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## Capturing the relations between teacher educators' opportunities for professional growth, work pressure, work related basic needs satisfaction, and teacher educators' researcherly disposition

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### ABSTRACT

Grounded in the Self-Determination Theory, this study examines the relations between teacher educators' experienced work pressure and opportunities for professional growth, their work related basic needs satisfaction (i.e. autonomy, competence and relatedness) and their researcherly disposition (i.e. being a smart consumer of research, being able to conduct research, conducting research and valuing research). A large-scale survey study was conducted, involving 944 teacher educators working within teaching-intensive teacher education institutions. The results of SEM-analyses show that teacher educators' opportunities for growth as well as the experienced work pressure are significantly related to the satisfaction of teacher educators' basic psychological needs at work. In turn, positive relations were identified between the satisfaction of the basic psychological needs and teacher educators' researcherly disposition.

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### KEYWORDS

Basic needs satisfaction;  
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context; teacher education

## Introduction

Research on teacher educators' professional development is still a relatively young field (Lunenberg, Dengerink, and Korthagen 2014). In this respect, the research field is often described as 'under-researched' (Livingston 2014), with much of the current literature drawing on what is known about teachers' professional development (Berry 2016). 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' work and professional development might be meaningfully conceptualised (e.g. Berry 2016; Cochran-Smith 2005; Loughran 2014, 2016; Lunenberg, Dengerink, and Korthagen 2014; Smith 2015; Tack et al. 2018; Vanassche et al. 2015). In common, these authors have emphasised that a significant part of teacher educators' work, in addition to teaching teachers, should be to conduct research (Lunenberg, Dengerink, and Korthagen 2014). Cochran-Smith (2005) describes this two-fold responsibility as 'working the dialectic' (221). This means that teacher educators' role is neither an exclusive researcher role, nor an exclusive practitioner role, but an

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intertwining and 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, 221). Research, as such, is thus perceived as an inherent part of developing teacher educator's core practice as a 'teacher of teachers' (Chetty and Lubben 2010; Cochran-Smith 2005). To develop knowledge of their practice as 'teachers of teachers' 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 2005). Practice-oriented forms of research include 'teacher research' (Clarke and Erickson 2003), 'self-study' (Loughran et al. 2004), and 'practitioner research' (Cochran-Smith and Lytle 2009; Zeichner and 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 and Lytle 2009; Loughran 2016). In this respect, the Self-Study of Teacher Education Practices (S-STEP), one of the American Educational Research Association's (AERA) largest Special Interest Groups (SIGs) is – for instance – a visible sign of the growing group of teacher educators engaged research on their own practice (Cochran-Smith 2005). 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 to conceptualise teacher educators' professional development as developing an 'inquiry as stance' (Cochran-Smith and Lytle 2009), a 'researcher's attitude' (Vanassche 2014), a 'research journey' (Loughran 2014) or a 'researcherly disposition' (Tack and Vanderlinde 2014, 2016). These strongly related terms are used interchangeably in the appeal for teacher educators' ongoing engagement in research to improve their teaching practice. In short, these terms broadly refer 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, 2016).

Since most teacher educators have not been prepared for their roles and becoming a teacher educator does not require any specific training, induction or qualification, the workplace is often the most likely setting to develop professionally develop and grow as a teacher educator (Loughran 2014). Internationally, and broadly speaking, two types of workplaces can be distinguished (European Commission 2013). Teacher educators can either be working in research-intensive teacher education institutions or in teaching-intensive teacher education institutions (see also Chetty and Lubben 2010). 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 have 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. In short, this means that the majority of teacher education programmes do not receive funding for their research activities (Chetty and Lubben 2010; European Commission 2013). In this

paper, we are particularly interested in how these teacher educators, working in teaching-intensive institutions, perceive their work context, and how this, in turn, relates to the development of their researcherly disposition.

Currently, small-scale qualitative studies and essays still mainly characterize the field of research on teacher educators' professional development, and 'solid quantitative studies are almost completely absent' (Lunenberg, Dengerink, and Korthagen 2014, 72). These small-scale studies (see, for instance, Griffiths, Thompson, and Hryniewicz 2014; Murray 2008; Murray and Male 2005) have highlighted several factors related to the workplace context (e.g. high workload, lack of professional development opportunities) that affect growing into one's dual responsibility of being both a 'teacher of teachers' and a 'researcher', and, in developing a researcherly disposition (for an overview, see also Lunenberg, Dengerink, and Korthagen 2014). However, to the best of our knowledge, large-scale research that empirically confirms the interplay between these factors and teacher educators' researcherly disposition is still lacking (Grossman, Hammerness, and McDonald 2009; Lunenberg, Dengerink, and Korthagen 2014). Moreover, despite growing evidence (see Deci, Olafsen, and Ryan 2017), little is known about the psychological mechanisms in teacher educators themselves that can possibly explain how these workplace factors contribute or impede to developing one's researcherly disposition. Based on the Self-Determination Theory (SDT; Deci, Olafsen, and Ryan 2017; Deci and Ryan 1985; Ryan and Deci 2000), this study aims to better understand the interplay between specific factors in the workplace context, the satisfaction of teacher educators' psychological basic needs of autonomy, relatedness and competence, and teacher educators' researcherly disposition.

In what follows, we first present the Self-Determination Theory, the main concepts of this study, our research goal, and our hypothesised model. Next, the methodology of this large-scale quantitative survey study is presented. After presenting the results, implications for future research and practice are discussed. As such, this paper targets to contribute to the wider debate on how teacher educators perceive, act on, and experience the dual responsibility they have.

### ***Self-determination theory (SDT)***

Self-Determination Theory (SDT) is a macro human motivational theory that has been applied with success across several domains, such as parenting, education, healthcare, sports, as well as the fields of work motivation and management (see, for instance, Deci and Ryan 1985; Deci, Olafsen, and Ryan 2017; Ryan and Deci 2017). Across these domains, the SDT suggests that all individuals have three basic psychological needs: a need for autonomy, a need for competence, and a need for relatedness (Ryan and Deci 2017). SDT argues that the satisfaction of these psychological basic needs is a crucial condition for individuals thriving and development in all life domains, including the workplace (Deci, Olafsen, and Ryan 2017; Ryan and Deci 2000). Related to the workplace in particular, SDT postulates that the work context either positively or negatively impacts professionals' functioning and development through the extent to which professionals' basic needs are met (Deci, Olafsen, and Ryan 2017; Ryan and Deci 2017; Van Den Broeck et al. 2016). [Figure 1](#) visualises this idea as applied to the work domain, depicting the general basic SDT model in the workplace.



