (immediate) (n = 18) vs. intervention group post-test scores (delayed) (n = 18) on the scales "Able to conduct research," "Conduct research," "Value research," and "Smart consumer of research"

	Immediate post-test		Delayed post-test		*M* Diff.	*t*	*df*	*p*	*d*
	M	*SD*	*M*	*SD*					
Researcherly disposition									
Able to conduct research	2.79	0.76	2.81	0.70	-.028	.16	17	.872	.437
Conduct research	3.22	0.96	3.04	.79	-.180	-.96	17	.348	-.248
Value research	3.45	0.68	3.53	0.66	.074	.506	17	.620	-.842
Smart consumer of research	3.34	0.73	3.48	0.82	.139	1.30	17	.209	.000

This means eight months after participation in the intervention; the positive intervention effects (i.e., on the subscales "Conduct research" and "Smart consumer of research") were still maintained (Figure 3).

These positive long-term results were also confirmed during the follow-up interviews (n = 18). In this respect, a first visible outcome—related to the subscale "Conducting research" (immediate post-test = 3.22; delayed post-test = 3.04, p = .348; d = -.248)—is that five of the participants already presented their practitioner research at the international conference of the *European Association for Practitioner Research on Improving Learning in Education and Professional Practice* (EAPRIL), at two conferences of the *Dutch/Flemish Association for Teacher Educators* (VELON/VELOV), and at the annual conference of the *Association for Teacher Education in Europe* (ATEE). Others (n = 4) are planning to attend research conferences in the future and are willing to submit their study for publication in professional journals on teacher education (e.g., *Research in Teacher Education*). However, most participants also stressed that it was difficult to continue with practitioner research at the same level of intensity as during the intervention because of the lack of structural support (which was also evidenced by the slight decrease from the immediate post-test scores to the delayed post-test scores in the quantitative part).
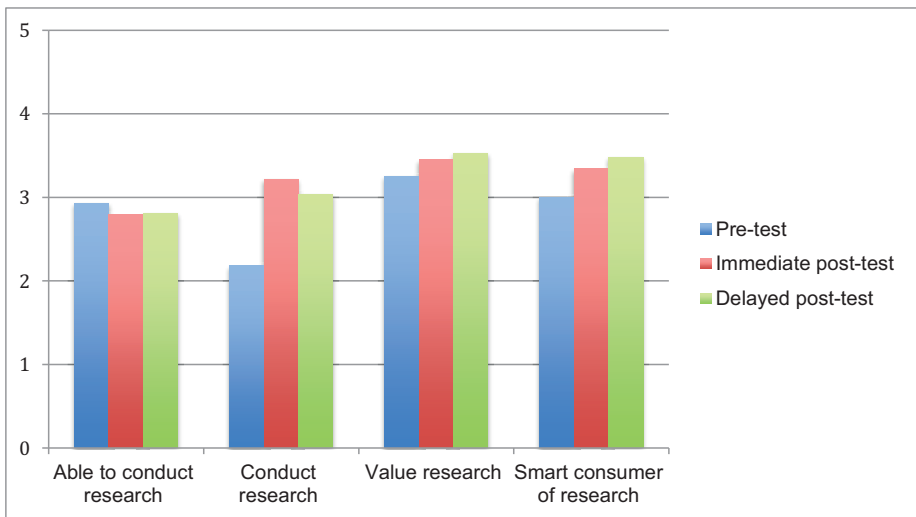

Figure 3. Graphical representation of means for intervention group scores on pre-test, immediate post-test, delayed post-test on the scales "Able to conduct research," "Conduct research," "Value research," and "Smart consumer of research"

One of the participants explained the following during the follow-up interview:

> "Time is already an excuse again to not engage in research. I would really prefer to attend a similar intervention again, even though I already learned how to conduct practitioner research. It is not that I am afraid that I am not able to conduct research on my own… I just need the group meetings, the community, the assignments, the deadlines, and the facilitators. I need structural support. I need—and I think we all do—secured time to engage in research."

Another participant added:

> "What is needed is a train-the-trainer program, to coach teacher educators [who participated in the intervention] and how they can continue the facilitation of practitioner research of their colleagues in their own teacher education institution. I am afraid that once this project's funding to provide structural support ends, all developed expertise and materials will get lost."

In sum, the positive results of the intervention are confirmed eight months after participation (Figure 3). However, the participants stressed the need for prolonged structural support to maintain this positive trend.

Discussion

A mixed-method embedded intervention design was applied to study the influence of a one-year intervention on the development of teacher educators' researcherly disposition. During the intervention, 25 Flemish teacher educators conducted practitioner research in professional learning communities. Even though practitioner research is often described as a promising professional development strategy, most studies on this topic focus on satisfaction (Tack & Vanderlinde, 2016b; Lunenberg et al., 2014; Murray, 2008) or investigate hindering and supporting conditions in facilitating practitioner research (Lunenberg et al., 2014; Vanassche, 2014), rather than addressing its impact. This is—to our knowledge—the first mixed-method intervention study in teacher education that has tried to capture the impact of an intervention on teacher educators' professional development (Lunenberg et al., 2014).

To achieve a holistic understanding of the impact of the intervention on teacher educators' researcherly disposition, both quantitative and qualitative data

collection and analysis strategies were applied, as embedding the qualitative findings substantially enhances the understanding of quantitative results (Bryman, 2007). For instance, the quantitative results confirm that teacher educators' have significantly better scores on the aspect "Conducting research." This significant change could be expected given the specific nature of our intervention. Even eight months after the intervention, the teacher educators' active engagement in research continued, as illustrated by the several presentations at (inter)national conferences and the submissions of research proposals. However, and even though the quantitative positive change was maintained over time (Figure 3), the teacher educators expect this effect to slowly vanish if structural support is lacking.

The lower results on the subscale "Able to conduct research" are explained by a more "realistic" self-assessment of their capabilities to engage in research as a teacher educator. This is in line with the findings of Willemse & Boei (2013) who argue that teacher educators first have to become aware of—what they call—their shortage of skills in research (see also Willemse et al., 2016). However, the authors also stress that this awareness is an important aspect in fostering further professional development (Willemse et al., 2016). A non-significant change on the aspect "Valuing research" could be expected as only those who were attracted to practitioner research participated in the study. However, the qualitative findings revealed that, after the intervention, the participants' value research as (1) an inherent aspect of their practice (compared to valuing research in general before); (2) important for modeling future teachers; and (3) link it to the further improvement of their other roles as a teacher educator (Lunenberg et al., 2014). In this way, the qualitative findings (1) improved our understanding of the quantitative results related to "Able to conduct research," (2) further explained the quantitative results related to "Valuing research", and (3) deepened our understanding by explaining the kind of research activities teacher educators still engage in (both "Conducting research" and "Smart consumers of research").

Data collection continued up to eight months after the intervention (Lunenberg et al., 2014). This long(er)-term perspective made it possible to conclude that a positive change in teacher educators' researcherly disposition did actually take place, and that our results persisted in participants' daily practice after the intervention (Merchie et al., 2016). Hence, the results of this mixed-method study confirm that our intervention is a good strategy to support teacher educators' researcherly disposition, even for the longer term. For future initiatives, it is important to take into account the core design characteristics of our intervention,

which are in line with more general frameworks for evaluating successful teachers' professional development initiatives (Desimone, 2009; Merchie et al., 2016):

(1) *Coherent & evidence-based.* The design of future interventions should be informed by theory and research evidence (Lunenberg et al., 2010; Murray et al., 2009a, 2009b, Rienties et al., 2013; Stes et al., 2010; Tack & Vanderlinde, 2016b; Willemse et al., 2016).

(2) *Content-based.* Future interventions should focus on the improvement of the content of teacher educators' instruction or teacher educators' approach to pedagogy, similar to the focus of all practitioner research' in the intervention (Merchie et al., 2016).

(3) *Ownership.* Future interventions should respond to teacher educators' self-identified needs and interests, i.e., practitioner research into their own practice.

(4) *Extended and intensive programs.* Activities should be spread out during the academic year with a clear exchange of commitment and expectations.

(5) *Collaboration.* Collaboration should be supported with both internal (share practitioner research with colleagues in the own professional learning community) and external peers (share results with colleagues within and outside the teacher education institution).

(6) *Site-based.* Future intervention should focus on tackling problems in teacher educators' own work context and practice. In this respect, practitioner research was conducted to assess and improve one's own practice and knowledge.

(7) *Active learning.* Teacher educators should be active co-creators of knowledge during interventions.

(8) *Trainer quality.* The quality and expertise of the facilitators' feedback and coaching during the intervention was also an important feature of the intervention (face-to-face, online, individual, and during the group meetings) (see Hurtekant & Pauwels, 2016; Tack & Vanderlinde, 2016b, for the facilitators' perspective).

Although these characteristics appear to be important indicators for setting up a good teacher educator intervention, more research is needed on promising interventions. First, self-reported measures of teacher educators' researcherly disposition were used, meaning their responses are possibly influenced by social desirability (Desimone, 2009). Field notes during the observations of the group sessions and analysis of the email conversations were also performed alongside the survey and semi-structured interviews. These additional analyses prevent or

reduce chances of over-reporting (Hintze & Matthews, 2004). Besides assessing changes in self-reported teacher educators' researcherly disposition, future research should investigate changes in their actual practice (Desimone, 2009; Merchie et al., 2016). Moreover, it is recommended to determine improvements in student teachers' results as an outcome measure for teacher educators' engagement in professional development initiatives (Merchie et al., 2016).

Second, only institution-based teacher educators in professional teacher education programs (e.g., at centers for adult education and colleges of higher education) participated in the intervention. These teacher educators are mostly not required to publish work in academic and professional journals (this is very similar to most European countries [Lunenberg et al., 2014]). However, in the contexts of the United States, teacher educators are typically researchers in a certain area, and their job at a university comprises also teaching teachers (Hamilton & Clandinin, 2011; Snoek & Zogla, 2008). Future researchers are encouraged to assess the impact of our intervention in a university context. Furthermore, it would be valuable to assess the impact of the intervention among teacher educators working in other contexts, for instance, mentors in schools.

Third, future research could consider treatment fidelity (Merchie et al., 2016), which refers to the degree to which an intervention is delivered as intended (Ermeling, 2010). In future studies, teacher educators could be asked to complete fidelity forms during the intervention to establish its fidelity. Moreover, group sessions could be coded by means of video analysis to verify whether they were provided productively (Merchie et al., 2016).

Conclusion

The results of this mixed-method study confirm a positive impact of a one-year practitioner research intervention aiming at the (further) support of teacher educators' researcherly disposition. Not only did the intervention contribute to more smart consumers of research, teacher educators are also (more) actively engaged in research. This active engagement leads to improvement of teacher educators' own practice (i.e. syllabi development based on their practitioner research), but also contributes to knowledge development and dissemination to the wider teacher education community (i.e. through conference presentations). Moreover, teacher educators are more realistic when assessing the extent to which they are able to conduct research. Last but not least, the teacher educators value

research as an inherent aspect of their practice, needed to improve their practice for modeling future teachers and their further development in the teacher education profession. Both quantitative and qualitative results confirm the success of this intervention on the longer term. The impact of this intervention cannot be understated. However, if teacher educators are required to be smart consumers and producers of research, this needs to be sustainable throughout their careers, not depending on the existence of ad hoc and local initiatives, e.g., our intervention. Design guidelines were provided for future interventions focusing on teacher educators' professional development.

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6 | General conclusion and discussion

"It is not only about improving our own practice; it is also about seriously considering our own professional development. But—and that's a thing we cannot forget—it is essential given our role as models to future teachers. If they are expected to set up small-scale research projects in their classrooms, how can we not conduct research into our own practices?"

Participant of the intervention

(Tack & Vanderlinde, under review b)

Chapter 6

General conclusion and discussion

Abstract

The research presented in this dissertation focuses on gaining a better understanding of teacher educators' professional development. In particular, the concept 'researcherly disposition' (onderzoekende houding) is introduced as a means to enhance both conceptual and empirical clarity of teacher educators' professional development. Based on existing research in this field, a clear conceptualisation of teacher educators' researcherly disposition was first developed. Afterwards, several empirical studies were conducted to gain further empirical understanding of teacher educators' researcherly disposition. This chapter starts with an overview of the research objectives as presented in the introductory chapter. Afterwards, the main results of the different studies are presented. Building on the results of these individual studies, the final section of this discussion chapter is structured around four themes: (1) teacher educators' professional development as the development of a researcherly disposition, (2) teacher educators' researcherly disposition as a multidimensional construct, (3) developing teacher educators' researcherly disposition is conceived in context, and (4) practitioner research as a promising strategy for teacher educators' professional development. For each theme, a general discussion, limitations and future directions for research, and implications for policy and practice are presented. This chapter concludes with a framework to better understand and, subsequently, support teacher educators' researcherly disposition and their professional development.

Introduction

The main goal of this dissertation was to develop a better understanding of teacher educators' professional development by advancing theoretical and empirical insight into teacher educators' researcherly disposition. To tackle this main goal, four general research objectives **(RO)** were addressed, in four different empirical chapters **(CH)**:

RO1   To develop a theoretical framework on teacher educators'   **CH2**
researcherly disposition based on the available literature and
empirical research in the field

RO2   To construct a self-reported measurement instrument for   **CH3**
evaluating teacher educators' researcherly disposition

RO3   To identify factors that are related to teacher educators'   **CH4**
researcherly disposition

RO4   To advance insight into the impact of a one-year intervention   **CH5**
in practitioner research on teacher educators' researcherly
disposition

Throughout the different chapters in this dissertation, the four research objectives have been tackled from different methodological perspectives. In particular, this dissertation has included a literature review combined with a qualitative study **(CH2)**, two quantitative survey studies **(CH3 & CH4)**, and a mixed-method intervention study **(CH5)**. Thus, some main research challenges in research on teacher educators' professional development were tackled. The first research challenge is related to the lack of conceptual coherence about teacher educators' professional development in general (Loughran, 2014) and teacher educators' role as a 'researcher' in particular (Lunenberg, Dengerink & Korthagen, 2014). The second research challenge refers to the lack of large-scale quantitative studies in teacher education in general (Cochran-Smith & Zeichner, 2005), and teacher educators' professional development in particular (Lunenberg et al., 2014). The third research challenge is related to the lack of intervention studies on the impact of promising professional development initiatives for teacher educators (Lunenberg et al., 2014) (see **CH1**). Figure 1 recapitulates the overview of the different chapters included in this dissertation and their relation with each other (also see **CH1**).

In this final chapter, the main results of the individual studies are first summarised. Building on the results of these individual studies, limitations of the different studies are presented and translated into directions for future research, and implications for policy and practice are outlined. This last section is structured around four themes. The first theme focuses on the understanding of teacher educators' professional development as the development of a researcherly disposition. In the second theme, the multidimensional nature of teacher educators' researcherly disposition is discussed. The third theme focuses on the idea that teacher educators' professional development is always situated in context. The fourth theme focuses on the more general current debate on a formal education programme for teacher educators, and discusses practitioner research as a promising strategy. For each theme, a general discussion, limitations, future research directions and implications are presented. This chapter is concluded with a framework to better understand and, subsequently, support teacher educators' researcherly disposition and their professional development.
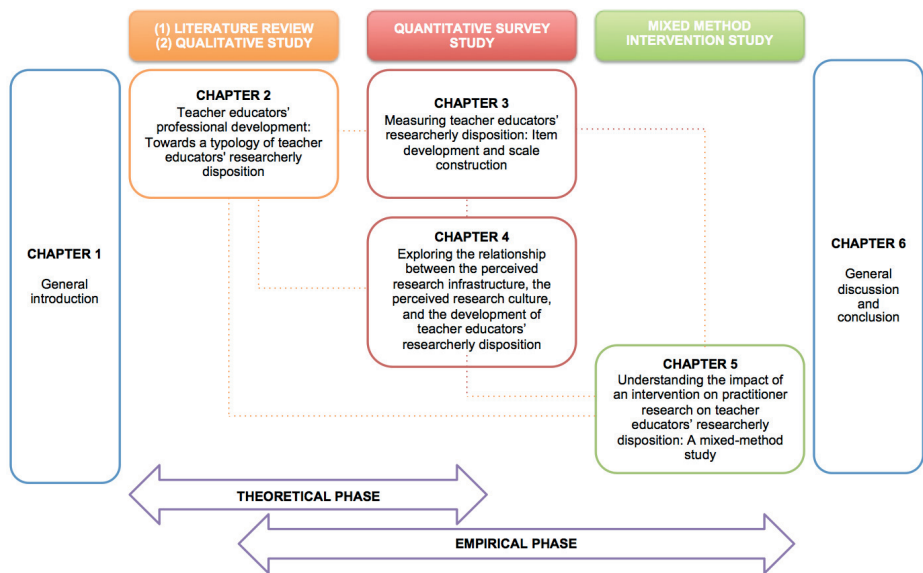

Figure 3. Schematic overview of the dissertation

Overview of the main findings

Theoretical framework on teacher educators' researcherly disposition (RO1)

A first important issue in this dissertation was to help clear the conceptual fog surrounding strongly related terms, such as, for instance, 'inquiry as stance' (Cochran-Smith & Lytle, 2009), 'research journey' (Loughran, 2014), 'researcher's attitude' (Kelchtermans, 2013; Vanassche, 2014), and 'pedagogies of investigation' (Grossman, Hammerness & McDonald, 2009). These very similar terms broadly refer to 'teacher educators' habit of mind to engage in research' (Cochran-Smith & Lytle, 2009) and suggest a meaningful conceptualisation to think about teacher educators' professional development. However, up until now, the existing literature on teacher educators' professional development has not provided a clear and comprehensive understanding on these strongly related concepts, and empirical work on this topic is scarce. Thus, these concepts have become 'hollow buzz words' used frequently and interchangeably in the plea for a stronger focus on teacher educators' role as a researcher in both research literature (e.g. Lunenberg et al., 2014; Vanassche, 2014) and policy debates (e.g. European Commission, 2013).

In line with the first research objective **(RO1)**, the concept 'researcherly disposition' was introduced to enhance theoretical understanding about teacher educators' professional development. The results of this study are reported in **Chapter 2** (also see Tack & Vanderlinde, 2014).

The first part of Chapter 2 focused on developing a better theoretical understanding of teacher educators' researcherly disposition. The existing research literature on teacher educators' professional development (see, for instance, Bates, Swennen & Jones, 2011; Cochran-Smith, 2005; Lunenberg et al., 2014; Loughran, 2014) was first reviewed to understand what a teacher educator's role as a 'researcher' encompasses (or should encompass). Summarised, this role is three-fold: (1) they have to be 'smart' consumers of research, which means that they have to critically use the existing research literature on teacher education to inform their own practice; (2) they have to be producers of research, which means they have to conduct research to inform their own practice and the broader knowledge base on teacher education; and (3) they need to value the importance of a research identity as a teacher educator. Subsequently, Perkins, Jay and Tishman's (1993) theory on 'triad disposition' provides an analytical framework to better understand how these different aspects are related to each other. In sum,

this framework provides an important explanatory basis in shaping how individuals (here: teacher educators) tackle problem-solving activities in their occupational practice (here: teacher educators' work context) (also see Billett, 2008). Combining the concept of 'triad disposition' as developed in the research of Perkins and colleagues (1993) with the central ideas on the teacher educator's role as a 'researcher' (see, for instance, Cochran-Smith, 2003, 2005; Cochran-Smith & Lytle, 2009; Loughran, 2014), 'teacher educators' researcherly disposition' was broadly defined as:

> Teacher educators' habit of mind to engage with research – as both consumers and producers – to improve their own practice and contribute to the knowledge base on teacher education.