**Figure 1.** The self-determination theory motivation model in the workplace, adapted from Deci, Olafsen, and Ryan (2017).

The next sections discuss the core elements of this model – (1) the workplace context, (2) basic psychological needs and (3) work outcomes – in general, and applied to the context of teacher educators in particular.

### **Workplace context**

The workplace context is the independent variable in this model (see Figure 1), and can be either need supporting or need thwarting (Deci, Olafsen, and Ryan 2017). In this respect, it is likely that job demands related to the work context, exceed professionals' capacities, and, as a consequence, suppress professionals' autonomy, which can negatively affect one's professional development (Fernet et al. 2013). Similarly, when job resources in the work context support professionals, they may feel more competent, which can positively affect one's professional development (Fernet et al. 2013). Related to teacher educators' workplace context, two factors (among others) seem to re-occur in different small-scale studies (for an overview, see Lunenberg, Dengerink, and Korthagen 2014): (1) a high workload or work pressure and (2) (limited) opportunities for professional growth. Both factors were also recognised as predominant in two more recent, large-scale quantitative studies (see Czerniawski, MacPhail, and Guberman 2017; Tack et al. 2018). In this respect, both studies have highlighted that a high work pressure and workload can impede teacher educators from conducting research in order to further improve their teaching practice. Moreover, it seems that professional development opportunities largely depend upon the context of the individual teacher education institution. In other words, the extent to which a teacher education institution provides teacher educators with opportunities for professional growth, seems to be an important predictor of teacher educators' engagement in research (Tack et al. 2018).

In short, factors related to the work context (i.e. work pressure and opportunities for professional growth) can either support or thwart the satisfaction of the basic needs for autonomy, relatedness and competence, which in turn affect teacher educators' professional development (Figure 1).

### **Basic psychological needs**

As has been stated earlier in the introduction, the SDT premises that individuals have basic psychological needs for autonomy, relatedness and competence (Ryan and Deci 2000). The need for autonomy refers to the extent to which a professional experiences a sense of choice and psychological freedom when targeting his/her goals and activities (deCharms 1968; Deci and Ryan 2000). For instance, a teacher educator can be asked to complete a particular task during a day off; if the teacher educator voluntarily agrees to do so, the need for autonomy is satisfied. On the other hand, if the teacher educator would rather spend some free time and feels forced to keep on working, his/her autonomy will be thwarted (Van Den Broeck et al. 2016). The need for relatedness

concerns the degree to which a professional feels connected to others and valued by others (for the work context: by superiors and colleagues) (Baumeister and Leary 1995). This need is met when a teacher educator sees him/herself as a member of a group, experiences a sense of communion, and has close relationships with immediate colleagues (Van Den Broeck et al. 2016). The need for competence refers to the extent to which a professional's inherent desire to feel effective in interacting with his/her work environment is met (Deci and Ryan 2000). This need is fulfilled when a teacher educator feels a sense of mastery over his/her environment and feels able to develop new skills (Van Den Broeck et al. 2016). SDT argues that when these psychological needs are met, professionals are more likely to initiate and engage in professional activities and development, and experience well-being (Deci, Olafsen, and Ryan 2017). In contrast, unfulfilled psychological needs can negatively affect professionals' functioning at work (Deci, Olafsen, and Ryan 2017).

The satisfaction of the three basic psychological needs can be analysed as a composite (see for instance, Baard, Deci, and Deci 2004), but can also be analysed with each need separately (see for instance, Richer, Blanchard, and Vallerand 2002). A recent review study of the SDT basic psychological needs at work suggests to stop practices of combining the three basic needs into an overall scale (Van Den Broeck et al. 2016), as this is discordant to SDT's theoretical conceptualisation of the three basic needs as separate and not interchangeable entities. In line with this recommendation, this study considers the differential role of each of the three needs, instead of calculating an overall needs satisfaction score.

### **Work outcomes**

Finally, work outcomes are the dependent variables in the SDT motivation model in the workplace (Deci, Olafsen, and Ryan 2017). What these work outcomes are or how they can be defined, depends upon the job occupation under study (Van Den Broeck et al. 2016). In general, there have tended to be two work outcomes: performance variables (e.g. quality of performance) and well-being or ill-being variables (e.g. job satisfaction, burnout) (Deci, Olafsen, and Ryan 2017; Van Den Broeck et al. 2016). However, for the context of teacher educators, we are particularly interested in how teacher educators grow into their dual responsibility of being both a 'teacher of teachers' and a 'researcher'. As explained earlier in this introduction, teacher educators' researcherly disposition (Tack and Vanderlinde 2014; Tack 2017) will therefore be the dependent variable, or the work outcome, in this study. Teacher educators' researcherly disposition is 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' (Tack 2017, 181). Being a multidimensional construct (Tack and Vanderlinde 2014, 2016), teacher educators' researcherly disposition has the following 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 (Tack 2017, 181). 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

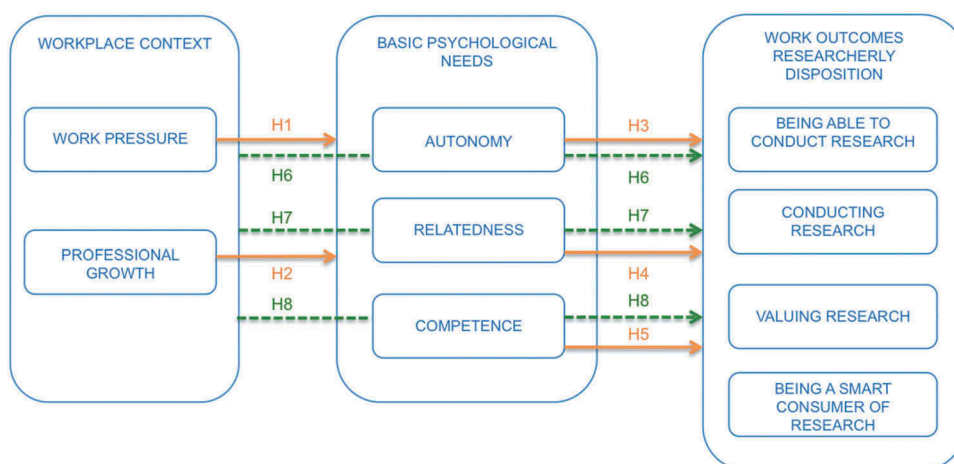
extent to which a teacher educator engages in researcher activities in his/her daily practice, as both a consumer and producer of knowledge (Tack 2017, 181). Compared to previous related terms, such as, for instance, ‘inquiry as stance’ (Cochran-Smith and Lytle 2009) or ‘researcher attitude’ (; Vanassche 2014), this triad provides an analytical framework that theoretically explains the different aspects of teacher educators’ researcherly disposition.