Teacher educators' researcherly disposition was further specified with three inter-related but distinct dimensions: (1) an affective dimension, (2) a cognitive dimension and (3) a behavioural dimension. The affective dimension refers to the extent to which a teacher educator values a research-oriented approach towards his/her daily practice and, as such, recognises his/her role as both a consumer and producer of knowledge. The cognitive dimension refers to the extent to which a teacher educator is able to engage in research in his/her daily practice, as both a consumer and a producer of knowledge. The behavioural dimension refers to the extent to which a teacher educator engages in research activities in his/her daily practice, as both a consumer and a producer of knowledge. Compared to previous terms such as, for instance, 'inquiry as stance' (Cochran-Smith & Lytle, 2009) or 'researcher attitude' (Kelchtermans, 2013; Vanassche, 2014), this triad provides a first analytical framework that theoretically explains the different aspects of teacher educators' researcherly disposition.

The second part of Chapter 2 empirically explored our conceptualisation of teacher educators' researcherly disposition by means of qualitative research. In this respect, twenty in-depth interviews with teacher educators were conducted and analysed in order to empirically explore the 'triad concept' and assess possible differences in teacher educators' researcherly disposition. The qualitative analysis revealed a typology with three types of teacher educators: the enquiring teacher educator (Type 1), the well-read teacher educator (Type 2) and the teacher educator-researcher (Type 3). The enquiring teacher educator (Type 1) was described as a teacher educator who clearly recognises and appreciates the teacher educator's role as researcher (affective dimension). The well-read teacher educator (Type 2) was described as a teacher educator who values the role of

researcher (affective dimension), reads research literature from time to time, and has also developed knowledge and understanding of research during (previous) research experiences (cognitive dimension). However, this Type 2 teacher educator does not systematically detect occasions to fulfil this research role in their practice as a teacher educator (behavioural dimension). The teacher educator-researcher (Type 3) was described as a teacher educator who is able to conduct research (cognitive dimension), and conducts research in practice (behavioural dimension) because he/she is convinced that engaging in research is a core aspect of being a 'good' teacher educator (affective dimension). Table 1 summarises the developed typology on teacher educators' researcherly disposition.

Table 2. Typology on teacher educators' researcherly disposition

	Affective	Cognitive	Behavioural
Type 1 'the enquiring teacher educator'	✓		
Type 2 'the well-read teacher educator'	✓	✓	
Type 3 'the teacher educator-researcher'	✓	✓	✓

Tackling the first research objective **(RO1)**, teacher educators' researcherly disposition was conceptualised as a three-dimensional concept with an affective, behavioural and cognitive dimension in **Chapter 2** (also see Tack & Vanderlinde, 2014). Moreover, a typology on teacher educators' researcherly disposition was developed, distinguishing three different types of teacher educators: (1) the 'enquiring teacher educator' (Type 1), (2) the 'well-read teacher educator' (Type 2) and (3) the 'teacher educator-researcher' (Type 3).

Measurement instrument on teacher educators' researcherly disposition (RO2)

A second important issue in this dissertation was related to the current lack of measurement instruments to gain empirical insight on teacher educators' professional development. Up until this dissertation, large-scale empirical studies on teacher educators' professional development were largely absent (Lunenberg et

al., 2014). In this respect, the study presented here represents one of the first large-scale quantitative survey studies on teacher educators' professional development (n = 944). Such studies are not only important to gain empirical understanding about teacher educators' professional development; they also enable research into factors that facilitate or hinder teacher educators' professional development. Moreover, measurement instruments are needed to advance insight into the impact of interventions, also in the longer term.

Based on the theoretical conceptualisation of teacher educators' researcherly disposition reported in **Chapter 2**, the second research objective **(RO2)** focused on the development of a measurement instrument to gain empirical understanding of teacher educators' researcherly disposition. The results of this study are reported in **Chapter 3** (also see Tack & Vanderlinde, 2016a).

The first part of Chapter 3 reports on the development of the 'Teacher Educator Researcherly Disposition Scale' (TERDS), a self-reported measurement instrument to assess teacher educators' researcherly disposition. The results of the exploratory factor analysis (n = 472) suggested a four-dimensional structure to advance empirical understanding of teacher educators' researcherly disposition. In particular, the following four different factors were identified: (1) 'valuing research', (2) 'being a smart consumer of research', (3) 'being able to conduct research' and (4) 'conducting research'. The first factor, 'valuing research' (with six items), refers to the extent to which a teacher educator values his/her role as a teacher educator-researcher. The second scale, 'being a smart consumer of research' (with six items), reflects the degree to which a teacher educator is able to use and uses existing research to inform his/her practice. The third factor, 'being able to conduct research' (with four items), pertains to the extent to which a teacher educator is capable of conducting research into teacher education. The fourth factor, 'conducting research' (with four items), contains items concerning whether or not a teacher educator is actively conducting research into teacher education. The stability of this four-factor structure was confirmed by means of a confirmatory factor analysis (n = 472). Goodness of fit estimates indicated good fit.

In **the second part of Chapter 3**, TERDS was used to empirically explore teacher educators' self-reported researcherly disposition (n = 944) (also see **Chapter 3**). Overall, teacher educators reported low to moderate scores on all subscales of TERDS. In particular, teacher educators reported little active engagement in research and perceived themselves as moderately able to conduct research. Moreover, teacher educators reported a limited use of existing research in their

teacher education practice, and did not strongly value their role as a researcher. However, the variety in teacher educators' answers on these scales suggested differences in teacher educators' researcherly disposition. Considering the existing research literature on teacher educators' professional development (e.g. Lunenberg et al., 2014), differences were hypothesised across subgroups of teacher educators with different backgrounds and experiences and with different professional work contexts. First, tests of measurement invariance (testing for configural, metric and scalar invariance) were performed. These tests investigated whether our instrument measured the same constructs with the same structure across different groups. After successfully establishing full measurement invariance, tests of latent mean differences were performed to make comparisons across these subgroups' scores on TERDS. Related to teacher educators' background and experiences, the following groups of teacher educators were compared with their counterparts: (1) teacher educators with research experience (n = 746) vs. teacher educators without research experience (n = 163); (2) teacher educators with more than three years of service as a teacher educator (n = 699) vs. teacher educators with less than three years of service as a teacher educator (n = 192); and (3) teacher educators with teaching experience in PK-12 education (n = 514) vs. teacher educators without teaching experience in PK-12 education (n = 356). In line with previous small-scale qualitative studies (e.g. Lunenberg et al., 2014), we found that the largest group of teacher educators had no research experience. Compared to their counterparts with research experience, teacher educators without research experience have significantly lower scores on all subscales of TERDS. Moreover, teacher educators with more than three years of service use significantly more existing research literature to inform their practice, compared to beginning teacher educators (with less than three years of service as a teacher educator). Teacher educators without teaching experience in PK-12 education conduct significantly more research into their practice than teacher educators with teaching experience in PK-12 education. Related to their professional work contexts, teacher educators working in colleges of higher education (n = 709) were found to conduct significantly more research than their colleagues working in centres for adult education (n = 190).

Targeting the second research objective **(RO2)**, teacher educators' researcherly disposition was empirically operationalised as a four-dimensional construct in **Chapter 3** (also see Tack & Vanderlinde, 2016a). TERDS was developed as a reliable measurement instrument to assess teacher educators' self-reported researcherly disposition. Four interrelated but distinct subscales were

distinguished: (1) 'valuing research', (2) 'being able to conduct research', (3) 'conducting research' and (4) 'being a smart consumer of research'. Overall, teacher educators have rather low scores on all subscales of TERDS; however, the high variety in teacher educators' scores suggests important differences in teacher educators' researcherly disposition. In this respect, teacher educators' (1) experience with research, (2) years of service as a teacher educator, (3) teaching experience in PK-12 education and (4) type of teacher education institution influence their scores on TERDS.

Factors related to developing teacher educators' researcherly disposition (RO3)

A third important issue in this dissertation was related to gaining insight into contextual factors that possibly influence teacher educators' professional development as well as their professional development opportunities. The idea that teacher educators' work context influences their professional development is not new or ground-breaking (see Vanassche, 2014; Vanassche et al., 2015). However, large-scale empirical research that considers the role of the context on teacher educators' professional development is still absent. Such research is absolutely vital – not only to the research community, but also to teacher educators and teacher education institutions to help them become aware of the influence of organisational and institutional conditions (Kelchtermans, Smith & Vanderlinde, 2017; Lunenberg, Smith, Murray, & Vanderlinde, 2016; Lunenberg et al., 2014; Vanassche, 2014; Vanassche et al., 2015).

The third research objective **(RO3)** in this dissertation aimed to identify factors that are related to teacher educators' researcherly disposition. Results related to this research objective are presented in **Chapter 4** (also see Tack & Vanderlinde, under review a).

The first part of Chapter 4 elaborates on the idea that even though teacher educators' role as a researcher, and accordingly, the development of their researcherly disposition, is often promoted, there has been less discussion on how teacher educators are empowered to develop this researcherly disposition. In particular, how teacher educators perceive the support provided in their work setting in relation to developing this researcher role is still unclear (also see European Commission, 2013; Murray & Male, 2005). Following Billett (2008), we have argued that, if we seek to understand teacher educators' professional

development, their particular teacher education work context also needs to be considered. In particular, it was stressed that the development of teacher educators' researcherly disposition is only likely to be sustained if corresponding development takes place at the workplace level, both in terms of research infrastructure and research culture (Billett, 2008; Davies & Salisbury, 2008). Accordingly, it was hypothesised that the extent to which teacher educators perceive their institutions as prioritising research – in particular through a strong research culture and research infrastructure – will have an impact on teacher educators' researcherly disposition (see for instance, Davies & Salisbury, 2008; Lunenberg et al., 2014; Willemse & Boei, 2013). The aim of **Chapter 4** was to propose a model of the relationship between teacher educators' perceptions of these conditions in their respective teacher institutions, and teacher educators' researcherly disposition. Up until this dissertation, these relations had not been investigated in large-scale quantitative studies. This quantitative study was based on the same dataset as in **Chapter 3**, including 944 institution-based teacher educators working in teaching-intensive teacher education institutions. Since these teaching-intensive institutions do not have strong research traditions, research is often considered as a rather new, difficult and challenging requirement (Gilroy & McNamara, 2009; Murray & Male, 2005).

The second part of Chapter 4 presented the results of a structural equation modelling (SEM). TERDS, with its four subscales, was used to operationalise the dependent variable, i.e. teacher educators' researcherly disposition **(Chapter 3)**. To operationalise the independent variables, i.e. teacher educators' perceptions of the existing research culture and the research infrastructure, two existing scales (Vrijnsen-de Corte, den Brok, Kamp, & Bergen, 2013) were adapted and used. The subscale 'Research culture' was adapted from the 'Questionnaire on Teacher Research' (Vrijnsen-de Corte et al., 2013) and measures teacher educators' perceptions of the collegial support and climate for research in their teacher education institution. The subscale 'Research infrastructure' was also adapted from the 'Questionnaire on Teacher Research' (Vrijnsen-de Corte et al., 2013) and measures teacher educators' perceptions of the existing organisational structure in their teacher education institution for performing research in teacher education. Similar to the overall low to moderate scores on teacher educators' researcherly disposition **(see Chapter 3)**, teacher educators perceive the existing research culture in their teacher education institution, or the perceived support from colleagues and their direct supervisors, as rather low. Moreover, they rate the existing research infrastructure in their teacher education institution (i.e. the

existing organisational structure, including the availability of funding, resources and a supportive policy) as low. This confirms findings from previous qualitative studies that stressed the need to create research cultures and establish research infrastructures in teacher education institutions (see Lunenberg et al., 2014; Willemse & Boei, 2013; Willemse, Boei & Pillen, 2016). However, by applying structural equation modelling (SEM), our findings exceeded previous research by advancing insight into how these different factors are related to each other. In particular, perceptions of the existing research infrastructure are related to the extent to which teacher educators value their role as a researcher, perceive themselves as able to conduct research, and conduct research in their teacher education practice. Similarly, the way teacher educators perceive the existing research culture is also related to the extent to which teacher educators value their role as a researcher. Moreover, teacher educators' perceptions of the existing research culture also influence the extent to which they use existing research to inform their practice. Finally, significant indirect relationships stress the interplay between teacher educators' perceptions of their respective institutional setting and the development of their researcherly disposition.

Focusing on the third research objective **(RO3)**, **Chapter 4** provided insight into the relationships between teacher educators' perceptions of the existing research culture, the existing research infrastructure and teacher educators' researcherly disposition (also see Tack & Vanderlinde, under review a). Similar to the low scores on teacher educators' researcherly disposition, teacher educators perceive the existing research culture and the existing research infrastructure as poor to almost non-existent. Put differently, this study highlights that teacher educators' researcherly disposition should always be situated in, and related to, (perceptions of) infrastructural and cultural conditions for research in the teacher education institution.

The impact of a one-year intervention in practitioner research on teacher educators' researcherly disposition (RO4)

A fourth important issue in this dissertation was related to the current lack of intervention studies that focus on the relationship between professional development initiatives and teacher educators' professional development, also in the longer term. To support teacher educators' professional development,

practitioner research is often described as a promising professional development strategy. However, most studies on teacher educators' professional development initiatives focus on satisfaction (Lunenberg et al., 2014; Merchie, Tuytens, Devos & Vanderlinde, 2016; Murray et al., 2009) or investigate hindering and supporting conditions in facilitating practitioner research (Lunenberg et al., 2014; Vanassche, 2014), rather than addressing its 'impact'. In this respect, high-quality intervention studies that allow us to make conclusions about the usefulness of such initiatives to support teacher educators' professional development are needed.

The fourth research objective **(RO4)** in this dissertation aimed to advance insight into the impact of a one-year intervention in practitioner research designed to support teacher educators' researcherly disposition. This mixed-method intervention study was – to our knowledge – the first study in teacher education that has aimed to capture the impact of an intervention on teacher educators' professional development (Cochran-Smith & Zeichner, 2005; Lunenberg et al., 2014). The results of the mixed-method intervention study are presented in **Chapter 5** (also see Tack & Vanderlinde, under review b).

The first part of Chapter 5 presented the theoretical background and the context of the intervention. This context was a publicly funded collaborative project of three teacher education programmes (one college of higher education, one centre for adult education and one university-based teacher education programme) in Flanders. The aim of the project was to develop, implement and study an evidence-based intervention to support teacher educators' professional development through practitioner research (also see Tack & Vanderlinde, 2016b, 2016c). A mixed-method intervention design was applied to study the impact of the one-year intervention on the development of teacher educators' researcherly disposition. To achieve a holistic understanding of the impact of the intervention on teacher educators' researcherly disposition, both quantitative and qualitative data collection and analysis strategies were applied. TERDS (as presented in **Chapter 3**) was used before, immediately after and eight months after the intervention to quantitatively gain insight into changes of teacher educators' researcherly disposition. To better understand the nature of the participants' experience and to further clarify the results after the intervention was completed, qualitative data were also gathered and analysed. In particular, data from intake interviews, exit interviews, follow-up interviews, field notes and observations during the group sessions, and email conversations between the facilitators and the participants were used. The development of these qualitative instruments was based on our theoretical framework as presented in **Chapter 2**. During the intervention, 25

Flemish teacher educators conducted practitioner research in professional learning communities. The control group (n = 20) continued their current teaching repertoire, and took part in a delayed intervention, organised immediately after the studied intervention. The development of the intervention was based on important design principles of previous interventions in teacher education (see **Chapter 5** for an overview).

The second part of Chapter 5 reports on the results of the mixed-method intervention study. The quantitative analysis (ANCOVA) indicated positive effects at post-testing for teacher educators who participated in the intervention regarding 'conducting research' and 'being a smart consumer of research'. The effects on 'being able to conduct research' and the effects on 'valuing research' revealed no statistically significant results. Eight months after participation in the intervention, the positive intervention effects (i.e. on the subscales 'conducting research' and 'being a smart consumer of research') were still maintained. The positive results of the quantitative analyses were also reflected in the qualitative findings, providing additional explanation and in-depth understanding of the perceived changes. For instance, the qualitative findings showed that, in terms of 'conducting research', teacher educators' motivations to further engage in practitioner research were not only related to improving their understanding of their own practice, but also to their modelling role in relation to their students. This positive finding was also confirmed during the follow-up interviews eight months after participation, and was illustrated, for instance, by some participants' active participation at (inter)national conferences on teacher education. In this respect, the intervention not only contributed to the improvement of teacher educators' practice (i.e. syllabi development), but also aimed to contribute to the knowledge development and dissemination to the wider teacher education community (i.e. through conference presentations). At the same time, however, the participants stressed a clear need for prolonged structural support and that their engagement in practitioner research should be a formal part of their job responsibility in order to maintain this positive trend. Related to 'being a smart consumer of research', teacher educators were convinced that they would continue reading and using existing research. Regarding the aspect 'valuing research', only a slight quantitative increase was found. However, the qualitative findings revealed that, after the intervention, the participants valued research as (1) an inherent aspect of their practice (compared to valuing research in general before) and (2) important for modelling future teachers, and (3) linked to their further improvement in their other roles and responsibilities as a teacher educator.

Finally, the slight quantitative decrease on 'being able to conduct research' relates to a more realistic self-assessment of one's ability to conduct research into teacher education.

Related to the fourth research objective **(RO4)**, a mixed-method intervention design was applied to assess the impact of a one-year intervention in practitioner research on teacher educators' researcherly disposition (also see Tack & Vanderlinde, under review b). Both the quantitative and the qualitative findings of **Chapter 5** confirm the success of our intervention to support teacher educators' researcherly disposition, also in the relative longer term. The participants reported a higher use of research, were more actively involved in conducting research, had a changed and more integrated view on their role as a teacher educator-researcher, and had a more realistic idea about the extent to which they were able to conduct research. Design guidelines were provided for future interventions focusing on teacher educators' professional development (see **Chapter 5** for an overview).

General discussion

In this general discussion, four different themes are presented to better understand and, subsequently, support, teacher educators' professional development. The first theme focuses on the conceptualisation of teacher educators' professional development as the development of a researcherly disposition. In the second theme, it is argued that teacher educators' researcherly disposition is a multidimensional and complex construct. The third theme highlights the contextualised nature of teacher educators' researcherly disposition. The final theme aims to contribute to the wider debate on the need for a more formal education for teacher educators, and considers practitioner research as a promising strategy. For each theme, a general discussion, limitations, future research directions and implications are presented.