Summarised, SDT hypothesises that the work context – whether thwarting or supportive – impacts teacher educators’ functioning and development through the extent to which their basic psychological needs are fulfilled (Deci, Olafsen, and Ryan 2017; Fernet et al. 2013; Ryan and Deci 2017). To date, however, the roles of autonomy, competence, and relatedness – influenced by characteristics of the work context – on teacher educators’ professional functioning and development (operationalised as developing a researcherly disposition in this paper) remains largely unaddressed (Deci, Olafsen, and Ryan 2017; Lunenberg, Dengerink, and Korthagen 2014).

### **Research goal (RG) and research hypotheses (H)**

Grounded in the Self-Determination Theory, the aim of this study is to advance insight into the relationships between the specific aspects of teacher educators’ work context (i.e. work pressure and opportunities for professional growth), teacher educators’ basic needs satisfaction, and teacher educators’ researcherly disposition (see Figure 1). First, the relationships between teacher educators’ experienced work pressure and opportunities for professional growth and teacher educators’ basic needs satisfaction are explored (RG1). Based on the SDT motivation model in the workplace (Deci, Olafsen, and Ryan 2017), the following hypotheses (H) can be formulated (see Figure 2):

- H1: Opportunities for professional growth are positively related to teacher educators’ autonomy, relatedness and competence at work.



**Figure 2.** The hypothesised model.

- H2: Work pressure is negatively related to teacher educators' autonomy, relatedness and competence at work.

Second, the relationships between teacher educators' basic needs satisfaction and teacher educators' researcherly disposition are explored (RG2). Grounded in the SDT motivation model in the workplace (Deci, Olafsen, and Ryan 2017), the hypotheses related to this research goal are formulated as follows (see Figure 2):

- H3: Autonomy is positively related to the different dimensions of teacher educators' researcherly disposition.

- H4: Relatedness is positively related to the different dimensions of teacher educators' researcherly disposition.

- H5: Competence is positively related to the different dimensions of teacher educators' researcherly disposition.

Finally, this study does not only aim to test the direct links involving psychological needs, but also aims to examine whether teacher educators' basic psychological needs are mediating the relationships between the work context (i.e. work pressure and opportunities for professional growth) and the work outcomes of our model. Based on the proposed set of relationships (H1 – H5), the following mediation hypotheses are formulated:

- H6: Autonomy mediates the relationships between (1) work pressure and the different dimensions of teacher educators' researcherly disposition and between (2) opportunities for professional growth and the different dimensions of teacher educators' researcherly disposition.

- H7: Relatedness mediates the relationships between (1) work pressure and the different dimensions of teacher educators' researcherly disposition and between (2) opportunities for professional growth and the different dimensions of teacher educators' researcherly disposition.

- H8: Competence mediates the relationships between (1) work pressure and the different dimensions of teacher educators' researcherly disposition and between (2) opportunities for professional growth and the different dimensions of teacher educators' researcherly disposition.

Figure 2 summarises our hypothesised model.

## Method

### Context

In Flanders, teacher education programmes are provided by three different higher education institutions: universities, colleges of higher education and centres for adult



education (for more information about the Flemish teacher education system, see Tack et al. 2018). In short, all teacher education programmes lead to the same certificate, however, universities are research-intensive teacher education institutions (in receipt of core research funding), whereas 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. Our study has 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).

### **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 on teacher educators' professional development. In total, 43 colleges of higher education and 17 centres for adult education agreed upon participation. The survey was pilot tested with eight experts in the field of teacher education (experienced teacher educators and researchers). Teacher educators from participating institutions were asked to fill in the survey and were given the choice between filling in an online survey (LimeSurvey) or a paper-and-pencil version of the survey. 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. 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. Most participants hold a Master's degree (82.7%,  $n = 791$ ), only a minority holds a Bachelor degree (9.9%;  $n = 93$ ) or a Doctoral degree (6.0%;  $n = 57$ ). Teacher educators included in this study have an average length of service of 10.9 years. Almost 60% (59.7%,  $n = 560$ ) has teaching experience in kindergarten and/or compulsory education. Only a minority of the participants (18.5%) was working as researcher within their teacher education institutions (ranging from 0.1 FTE to 0.4 FTE, while approximately one third (36.6%) had research experience.

### **Measures**

*Work pressure and opportunities for professional growth.* Work pressure was assessed with four items of the 'Work pressure' subscale, which is part of the School Organisation Health Questionnaire (Hart 2000). The scale was originally developed for teachers working in a school setting; the formulation was adapted for teacher educators working in teacher education departments. The scale assesses the extent to which teacher educators experience a high work pressure in their teacher education department. Chronbach's alpha was .86. Similarly, opportunities for professional growth were measured with five items that form the 'Opportunities for professional growth' scale of the

School Organisation Health Questionnaire (Hart 2010). Again, items were adapted for the teacher education context and enquired about the extent to which teacher educators feel that opportunities for professional growth are possible within their institutional context. Chronbach's alpha was .84. Both 'Work pressure' and 'Opportunities for professional growth' were measured on a five-point Likert scale, ranging from strongly disagree = 0 to strongly agree = 4.

*Basic needs satisfaction at work.* The 'Work-related Basic Need Satisfaction Scale' (designated as W-BNS) (Van den Broeck et al. 2010), a 18-item questionnaire, was used to assess teacher educators' self-reported basic needs satisfaction at work. The W-BNS (Van den Broeck et al. 2010) has three subscales: (1) Autonomy (six items), (2) Relatedness (six items), and (3) Competence (six items). Teacher educators were asked to indicate how they typically felt in relation to their work using a five-point Likert-type scale – ranging from 0 (strongly disagree) to 4 (strongly agree). Higher average scores on each need measure were indicating a greater satisfaction of the respective need.