Teacher educators' professional development as the development of a researcherly disposition

A first major point of discussion returns to our original research interest and ambition: gaining a better understanding of teacher educators' professional development. Based on the existing field of research on teacher educators' professional development, it was first argued that the distinct nature of teacher educators' work as 'teachers of teachers' should be the starting point in conceptualising professional development (Kelchtermans et al., 2017). As 'teachers of teachers', teacher educators always need to generate a second level of thought about teaching, one that focuses not (just) on the content or subject matter of teaching (the 'what' of teaching), but also on 'how' to teach (cf. 'How I teach IS the message', Russell, 1997) (Berry, 2016; Loughran, 2016). In this respect, teacher educators' work comprises a unique body of knowledge that requires teacher educators to move beyond seeing teaching as solely 'doing', 'telling' and 'sharing tips and tricks' (Berry, 2007; Loughran, 2011). In particular, teacher educators need to be able to use and restructure their existing knowledge, which is often 'tacit' knowledge, in practice based on experiences. They need to be able to articulate this knowledge and how it was developed, so that it can be made clear to themselves, other teacher educators, the public and, most importantly, the students with whom they work (Berry, 2016). This means that teacher educators have to practise what they preach through modelling and making these tacit aspects of practice explicit for student teachers (Loughran & Berry, 2005). Davey argues that, in many ways, teacher educators become 'an embodied amalgam of theory and practice' (Davey, 2013, p.170). A much-advocated way to develop knowledge of the practice, and thus to professionally develop as a teacher educator, is to become a 'researcher' of that practice (Loughran, 2011, 2014; Lunenberg et al., 2014; Vanassche, 2014). As Berry (2016) explains, her engagement in research as a teacher educator was important to 'formalise the experience of being a teacher educator, and in the process has provided a language for articulating personally meaningful knowledge of teaching about teaching that can be shared and renegotiated with others' (p.51). Research, as such, is perceived as an inherent part of developing the teacher educator's core practice as a 'teacher of teachers' (Cochran-Smith, 2005). Teacher educators have to engage in research to improve their knowledge about teaching, increase their understanding about their students' learning, learn about their own teaching and advance insight into teacher education in general (Loughran, 2014). This means that teacher educators' role is neither an exclusive researcher role, nor an exclusive practitioner role, but

an intertwining combination of both (Cochran-Smith, 2005). An interesting example in this regard is the S-STEP (the 'Self-Study of Teacher Education Practices') community. This community represents a group of teacher educators who are engaged in the systematic study of their work as teacher educators, in order to develop their (knowledge of) practice (Cochran-Smith, 2005; Loughran, 2014; Vanassche, 2014). Related to the growing trend of teacher educators' engagement in research to improve their practice, several authors started to approach teacher educators' professional development as an 'inquiry as stance' (Cochran-Smith, 2005; Cochran-Smith & Lytle, 2009), a 'researcher's attitude' (Kelchtermans, 2013; Vanassche, 2014) or a 'research journey' (Loughran, 2014). In attempting more conceptual clarity in these strongly related concepts, this dissertation introduced the concept 'researcherly disposition' to enhance both the theoretical and the empirical understanding of teacher educators' professional development. As such, developing one's researcherly disposition was considered a key factor in teacher educators' professional development. However, a first major point of discussion is whether teacher educators' professional development can be equated with developing a researcherly disposition.

Before drawing conclusions, limitations related to the scope as well as the sample of this dissertation need careful consideration when conceptualising teacher educators' professional development as the development of a researcherly disposition.

Limitations and directions for future research

A first limitation of this dissertation relates to the scope of the studies. Although the decision to focus particularly on the concept 'researcherly disposition' ensured conceptual clarity, it also implies that only limited attention was paid to other aspects of teacher educators' professional development. In this respect, the field of research on teacher educators' professional development is broader, and also focuses on identity building (Davey, 2013; Kelchtermans et al., 2017; Kosnik, Menna, & Dharamshi, 2016; Meijer, 2013; Murray & Male, 2005; Murray, 2016) and taking on different professional roles (Lunenberg et al., 2014).

Considering teacher educators' different backgrounds and work contexts (see **Chapter 1**), Davey (2013) argues in her dissertation - *The professional identity of teacher educators: Career on the cusp?* – that teacher educators' professional development is about the process of '"Belonging" as a teacher educator: their collective identity that which binds them as a professional group, and the affinities

they feel, or do not feel, with other professional communities.' (p.7) Davey's (2013) conceptualisation of teacher educators' professional development as 'belonging' seems to resemble Akkerman and Meijer's (2011, pp.317-318) approach to teachers' identity as 'dialogical' or 'an on-going process of negotiating and interrelating multiple I-positions in such a way that a more or less coherent and consistent sense of self is maintained throughout various participations and self-investments in one's (working) life'. Studying her own practice as a teacher educator, Berry (2007) similarly conceptualised her professional development as an on-going process of negotiation, characterised by six main tensions: 'telling and growth', 'confidence and uncertainty', 'action and intent', 'safety and challenge', 'planning and being responsive' and 'valuing and reconstructing experience'. Likewise, one of the teacher educators that participated in our intervention (**see Chapter 5**; also see Tack & Vanderlinde, 2016c) studied the difference between her previous identity as a PK-12 teacher and her new identity as a teacher educator (see Vyncke, 2016).

Tensions in teacher educators' professional identity are, however, not only related to the process of 'belonging' to a new professional group and developing a collective identity as 'teachers of teachers' (Davey, 2013). Teacher educators also need to serve the demands of many other complex networks of groups and individuals (Lunenberg et al., 2014). In their recent review study of international research on teacher educators Lunenberg and colleagues (2014) show that teacher educators have at least six roles to fulfil: teacher of teachers, researcher, coach, curriculum developer, gatekeeper and broker. Similarly to a teacher's professional identity (Beijaard, Meijer, & Verloop, 2004), it seems that teacher educators' professional identity consists of multiple sub-identities (Swennen, Jones, & Volman, 2010), related to different contexts and relationships. However, systematic research on teacher educators' roles as broker, gatekeeper, curriculum developer and coach is still limited and future research should focus on how teacher educators can professionally develop in each of these roles (Lunenberg et al., 2014). First important steps, however, are definitely worth mentioning. For example, Willegems, Consuegra, Struyven and Engels (2016, 2017) study how collaborative teacher research teams can support the development of teacher educators' role as a broker. Research on how teacher educators' role as a broker can be meaningfully supported, and thus how the cooperation between institutions of teacher education and schools can be promoted, is still scarce (Lunenberg et al., 2014). In this regard, Willegems and colleagues' (2016) research is highly relevant, not only to the international research community, but also to teacher education

institutions aiming to further improve their cooperation with schools, or to teacher educators aiming to further improve their broker role.

Future researchers are recommended to consider a broader focus on teacher educators' professional development. In this respect, systematic research on teacher educators' identities and studies that investigate all teacher educators' professional roles simultaneously are still needed. In particular, research that involves a career perspective would be interesting to advance insight into how teacher educators' various participations in their working life affect their professional identity and professional roles. Such research demands a longitudinal design, aiming at a better understanding of how teacher educators can be meaningfully supported in different contexts and at different moments throughout their careers.

The second limitation relates to the sample of this dissertation with a specific focus on institution-based teacher educators in teaching-intensive institutions (e.g. centres for adult education and colleges of higher education) responsible for the pre-service education of future teachers. This means that school-based teacher educators in schools and institution-based teacher educators in research-intensive institutions were not included in this dissertation. In line with the European Commission's (2013) definition of teacher educators as a broad and heterogeneous group, the debate on teacher educators' professional development should not be limited to initial teacher training. Indeed, teacher educators are all those professionals responsible for the induction of beginning teachers, as well as in-service teacher learning (European Commission, 2013; Feiman-Nemser, 2001; Vanderlinde, Tuytens, De Wever, & Aelterman, 2016; Putnam & Borko, 2000). Currently, many teacher educators, particularly those in schools, are not recognised as teacher educators or do not recognise themselves as such (Livingston, 2014; Lunenberg et al., 2014). In this respect, many school-based teacher educators' identity is mostly related to their PK-12 teacher identity (Lunenberg et al., 2014). Consequently, the contribution of school-based teacher educators to teacher education is not sufficiently valued, and correspondingly, their professional development seems to be rather limited (Livingston, 2014; Lunenberg et al., 2014). Moreover, different terms circulate to describe these professionals, ranging from 'cooperating teacher' to 'workplace facilitator' (Lunenberg et al., 2014). Future research should uncover these often 'hidden' or 'unrecognised' teacher educators to value these educators' contribution to teacher education and to give more attention to their professional learning needs (Livingston, 2014; Lunenberg et al., 2014). Similarly, future research should also

include university-based teacher educators. In this respect, Cochran-Smith (2003) argues that teacher educators' identity in university-based programmes is often principally related to their specific subject area (e.g. mathematics, biology, languages). However, if the subject matter of teacher educators' work is 'teaching teachers', then all those engaged in such work need to be participants of professional development as well. Further reference is made to the latter in the fourth theme on developing a formal education for teacher educators (see *Theme 4: Towards an education for teacher educators: Practitioner research as a promising strategy*).

Implications for policy and practice

Implications of this dissertation on a policy level are related to the need to develop a more coherent policy and a better communication on teacher educators' professional development. As we have explained in **Chapter 1**, as in most European countries, in Flanders there still seems to be little explicit policy focusing on the formal education and professional development of teacher educators (European Commission, 2013). As a consequence, mentors are still not formally recognised and supported as school-based teacher educators (Departement Onderwijs & Vorming, 2014). In this respect, mentors might struggle to have meaningful relationships with other teacher educators, as for instance, those working in teacher education institutions. Policy-makers should formally recognise this group of teacher educators and, accordingly, invest in their professional development. In doing so, mentors can start to recognise themselves as teacher educators, and distinguish their professional task of mentoring as distinct from teaching (Bullough, 2005).

Moreover, in 2014, the Flemish government stressed that in order to improve teacher education, teacher educators will need 'to be able to theoretically underpin and develop an inquiring stance' [in Dutch: 'het theoretisch onderbouwen van het eigen handelen en het ontwikkelen van een onderzoekende houding'] (Departement Onderwijs & Vorming, 2014, p.10). However, there is no further shared understanding about how teacher educators can develop such a stance, and teacher education institutions and teacher educators are rather left to invent their practice (Lunenberg et al., 2014; Tack et al., under review c). This is not unique to the Flemish situation (Lunenberg et al., 2014). Instead of focusing on rather vague prescriptions in order to guarantee 'quality' teacher education (Vanderlinde et al., 2016), policy-makers should work on providing teacher educators opportunities to show their professional knowledge and practice (Mayer, 2016). Such opportunities

would reflect real 'evidence' of the quality in teacher education, as they reflect the actual work of teacher educators. Moreover, this approach considers teacher educators as autonomous professionals and starts from the belief that they make professional decisions in order to best meet the learning needs of their students (Mayer, 2016).

Professional associations for teacher educators (for instance, VELON in the Netherlands, the American Association of Teacher Educators in the USA) also have a pivotal role in teacher educators' professional development. In Flanders, the Flemish Association for Teacher Educators (VELOV, 2015) can play an important role in creating a common language on teacher educators' professional development. In line with the Flemish government (2014), VELOV's professional development profile focuses attention on teacher educators' role as a researcher (VELOV, 2015). However, research indicates that the vague formulations often hinder teacher educators to build on these profiles in their professional practice (Mayer, 2016; Snoek, Swennen & Van der Klink, 2011; Lunenberg et al., 2014; Vanderlinde et al., 2016). By using the theoretical framework on teacher educators' researcherly disposition **(Chapter 2)** and by distributing the measurement instrument **(Chapter 3)**, VELOV has an important responsibility in creating a more common language for all teacher educators and teams of teacher educators to talk about and give direction to their professional development. This approach can also be adopted by other associations for teacher educators; however, further international validation of the measurement instrument is first needed (see Theme 2: Teacher educators' professional development as a multidimensional construct), what in addition, can stimulate further evidence-based policy-making on teacher educators' professional development. Moreover, we believe that VELOV has an important role in uniting the community of teacher educators.

Similarly, implications of this dissertation on an institutional level and individual level are mainly related to the need to develop a common language on teacher educators' professional development. A first implication of this dissertation on the individual teacher educator level is related to the need for teacher educators to become aware about the distinct and complex nature of their work as a 'teacher of teachers'. In line with previous research (Cochran-Smith, 2003; Murray & Male, 2005; Lunenberg et al., 2014), the results of this dissertation indicate that many teacher educators principally identify themselves with their previous role as a teacher or subject expert. For example, one of the teacher educators that participated in our intervention **(Chapter 5)** studied the difference between her previous identity as a PK-12 teacher and her new identity as a teacher educator

(see Vyncke, 2016). The relevance of Vyncke's (2016) practitioner research is clear; however, it illustrates the wider problem that teacher educators are often not aware of their significant role. Similarly, Cochran-Smith (2005) argues in a study on university-based teacher educators that these subject-matter specialists generally did not think of themselves as teacher educators. Interestingly, however, she further argues that an identity change occurred after their commitment as a teacher education department to engage in collaborative practitioner research on social justice in teacher education (see Cochran-Smith, 2003). Accordingly, Burn (2007) argues that the development of a 'research attitude' was needed for school-based teacher educators to shift their identity from 'experts in teaching' to 'professionals who question their own teaching'. All these examples show that, there is first and foremost a pressing need for teacher educators to become aware that a unique body of knowledge comprises their work, and that this knowledge has to be developed while working as a teacher educator (Berry, 2016). To put differently, these examples clearly show that teacher educators' identity as a 'teacher of teachers' is intimately tied to teacher educators' engagement in research, and the development of their researcherly disposition. Teacher education institutions can raise teacher educators' awareness about the specific and unique nature of their work, for instance by providing a systematic induction programme to support beginning teacher educators in exploring their role and their new institutional context. There are some successful examples of such programmes, but more systematic research is also needed to better underpin the development of such a programmes (Lunenberg et al., 2014).

A prevailing question related to this dissertation is whether teacher educators' professional development can be understood as developing a researcherly disposition. On the one hand, it has been illustrated that most understandings of teacher educators' professional development are inherently linked to developing a researcherly disposition. Our approach asserts that teacher educators need to facilitate knowledge of their practice, not only to develop their role as a 'teacher of teachers', but also to develop other professional roles. On the other hand, teacher educators' professional development cannot be equated with developing a researcherly disposition. To gain a more comprehensive view on teacher educators' professional development, future research is needed. Research on teacher educators' professional identity development is still a rather under-researched topic. Moreover, future research needs to focus on the multiple professional roles teacher educators have, and how they can be meaningfully supported. This dissertation provides researchers, policy-makers and teacher

educators with a common language that explains what it means to become a teacher educator-researcher and develop a researcherly disposition. Considering this, we believe that the development of teacher educators' researcherly disposition needs to be at the heart of endeavours aiming at a better understanding and, subsequently, support of teacher educators' professional development.

Teacher educators' researcherly disposition: A multidimensional construct

A second major point of discussion relates to our understanding of the concept 'researcherly disposition'. Towards clearing the conceptual fog around strongly related terms, such as, for instance, 'inquiry as stance' (Cochran-Smith & Lytle, 2009), 'research journey' (Loughran, 2014) and 'researcher's attitude' (Vanassche, 2014), this dissertation first introduced and theoretically conceptualised teacher educators' professional development as the development of a researcherly disposition. Afterwards, empirical studies were conducted to gain further empirical insight into this conceptualisation. Clearly, from both a theoretical and an empirical point of view, it seems that teacher educators' researcherly disposition can be best understood as a multidimensional concept. On the one hand, our theoretical conceptualisation distinguished three different but inter-related dimensions: an affective dimension, a cognitive dimension and a behavioural dimension (see **Chapter 2**). On the other hand, our empirical investigation revealed four different but inter-related subscales: valuing research, being able to conduct research, being a smart consumer of research, and conducting research (see **Chapter 3**). It should be noted that the theoretically established three-dimensional structure does not fully align with the empirical four-dimensional structure.

As the review study of Lunenberg and colleagues (2014) indicates, it is essential that teacher educators recognise the importance of their 'researcher' role, and perceive research into their practice as a powerful strategy to develop knowledge of their teacher education practice. The sample of this dissertation (teacher educators working in teaching-intensive teacher education institutions), however, is not typically expected to publish work in relevant academic and professional journals (this is also the case in most European countries; see Lunenberg et al., 2014). Rather, as has been explained in **Chapter 1**, many of these teacher educators enter higher education with a background in teaching, and their first-

order expertise (Murray & Male, 2005) will be teaching. If they have research experience, these experiences are often limited to methodology courses (as part of their study background) and research in relation to their Master's theses (see **Chapters 2 & 3**). Developing their researcher role, for this group of teacher educators, will be a second-order expertise (Murray & Male, 2005). The overall low to moderate results on TERDS as presented in **Chapter 3** confirm this line of reasoning. A possible difference between the theoretical conceptualisation and the empirical conceptualisation may be related to the fact that research, for these teacher educators, is a rather new and difficult task (Lunenberg et al., 2014).

Interestingly, it seems that the two scales 'being able to conduct research' (cognitive dimension) and 'conducting research' (behavioural dimension), both of which related to teacher educators' role as producers of research, could not be combined as a single factor, while 'being a smart consumer of research' combines both the cognitive and behavioural dimension. In this respect, the empirical operationalisation seems to suggest that the differences are not as much about 'being able to use and conduct research' (cognitive dimension) and 'using and conducting research' (behavioural dimension), but rather about teacher educators' relation with research, that is, as 'a consumer of research' or as 'a producer of research'. This finding was also reflected in our qualitative typology on teacher educators' researcherly disposition. To explain this line of reasoning, we take a closer look at the difference between 'well-read teacher educators' (Type 2) and 'teacher educator-researchers' (Type 3) in the developed typology on teacher educators' researcherly disposition **(Chapter 2)**. Although 'well-read teacher educators' (Type 2) often expressed confidence in their grasp of theory and research based on their previous experiences with research or their work in academic environments, this understanding did not seem to translate into a greater confidence in or commitment to conducting research into teacher education. Type 3 teacher educators, or 'teacher educator-researchers', are not only consumers of existing research to inform their practice, but also actively conduct research to develop knowledge of their practice because they are convinced that their engagement in research is a core aspect of being a 'good' teacher educator. Unlike Type 2 teacher educators, who had experiences with more fundamental research, Type 3 teacher educators were experienced in practitioner research (or related forms of practice-oriented research) to inform their practice as a teacher educator. In line with this finding, the results of **Chapter 5** illustrated that teacher educators' active engagement in practitioner research led to a significant change in researcherly disposition. In particular, teacher educators

reported a significantly stronger use of research ('Smart consumer of research') and reported that they conducted significantly more research in their practice. Moreover, the findings of our qualitative analyses revealed a qualitative mind-shift in how teacher educators perceived their role as a researcher after their engagement in the intervention, from 'generally important' to 'inherently linked to the improvement of their practice as a teacher educator'. In this regard, the intervention, which involved a hands-on learning process to engage in practitioner research, seemed to be crucial in developing teacher educators' researcherly disposition (also see Theme 4: Towards an education for teacher educators: Practitioner research as a promising strategy). These findings suggest that teacher educators need considerable support in developing their researcherly disposition. In providing such support, it is important that all dimensions of teacher educators' researcherly disposition receive equal attention.