*Teacher educators' researcherly disposition.* The 'Teacher Educator Researcherly Disposition Scale' (designated as TERDS), a 20-item questionnaire – based on the theoretical framework on teacher educators' researcherly disposition (Tack and Vanderlinde 2014), was used to assess teacher educators' self-reported researcherly disposition. All items are scored on a six-point Likert scale, ranging from strongly disagree = 0 to strongly agree = 5. 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). The first subscale, 'Valuing research' ( $\alpha = .91$ ), refers to the extent to which teacher educators value research-oriented approaches towards their daily practice and recognise their role as a researcher (affective dimension) (Tack and Vanderlinde 2016, 51). The second subscale, 'Being able to conduct research' ( $\alpha = .83$ ), refers to the extent to which teacher educators consider themselves capable of conducting research into teacher education (cognitive dimension) (Tack and Vanderlinde 2016, 51). The third subscale, 'Conducting research' ( $\alpha = .89$ ), refers to the degree to which teacher educators report being active in conducting research into teacher education (Tack and Vanderlinde 2016, 51) (behavioural dimension). The fourth subscale, 'Being a smart consumer of research' ( $\alpha = .86$ ), assesses the degree to which teacher educators use (behavioural dimension) and perceive themselves able to use (cognitive dimension) existing research to inform their practice as a teacher educator (Tack and Vanderlinde 2016, 51).

### **Data analysis**

All hypotheses were tested using structural equation modelling (SEM), using the Mplus 7 software package (Muthén and Muthén 1998-2011). To ascertain fit, different measures of fit were used. 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 good fit (see Hu and Bentler 1999). As these indices are dependent on sample size, we also inspected the comparative fit index

(CFI) (Marsch, 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 studied variables are presented in Table 1. The descriptive statistics demonstrate that the mean scores for work pressure, relatedness and competence are high ( $M = 2.99$ ,  $SD = .64$ ;  $M = 2.99$ ;  $SD = .98$ ;  $M = 3.07$ ,  $SD = .76$ , respectively), indicating that teacher educators experience high levels of work pressure, feel connected to other colleagues, and feel competent in doing their job. Furthermore, the results reveal moderate scores for opportunities of professional growth ( $M = 2.43$ ,  $SD = .87$ ), and autonomy ( $M = 2.72$ ;  $SD = .94$ ). Finally, teacher educators have rather low to average scores on the different aspects of teacher educators' researcherly disposition, indicating that even though teacher educators believe they are rather able to conduct research ( $M = 2.87$ ;  $SD = 1.05$ ) and somehow value research as a teacher educator ( $M = 2.74$ ;  $SD = .95$ ), they do not engage in research activities as both a producer ( $M = 2.04$ ;  $SD = 1.24$ ) and a consumer ( $M = 2.68$ ;  $SD = .91$ ) that much.

### Measurement model

Before testing the relationships in our proposed model (see Figure 2), the measurement model was first examined. The measurement model includes nine latent factors ('Conducting research', 'Being able to conduct research', 'Valuing research', 'Being a smart consumer of research', 'Autonomy', 'Relatedness', 'Competence', 'Work pressure', and 'Opportunities for professional growth') and 47 observed variables (items). An initial test of the measurement model revealed a good fit for the data with  $\chi^2$  ( $df = 994$ ) = 2765.71; CFI = .91; TLI = .90; and RMSEA = .43. All factor loadings for latent variable indicators related to teacher educators' researcherly disposition were significant, ranging from .57 to .88. Similarly, all factor loadings for latent variable indicators related to teacher educators' basic needs satisfaction at work were significant, ranging from .56 to .81. All latent variable indicators related to work pressure were significant, ranging from .73 to .90. One item related to 'Opportunities for professional growth' exhibited

**Table 1.** Range, means, standard deviations, and correlations between the model variables ( $n = 944$ ).

	Range	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8
1. Work pressure	0–4	2.99	.64								
2. Professional growth	0–4	2.43	.87	-.14*							
3. Autonomy	0–4	2.72	.94	-.14*	.24**						
4. Relatedness	0–4	2.98	.98	.23**	.22**	.39**					
5. Competence	0–4	3.07	.76	-.03	.27**	.58**	.13*				
6. Valuing research	0–5	2.74	.95	-.04	.12*	.03	.02	-.03			
7. Smart consumer of research	0–5	2.68	.91	.07	.16*	.21**	.10*	.11*	.39**		
8. Conducting research	0–5	2.04	1.24	.08	.15*	.20**	.09	.16*	.39**	.51**	
9. Being able to conduct research	0–5	2.87	1.05	.02	.11*	.06	.04	.25**	.43**	.41**	.63**

\*\* Correlation is significant at the .01 level (2-tailed); \* Correlation is significant at the .05 level (2-tailed)

a low factor loading, which indicated a low communality with the rest of the scale. This item was removed for further analysis.

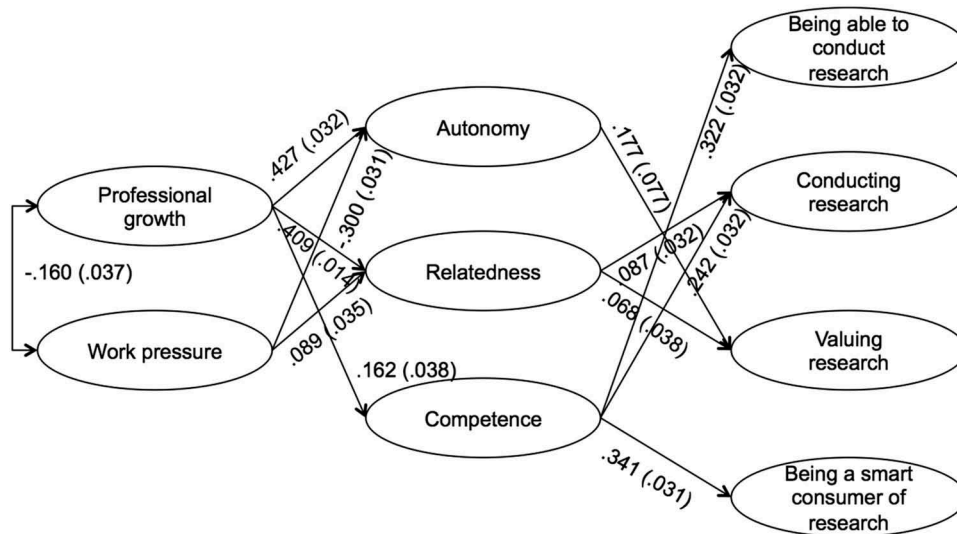
### **Structural model**

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 good fit to the data (RMSEA = .047; CFI = .91; TLI = .90; SRMR = .066). The  $\chi^2$  value of 2920.70 (df = 962) 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. Six relations were removed: (1) the relationship between 'Autonomy' and 'Being a smart consumer of research' ( $p = .39$ ), (2) the relationship between 'Autonomy' and 'Being able to conduct research' ( $p = .59$ ), (3) the relationship between 'Relatedness' and 'Being a smart consumer of research' ( $p = .47$ ), (4) the relationship between 'Competence' and 'Valuing research' ( $p = .70$ ), (5) the relationship between 'Relatedness' and 'Being able to conduct research' ( $p = .47$ ), and (6) the relationship between 'Work pressure' and 'Competence' ( $p = .69$ ).

After removing these relationships, all remaining relationships were supported. The goodness of fit estimates for the final model were CFI = .92, TLI = .92, SRMR = .054, and RMSEA = .043, with a 90% interval of .041 and .045, indicating good fit. The  $\chi^2$  value of 2444.83 is statistically significant at the <0.0001 significance level. Figure 3 presents the final model with standardised  $\beta$  coefficients. All coefficients are significant ( $p < .05$ ). The total amount of variance explained by the model was  $R^2 = .67$ .

### **Research goal 1 (H1 – H2)**

The first research goal aims to advance insight into the relationships between the experienced work pressure and opportunities for professional growth and teacher educators' basic needs satisfaction. Grounded in the Self-Determination Theory, a negative relationship between work pressure and the three basic needs was expected (H1); a positive relationship between opportunities for professional growth and the three basic needs was hypothesised (H2) (also see Figure 2). The first hypothesis (H1) was confirmed: teacher educators' perceived opportunities for professional growth within their institution are positively related to the satisfaction of autonomy ( $\beta = .427$ ,  $SE = .032$ ,  $p = .000$ ), relatedness ( $\beta = .409$ ,  $SE = .014$ ,  $p = .000$ ), and competence ( $\beta = .162$ ,  $SE = .038$ ,  $p = .000$ ). Related to the second hypothesis (H2), a negative significant relationship was found between the extent to which teacher educators experience a high work pressure in their institution and their level of autonomy ( $\beta = -.300$ ,  $SE = .031$ ,  $p = .000$ ); a positive significant relationship was found between teacher educators' experienced level of work pressure and their relatedness at work ( $\beta = .089$ ,  $SE = .035$ ,  $p = .010$ ). Thus, the second hypothesis was only partly confirmed.



**Figure 3.** The final model that represents the significant relationships between teacher educators' experienced work pressure and opportunities for professional growth, their work related basic needs satisfaction (i.e. autonomy, competence and relatedness) and their researcherly disposition (i.e. being a smart consumer of research, being able to conduct research, conducting research and valuing research). All displayed relationships are significant at the  $p < 0.10$ .

### Research goal 2 (H3 – H4 – H5)

The second research goal aims to advance insight into the relationships between teacher educators' basic needs satisfaction and teacher educators' researcherly disposition. Grounded in the Self-Determination Theory, positive relationships between autonomy (H3), relatedness (H4), competence (H5) and teacher educators' researcherly disposition were expected (also see Figure 2). With regard to teacher educators' autonomy at work (H3), one positive significant relationship was found between the extent to which a teacher educator experiences a sense of autonomy at work and the extent to which a teacher educator values research into teacher education ( $\beta = .177$ ,  $SE = .071$ ,  $p = .010$ ). Related to teacher educators' relatedness at work (H4), two positive significant relationships were confirmed. The following relationships were significant: the extent to which a teacher educator has intimate and close relationships with colleagues positively affects the extent to which a teacher educator (1) conducts research into teacher education ( $\beta = .087$ ,  $SE = .032$ ,  $p = .007$ ), and (2) values research into teacher education ( $\beta = .068$ ,  $SE = .038$ ,  $p = .010$ ). Finally, with regard to teacher educators' perceived competence at work (H5), three positive significant relationships were found. Positive significant relationships exist between the extent to which a teacher educator feels competent in carrying out his/her overall job tasks, on the one hand, and, the extent to which a teacher educator (1) uses existing research in their teaching practice ( $\beta = .341$ ,  $SE = .031$ ,  $p = .000$ ), (2) conducts research into teacher education ( $\beta = .242$ ,  $SE = .032$ ,  $p = .000$ ), and (3) perceives him/herself able to conduct research ( $\beta = .322$ ,  $SE = .031$ ,

$p = .000$ ), on the other. In sum, significant relationships were found, but not all hypotheses could be fully confirmed.

### **Research goal 3 (H6 – H7 – H8)**

The third research goal aims to advance insight into the mediating role of teacher educators' basic psychological needs in the relationships between the work context and the work outcomes of our model. A series of Sobel tests (Sobel 1982) were conducted in order to further explore our hypotheses (H6-H8). Results confirm the partial mediating role of competence in the relationship (1) between professional growth and being able to conduct research ( $z = 3.628$ ,  $p = 0.000$ ), (2) between professional growth and conducting research ( $z = 3.341$ ,  $p = 0.001$ ), and (3) between professional growth and being a smart consumer of research ( $z = 3.748$ ,  $p = 0.000$ ). No mediating role of competence was found in the relationship between professional growth and valuing research. Moreover, no evidence was found for the mediating role of autonomy and relatedness in the relationships between opportunities for professional growth and teacher educators' researcherly disposition. Finally, the analyses of the current study do not support the mediating roles of autonomy, relatedness and competence in the relationships between work pressure and teacher educators' researcherly disposition.

## **Discussion**

Drawing on SDT, this study aimed to deepen our understanding of the relationships between two specific aspects of teacher educators' work context – that is work pressure and opportunities for professional growth – teacher educators' basic needs satisfaction, and teacher educators' researcherly disposition. The construction of the hypothesised model was anchored in the SDT motivation model in the workplace (Deci, Olafsen, and Ryan 2017). To our knowledge, this was the first large-scale study that advances insight in the satisfaction of teacher educators' basic psychological needs, and how these can partly explain how workplace factors contribute or hinder the development of one's researcherly disposition. As such, some first important implications are discussed below, and limitations of the current study and suggestions for further research are presented.