Limitations related to the sample of this dissertation and the used methodology provide possible explanations for the difference between the theoretical conceptualisation and the empirical operationalisation, and need to be carefully considered in future research.

Limitations and directions for future research

Related to the sample of this dissertation, all studies had a specific focus on institution-based teacher educators working in professional teacher education programmes (i.e. colleges of higher education and centres for adult education). This means that our empirical measurement instrument has only been validated within the context of teaching-intensive teacher education institutions. Recognising the broad diversity of teacher educators as an occupational group (European Commission, 2013), a limitation related to the sample of this dissertation is that teacher educators working in research-intensive teacher education institutions (i.e. universities) and school-based teacher educators in schools were beyond the scope of this study (see Theme 1: Teacher educators' professional development as the development of a researcherly disposition).

Future research needs to further explore and validate our measurement instrument **(Chapter 3)** with these groups of teacher educators. Not only should the external validity and construct validity of our scales be further tested, their international applicability should also be improved. For example, in Pacific Rim contexts and the United States, teacher educators are usually educated to be a researcher in a particular area – e.g. psychology, mathematics or languages – and

their job at a university includes teaching teachers (see Hamilton & Clandinin, 2011; Snoek & Zogla, 2009). If we want to use our measurement instruments in these contexts, further validation is first needed.

Related to the methodology of this dissertation, an additional limitation relates to the overall use of self-reported measures. In this respect, teacher educators' responses on TERDS **(Chapter 3)** might be subject to bias, and not reflect a completely accurate reflection of teacher educators' researcherly disposition (Merchie et al., 2016). These indirect measures are another possible explanation for the slight difference between our conceptualisation and operationalisation, and need to be the subject of further research. Next to the use of self-reported measures, a second methodological limitation is related to our definition of 'research' in our survey instrument (see Appendix A in **Chapter 4** on page 122-126). Even though this definition was tested with a pilot group of researchers and teacher educators, teacher educators might still have different perceptions about its meaning. Indeed, previous studies (e.g. Murray et al., 2009; Chetty & Lubben, 2010) have shown that teacher educators have different ideas about research, ranging from reading and reflection to conducting research and publishing in research journals. Teacher educators' responses on TERDS are always filtered by their perceptions and do not fully represent the measured concept.

Future research should make further efforts to avoid single-source studies (Merchie et al., 2016). In this respect, some suggestions are provided to extend the current approach, and thus gain further empirical understanding about teacher educators' researcherly disposition and their professional development. Related to the behavioural dimension, it might be interesting to complement our research instrument with video simulations or vignettes (Merchie et al., 2016). During these simulations, teacher educators could be confronted with realistic situations or problems that demand a research approach. Examples of such situations are, for instance, the evaluation of syllabi, the need to develop a better understanding of the teaching and learning context of student teachers, the search for new assessment strategies, or the exploration of the relationship between teacher educators' beliefs and practice. Teacher educators could be provided with several scenarios on how to tackle these situations, with a research approach as one of the alternatives (Dedoudis-Wallace, Shute, Varlow, Murrihy, & Kidman, 2014; Merchie et al., 2016). In this respect, it might be possible to assess if teacher educators are inclined to engage in research in the absence of explicit prompts (Perkins et al., 1993). Similarly, related to the cognitive dimension, teacher educators could be provided a research problem or a research question, and be subsequently asked to

develop a research plan (e.g. data collection, data analysis) in order to answer that research question. Finally, related to the affective dimension, the results of **Chapter 5** have shown it is recommended to use both quantitative and qualitative data collection and analysis techniques. In this respect, the results indicated a quantitative non-significant change on the subscale 'valuing research', the affective dimension of teacher educators' researcherly disposition. However, the findings of our qualitative analyses revealed a qualitative mind-shift in how teacher educators perceived their role as a researcher after their engagement in the intervention. The combination of both seems to do justice to the complexity of teacher educators' work in general, and the understanding of teacher educators' researcherly disposition in particular. In sum, the possibility that our measure can suffer from self-report bias is acknowledged. More direct measures based on simulations or observations can complement our current approach, allowing for more valid measurement (Hargittai, 2002). Nevertheless, future researchers should also be aware of the practical challenges related to these measures, such as being expensive, time-consuming, difficult to replicate and difficult to conduct on large samples (Litt, 2003).

Implications for policy and practice

The results of this dissertation highlight teacher educators' researcherly disposition as a complex and multidimensional construct, which not only warrants further research, but also leads to important implications for policy and practice.

Before moving to specific implications for policy-makers and practitioners, it is important to consider a central notion of developing a researcherly disposition: the relation between the knower, which is the teacher educator, and the knowledge (Cochran-Smith & Lytle, 2009). Understanding the nature of that relationship is crucial to understanding how it might affect the development of one's researcherly disposition. Similar to what has been described in the introductory chapter **(Chapter 1)** as 'teaching as telling', there is a potential danger that teacher educators – as mainly consumers of research – use 'outsider' existing research and theories to unwittingly reinforce the prevalent mode of their practice, rather than challenging it (Cochran-Smith, 2005; Loughran, 2016). Indeed, Cochran-Smith and Zeichner (2005, p.260) observed that 'we see many instances where the same research is interpreted to justify dramatically different practices and policy decisions'. Underlying such observations is the idea of teacher educators as simply users of knowledge and faithful implementers of curricula worked out by others (Cochran-Smith & Lytle, 2009). Rather than making teacher educators better

consumers of research or more skilful implementers of curricula, our concept of 'researcherly disposition' places the focus on teacher educators' 'knowledge of practice' (Cochran-Smith & Lytle, 2009; Loughran, 2016). It recognises teacher educators as knowledge generators conducting research to inform and improve their practice, and as 'smart' consumers of research, who use, but also challenge and critically discuss existing research. If teacher education needs to move beyond a technical or 'sharing-tips-and-tricks' approach to teaching (Loughran, 2016), both policy-makers and teacher educators need to become aware of the value of research to generate knowledge of practice.

On a policy level, the influence of the current climate in which teacher educators conduct research tends to be underestimated, and it needs to be changed. The European Commission (2013, p.13) observes that research conducted by teacher educators 'tends to be of inferior value, if compared with more traditional types of research, such as theoretical, subject-specific studies'. Research conducted by teacher educators tends to be ignored because it does not meet the standards for generalisation and rigor of large-scale quantitative research (Cochran-Smith, 2005; Lunenberg, Ponte & Van der Ven, 2007). In this respect, the interpretation of the value of research also affects the debate of 'quality' of research conducted by teacher educators. In line with Murray and colleagues (2009, p.949), we agree that:

> The time may also be right for a re-framing of what "counts" as research activity for teacher educators whose busy day job is practice in teacher education. Any such reframing of research and scholarship activities in teacher education could be part of a long-term and intra-professional challenge for teacher educators, one that establishes a new language of learning and scholarship.

Put differently, it should be recognised that research conducted by teacher educators is a crucial professional development strategy, not only to develop a deeper understanding of their practice as a 'teacher of teachers', but also to develop knowledge about teacher education. Teacher educators should be recognised as legitimate consumers and producers of research. However, at the same time, such recognition demands systematic efforts to support teacher educators in the process of developing their role as a researcher. Without such systematic support, the danger exists that teacher educators' engagement in research will continue to be criticised for lacking quality (Lunenberg, Ponte & Van der Ven, 2007; Vanassche, 2014). Teacher educators' professional development cannot be limited to opportunities provided by individual teacher education

institutions. In this respect, (inter)national policy-makers and associations for teacher educators have an important responsibility to create professional development opportunities that empower all teacher educators to further develop into their specific occupation. In the final theme, 'Towards an education for teacher educators: Practitioner research as a promising strategy', this need for systematic support is further discussed. Moreover, to maintain the cohesion between individual teacher educator studies, there is a need to develop a comprehensive research programme (also discussed in Theme 4).

On a teacher education level, leaders of teacher education institutions need to ensure that teacher educators become aware of the relevance of research to improve their practice (Smith, 2015). In so doing, they should consider all dimensions of teacher educators' researcherly disposition, as presented in this dissertation (**Chapter 2**). In this respect, providing a one-shot lecture to beginning teacher educators about the relevance of practitioner research would not be considered a good strategy, as not all dimensions would be fulfilled. Teacher education departments should therefore invest in the development of supportive and safe research communities (=affective dimension), in which less experienced teacher educators can contribute to more experienced colleagues' research by, for instance, reading research literature (=cognitive dimension), assisting in data analysis or attending a conference (= behavioural dimension). Thus, they can grow into the research community and, eventually, start to conduct research on their own.

Based on the results of this dissertation, teacher educators' researcherly disposition should be handled as a multidimensional construct. Throughout the different chapters, it has become clear that teacher educators' researcherly disposition is a complex construct, which warrants further research. Future researchers are encouraged to complement our current self-reported measurement instrument with more direct measures. Moreover, the validity of our measurement instrument should be tested with other groups of teacher educators, like university-based teacher educators and mentors occupied in cooperating schools. Based on the existing research field on teacher educators' professional development, we have provided researchers with a first common theoretical framework on teacher educators' researcherly disposition to further build upon (Chapter 2), and provided a measurement instrument to gain empirical insight into teacher educators' researcherly disposition (Chapter 3). Moreover, this measurement instrument can be used in large-scale studies

(Chapter 4) and contributes to our understanding of the impact of promising professional development initiatives (Chapter 5). Moreover, and at least as important, it provides policy-makers, teacher education institutions and teacher educators with theoretical and empirical tools to better understand the multiple dimensions of their 'researcher' role, and how they can be supported.

Teacher educators' researcherly disposition is always situated in context(s)

A third major point of discussion is related to the exploration and conceptualisation of how multiple contexts influence the development of teacher educators' researcherly disposition and their professional development. As we have explained in **Chapter 1**, perspectives that understand teacher educators' professional development as a solely individual feature fall short in several ways (Kelchtermans et al., 2017; Loughran, 2014; Lunenberg et al., 2016; Smith, 2015; Vanassche, 2014; Vanassche et al., 2015) because they do not consider the contextualised character of teacher educators' professional development. This dissertation empirically explored how teacher educators' perceptions of the existing research culture and the existing research infrastructure in their respective teacher education institutions are related to the development of their researcherly disposition **(Chapter 4)**. The results revealed that teacher educators' researcherly disposition is influenced by both infrastructural and cultural barriers to engage in research. This brings us to the question of whether individual teacher education institutions are fruitful contexts to support teacher educators' professional development. Put differently, an important point of discussion related to this theme is whether it would not be more promising to move beyond separate teacher education institutions, and organise teacher educators' professional development on a more intra-institutional or national level (also see Lunenberg et al., 2014).

Before drawing such conclusions, limitations related to the selected variables, the used methodology and the results of this dissertation should be considered.

Limitations and directions for future research

An important limitation in this dissertation is related to our focus on developing only an understanding on the relationship between perceived institutional conditions (i.e. research culture and research infrastructure) and teacher educators' researcherly disposition. First, limitations inherently related to these

variables are considered. In this respect, the low scores on the scale 'Research infrastructure' should be acknowledged, indicating that teacher educators perceive the existing research infrastructure as almost non-existent. These low scores might have limited the potential of this scale to serve as a predictor variable for teacher educators' researcherly disposition. Future research should make further efforts to avoid single-source studies. A combination of methodological triangulation (e.g. interviews, observations and document analysis) and data triangulation (e.g. teacher educators, Heads of Departments, students) can complement the current approach (Oppermann, 2000). Second, the cross-sectional nature of our survey study precludes any conclusions regarding causality. From a theoretical perspective, teacher educators' perceptions of the existing research culture and the existing research infrastructure were expected to influence teacher educators' researcherly disposition (Borg & Alshumaimeri, 2002; Davies & Salisbury, 2008). However, in reality, the causal relationship might also be in the other direction or even reciprocal. Future researchers are recommended to investigate these relationships in longitudinal research designs.

Moreover, to advance a more refined conceptualisation of the working conditions in teacher education institutions – and how these are related to teacher educators' professional development – more variables should be included. Related to the dependent variable, further research should include measures that advance, for instance, insight into the professional development opportunities that are provided by teacher education institutions. In this respect, we believe that the recently developed 'TPD@Work Questionnaire' (Evers, Kreijns & Van der Heiden, 2016) – a survey instrument that distinguishes six different professional development activities for teachers – could be translated and adapted to further advance insight into teacher educators' professional development activities (e.g. collaboration with colleagues with the aim of improving lessons, reflecting and asking for feedback, experimenting, attending work-related training, reading). Similarly, teacher educators' professional identity should also be included in future research. However, a first challenge in this regard is the need for a clear conceptualisation of teacher educators' professional identity and the development of reliable and valid measurement instruments (Kosnik et al., 2016). However, future models should also include other independent variables. In this respect, we believe it would also be interesting to investigate professional learning community (PLC) characteristics to determine the extent to which teacher educators' professional development is related to shared values, collective responsibility, deprivatised practice and reflective dialogue in the teacher education department

(Wahlstrom & Louis, 2008). Moreover, differences in leadership styles (Hulpia, Devos & Rosseel, 2009; Louis, Dretzke, & Wahlstrom, 2010) could provide important insights.

Furthermore, in **Chapter 4** we tested the multilevel nature of our data, indicating that teacher educators' respective teacher education institutions did not significantly affect their responses. However, it is likely that the micro-communities – the 'micro levels' within teacher education departments or subject departments (Murray, 2008) – in which teacher educators work are more useful units of analysis to consider. It is likely that the memberships in these communities have a stronger influence on teacher educators' work and professional development than the teacher education institution itself. Focusing on these micro-communities would also allow a more relational perspective, compared to our rather individual perspective (i.e. teacher educators' perceptions). In this respect, it would be interesting to study subgroups of teacher educators within teacher education institutions. In line with the research of Vanblaere (2016) and De Neve (2016) on professional learning communities for teachers, future researchers could conceptualise teacher education departments as professional learning communities and study their impact on teacher educators' professional development.

Finally, future research should not be limited to the local teacher education institution or department, but should also focus on exploring the complex networks of different groups and individual teacher educators inevitably operate in (Kelchtermans et al., 2017; Loughran, 2014; Lunenberg et al., 2016; Vanassche et al., 2015). Examples of such networks are schools, students, (international) colleagues and policy-makers. Future researchers are recommended to use social network analysis to obtain a more detailed picture about these networks, and thus to unravel whom teacher educators turn to the most for which matters and why (Daly, 2010).

Implications for policy and practice

Despite these limitations, the results of this study seem to hold some important implications for teacher education institutions aiming to support teacher educators' professional development. A first important step is creating a research culture within the workplace (also see Borg & Alshumaimeri, 2012; Houston, Ross, Robinson & Malcolm, 2010; Lunenberg et al., 2014) in which the development of teacher educators' researcherly disposition receives explicit attention. For

instance, possibilities should be created for teacher educators to share their research experiences through means of poster presentations, group meetings and discussions. During these group meetings, the theoretical framework on teacher educators' researcherly disposition **(Chapter 2)** could be used to create a shared language among teacher educators about the importance of their researcher role. Thus, the different existing perceptions related to the researcher role (Chetty & Lubben, 2010; Murray et al., 2011) and its lack of acceptance (Mayer, Mitchell, Santoro & White, 2011; Jaruszewicz & Landrus, 2005) can be tackled.

Similarly, institutional expectations and requirements related to teacher educators' engagement in research have to be clearly communicated (Borg & Alshumaimeri, 2012; Griffiths et al., 2010; Lunenberg et al., 2014). In this respect, the results of this dissertation are in line with previous small-scale qualitative studies (Lunenberg et al., 2014), suggesting that institutional expectations often remain implicit or are only clear to 'the happy few' who are engaged in research. A practical value of our measurement instrument TERDS (Chapter 3) is that it can be used by teacher education institutions to advance insight into their teacher educators' researcherly disposition. Based on these results, some specific action points could be formulated on those dimensions that score relatively low. Possible actions include, for instance, making research literature more accessible to teacher educators, discussing the meaning of teacher educators' role as a researcher or facilitating their engagement in practitioner research. Teacher educators themselves, together with colleagues in their team, can also reflect on their own scores on TERDS. Furthermore, related to infrastructural conditions, teacher educators should be informed about the existing research facilities. Particularly, teacher educators need to be informed about access to journals, existing professional development initiatives, courses and the existence of physical and financial resources (Lunenberg et al., 2014). Moreover, experienced researchers can offer tailored methodological help to teacher educators who are less experienced in conducting research into their own practice. Also helpful is providing planned and protected time to engage in research (Griffiths et al., 2010). Moreover, we believe that the teacher educators that participated in our intervention **(Chapter 5)** can function as important role models to less experienced teacher educator-researchers (Lunenberg et al., 2014). In this respect, the research by Harrison and McKeon (2008) suggests that less experienced teacher educator-researchers can start by participating in 'low risk' research activities with more experienced teacher educators, which may help them to gradually become part of a research culture. This peer support and collaboration in

research communities seems to be essential (Gemmell, Griffiths & Kibble, 2010; Houston et al., 2010; Lunenberg, **Korthagen, & Zwart**, 2010; Smith, 2015). A final recommendation for teacher education institutions is related to stimulating teacher educators' participation in professional development initiatives like the one presented in **Chapter 5**. However, we further elaborate on this point in the final theme of this discussion (Theme 4: Towards an education of teacher educators: Practitioner research as a promising strategy).

Even though our focus was rather situated on the institutional level, this dissertation also yields suggestions for the national policy-making level. As we have explained in **Chapter 1**, and similarly to most countries in Europe, attention given to teacher educators' professional development is rather limited in Flanders, and professional development activities are often organised 'ad hoc' and by chance. In this respect, **Chapter 3** is one of the first attempts to inform policy-makers with evidence-based information about teacher educators' researcherly disposition based on a large-scale study. Similarly, **Chapter 4** is an important indicator of the current low attention given to teacher educators' professional development as researchers in teacher education institutions. In line with the results of this dissertation and with Meysman and Mathieu's (2016) observations, we are convinced that more attention should be paid to systematic forms of teacher educators' professional development, not only at the institutional level, but also at the national level. In this respect, we believe that policy-makers have an important responsibility for providing resources for practitioner research conducted in teacher education, by teacher educators, for teacher educators (Smith, 2015) (see Theme 4: Towards an education of teacher educators: practitioner research as a promising strategy).