### **Research implications**

Related to the workplace context, two main findings should be noted. First, the findings of our study show that the perceived opportunities for professional growth within the teacher education department are positively related to all three basic needs. Put differently, the higher the perceived opportunities for professional growth, the more likely teacher educators' basic needs of autonomy, relatedness and competence at work are fulfilled. This finding is in line with earlier research (Van Den Broeck et al. 2016-). Second, our study indicates that, on the one hand, a high work pressure is related to lower perceptions of one's experiences of a sense of autonomy at work. On the other hand, a higher work pressure results in stronger feelings of communion and closer relationships with colleagues. Even though the latter finding was not in line with findings from earlier SDT studies (see Deci and Ryan 2000; Van Den Broeck et al.

2016), it seems reasonable to accept that teacher educators who experience high work pressures feel connected to others who share those feelings as well.

An important contribution of this study is related to the recognition of the role of the basic psychological needs as proposed by SDT to explain teacher educators' researcherly disposition. In addition, this study was able to specify the separate roles of autonomy, relatedness and competence in connection with teacher educator' researcherly disposition. However, contrary to our expectation, the satisfaction of the basic needs was not significantly related to all dimensions of teacher educators' researcherly disposition. In this respect, relatedness appears to be a predictor of the extent to which teacher educators conduct research and value research. Autonomy seems to be particularly important in explaining the extent to which teacher educators value their role as a teacher educator-researcher, whereas competence appears to be a predictor of the extent to which one feels able to conduct research, is a smart consumer of research, and conducts research. Although further research is needed on the differentiated role of psychological needs on the different dimensions of teacher educators' researcherly disposition, our results suggest that the deprivation of any need will affect teacher educators' researcherly disposition. This finding underlines the recommendation of Van Den Broeck et al. (2016) to consequently analyse each need separately in future research, instead of using a composite score (Van Den Broeck et al. 2016). Moreover, this finding further stresses the need to view teacher educators' researcherly disposition as a multidimensional construct (see Tack 2017), on both a theoretical (Tack and Vanderlinde 2014) and empirical (Tack and Vanderlinde 2016) level. In fact, the results suggest that different aspects of teacher educators' researcherly disposition are not necessarily predicted by the same psychological resources or workplace context characteristics. Finally, the findings of our study also reveal that teacher educators' perceived competence is an important mediator in the relationship between teacher educators' opportunities for professional growth, and the extent to which they feel able to conduct research, use existing research and conduct research into their teaching practice. This finding stresses the need to further consider the role of teacher educators' perceived competence in the relationship between need supporting aspects of the work context – as opportunities for professional growth – and teacher educators' researcherly disposition.

### ***Limitations of the present study and directions for future research***

This study has some limitations that give rise to suggestions for further research. First, a cross-sectional design does not allow to establish causal relations between variables. Although many studies (for an overview, see Deci, Olafsen, and Ryan 2017; Van Den Broeck et al. 2016) support the proposed sequence of work context, basic psychological needs satisfaction and work-related outcomes in SDT research related to the workplace, the possibility of reciprocal or inverse relationships between certain variables should not be excluded. In fact, it is possible that teacher educators' perceived level of relatedness to their institution influences their perceptions of the workplace environment. For instance, teacher educators who do not feel related to their colleagues and supervisors would be more liable to view their opportunities for professional growth negatively. Future researchers are recommended to further examine these relationships. To advance a more refined

conceptualisation of the work context conditions in teacher education institutions – and how these are related to teacher educators’ professional development – more variables (i.e. role expectations, leadership styles, professional learning community characteristics) should be included as well. Second, all data were gathered by means of one method, a large-scale quantitative survey. This holds a risk that common variance bias could have influenced the results by increasing or decreasing the strength of the correlations (Podsakoff et al. 2003). However, this risk was reduced by guaranteeing respondents’ anonymity (i.e. variables in the survey could not be linked to the respondents’ identity). Future studies 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 and Head of Departments) can complement the current approach (Opperman 2000). Finally, the results are 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. mentors and teacher educators working in research-intensive institutions) as well as to other countries (Livingston 2014).

### ***Practical implications***

Our hypothesised model needs to be further validated by additional studies. Nevertheless, it holds important practical implications for teacher educators’ professional development. In line with earlier findings (Tack et al. 2018), this study again demonstrates that opportunities for professional growth provided by teacher educator institutions for Flemish institution-based teacher educators are rather low to moderate. This is not unique to the Flemish situation (see Vanassche et al. 2015; Czerniawski, MacPhail, and Guberman 2017; Lunenberg, Dengerink, and Korthagen 2014;). As one’s opportunities for professional growth are significantly related to teacher educators’ basic needs satisfaction at work – an essential condition for teacher educators to (further) develop into their occupation – this study, however, again stresses the need to create opportunities to support teacher educators’ professional development, at institutional, national and international levels. This recommendation is in line with the wider call for the establishment of a more formal professional development program for teacher educators (Kelchtermans, Smith, and Vanderlinde 2017; Tack et al. 2018; Vanassche et al. 2015). If teacher educators’ engagement in research is perceived as an inherent aspect of teacher educators’ job responsibility, teacher educators should be supported to develop their researcher role. As long as teacher educators – experiencing high work pressures – are demanded to engage in research on top of their (mostly) full-time teaching job, it will remain difficult to support the development of their researcherly disposition. In this respect, policy makers should recognise 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 (see also Tack 2017). Such recognition demands systematic actions (in terms of changes related to role expectations, teaching/research time, criteria for career advancement) to support all teacher educators (also those working in teaching-intensive teacher education institutions) in the process of developing their role as a researcher (see also Smith 2015). Without such systematic support, teacher educators’ professional



development remains limited to opportunities provided by individual teacher education institutions. In this respect, (inter)national policymakers and associations for teacher educators (e.g. ATEE, InFo-TED, VELON/VELOV) have an important responsibility to create opportunities that empower all teacher educators to further develop in their occupation. Moreover, this study thus supports the suggestion to organise long-term initiatives focussing on the development of teacher educators' researcherly disposition. These initiatives should not be organised as one-shot lectures to beginning teacher educators about the relevance of, for instance, practitioner research, for the improvement of one's practice as a teacher educators. Instead, and in line with the findings of our study, investments should be made in the development of supportive and safe research communities in which teacher educators can develop as a professional group (= relatedness), which will positively affect the extent to which they value their role as a researcher. Moreover, these initiatives should focus on developing teacher educators' skills to engage in research activities related to their practice (= competence), for instance, by organising activities in which less experienced teacher educators can contribute to more experienced colleagues' research, by reading research literature (= smart consumer of research), assisting in data analysis (= being able to conduct research) or attending a conference (= smart consumer of research). As such, they can eventually start to conduct research themselves (= conduct research), in community with others. During these initiatives, it remains essential to start from teacher educators' own practice (also see Kelchtermans, Smith, and Vanderlinde 2017), and view teacher educators as autonomous professionals, for instance by letting them decide upon their topic of interest (= autonomy). Several pioneers are taking the lead in organising such activities in their own national contexts, for instance, the NAFOL Research School in Norway (see Smith 2015) and the MOFET Institute in Israel (Goland and Reichenberg 2015). In the footsteps of these pioneers, the organisation of a Flemish-wide educational programme for teacher educators recently started. On an international level, the International Forum for Teacher Educator Development (InFo-TED) organised its first Summer Academy for teacher educators. As such, the future is looking bright, and we hope the findings of this study, as well as its practical implications, are considered in the further organisation of these initiatives.

### Disclosure statement

No potential conflict of interest was reported by the authors.

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## References

- Baard, P.P., E.L. Deci, and R.M. Deci. 2004. "Intrinsic Need Motivation: A Motivational Basis of Performance and Well-Being in Two Work Settings." *Journal of Applied Social Psychology* 34: 2045–2068. doi:10.1111/j.1559-1816.2004.tb02690.x.
- Baumeister, R.F., and M.R. Leary. 1995. "The Need to Belong: Desire for Interpersonal Attachments as a Fundamental Human Motivation." *Psychological Bulletin* 117: 497–529.
- Berry, A. 2016. "Teacher Educators' Professional Learning: A Necessary Case of 'On Your Own?'" In *Professional Learning in Education: Challenges for Teacher Educators, Teachers and Student Teachers*, edited by B. De Wever, B.R. Vanderlinde, M. Tuytens, and A. Aelterman, 39–56. Gent: Ginko Press & Academia Press.
- Browne, M.W., and R. Cudeck. 1993. "Alternative Ways of Assessing Model Fit." Chap X in *Testing Structural Equation Models*, edited by K.A. Bollen and J.S. Long, 136–162. Newbury Park, CA: Sage.
- Chetty, R., and F. Lubben. 2010. "The Scholarship of Research in Teacher Education in a Higher Education Institution in Transition: Issues of Identity." *Teaching and Teacher Education* 26: 813–820. doi:10.1016/j.tate.2009.10.018.
- Clarke, A., and G. Erickson, Eds. 2003. *Teacher Research*. London, England: Routledge Falmer.
- Cochran-Smith, M. 2005. "Teacher Educators as Researchers: Multiple Perspectives." *Teaching and Teacher Education* 21 (2): 219–225. doi:10.1016/j.tate.2004.12.003.
- Cochran-Smith, M., and S. Lytle. 2009. *Inquiry as Stance: Practitioner Research for the Next Generation*. New York, NY: Teachers College Press.
- Czerniawski, G., A. MacPhail, and A. Guberman. 2017. "The Professional Development Needs of Higher Education-Based Teacher Educators: An International Comparative Needs Analysis." *European Journal of Teacher Education* 40 (1): 127–140. doi:10.1080/02619768.2016.1246528.
- de Charms, R. 1968. *Personal Causation: The Internal Affective Determinants of Behaviour*. New York: Academic Press.
- Deci, E.L., A.H. Olafsen, and R.M. Ryan. 2017. "Self-Determination Theory in Work Organisations: The State of A Science." *Annual Review of Organisational Psychology and Organisational Behavior* 19–43. doi:10.1146/annurev-orgpsych-032516-113108.
- Deci, E.L., and R.M. Ryan. 1985. *Intrinsic Motivation and Self-Determination in Human Behaviour*. New York: Plenum Press.
- European Commission. 2013. *Supporting Teacher Educators for Better Learning Outcomes*. Brussels, Belgium: European Commission.
- Fernet, C., F. Austin, S. Trépanier, and M. Dussault. 2013. "How Do Job Characteristics Contribute to Burnout? Exploring the Distinct Mediating Roles of Perceived Autonomy, Competence, and Relatedness." *European Journal of Work and Organisational Psychology* 22 (2): 123–137. doi:10.1080/1359432X.2011.632161.
- Gilroy, P., and L. McNamara. 2009. "A Critical History of Research Assessment in the United Kingdom and Its Post-1992 Impact on Education." *Journal of Education for Teaching* 35 (4): 321–335. doi:10.1080/02607470903220406.
- Golan, M., and R. Reichenberg. 2015. "Israel's Mofet Institute: Community Of Communities for The Creation and Dissemination Of Knowledge Of Teacher Education." In *International Teacher Education: Promising Pedagogies (Part C)*, Eds C. Craig & L. Orland-Barak (Eds, pp. 299–316. Bingley, England: Emerald Books.
- Griffiths, V., S. Thompson, and L. Hryniewicz. 2014. "Landmarks in the Professional and Academic Development of Mid-Career Teacher Educators." *European Journal of Teacher Education* 37 (1): 74–90. doi:10.1080/02619768.2013.825241.