On an international level (see **Chapter 1**), considerable differences between political priorities concerning teacher educators' professional development are noted (Kelchtermans et al., 2017; Lunenberg et al., 2016; Vanassche et al., 2015). In this regard, for instance, the Norwegian government has provided funding for numerous research and development projects, as well as the establishment of a Norwegian National Research School in Teacher Education (NAFOL) (Smith, 2015). Similarly, the Ministry of Education in Israel provided funding for the establishment of the MOFET Institute, a national inter-collegiate centre for research and professional development in teacher education (Golan & Reichenberg, 2015). Both initiatives are promising examples of how to create a solid research infrastructure for long-term goals (Golan & Reichenberg, 2015; Smith, 2015). In other regions, such as for instance the Netherlands, England and

Flanders, teacher educators' professional development opportunities largely rely on 'ad hoc' and 'local' initiatives (Vanassche et al., 2015). In line with the recently established InFo-TED, whose main aim is to bring together people across the world to exchange research and practice related to teacher educators' professional development (Kelchtermans et al., 2017), we believe that opportunities should be created to support teacher educators' professional development, at institutional, national and international levels. This dissertation – in particular the theoretical framework **(Chapter 2)** and the developed measurement instrument **(Chapter 3)** – provides important tools to identify common challenges teacher educators experience across diverse national contexts. We strongly recommend InFo-TED to use our tools. However, to determine if TERDS can be used in an international context – and to improve its international dissemination – validation across different countries is needed (see Theme 2: Teacher educators' researcherly disposition as a multidimensional construct). After cross-validation of our instrument, teacher educators' self-reported researcherly disposition can be compared across countries. Such a comparison would not only allow groups such as InFo-TED to debate similarities and differences, but also enable collaborative actions to improve the professional development of all teacher educators.

In conclusion, this dissertation shows that the development of teacher educators' researcherly disposition is not operating in a vacuum. In particular we have advanced insights into how teacher educators' researcherly disposition is influenced by both infrastructural and cultural conditions in the teacher education institution. Future researchers are recommended to further combine theories of professional development with theories of workplace learning. Based on the results of this dissertation, some important implications and recommendations for teacher education institutions were formulated. Specifically, we have argued that leaders of teacher education institutions have an important responsibility in creating research facilities, in providing time and resources that encourage teacher educators' engagement in research. In addition, they need to focus on building research communities in their department or institution. However, in this regard, policy-makers are recommended to provide resources to support systematic efforts focusing on teacher educators' professional development. Concluding this discussion point, we pointed to the need for international collaborations to further stimulate teacher educators' professional development.

Towards an education for teacher educators: Practitioner research as a promising strategy

A final theme in this dissertation aims to contribute to the wider debate on teacher educators' professional development in general (e.g. De Wever et al., 2016; European Commission, 2013; Lunenberg et al., 2014; Meijer, 2013), and the growing need and demand for an education for teacher educators in particular (e.g. Berry, 2016; Kosnik et al., 2016; Kelchtermans et al., 2017). As we have explained in **Chapter 1**, there is a friction between the limited attention given to teacher educators' preparation, induction and on-going professional development, and the growing need expressed by teacher educators themselves to engage in meaningful professional development initiatives related to their role as a teacher educator (Czerniawski, MacPhail, & Guberman, &, 2017; Tack, Valcke, Rots, Struyven & Vanderlinde, accepted). This discrepancy is not unique to the Flemish situation (Lunenberg et al., 2014). In this respect, based on a recent international comparative study with 1158 higher education-based teacher educators from six different countries, Czerniawski and colleagues (2017) conclude that teacher educators are only moderately satisfied with their current professional development experiences, and strongly desire further professional development opportunities. These studies mirror the wider call for a systematic approach towards teacher educators' professional development (see Czerniawski et al., 2017; Kelchtermans et al., 2017; Smith, 2015; Tack et al., accepted; Vanassche, 2014) and the establishment of a formal education programme (Goodwin et al., 2014; Kelchtermans et al., 2017; Lunenberg et al., 2014; Tack et al., accepted; Vanassche et al., 2015).

The results of **Chapter 5** suggest the success of an authentic intervention for institution-based teacher educators working in professional teacher education programmes. Moreover, the core design features of our intervention are in line with more general frameworks for evaluating teachers' professional development initiatives (Desimone, 2009; Merchie et al., 2016). Although these characteristics (e.g. coherence, evidence-based, content-based, ownership, extended and intensive programmes, collaboration, site-based, active learning, trainer quality) appear to be important indicators for setting up a good teacher educator professional development initiative, some important limitations and directions for future research need to be considered.

Limitations and directions for future research

A first limitation relates to the specific scope of our intervention among institution-based teacher educators working in professional teacher education programmes. In the first theme of this discussion section, the significant diversity in teacher educators as an occupational group was already recognised. As has been argued, school-based teacher educators have a vital role in the induction of beginning teachers, as well as in the in-service learning of teachers. Making the role of teacher educators in schools visible is important (see Theme 1), but it is not sufficient to address the current lack of attention to school-based teacher educators and their professional development. Future interventions should therefore investigate collaborations between universities (with university-based teacher educators), higher education institutions (with higher education-based teacher educators) and schools (with school-based teacher educators). Such collaborations would not only recognise the importance of the professional development for all teacher educators, but also inform researchers and practitioners about the multiple identities and professional roles of teacher educators (see Theme 1), and the value of dynamic partnerships in career-long teacher education (Livingston, 2014).

A second limitation relates to the focus on the assessment of changes in teacher educators' self-reported researcherly disposition. In this respect, future research should further make explicit the characteristics of professional development initiatives and changes in teacher educators' professional development (Desimone, 2009; Merchie et al., 2016). As we have argued, professional development is not limited to the development of a researcherly disposition, but also involves developing professional identities as a teacher educator and developing different professional roles (see Theme 1). Moreover, research should investigate the relationships between interventions focusing on teacher educators' professional development, changes in teacher educators' practice and potentially changes in student teachers' learning. Reporting on changes in student teachers' learning is currently absent, and also recognised as a complex research process that demands longitudinal mixed-methods research designs (De Wever et al., 2016; Merchie et al., 2016). Overall, research with a longitudinal focus that furthers the understanding of how teacher educators' professional development might benefit student teachers' learning is crucial.

Third, because of the small sample size, our intervention did not focus on the impact of the teacher education institution or teacher educators' background

characteristics and experiences. Considering these characteristics in future research with larger samples is important (Merchie et al., 2016). Teacher educators' professional development initiatives are always situated in a specific context, which will inevitably influence the impact of the intervention on all mentioned levels. In this respect, a broad spectrum of organisational conditions, such as leadership, institutional culture and institutional policies, need to be considered (also see Theme 3).

Fourth, this dissertation did not consider treatment fidelity (Merchie et al., 2016), which refers to the degree to which an intervention is delivered as intended (Ermeling, 2010). In future studies, teacher educators could be asked to complete fidelity forms during the intervention to establish its fidelity. Furthermore, group sessions could be coded by means of video analysis to verify whether they were provided productively (Merchie et al., 2016).

Finally, our intervention study did not explicitly focus on the role of the facilitators in the intervention. This role should also be considered in future research, as the quality of the facilitator is an important feature of professional development initiatives (Lunenberg et al., 2014; Merchie et al., 2016). In this respect, the facilitators of our intervention **(Chapter 5)**, Hurtekant and Pauwels (2016), documented their experiences in a recent article, 'Tensions in facilitating practitioner research for teacher educators'. This article provides a first insight into their role during the process and reports on four main tensions (1. guiding vs. letting go; 2. collaborating or focusing on the individual; 3. developing or researching; 4. sharing vs. protecting) they were confronted with. Nevertheless, future research should consider adopting a quasi-experimental design with various conditions. Conditions can differ in the intensity and facilitation approach, in order to develop a better insight into which facilitators' role is appreciated best.

Implications for policy and practice

Despite these limitations, we believe that the results of this dissertation are informative for future professional development initiatives focusing on teacher educators' professional development.

Policy-makers, researchers and teacher educators increasingly share the need for a specific focus on teacher educators' professional development (European Commission, 2013; Kelchtermans et al., 2017). The growing S-STEP community, largely rooted in the United States (Loughran, Hamilton, LaBoskey, & Russell, 2004), the MOFET Institute in Israel (Golan & Reichenberg, 2015) and the NAFOL

Research School in Norway (Smith, 2015) have already been described as pioneers in taking steps towards a more formal recognition of teacher educators' professional development (see **Chapter 1**) (also see Berry, 2016). Other countries, such as, for instance, the Netherlands, are increasingly taking similar steps, for instance organising small-scale professional development trajectories for teacher educators (Willemse & Boei, 2013; Lunenberg et al., 2010), implementing professional standards for teacher educators (Lunenberg et al., 2014) and developing professional accreditation procedures (Lunenberg, et al., 2014) (see **Chapter 1**). In Flanders, the government recently expressed specific attention to teacher educators' professional development. In particular, the Flemish government provides budget to develop and organise a Flemish-wide 'Masterclass' (or formal education) to support teacher educators' professional development. Similarly, on an international level, InFo-TED announced in their position paper (Kelchtermans et al., 2017) the organisation of an international summer school for teacher educators. During the summer school they aim to organise 'meetings and discussions to strenghten teacher educators' sense of professional identity as members of a unique profession' (Kelchtermans et al., 2017).

In general, initiatives that focus on teacher educators' professional development (e.g. Flemish 'Masterclass', InFo-Ted summer school) have to be (1) sustainable and formally recognised, (2) focus on all teacher educators, (3) consider international collaboration and mobility, and (4) focus on learning in community. In particular, and based on the results of this dissertation, we strongly advise these initiatives to (5) focus on teacher educators' researcherly disposition by means of practitioner research in communities.

Sustainable and formal initiatives. Currently, there is still too much dependency on small-scale, occasionally funded, 'ad hoc' and local initiatives to support teacher educators' professional development. In this respect, we have to realise that only a small part of Flemish teacher educators participated in the intervention that has been described in **Chapter 5**. It is essential to develop a common understanding that educating teachers cannot be ad hoc, and that it requires specific expertise that needs systematic support throughout a teacher educator's career (see Theme 1). Structural measures have to be taken, and we have to move towards more formally recognised and sustainable initiatives.

Focus on all teacher educators. Although we acknowledge the significant diversity in teacher educators' multiple professional identities, professional roles and practices (see Theme 1), the starting point of all teacher educators' professional

development is always related to becoming and developing as a 'teacher of teachers'. In this respect, teacher educators need to become aware of a collective professional identity as members of a unique occupational group. This common ground recognises the distinct nature of teacher educators' work and acknowledges teacher educators as active agents in their own professional development. As we have argued (see Theme 1), if the subject matter of teacher educators' work is 'teaching teachers', than all those engaged in such work need to be participants of professional development as well.

Consider international partnerships and mobility. Currently, there is limited attention for teacher educator international mobility and partnerships (see EVALO, 2012). However, with the recent establishment of InFo-TED, the MOFET institute and the NAFOL Research School, the possibilities for establishing such partnerships have never been so abundant. The potential to interconnect all these actions and establish an international network needs to be recognised. A promising initiative is the joint summer school in August 2017 on 'Conducting research in the field of teacher education: Challenges, pitfalls and important themes'. In this respect, the summer school offers unique opportunities for international dialogue and collaboration, between Flemish PhD students in teacher education at Ghent University and Norwegian PhD students in teacher education from NAFOL. Both parties will be able to discuss teacher education research in their own particular contexts, discuss communalities and differences, and stimulate critical reflections on their own research projects. In general, all teacher educators (also those in professional teacher education programs) should be stimulated to participate in such international exchange projects. Such projects could be organised as study visits, workshops abroad, or short secondment projects. To put differently, all teacher educators should be stimulated to broaden their network.

Focus on learning in community. A fourth aspect refers to the idea the teacher educators' professional development should not remain a lonely enterprise (Berry, 2016; Vanassche et al., 2015). In line with Berry (2016, p. 52) we agree that ideas of teacher educators' professional development need to shift from 'something you do only by yourself, to something that you do by yourself, with others.' Such a shift in thinking recognises teacher educators' professional development as a process undertaken by autonomous professionals, in community with others. Collaboration in teams should be recognised and stimulated, whether within institutions of teacher education, across institutions, or in institutional contexts

(Hadar & Brody, 2016; Kelchtermans et al., 2017; Tack & Vanderlinde, under review b).

Focus on teacher educators' researcherly disposition. We have explained that teacher educators' researcherly disposition is inherently linked to the core of teacher educators' work as a teacher of teachers. To become aware of the distinct nature of their work, and to further develop their professional roles as a teacher educator, a focus on teacher educators' researcherly disposition is essential. Initiatives should consider all dimensions of teacher educators' researcherly disposition. This means that teacher educators' researcherly disposition is preferably supported in communities (= valuing research), in which teacher educators conduct practitioner research (= conducting research), with appropriate theoretical underpinnings and methodological support (= cognitive dimension).

Finally, based on the results of this dissertation, we have provided the organisers of professional development initiatives with some more specific guidelines (e.g. coherence, evidence-based, content-based, ownership, extended and intensive programmes, collaboration, site-based, active learning, trainer quality) (see **Chapter 5**). However, in doing so, we do not claim to have a fully comprehensive framework. Above all, it should be considered as a starting point to encourage and advise future developers of initiatives aiming at teacher educators' professional development.

General conclusion

The main goal of this dissertation is to contribute to the on-going debate on teacher educators' professional development. In an attempt to 'move beyond the rhetoric' (Loughran, 2016), the concept 'researcherly disposition' is introduced as a means to better understand teacher educators' professional development. In doing so, this dissertation not only suggests a perspective to actively work on teacher educators' professional development, it also provides a much-needed common language and measurement instrument. Our approach to teacher educators' professional development not only demands that teacher educators become active agents in developing knowledge of their practice, it also highlights the need to develop a culture and infrastructure for research in teacher education. These cultural and infrastructural conditions are not limited to the institutional level. (Inter)national policy-makers should also play a pivotal role. Finally, by presenting and discussing the results of an intervention on practitioner research,

this dissertation provides a promising perspective on teacher educators' on-going education and professional development. As a conclusion, Figure 2 provides a graphical summary of the most important findings and implications of this dissertation. This dissertation is not only relevant for teacher educators, but for all researchers, policy-makers and practitioners who believe that teacher educators play a significant role in the quality of the education of (future) teachers, and thus the quality of the learning in PK-12 education. As we have explained, there are still several challenges that need to be further explored. Future researchers are encouraged to further build on our work, to use it, to question it, to expand it and to further improve it. The challenges are clear for teacher educators, their teacher education institutions, policy-makers and researchers. The need to react is clear. The only remaining question is: how will you react?
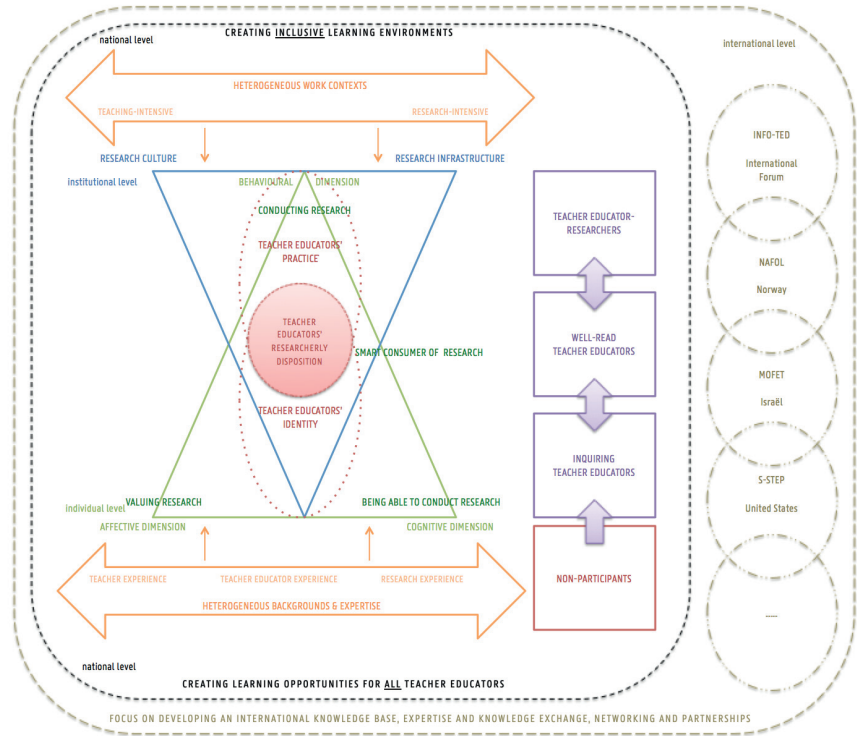

Figure 4. A framework on teacher educators' researcherly disposition

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Nederlandstalige samenvatting
Dutch summary

Ik ben er nu van overtuigd dat onderzoek de meest geschikte tool is om voortdurend je eigen praktijk in vraag te stellen en te onderbouwen. Je kan het je als model van toekomstige leraren toch eigenlijk niet permitteren om zomaar je 'buikgevoel' te volgen?

Uitspraak van een lerarenopleider na deelname aan de interventie

(Tack & Vanderlinde, 2016b)

Nederlandstalige samenvatting

Naar een beter begrip van de professionele ontwikkeling van lerarenopleiders: Theoretisch en empirisch inzicht in hun onderzoekende houding

Context

De zorg om goede lerarenopleidingen als basisvoorwaarde voor goed onderwijs blijft erg actueel (De Wever, Vanderlinde, Tuytens & Aelterman, 2016). Het is dan ook opmerkelijk vast te stellen dat de grote aandacht voor de kwaliteit van de lerarenopleidingen en diens afgestudeerde leraren, zich amper weerspiegelt in aandacht voor de kwaliteit van de lerarenopleider zelf. De professionele ontwikkeling van lerarenopleiders is in dat opzicht een domein dat – zowel op internationaal (Europese Commissie, 2013; Loughran, 2014; Lunenberg, Dengerink & Korthagen, 2014) als op nationaal vlak (Departement Onderwijs & Vorming, 2012) – lang onderbelicht is gebleven, en dit zowel in de onderzoeksliteratuur als in beleidsdocumenten. Het laatste decennia komt hier echter verandering in en vindt een geleidelijke shift plaats waarbij lerarenopleiders steeds meer in de aandacht komen als een belangrijke en unieke professionele groep met eigen professionaliseringswensen en -noden (Kelchtermans, Smith & Vanderlinde, 2017; Lunenberg et al., 2014; Vanassche, 2014; Vanassche, Rust, Conway, Smith, Tack & Vanderlinde, 2015; Tack, Valcke, Rots, Struvyen & Vanderlinde, geaccepteerd; Vanderlinde, Tuytens, De Wever & Aelterman, 2016). Opvallend hierbij is de stijgende klemtoon op de rol van de lerarenopleider als 'onderzoeker', de vraag naar het uitvoeren van praktijkonderzoek, en het belang van het ontwikkelen van een onderzoekende houding (Lunenberg et al., 2014; Loughran, 2014; Vanassche, 2014; Willemse & Boei, 2013). Het uitvoeren van onderzoek en het ontwikkelen van een onderzoekende houding zijn hierbij inherent verbonden aan de kernopdracht die elke lerarenopleider als 'leraar van leraren' (Loughran, 2011) heeft, namelijk 'onderwijzen over onderwijzen' (Loughran, 2011) of 'tweede-orde onderwijzen' (Murray & Male, 2005). Deze termen verwijzen naar het dubbel niveau waarop lerarenopleiders steeds dienen te fungeren: (1) de inhoud van het onderwijzen

(het 'wat' van onderwijzen), en (2) de manier waarop onderwezen wordt (het 'hoe' van onderwijzen). Russell (1997) omschrijft dit dubbel niveau treffend als 'How I teach IS the message!'. Dit 'onderwijzen over onderwijzen' maakt de opdracht van lerarenopleiders uniek en tegelijkertijd complex, en vraagt om expertise en kennis die wezenlijk verschilt van het lesgeven in het basisonderwijs, secundair onderwijs, of hoger onderwijs (Kelchtermans, Smith & Vanderlinde, 2017; Murray & Male, 2005). Lerarenopleiders vervullen immers steeds een voorbeeldfunctie voor aanstaande leraren (ook wel 'modeling' genoemd, zie Loughran & Berry, 2005). Om te zorgen dat hun studenten van dit modelgedrag leren, moeten lerarenopleiders hun eigen handelen en de keuzes die ze daarin maken kunnen expliciteren, verantwoorden en theoretisch onderbouwen (Loughran, 2014).

Onderzoekers zijn het in grote mate eens over het belang van het ontwikkelen van een onderzoekende houding om de professionele praktijk van lerarenopleiders te optimaliseren. Ondanks deze eensgezindheid circuleren er heel wat verschillende, aan elkaar gerelateerde termen. Gelijklopend met het pleidooi van Loughran (2014) om de carrière van lerarenopleiders te zien als een 'research journey', wordt in de recente reviewstudie van Lunenberg, Dengerink & Korthagen (2014) het belang van het ontwikkelen van een 'onderzoekende houding' in de verf gezet. Cochran-Smith & Lytle (2009) hebben het in deze context over het ontwikkelen van een 'inquiry as stance'. Vanassche (2014) voert – in het slotstuk van haar proefschrift – een pleidooi voor het ontwikkelen van een 'researcher's attitude' (in lijn met Kelchtermans, 2013). Het gebruik van deze verschillende termen zorgt niet alleen in de onderzoeksliteratuur voor onduidelijkheid, maar dreigt ook het belang van het concept te overschaduwen, in hoofdzaak bij de lerarenopleiders zelf (zie Lunenberg et al., 2014). In voorliggend proefschrift wordt hierop ingespeeld door eerst een duidelijke en heldere conceptualisering van de onderzoekende houding van lerarenopleiders te ontwikkelen (in het Engels: 'researcherly disposition'). In een tweede stap wordt deze conceptualisering verder uitgediept door het opzetten en uitvoeren van verschillende empirische studies.

De theoretische achtergrond, alsook de context van dit proefschrift, staan uitgebreid beschreven in de algemene inleiding **(Hoofdstuk 1)**. Theoretisch wordt in dit hoofdstuk ingezoomd op (1) de unieke en complexe opdracht van lerarenopleiders als 'leraren van leraren', (2) het belang van het ontwikkelen van een onderzoekende houding, en (3) de verschillende contexten waarin lerarenopleiders functioneren. Daarnaast wordt ook de context waarin dit proefschrift gesitueerd is – de lerarenopleidingen in Vlaanderen – uitvoerig toegelicht. Verder worden in het inleidende hoofdstuk op basis van een aantal

onderzoeksuitdagingen de vier algemene onderzoeksdoelen gepresenteerd en gekaderd binnen de methodologische aanpak van het proefschrift. Tevens wordt ingegaan op de wetenschappelijke relevantie, beleidsmatige relevantie en praktische implicaties van dit proefschrift. De wetenschappelijke relevantie situeert zich op conceptueel, empirisch en methodologisch niveau.

Onderzoeksdoelen

Met het oog op een beter begrijpen van de professionele ontwikkeling van lerarenopleiders, wordt in dit proefschrift het concept 'onderzoekende houding' (in het Engels: 'researcherly disposition') theoretisch en empirisch in kaart gebracht. Deze algemene doelstelling wordt geoperationaliseerd in vier deeldoelstellingen **(OD)**, die worden behandeld in vier verschillende empirische hoofdstukken **(H)**:

OD1   Het conceptualiseren van de onderzoekende houding van lerarenopleiders gebaseerd op bestaande onderzoeksliteratuur naar de professionele ontwikkeling van lerarenopleiders.   **H2**

OD2   Het ontwikkelen van een zelf-gerapporteerd meetinstrument om de onderzoekende houding van lerarenopleiders in kaart te brengen.   **H3**

OD3   Het identificeren van factoren die gerelateerd zijn aan de onderzoekende houding van lerarenopleiders.   **H4**

OD4   Het onderzoeken van de impact van een interventie rond praktijkonderzoek op de onderzoekende houding van lerarenopleiders.   **H5**

Om aan bovenstaande onderzoeksdoelen tegemoet te komen, zijn vier empirische studies opgezet: een literatuurstudie gecombineerd met een kwalitatieve interview-studie **(H2)**, twee kwantitatieve vragenlijst-studies (**H3 & H4**), en een mixed-method interventiestudie **(H5)**. Door het opzetten van deze studies komen we tegemoet aan drie actuele uitdagingen waar het onderzoeksgebied mee geconfronteerd wordt: (1) een gebrek aan conceptuele duidelijkheid rond de professionele ontwikkeling van lerarenopleiders in het algemeen (Loughran, 2014) en de rol van 'onderzoeker' in het bijzonder (Lunenberg et al., 2014), (2) een gebrek aan grootschalig kwantitatief onderzoek in de context van de

lerarenopleiding in het algemeen (Cochran-Smith & Zeichner, 2005) en het professioneel functioneren van lerarenopleiders in het bijzonder (Lunenberg et al., 2014), (3) en een gebrek aan interventie-onderzoek bij lerarenopleiders, ook op langere termijn (Lunenberg et al., 2014). Alle hoofdstukken zijn gebaseerd op artikelen die gepubliceerd zijn of 'onder review' zijn in tijdschriften opgenomen in de 'Social Science Citation Index'. Een overzicht van de academische output van dit proefschrift wordt in een volgend hoofdstuk gepresenteerd.

Overzicht van de resultaten

Theoretisch kader onderzoekende houding lerarenopleiders (OD1)

Een eerste doel in voorliggend proefschrift betreft het ontwikkelen van een duidelijke en helder afgebakende conceptualisering van de 'onderzoekende houding van lerarenopleiders'.

Met het oog op het eerste onderzoeksdoel **(RO1)** wordt een theoretisch kader ontwikkeld om de onderzoekende houding van lerarenopleiders duidelijk te conceptualiseren. De resultaten van deze studie worden gerapporteerd in **Hoofdstuk 2** (Tack & Vanderlinde, 2014).

Het eerste deel van Hoofdstuk 2 focust op het ontwikkelen van een beter theoretisch inzicht in de onderzoekende houding van lerarenopleiders. Om inzicht te verwerven in de rol van de lerarenopleider als 'onderzoeker', werd eerst de bestaande onderzoeksliteratuur met betrekking tot de professionele ontwikkeling van lerarenopleiders geanalyseerd (zie, bijvoorbeeld, Bates, Swennen, & Jones, 2011; Cochran-Smith, 2005; Lunenberg et al., 2014; Loughran, 2014). Samengevat kan gesteld worden dat de rol van de lerarenopleider als 'onderzoeker' drie verschillende aspecten omvat: (1) lerarenopleiders moeten 'slimme' gebruikers zijn van onderzoek, wat verwijst naar het kritisch gebruik maken van de bestaande onderzoeksliteratuur om hun praktijk te onderbouwen, (2) lerarenopleiders moeten onderzoek uitvoeren om hun eigen praktijk te verbeteren en bij te dragen aan een gefundeerde kennisbasis in de lerarenopleidingen, en (3) lerarenopleiders moeten hun identiteit als lerarenopleider-onderzoeker waarderen. In een volgende stap hebben we de cognitieve theorie van Perkins, Jay & Tishman (1993) geïntroduceerd. Deze auteurs argumenteren dat een 'houding' steeds uit een triade van drie duidelijk afgebakende, doch aan elkaar gerelateerde dimensies, bestaat: (1) een cognitieve dimensie, (2) een affectieve dimensie, en (3) een gedragsmatige dimensie. De combinatie van de bestaande onderzoeksliteratuur met betrekking

tot de rol van de lerarenopleider als 'onderzoeker' en de 'triade' van Perkins, Jay & Tishman (1993) brengen ons tot de volgende definitie:

> 'De onderzoekende houding van lerarenopleiders is de grondhouding om als lerarenopleider onderzoek te gebruiken in de eigen praktijk en onderzoek uit te voeren naar de eigen praktijk. Onderzoek heeft hierbij een tweeledige doelstelling, namelijk: de eigen praktijk verbeteren en een bijdrage leveren aan de kennisbasis van de lerarenopleidingen.'

Theoretisch omvat deze onderzoekende houding drie aan elkaar gerelateerde dimensies (Tack & Vanderlinde, 2014; Tack & Vanderlinde, 2016b):

(1) Een affectieve dimensie of 'de mate waarin een lerarenopleider zijn eigen rol als lerarenopleider-onderzoeker waardeert'.

(2) Een cognitieve dimensie of 'de mate waarin een lerarenopleider in staat is om onderzoek te gebruiken in de eigen praktijk en onderzoek uit te voeren naar de eigen praktijk'.

(3) Een gedragsmatige dimensie of 'de mate waarin een lerarenopleider gevoelig is voor momenten waarop onderzoek gebruikt en uitgevoerd kan worden in de eigen praktijk'.

In vergelijking tot vorige termen, zoals bijvoorbeeld 'inquiry as stance' (Cochran-Smith & Lytle, 2009) en 'researcher attitude' (Kelchtermans, 2013; Vanassche, 2014) biedt deze definiëring een eerste duidelijkere gemeenschappelijke taal aan om de onderzoekende houding van lerarenopleiders theoretisch te bediscussiëren.

Het tweede deel van Hoofdstuk 2 presenteert de resultaten van een kwalitatief onderzoek waarbij semi-gestructureerde interviews afgenomen werden bij 20 lerarenopleiders om de theoretische conceptualisering empirisch te verkennen. Op basis van de kwalitatieve analyse wordt een typologie met drie verschillende soorten lerarenopleiders gepresenteerd: 'de reflectieve lerarenopleider' (Type 1), 'de door onderzoek geïnformeerde lerarenopleider' (Type 2), en 'de lerarenopleider-onderzoeker' (Type 3). De 'reflectieve lerarenopleider' (Type 1) wordt omschreven als een lerarenopleider die duidelijk (en enkel) de rol van de lerarenopleider als 'onderzoeker' waardeert (affectieve dimensie). De 'door onderzoek geïnformeerde lerarenopleider' (Type 2) verwijst naar een lerarenopleider die de rol van 'onderzoeker' waardeert (affectieve dimensie), regelmatig onderzoeksliteratuur leest en kennis heeft over het uitvoeren van onderzoek door vroegere ervaringen (cognitieve dimensie). Type 2 lerarenopleiders voeren geen systematisch onderzoek uit naar hun eigen praktijk

als lerarenopleider (gedragsmatige dimensie). De 'lerarenopleider-onderzoeker' (Type 3) is een lerarenopleider die in staat is om onderzoek uit te voeren (cognitieve dimensie) en die daadwerkelijk onderzoek uitvoert naar de eigen praktijk (gedragsmatige dimensie). Deze lerarenopleiders zijn er bovendien van overtuigd dat het voeren van onderzoek een kernaspect vormt van het takenpakket van elke 'goede' lerarenopleider (affectieve dimensie). Tabel 1 biedt een overzicht van de ontwikkelde typologie.

Tabel 3. Typologie van de onderzoekende houding van lerarenopleiders

	Affectief	Cognitief	Gedragsmatig
Type 1 'de reflectieve lerarenopleider'	✓		
Type 2 'de door onderzoek geïnformeerde lerarenopleider'	✓	✓	
Type 3 'de lerarenopleider-onderzoeker'	✓	✓	✓

Met het oog op het eerste onderzoeksdoel **(OD1)** wordt de onderzoekende houding van lerarenopleiders in dit proefschrift conceptueel voorgesteld als een driedimensioneel construct met een 'affectieve', een 'gedragsmatige', en een 'cognitieve' dimensie in **Hoofdstuk 2** (zie ook Tack & Vanderlinde, 2014). Voorts wordt een typologie gepresenteerd van de onderzoekende houding van lerarenopleiders, waarbij drie verschillende typen lerarenopleiders onderscheiden worden: (1) de 'reflectieve lerarenopleider' (Type 1), (2) de 'door onderzoek geïnformeerde lerarenopleider' (Type 2), en (3) de 'lerarenopleider-onderzoeker (Type 3).

Meetinstrument onderzoekende houding (OD2)

Een tweede doelstelling in dit proefschrift komt tegemoet aan het gebrek aan meetinstrumenten om empirisch inzicht te verwerven in de professionele ontwikkeling van lerarenopleiders. Met het oog op het ontwikkelen van een betrouwbaar en valide meetinstrument werd een van de eerste eerste grootschalige kwantitatieve vragenlijstonderzoeken naar de professionele ontwikkeling van lerarenopleiders opgezet. Bovendien kunnen dergelijke

instrumenten ook ingezet worden in interventieonderzoek naar de impact van professionaliseringsinitiatieven.

Gebaseerd op de theoretische conceptualisering van de onderzoekende houding van lerarenopleiders **(H2)**, richt het tweede onderzoeksdoel **(OD2)** in dit proefschrift zich op de ontwikkeling van een zelf-gerapporteerd meetinstrument om de onderzoekende houding van lerarenopleiders in kaart te brengen (zie **Hoofdstuk 3**, Tack & Vanderlinde, 2016a).

Het eerste deel van Hoofdstuk 3 presenteert de ontwikkeling van het meetinstrument TERDS (='Teacher Educator Researcherly Disposition Scale'). TERDS is een zelf-rapportage instrument om de onderzoekende houding van lerarenopleiders empirisch in kaart te brengen. De resultaten van de exploratieve factoranalyse (EFA) (n=472) suggereren een vierdimensionele structuur om empirisch inzicht te verwerven in de onderzoekende houding van lerarenopleiders. De vier volgende factoren worden van elkaar onderscheiden: (1) 'onderzoek waarderen', (2) 'een slimme gebruiker zijn van onderzoek', (3) 'in staat zijn om onderzoek uit te voeren', en (4) 'onderzoek uitvoeren'. De eerste factor, 'onderzoek waarderen' (met zes items), verwijst naar de mate waarin lerarenopleiders hun rol als lerarenopleider-onderzoeker waarderen. De tweede factor, 'een slimme gebruiker zijn van onderzoek' (met zes items), verwijst naar de mate waarin een lerarenopleider in staat is om bestaand onderzoek te gebruiken en daadwerkelijk onderzoek gebruikt om zijn/haar praktijk te informeren. De derde factor, 'in staat zijn om onderzoek uit te voeren' (met vier items) bevat items gerelateerd aan de mate waarin een lerarenopleider zichzelf in staat acht om onderzoek uit te voeren in de lerarenopleiding. De laatste en vierde factor, 'onderzoek uitvoeren' (met vier items), verwijst naar de mate waarin een lerarenopleider actief onderzoek uitvoert in de lerarenopleiding. De stabiliteit van de gevonden structuur wordt bevestigd door een confirmatorische factoranalyse (CFA) (n=472). Het ontwikkelde meetinstrument voldoet bovendien aan verschillende kwaliteitscriteria voor fit (CFI=.96, TLI=.95, SRMR=.04, RMSEA = .047) en betrouwbaarheid (Cronbach's alpha variërend tussen .82 en .89).

In het tweede deel van Hoofdstuk 3 wordt het instrument TERDS ingezet om de onderzoekende houding van lerarenopleiders empirisch te verkennen (n=944). De resultaten tonen aan dat lerarenopleiders laag tot gemiddeld scoren op alle subschalen van TERDS. Om mogelijke verschillen in scores op TERDS bij verschillende subgroepen van lerarenopleiders te onderzoeken, worden eerst

testen voor meetinvariantie uitgevoerd. Deze testen onderzoeken of ons meetinstrument dezelfde constructen meet – met dezelfde structuur – bij verschillende groepen. Na het succesvol vaststellen van volledige meetinvariantie worden de volgende vier subgroepen lerarenopleiders onderling vergeleken: (1) lerarenopleiders met onderzoekservaring (n= 746) vs. lerarenopleiders zonder onderzoekservaring (n=163); (2) lerarenopleiders met meer dan drie jaar ervaring als lerarenopleider (n=699) vs. lerarenopleiders met minder dan drie jaar ervaring (n=192); (3) lerarenopleiders met leservaring in het basis- of secundair onderwijs (n=514) vs. lerarenopleiders met geen leservaring in het basis- of secundair onderwijs (n=356); en (4) lerarenopleiders tewerkgesteld aan hogescholen (n=709) vs. lerarenopleiders tewerkgesteld aan centra voor volwassenenonderwijs (n=190). Gelijklopend met kleinschalig kwalitatief onderzoek (Lunenberg et al., 2014) werd vastgesteld dat de grootste groep lerarenopleiders geen onderzoekservaring heeft. In vergelijking met lerarenopleiders met onderzoekservaring hebben deze lerarenopleiders significant lagere scores op alle subschalen van TERDS. Lerarenopleiders met meer dan drie jaar ervaring als lerarenopleider gebruiken meer bestaand onderzoek om hun praktijk te onderbouwen, vergeleken met beginnende lerarenopleiders (met minder dan drie jaar ervaring). Lerarenopleiders zonder leservaring in het basis- en/of secundair onderwijs rapporteren significant meer onderzoek uit te voeren in vergelijking met collega's met leservaring. Lerarenopleiders tewerkgesteld aan hogescholen scoren ook significant hoger dan hun collega's in centra voor volwassenenonderwijs, wat het uitvoeren van onderzoek betreft.

Met het oog op het tweede onderzoeksdoel **(OD2)** wordt TERDS in **Hoofdstuk 3** ontwikkeld als een betrouwbaar zelf-rapportage meetinstrument om de onderzoekende houding van lerarenopleiders in kaart te brengen (zie ook Tack & Vanderlinde, 2016). TERDS heeft vier verschillende subschalen: (1) 'waarderen van onderzoek', (2) 'in staat zijn om onderzoek uit te voeren', (3) 'onderzoek uitvoeren', en (4) 'een slimme gebruiker zijn van onderzoek'. Gemiddeld behalen lerarenopleiders (n=944) eerder lage scores op elk van de verschillende subschalen, met een behoorlijke spreiding. Verder onderzoek via testen voor meetinvariantie toont aan dat (1) ervaringen met onderzoek, (2) aantal jaar ervaring als lerarenopleider, (3) leservaringen in het basis- en/of secundair onderwijs, en (4) type instelling, de scores van lerarenopleiders op TERDS beïnvloeden.