- Grossman, P., K. Hammerness, and M. McDonald. 2009. "Redefining Teacher Education: Re-Imagining Teacher Education." *Teachers and Teaching: Theory and Practice* 15 (2): 273–290. doi:10.1080/13540600902875340.
- Hart, P.M., A.J. Wearing, M. Conn, N.L. Carter, and And Roger K.. Dingle. *British Journal Of Educational Psychology*,70. 2000; :211-228. doi: 70 doi:10.1348/000709900158065
- Hoyle, R.H. 1995. "The Structural Equation Modelling Approach: Basic Concepts and Fundamental Issues." In *Chap X in Structural Equation Modeling: Concepts, Issues and Applications*, edited by R. H. Hoyles, 1–15. Thousand Oaks, CA: Sage Publications.
- Hu, L.T., and P.M. Bentler. 1999. "Cut-Off Criteria for Fit Indexes in Covariance Structure Analysis: Conventional Criteria versus New Alternatives." *Structural Equation Modeling* 6 (1): 1–55. doi:10.1080/10705519909540118.
- Kelchtermans, G., K. Smith, and R. Vanderlinde. 2017. "Towards an 'International Forum for Teacher Educator Development: An Agenda for Research and Action.'" *European Journal of Teacher Education* 1–14. doi:10.1080/02619768.2017.1372743.
- Livingston, K. 2014. "Teacher Educators: Hidden Professionals?" *European Journal of Education* 49 (2): 218–232. doi:10.1111/ejed.2014.49.issue-2.
- Loughran, J. 2014. "Professionally Developing as a Teacher Educator." *Journal of Teacher Education* 65 (4): 1–13. doi:10.1177/0022487114533386.
- Loughran, J. 2016. "Teaching and Teacher Education: The Need to Go beyond Rhetoric." In *Teacher Education*, edited by R. Brandenburg, et al., 253–264. Singapore: Springer Science+Business Media.
- Loughran, J., M.L. Hamilton, V.K. LaBoskey, and T.L. Russell, Eds. 2004. *International Handbook of Self-Study of Teaching and Teacher Education Practices*. Dordrecht, Netherlands: Kluwer Academic Publishers.
- Lunenberg, M., J. Dengerink, and F. Korthagen. 2014. *The Professional Teacher Educator: Professional Roles, Behaviour and Development of Teacher Educators*. Rotterdam: Sense.
- Marsch, H.W., J.R. Balla, and K.T. Hau. 1996. "An Evaluation of Incremental Fit Indices: A Clarification of Mathematical and Empirical Properties." Chap X in *Advanced Structural Equation Modeling: Issues and Techniques*, edited by G.A. Marcoulides, R.E. Schumacker, and N.J. Mahwah. Erlbaum.
- Murray, J. 2008. "Teacher Educators' Induction into Higher Education: Work-Based Learning in the Micro Communities of Teacher Education." *European Journal of Teacher Education* 31 (2): 117–133. doi:10.1080/02619760802000099.
- Murray, J., and T. Male. 2005. "Becoming a Teacher Educator: Evidence from the Field." *Teaching and Teacher Education* 21 (2): 125–142. doi:10.1016/j.tate.2004.12.006.
- Muthén, L.K., and B.O. Muthén. 1998-2011. *Mplus User's Guide*. 6th ed. Los Angeles, CA: Muthén and Muthén.
- Opperman, M. 2000. "Triangulation: A Methodological Discussion." *The International Journal of Tourism Research* 2 (2): 141–146. doi:10.1002/(SICI)1522-1970(200003/04)2:2<141::AID-JTR217>3.0.CO;2-U.
- Podsakoff, P.M., S.B. Mackenzie, J.-Y. Lee, and N.P. Podsakoff. 2003. "Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies." *Journal of Applied Psychology* 88: 879–903. doi:10.1037/0021-9010.88.5.879.
- Richer, S.F., C. Blanchard, and R.J. Vallerand. 2002. "A Motivational Model of Work Turnover." *Journal of Applied Social Psychology* 32 (10): 2089–2113. doi:10.1111/jasp.2002.32.issue-10.
- Ryan, R.M., and E.L. Deci. 2000. "Self-Determination Theory and the Facilitation of Intrinsic Motivation, Social Development and Well-Being." *American Psychologist* 55 (1): 68–78.
- Ryan, R.M., and E.L. Deci. 2017. *Self-Determination Theory: Basic Psychological Needs in Motivation, Development and Wellness*. New York: Guilford.
- Smith, K. 2015. "The Role of Research in Teacher Education." *Research in Teacher Education* 5 (2): 43–46.
- Sobel, M.E. 1982. "Asymptotic Confidence Intervals for Indirect Effects in Structural Equation Models." *Social Methodology* 13: 290–312. doi:10.2307/270723.

- Tack, H. 2017. *Towards a Better Understanding of Teacher Educators' Professional Development: Theoretical and Empirical Insight into Their Researcherly Disposition*. Ghent: University Press.
- Tack, H., M. Valcke, K. Struyven, I. Rots, and R. Vanderlinde. 2018. "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* 41 (1): 86–104. doi:10.1080/02619768.2017.1393514.
- Tack, H., and R. Vanderlinde. 2014. "Teacher Educators' Professional Development: Towards a Typology of Teacher Educators' Researcherly Disposition." *British Journal of Educational Studies* 62 (3): 297–315. doi:10.1080/00071005.2014.957639.
- Tack, H., and R. Vanderlinde. 2016. "Measuring Teacher Educators' Researcherly Disposition: Item Development and Scale Construction." *Vocations & Learning* 9 (1): 43–62. doi:10.1007/s12186-016-9148-5.
- Van Den Broeck, A., D.L. Ferris, C.H. Chang, and C. Rosen. 2016. "A Review of Self-Determination Theory's Basic Psychological Needs at Work." *Journal of Management* 42: 1195–1229. doi:10.1177/0149206316632058.
- Van den Broeck, A., M. Vansteenkiste, H. De Witte, B. Soenens, and W. Lens. 2010. "Capturing Autonomy, Competence and Relatedness at Work: Construction and Initial Validation of the Work-Related Basic Need Satisfaction Scale." *Journal of Occupational and Organisational Psychology* 83: 981–1002. doi:10.1348/096317909X481382.
- Vanassche, E. 2014. *(Re)Constructing Teacher Educators' Professionalism: Biography, Workplace and Pedagogy*. Leuven: Faculty of Psychology and Educational Sciences.
- Vanassche, E., F. Rust, P. Conway, K. Smith, H. Tack, and R. Vanderlinde. 2015. "InFo-TED: Bringing Policy, Research, and Practice Together around Teacher Educator Development." In *International Teacher Education: Promising Pedagogies (Part C)*, edited by C. Craig and L. Orland-Barak, 341–364. Bingley: Emerald Books.
- Zeichner, K.M., and S. Noffke. 2001. "Practitioner Research." In *Handbook of Research on Teaching*, edited by V. Richardson, 298–330. 4th ed. Washington, DC: American Educational Research Association.