Factoren gerelateerd aan het ontwikkelen van een onderzoekende houding (OD3)

Een derde doelstelling in dit proefschrift betreft het in kaart brengen van contextuele factoren die gerelateerd zijn aan de professionele ontwikkeling van lerarenopleiders. Het idee dat de werkcontext de professionele ontwikkeling van lerarenopleiders beïnvloedt, is niet nieuw en ook niet baanbrekend (Vanassche, 2014). Echter, empirische instrumenten die de rol van de context op de professionele ontwikkeling van lerarenopleiders in kaart brengen, ontbreken nog steeds. Dergelijk onderzoek is nodig en uitermate belangrijk, niet enkel voor het onderzoeksgebied, maar ook voor lerarenopleiders zelf en diens instellingen om zich bewust te worden van de rol van organisatorische en institutionele factoren (Lunenberg et al., 2014; Vanassche, 2014).

Het derde onderzoeksdoel **(RO3)** in dit proefschrift beoogt daarom factoren te identificeren die gerelateerd zijn aan de onderzoekende houding van lerarenopleiders. De resultaten van de tweede grootschalige kwantitatieve studie in dit proefschrift worden gerapporteerd in **Hoofdstuk 4** (Tack & Vanderlinde, onder review a).

In het eerste deel van Hoofdstuk 4 de discrepantie tussen, enerzijds, het belang van het ontwikkelen van een onderzoekende houding, en anderzijds, het gebrek aan informatie over hoe lerarenopleiders ondersteund worden om deze houding te ontwikkelen (zie ook Europese Commissie, 2013; Mayer, Mitchell, Santoro & White, 2001; Murray & Male, 2005). Op basis van eerder onderzoek argumenteren we dat de professionele ontwikkeling vaak beïnvloed worden door de werkcontext (Billett, 2008). Gerelateerd aan de focus van dit proefschrift – de onderzoekende houding van lerarenopleiders – betekent dit dat het belangrijk is om de bestaande onderzoekscultuur en de bestaande onderzoeksinfrastructuur in kaart te brengen (Davies & Salisbury, 2008). Op basis van eerder kleinschalig en kwalitatief onderzoek (gebaseerd op bijvoorbeeld Davies & Salisbury, 2008; Lunenberg et al., 2014; Willemse & Boei, 2013) worden de volgende hypotheses onderzocht:

- de mate waarin lerarenopleiders het gevoel hebben dat hun instelling prioriteit geeft aan het uitvoeren van onderzoek – gekenmerkt door een hoge onderzoekscultuur – zal een positieve invloed hebben op de onderzoekende houding van lerarenopleiders;
- de mate waarin lerarenopleiders het gevoel hebben dat hun instelling prioriteit geeft aan het uitvoeren van onderzoek – gekenmerkt door een

hoge onderzoeksinfrastructuur – zal een positieve invloed hebben op de onderzoekende houding van lerarenopleiders;

Gebaseerd op deze hypotheses, is het doel van Hoofdstuk 4 een empirisch model te ontwikkelen waarin de percepties van lerarenopleiders met betrekking tot beide factoren (i.e. onderzoekscultuur en onderzoeksinfrastructuur) gerelateerd worden aan de onderzoekende houding. Deze relaties werden niet eerder onderzocht in grootschalig kwantitatief onderzoek. Deze kwantitatieve studie is gebaseerd op dezelfde dataset als gepresenteerd in **Hoofdstuk 3**: 944 lerarenopleiders tewerkgesteld aan een lerarenopleiding in een hogeschool of centrum voor volwassenenonderwijs in Vlaanderen. Deze instellingen hebben vaak geen sterke onderzoekstraditie, en onderzoek wordt vaak aanzien als een eerder nieuwe, moeilijke en uitdagende opdracht (Gilroy & McNamara, 2009; Murray & Male, 2005).

Het tweede deel van Hoofdstuk 4 presenteert de resultaten van het structurele vergelijkingsmodel (SEM) dat ontwikkeld is in het kader van de derde onderzoeksdoelstelling. Om de onderzoekende houding van lerarenopleiders in kaart te brengen, wordt meetinstrument TERDS met de vier bijhorende subschalen gehanteerd (zoals ontwikkeld in **Hoofdstuk 3**). Om de percepties van lerarenopleiders omtrent de bestaande onderzoekscultuur en de bestaande onderzoeksinfrastructuur in kaart te brengen, zijn twee bestaande schalen aangepast en gebruikt. Concreet werd de schaal 'Onderzoekscultuur', als onderdeel van de 'Vragenlijst naar Lerarenonderzoek' (Vrijnsen-de Corte, den Brok, Kamp & Bergen, 2013), aangepast om de percepties van de bestaande onderzoekscultuur in kaart te brengen. Deze schaal meet de percepties van lerarenopleiders met betrekking tot de collegiale ondersteuning en het klimaat voor onderzoek in hun instelling. Daarnaast werd de schaal 'Onderzoeksinfrastructuur', tevens onderdeel van de 'Vragenlijst naar Lerarenonderzoek' (Vrijnsen-de Corte, den Brok, Kamp & Bergen, 2013), aangepast om de percepties van de bestaande onderzoeksinfrastructuur in kaart te brengen. Deze schaal meet de percepties van lerarenopleiders met betrekking tot de bestaande organisatorische structuur die hun instelling aanbiedt om onderzoek uit te voeren. Gelijklopend met de lage tot gemiddelde scores op TERDS (zie **Hoofdstuk 3**) beoordelen lerarenopleiders de bestaande onderzoekscultuur in hun instelling als eerder laag. Voorts beoordelen ze de bestaande onderzoeksinfrastructuur in hun opleiding als praktisch onbestaand. Deze beschrijvende resultaten komen overeen met eerder kleinschalig kwalitatief onderzoek (Lunenberg et al., 2014; Willemse & Boei, 2013; Willemse et al., 2016). De SEM-analyse biedt bovendien inzicht in de onderlinge relaties tussen

de verschillende factoren. Percepties van de bestaande onderzoeksinfrastructuur zijn gerelateerd aan de mate waarin lerarenopleiders hun rol als onderzoeker waarderen, de mate waarin ze zichzelf in staat achten om onderzoek te doen, en de mate waarin ze onderzoek doen naar hun eigen praktijk. Percepties van de bestaande onderzoekscultuur zijn gerelateerd aan de mate waarin lerarenopleiders hun rol als onderzoeker waarderen en de mate waarin ze bestaand onderzoek gebruiken om hun praktijk te onderbouwen. Tot slot bevestigen de significante indirecte relaties de belangrijke wisselwerking tussen de percepties van deze structurele en culturele factoren en de onderzoekende houding van lerarenopleiders.

Met het oog op het derde onderzoeksdoel **(OD3)** biedt **Hoofdstuk 4** inzicht in de mate waarin de percepties van lerarenopleiders met betrekking tot de bestaande onderzoekscultuur en de bestaande onderzoekinfrastructuur gerelateerd zijn aan de onderzoekende houding van lerarenopleiders (zie ook Tack & Vanderlinde, onder review a). Gelijklopend met de lage scores op elk van de verschillende subschalen van TERDS, beoordelen lerarenopleiders de bestaande onderzoekscultuur en de bestaande onderzoeksinfrastructuur als laag. De resultaten van het structureel vergelijkingsmodel (SEM) suggereren bovendien dat de lage scores op verschillende dimensies van de onderzoekende houding positief gerelateerd zijn aan lage percepties over de onderzoeksinfrastructuur en onderzoekscultuur in de opleiding.

Impact van een interventie praktijkonderzoek op de onderzoekende houding van lerarenopleiders (OD4)

Een vierde doelstelling in dit proefschrift is gerelateerd aan het huidige gebrek aan interventiestudies die focussen op de relatie tussen professionaliseringsinitiatieven en de professionele ontwikkeling van lerarenopleiders, ook op langere termijn. Praktijkonderzoek wordt hierbij vaak omschreven als een beloftevolle strategie om de professionele ontwikkeling van lerarenopleiders te ondersteunen. Studies rond dit topic focussen echter te vaak op tevredenheid (Lunenberg et al., 2014; Merchie, Tuytens, Devos & Vanderlinde, 2016; Murray et al., 2009) of onderzoeken hinderende en ondersteunende factoren bij het begeleiden van praktijkonderzoek (Lunenberg et al., 2014; Vanassche, 2014). Kwaliteitsvol interventieonderzoek waarbij conclusies gemaakt

kunnen worden over de impact van dergelijke initiatieven op de professionele ontwikkeling van lerarenopleiders ontbreekt dus.

Het vierde onderzoeksdoel **(OD4)** in dit proefschrift focust daarom op de impact van een eenjarige interventie rond praktijkonderzoek op de onderzoekende houding van lerarenopleiders. De resultaten van dit onderzoek worden gepresenteerd in **Hoofdstuk 5** (Tack & Vanderlinde, onder review b).

Het eerste deel van Hoofdstuk 5 presenteert de theoretische achtergrond en de context van de interventie. De context van de interventie betreft het project 'Lerarenopleiders Onderzoeksvaardig!', een samenwerkingsverband [1] waarbij lerarenopleiders van het voormalige Expertisenetwerk Associatie Universiteit Gent[2] in samenwerking met collega's praktijkonderzoek leren uitvoeren (zie ook Tack & Vanderlinde, 2016b; 2016c). De resultaten van het mixed-method onderzoek worden gepresenteerd in dit proefschrift om inzicht te verwerven in de impact van de interventie op de onderzoekende houding van lerarenopleiders. TERDS (zoals gepresenteerd in **Hoofdstuk 3**) wordt ingezet voor, onmiddellijk na, en acht maanden na de interventie om kwantitatief inzicht te verwerven in veranderingen in de onderzoekende houding van lerarenopleiders. De kwalitatieve dataverzameling bestaat uit data verzameld in het kader van intake interviews, exit interviews, follow-up interviews, observaties van de groepssessies, en e-mailgesprekken tussen de begeleiders en de deelnemers. De ontwikkeling van deze kwalitatieve instrumenten is gebaseerd op het theoretisch kader zoals gepresenteerd in **Hoofdstuk 2**. Gebaseerd op de cyclus van praktijkonderzoek doorliepen 25 Vlaamse lerarenopleiders de verschillende fasen van het praktijkonderzoek. Hierbij wisselden ze gedurende zes groepssessies – opgevat als professionele leergemeenschappen – hun ervaringen uit met andere collega-opleiders. De controlegroep (n=20) zette de onderwijsactiviteiten verder tijdens de interventie, en nam deel aan een uitgestelde interventie. De ontwikkeling van de interventie is gebaseerd op designprincipes van voorgaande interventies opgezet in de lerarenopleiding (zie **Hoofdstuk 5** voor een overzicht).

Het tweede deel van Hoofdstuk 5 presenteert de resultaten van het mixed-method onderzoek. De resultaten van de kwantitatieve analyse (ANCOVA) tonen een positieve impact van de interventie wat betreft het uitvoeren van onderzoek

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[1] Het project betreft een samenwerking tussen Arteveldehogeschool, PCVO Het Perspectief en Universiteit Gent.

[2] Het expertisenetwerk AUGent was een samenwerkingsverband (2007-2015) tussen negen Vlaamse lerarenopleidingen en biedt een structureel samenwerkingsplatform tussen drie hogescholen, vijf centra voor volwassenenonderwijs en één universiteit.

en het gebruiken van onderzoek. Er werden geen statistisch significante veranderingen vastgesteld wat betreft het waarderen van onderzoek en het in staat zijn om onderzoek uit te voeren. De positieve interventie-effecten gerelateerd aan het uitvoeren en gebruiken van onderzoek zijn acht maanden na deelname nog steeds vast te stellen. De positieve resultaten van de kwantitatieve analyses stemmen overeen met de kwalitatieve bevindingen. Deze zorgen bovendien voor een diepgaander inzicht. We stellen bijvoorbeeld vast dat lerarenopleiders niet enkel onderzoek doen om hun eigen praktijk beter te onderbouwen, ze voeren ook onderzoek uit vanuit hun voorbeeldrol naar studenten toe. Acht maanden na deelname stellen we vast dat een aantal lerarenopleiders actief deelnemen aan conferenties voor lerarenopleiders. De interventie draagt met andere woorden bij tot een verbetering in de onderwijspraktijk (bv. syllabus ontwikkeling). Bovendien draagt de interventie – zij het in mindere mate – tot bredere kennisdisseminatie (bv. presentaties op conferenties). Tegelijkertijd benadrukken de deelnemers de nood aan verdere structurele ondersteuning om deze positieve effecten te behouden. Gerelateerd aan het gebruiken van bestaand onderzoek, zijn deelnemers ervan overtuigd dat ze sneller bestaande onderzoeksliteratuur zullen raadplegen om hun praktijk te onderbouwen. Wat betreft het waarderen van onderzoek, wordt kwantitatief geen verandering vastgesteld. Echter, wanneer we kwalitatief veranderingen in deze dimensie van de onderzoekende houding van lerarenopleiders in kaart brengen, stellen we een belangrijke mind-shift vast. Na hun deelname aan het traject beschouwen lerarenopleiders het belang van onderzoek als (1) een inherent aspect van hun praktijk (vergeleken met een meer 'algemene' waardering voor onderzoek voorheen); (2) essentieel in hun voorbeeldfunctie ten opzichte van toekomstige leraren; en (3) gekoppeld aan de verdere verbetering van hun andere taken, rollen en verantwoordelijkheden als lerarenopleider. Tot slot verwijst de lichte kwantitatieve daling op de schaal 'in staat zijn om onderzoek uit te voeren' naar een meer realistische inschatting van de eigen capaciteiten wat betreft het uitvoeren van onderzoek in de lerarenopleidingen.

Met oog op het vierde onderzoeksdoel **(OD4)**, presenteert **Hoofdstuk 4** de resultaten van een mixed-method onderzoek om inzicht te verwerven in de impact van een eenjarige interventie rond praktijkonderzoek op de onderzoekende houding van lerarenopleiders (zie ook Tack & Vanderlinde, onder review b). Zowel de kwantitatieve resultaten als de kwalitatieve bevindingen zoals gepresenteerd in **Hoofdstuk 5** bevestigen het succes van de interventie om de onderzoekende houding van lerarenopleiders te ondersteunen, ook op langere termijn.

Lerarenopleiders maken meer gebruik van onderzoek, zijn actiever betrokken bij het uitvoeren van onderzoek, en maken een meer realistische inschatting over de mate waarin ze in staat zijn onderzoek uit te voeren. Bovendien zijn lerarenopleiders zich na deelname meer bewust van hun specifieke praktijk als 'tweede-orde' onderwijzer en welke rol praktijkonderzoek hierbij kan spelen. Ze identificeerden zichzelf in gesprekken achteraf ook meer als 'lerarenopleider', terwijl het bij aanvang ging over 'mijn praktijk als leraar'. Richtlijnen voor het ontwerpen van professionaliseringsinitiatieven voor lerarenopleiders worden gepresenteerd (zie **Hoofdstuk 5** voor een overzicht).

Algemene discussie en conclusie

Hoofdstuk 6 biedt een samenvatting van de belangrijkste resultaten van de verschillende deelstudies, zoals hierboven beschreven. Daarnaast worden ter discussie en conclusie vier verschillende thema's gepresenteerd. In het eerste thema 'Professionele ontwikkeling van lerarenopleiders als het ontwikkelen van een onderzoekende houding' wordt een terugkoppeling gemaakt naar de algemene doelstelling van dit proefschrift. Dit proefschrift richt zich op het beter begrijpen van de professionele ontwikkeling van lerarenopleiders, door het theoretisch en empirisch in kaart brengen van hun onderzoekende houding. Deze specifieke keuze heeft voor de nodige conceptuele duidelijkheid gezorgd, maar biedt hierdoor slechts een gedeeltelijk beeld op de professionele ontwikkeling van lerarenopleiders. In het tweede thema 'De onderzoekende houding van lerarenopleiders als een multidimensioneel construct' wordt de discrepantie tussen de theoretische conceptualisering (driedimensioneel) en de empirische operationalisering (vierdimensioneel) van de onderzoekende houding ter discussie gesteld. Specifiek wordt hierbij gefocust op het complexe karakter van het begrip 'onderzoekende houding' en het belang van de verschillende dimensies. Verder onderzoek is nodig om het concept verder uit te diepen. In het derde thema 'De onderzoekende houding is steeds gesitueerd in een context' wordt het belang van verschillende contexten op de onderzoekende houding van lerarenopleiders besproken. Concreet worden op basis van de resultaten van dit proefschrift implicaties geformuleerd op instellingsniveau, niveau van de vereniging voor lerarenopleiders, Vlaams niveau, en internationaal niveau. Het vierde en laatste thema 'Naar een opleiding van lerarenopleiders en de rol van praktijkonderzoek' tracht bij te dragen aan het bredere en actuele debat rond de professionele ontwikkeling van lerarenopleiders in het algemeen (De Wever, Vanderlinde,

Tuytens & Aelterman, 2016; Europese Commissie, 2013; Loughran, 2016; Lunenberg et al., 2014; Lunenberg, Murray, Smith & Vanderlinde, 2016; Meijer, 2013; Smith, 2015) en de stijgende vraag naar een opleiding voor lerarenopleiders in het bijzonder (Berry, 2016; Kosnik, Menna & Dharamshi, 2016; Tack et al., geaccepteerd). In dit thema wordt een pleidooi gevoerd voor een meer formele in-service opleiding voor alle lerarenopleiders binnen een breder (internationaal) professionaliseringsaanbod.

Voor elk van deze thema's wordt ingegaan op de beperkingen van de verschillende deelstudies en worden suggesties voor vervolgonderzoek gepresenteerd. Beperkingen hebben onder andere betrekking op de specifieke focus van het concept 'onderzoekende houding', de specifieke focus op instituutsopleiders tewerkgesteld aan professionele lerarenopleidingen, het beperkt aantal variabelen in de kwantitatieve studies, en het zelf-gerapporteerde karakter van de verzamelde data. Suggesties voor vervolgonderzoek benadrukken dan ook de nood aan meer systematisch onderzoek naar de professionele identiteit(en) van lerarenopleiders (Kelchtermans et al., 2017; Meijer, 2013; Kosnik, Menna & Dharamshi, 2016) en naar de verschillende professionele rollen van de lerarenopleider (Lunenberg et al., 2014). Vervolgonderzoek wordt sterk aanbevolen zich ook te richten op de professionele ontwikkeling van schoolopleiders (= mentoren) en lerarenopleiders tewerkgesteld aan universiteiten. In de toekomst wordt bovendien aanbevolen longitudinale studies op te zetten, waarbij het principe van datatriangulatie toegepast wordt met verschillende methodes, zoals vragenlijsten, interviews, en observaties.

Tevens worden per thema enkele implicaties vermeld voor praktijk en beleid. Op theoretisch niveau levert dit proefschrift een bijdrage door het begrip 'onderzoekende houding' van lerarenopleiders duidelijk te conceptualiseren als een driedimensioneel construct. Daarnaast werd een meetinstrument ontwikkeld om de onderzoekende houding empirisch in kaart te brengen en werden gerelateerde factoren onderzocht. Dit meetinstrument kan ingezet worden in grootschalige kwantitatieve studies en interventieonderzoek gericht op de professionele ontwikkeling van lerarenopleiders. Bovendien werd aangetoond dat een eenjarige interventie in praktijkonderzoek een beloftevolle strategie is om de onderzoekende houding van lerarenopleiders te ondersteunen.

Zowel het theoretisch kader als het ontwikkelde meetinstrument kunnen ingezet worden in beleid en praktijk om een gemeenschappelijke taal te creëren rond de professionele ontwikkeling van lerarenopleiders in het algemeen, en het

ontwikkelen van een onderzoekende houding in het bijzonder. Bovendien wordt een pleidooi gevoerd voor meer systematische aandacht voor de onderzoekende houding en de professionele ontwikkeling van lerarenopleiders zowel op het niveau van de instelling, op Vlaams niveau, als op internationaal niveau. Tot slot worden aanbevelingen geformuleerd voor het inrichten van een opleiding voor lerarenopleiders. Deze aanbevelingen zijn gebaseerd op de verschillende deelstudies uit dit proefschrift en pleiten voor een meer formele in-service opleiding voor het ondersteunen van alle lerarenopleiders als onderdeel van een breder professionaliseringsbeleid voor lerarenopleiders.

De resultaten van dit proefschrift benadrukken het belang van 'maatwerk' waarbij lerarenopleiders specifieke professionaliseringsnoden in hun eigen context en opleidingspraktijk kunnen aanpakken. Pas wanneer deze noden gewaarborgd en breed erkend worden, geloven wij in een sterkere en kwaliteitsvollere lerarenopleiding voor iedereen. Wij hopen met dit proefschrift een bron van actie en inspiratie te mogen zijn.

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Academic output

Academic output

Journals

(a1)

Tack, H., & Vanderlinde, R. (2014). Teacher educators' professional development: Towards a typology of teacher educators' researcherly disposition. *British Journal of Educational Studies*, 62(3), 297-315.

Tack, H., & Vanderlinde, R. (2016). Measuring teacher educators' researcherly disposition: Item development and scale construction. *Vocations & Learning*, 9(1), 43-62.

Tack, H., Valcke, M., Rots, I., Struvyen, K. & Vanderlinde, R. (accepted). Uncovering a hidden professional agenda for teacher educators: A mixed method study on Flemish teacher educators and their professional development. *European Journal of Teacher Education.*

Tack, H., & Vanderlinde, R. (under review). Exploring the relationship between the perceived research infrastructure, the perceived research culture, and teacher educators' researcherly disposition. *Journal of Education for Teaching.*

Tack, H., & Vanderlinde, R. (under review). Understanding the impact of an intervention on practitioner research on teacher educators' researcherly disposition: A mixed method study. *Journal of Teacher Education.*

(a2)

Tack, H., & Vanderlinde, R. (2016). De Masterclass 'Lerarenopleiders Onderzoeksvaardig!': Ontwikkeling, organisatie en onderzoek naar een professionaliseringstraject voor lerarenopleiders. [The Masterclass: Development, organization and research on an intervention for teacher educators], *Tijdschrift voor Lerarenopleiders (VELON/VELOV)*, 37(2), 43-54.

Tack, H., & Vanderlinde, R. (2016). Teacher educators' professional development in Flanders: Practitioner research as a promising strategy. *Research in Teacher Education*, 6(2), 6-11.

Chapter in book

Vanassche, E., Rust, F., Conway, P., Smith, K., **Tack, H.,** & Vanderlinde, R. (2015). InFo-TED: Bringing policy, research, and practice together around teacher educator development. In C. Craig & L. Orland-Barak (Eds.), *International teacher education: Promising pedagogies (Part C).* Bingley, England: Emerald Books.

Conference contributions

Tack, H., & Vanderlinde, R. (2016). *Promoting the development of teacher educators' researcherly disposition: Effects of a professionalisation course on practitioner research.* Paper presented at the EARLI SIG 11, Swiss, Zürich, 20-22 June 2016.

Tack, H., & Vanderlinde, R. (2015). *Exploring the impact of a Masterclass 'Practitioner research' on teacher educators' researcherly disposition.* Paper presented at the EAPRIL 2015 Conference. Luxemburg, Belval, 24-27 November 2015.

Tack, H., & Vanderlinde, R. (2015). *Teacher educators' professional development: Conceptualisation and operationalisation of teacher educators' researcherly disposition*. Paper presented at the European Conference on Educational Research (ECER), Hungary, Budapest, 8-11 September 2015.

Tack, H., & Vanderlinde, R. (2015). *Teacher educators' professional development: The development of a researcherly disposition.* Paper presented at the American Educational Research Association (AERA), USA, Chicago, 15-21 April 2015.

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Hurtekant, J., Pauwels, J., Ouahab, A., De Muynck, E., Dewindt, V., **Tack, H.,** Mathieu, G., & Vanderlinde, R. (2015). *Professionalisering van lerarenopleiders door praktijkonderzoek: De Gentse Masterclass.* Paper gepresenteerd op de conferentie van de Vereniging van Lerarenopleiders Nederland (VELON), Arnhem, 26-27 maart 2015.

Tack, H., & Vanderlinde, R. (2015). De impact van een professionaliseringstraject rond praktijkonderzoek *op het professioneel leren van lerarenopleiders: Een*

kwalitatieve analyse. Paper gepresenteerd op de conferentie van de Vereniging voor Lerarenopleiders Vlaanderen (VELOV), Hasselt, 26 februari 2015.

Tack, H., & Vanderlinde, R. (2014). *Teacher educators' professional development: Practitioner research, a promising approach?* Poster presented at the European Conference on Educational Research (ECER), Portugal, Porto, 1-5 September 2014.

Tack, H., Vanderlinde, R., Struyven, K., & Valcke, M. (2014). *Teacher educators' professional development: A mixed method study on the organization of professional development activities at institutional level.* Paper presented at the SIG 11 meeting of EARLI, Germany, Frauenchiemsee, 16-19 June 2014.

Tack, H., & Vanderlinde, R. (2014). *Measuring and developing teacher educators' researcherly disposition*. Poster presented at the SIG 11 meeting of EARLI, Germany, Frauenchiemsee, 16-19 June 2014.

Tack, H., & Vanderlinde, R. (2014). *Teacher educators' researcherly disposition: cleaning up a messy construct.* Paper presented at the 2014 NAFOL National conference: Once a teacher, always a teacher, NAFOL (Norwegian National Graduate School in Teacher Education), Troms, Norway, 20-22 May 2014.

Tack, H., & Vanderlinde, R. (2014). *Teacher educators' professional development: practitioner research, a promising approach?* Poster presented at the 20th European Conference on Educational Research (ECER 2014): The past, present and future of educational research in Europe, Porto, Portugal, 02-05 September 2014.

Hurtekant, J., Pauwels, J., Ouahab, A., Mathieu, G., Demuynck, E., Dewindt, V., **Tack, H.,** & Vanderlinde, R. (2014). *Professionalisering van lerarenopleiders via praktijkonderzoek.* Poster gepresenteerd op de VELOV Conferentie 2014, België, Mechelen, 26 maart 2014.

Hurtekant, J., Pauwels, J., Ouahab, A., Mathieu, G., Demuynck, E., Dewindt, V., **Tack, H.,** & Vanderlinde, R. (2014). *Professionalisering van lerarenopleiders via praktijkonderzoek.* Poster gepresenteerd op het Congres voor Lerarenopleiders 2014: Innovatieve wegen voor het opleiden van leraren, Nederland, Eindhoven, 10-11 maart 2014.

Tack, H., & Vanderlinde, R. (2013). *Measurement and development of teacher educators' research attitude.* Paper presented at the International seminar for PhD students in teacher education. The Netherlands, Amsterdam, 1-3 October 2013.

Awards and honors

2016 – Winnaar van de 'Eerste prijs voor de beste artikelen 37ste jaargang 2016' voor het onderzoeksartikel *'De Masterclass 'Lerarenopleiders Onderzoeksvaardig!': Ontwikkeling, organisatie en onderzoek naar een professionaliseringstraject voor lerarenopleiders.'* gepubliceerd in het Tijdschrift voor Lerarenopleiders (VELON/VELOV) (prijs uitgereikt op het Congres voor Lerarenopleiders 2017 door de Redactie van het Tijdschrift voor Lerarenopleiders).

2015 – Winner of the *'International Travel Award'* for the contribution *'Teacher educators' professional development: The development of a researcherly disposition'* presented at the AERA 2015 Conference, Chicago, Illinois (awarded by the International Relations Committee of the American Educational Research Association - AERA)

Data storage fact sheets

% Data Storage Fact Sheet 1

% Name/identifier study: Chapter 2
% Author: Hanne Tack
% Date: 30 april 2017

1. Contact details
===

1a. Main researcher

- name: Hanne Tack
- address: Henri Dunantlaan 2, 9000 Ghent, Belgium
- e-mail: Hanne.Tack@UGent.be

1b. Responsible Staff Member (ZAP)

- name: Ruben Vanderlinde (promotor PhD research)
- address: Henri Dunantlaan 2, 9000 Ghent, Belgium
- e-mail: Ruben.Vanderlinde@UGent.be

If a response is not received when using the above contact details, please send an email to data.pp@ugent.be or contact Data Management, Faculty of Psychology and Educational Sciences, Henri Dunantlaan 2, 9000 Ghent, Belgium.

2. Information about the datasets to which this sheet applies
===
* Reference of the publication in which the datasets are reported:
Tack, H., & Vanderlinde, R. (2014). Teacher educators' professional development: Towards a typology of teacher educators' researcherly disposition. *British Journal of Educational Studies*, 62(3), 297-315.

* Which datasets in that publication does this sheet apply to?:
The sheet applies to all the data used in the publication

3. Information about the files that have been stored

==

3a. Raw data

----

* Have the raw data been stored by the main researcher? [X] YES / [ ] NO

If NO, please justify:

* On which platform are the raw data stored?

Teacher educator interview data
- [X] researcher PC
- [ ] research group file server
- [X] other (specify): researcher's external hard disk

* Who has direct access to the raw data (i.e., without intervention of another person)?
- [X] main researcher
- [X] responsible ZAP
- [ ] all members of the research group
- [ ] all members of UGent
- [ ] other (specify):

3b. Other files

----

* Which other files have been stored?
- [X] file(s) describing the transition from raw data to reported results. Specify: A coding scheme was stored that has been used to analyse the interview data.
- [X] file(s) containing processed data. Specify: All interviews were transcribed and saved in Word files.
- [X] file(s) containing analyses. Specify: For each participant thematic summaries were created in order to structure the extensive text and reduce the data. These summaries contain the results of the vertical analysis (step 1) and the horizontal analysis (step 2). Reports of these analyses were saved as World files.
- [] files(s) containing information about informed consent

- [ ] a file specifying legal and ethical provisions
- [ ] file(s) that describe the content of the stored files and how this content should be interpreted. Specify: ...
- [ ] other files. Specify: ...

* On which platform are these other files stored?
- [X] individual PC
- [ ] research group file server
- [ ] other: ...

* Who has direct access to these other files (i.e., without intervention of another person)?
- [X] main researcher
- [ ] responsible ZAP
- [ ] all members of the research group
- [ ] all members of UGent
- [ ] other (specify): ...

4. Reproduction
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 % Data Storage Fact Sheet 2

% Name/identifier study: Chapter 3
% Author: Hanne Tack
% Date: 30 april 2017

1. Contact details
===

1a. Main researcher

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-   e-mail: Hanne.Tack@UGent.be

1b. Responsible Staff Member (ZAP)

-   name: Ruben Vanderlinde (promotor PhD research)
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-   e-mail: Ruben.Vanderlinde@UGent.be

If a response is not received when using the above contact details, please send an email to data.pp@ugent.be or contact Data Management, Faculty of Psychology and Educational Sciences, Henri Dunantlaan 2, 9000 Ghent, Belgium.

2. Information about the datasets to which this sheet applies
===
* Reference of the publication in which the datasets are reported:
Tack, H., & Vanderlinde, R. (2016). Measuring teacher educators' researcherly disposition: Item development and scale construction. *Vocations & Learning*, 9(1), 43-62.

* Which datasets in that publication does this sheet apply to?:
The sheet applies to all the data used in the publication

3. Information about the files that have been stored
===
3a. Raw data
----

* Have the raw data been stored by the main researcher? [X] YES / [ ] NO
If NO, please justify:

* On which platform are the raw data stored?

Teacher educator survey data
- [X] researcher PC
- [ ] research group file server
- [X] other (specify): researcher's external hard disk

* Who has direct access to the raw data (i.e., without intervention of another person)?
- [X] main researcher
- [X] responsible ZAP
- [ ] all members of the research group
- [ ] all members of UGent
- [ ] other (specify):

3b. Other files
----

* Which other files have been stored?
- [X] file(s) describing the transition from raw data to reported results. Specify: SPSS-syntax files + MPlus-syntax files were stored.
- [X] file(s) containing processed data. Specify: Teacher educator survey data was processed and cleaned in SPSS.
- [X] file(s) containing analyses. Specify: MPlus output and models (i.e. output of the main analyses regarding the research questions were stored) + SPSS output (i.e. results of EFA) + MPlus output (i.e. results of CFA).
- [] files(s) containing information about informed consent
- [ ] a file specifying legal and ethical provisions
- [ ] file(s) that describe the content of the stored files and how this content should be interpreted. Specify: ...
- [ ] other files. Specify: ...

* On which platform are these other files stored?
- [X] individual PC
- [ ] research group file server
- [ ] other: ...

* Who has direct access to these other files (i.e., without intervention of another person)?

- [X] main researcher
- [ ] responsible ZAP
- [ ] all members of the research group
- [ ] all members of UGent
- [ ] other (specify): ...

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- affiliation:
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% Data Storage Fact Sheet 3

% Name/identifier study: Chapter 4
% Author: Hanne Tack
% Date: 30 april 2017

1. Contact details

===

1a. Main researcher

- name: Hanne Tack
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- e-mail: Hanne.Tack@UGent.be

1b. Responsible Staff Member (ZAP)

- name: Ruben Vanderlinde (promotor PhD research)
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- e-mail: Ruben.Vanderlinde@UGent.be

If a response is not received when using the above contact details, please send an email to data.pp@ugent.be or contact Data Management, Faculty of Psychology and Educational Sciences, Henri Dunantlaan 2, 9000 Ghent, Belgium.

2. Information about the datasets to which this sheet applies

===

* Reference of the publication in which the datasets are reported:

Tack, H., & Vanderlinde, R. (under review). Exploring the relationship between the perceived research infrastructure, the perceived research culture, and teacher educators' researcherly disposition. *Journal of Education for Teaching.*

* Which datasets in that publication does this sheet apply to?:

The sheet applies to all the data used in the publication

3. Information about the files that have been stored

===

3a. Raw data

----

* Have the raw data been stored by the main researcher? [X] YES / [ ] NO

If NO, please justify:

* On which platform are the raw data stored?

Teacher educator survey data

- [X] researcher PC
- [ ] research group file server
- [X] other (specify): researcher's external hard disk

* Who has direct access to the raw data (i.e., without intervention of another person)?

- [X] main researcher
- [X] responsible ZAP
- [ ] all members of the research group
- [ ] all members of UGent
- [ ] other (specify):

3b. Other files
----

* Which other files have been stored?
- [X] file(s) describing the transition from raw data to reported results. Specify: SPSS-syntax files + MPlus-syntax files were stored.
- [X] file(s) containing processed data. Specify: Teacher educator survey data was processed and cleaned in SPSS.
- [X] file(s) containing analyses. Specify: MPlus output and models (i.e. output of the main analyses regarding the research questions were stored) + SPSS output + MPlus output (i.e. results of SEM).
- [] files(s) containing information about informed consent
- [ ] a file specifying legal and ethical provisions
- [ ] file(s) that describe the content of the stored files and how this content should be interpreted. Specify: ...
- [ ] other files. Specify: ...

* On which platform are these other files stored?
- [X] individual PC
- [ ] research group file server
- [ ] other: ...

* Who has direct access to these other files (i.e., without intervention of another person)?
- [X] main researcher
- [ ] responsible ZAP
- [ ] all members of the research group
- [ ] all members of UGent
- [ ] other (specify): ...

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    - address:
    - affiliation:
    - e-mail:

% Data Storage Fact Sheet 4

% Name/identifier study: Chapter 5
% Author: Hanne Tack
% Date: 30 april 2017

1. Contact details

===

1a. Main researcher

    - name: Hanne Tack
    - address: Henri Dunantlaan 2, 9000 Ghent, Belgium
    - e-mail: Hanne.Tack@UGent.be

1b. Responsible Staff Member (ZAP)

    - name: Ruben Vanderlinde (promotor PhD research)
    - address: Henri Dunantlaan 2, 9000 Ghent, Belgium
    - e-mail: Ruben.Vanderlinde@UGent.be

If a response is not received when using the above contact details, please send an email to data.pp@ugent.be or contact Data Management, Faculty of Psychology and Educational Sciences, Henri Dunantlaan 2, 9000 Ghent, Belgium.

2. Information about the datasets to which this sheet applies
==
* Reference of the publication in which the datasets are reported:
Tack, H., & Vanderlinde, R. (under review). Understanding the impact of an intervention on practitioner research on teacher educators' researcherly disposition: A mixed method study. *Journal of Teacher Education.*

* Which datasets in that publication does this sheet apply to?:
The sheet applies to all the data used in the publication

3. Information about the files that have been stored
==
3a. Raw data
----

* Have the raw data been stored by the main researcher? [X] YES / [ ] NO
If NO, please justify:

* On which platform are the raw data stored?

Teacher educator interview data (intake-interview, exit-interview, follow-up)
- [X] researcher PC
- [ ] research group file server
- [X] other (specify): researcher's external hard disk

Teacher educator survey data (pre-test, post-test, follow-up test)
- [X] researcher PC
- [ ] research group file server
- [X] other (specify): researcher's external hard disk

Observations of the group sessions and email conversations
- [X] researcher PC
- [ ] research group file server
- [X] other (specify): researcher's external hard disk

* Who has direct access to the raw data (i.e., without intervention of another person)?
  - [X] main researcher
  - [X] responsible ZAP
  - [ ] all members of the research group
  - [ ] all members of UGent
  - [ ] other (specify):

3b. Other files

----

* Which other files have been stored?
  - [X] file(s) describing the transition from raw data to reported results. Specify: A coding scheme was stored that has been used to analyse the interview data. Teacher educator survey data was stored in SPSS.
  - [X] file(s) containing processed data. Specify: All interviews were transcribed and saved in Word files. Teacher educator survey data was processed and cleaned in SPSS.
  - [X] file(s) containing analyses. Specify: For each participant thematic summaries were created in order to structure the extensive text and reduce the data. These summaries contain the results of the vertical analysis (step 1) and the horizontal analysis (step 2). Reports of these analyses were saved as World files. SPSS-output of the quantitative analyses.
  - [] files(s) containing information about informed consent
  - [ ] a file specifying legal and ethical provisions
  - [ ] file(s) that describe the content of the stored files and how this content should be interpreted. Specify: ...
  - [ ] other files. Specify: ...

* On which platform are these other files stored?
  - [X] individual PC
  - [ ] research group file server
  - [X] other: researcher's external hard disk

* Who has direct access to these other files (i.e., without intervention of another person)?
  - [X] main researcher
  - [ ] responsible ZAP
  - [ ] all members of the research group

- [ ] all members of UGent
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