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A focus on theory, measurement, and longitudinal associations

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PRIMARY STUDENT TEACHERS' PROFESSIONAL IDENTITY TENSIONS: THE CONSTRUCTION AND PSYCHOMETRIC QUALITY OF THE PROFESSIONAL IDENTITY TENSIONS SCALE

CHAPTER IV

This research aims to develop and validate an instrument for measuring primary student teachers' professional identity tensions. Based on dissonance theory, we transformed existing vignettes (Pillen et al., 2013) into to a quantitative Professional Identity Tensions Scale (PITS) and added tensions regarding teaching in urban contexts. We examined the psychometric quality of the PITS by administering this scale to primary student teachers from teacher education institutions in urban areas across the Netherlands. Two studies were conducted in the process of validating the PITS. First, items were tested among a sample of 211 students to explore whether they measure underlying constructs of professional identity tensions. Second, retained items were administered to a new sample of 271 students. Confirmatory factor analysis demonstrated a similar factor structure. The final instrument includes 34 items rated on a 5-point Likert scale measuring nine different professional identity tensions. Implications for future research and practice are discussed.

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INTRODUCTION

A LOT of research has been done to teachers' professional identity tensions regarding their changing role from student to teacher, their way of how to deal with students, and their vision on their own position and role in education (e.g., Anspal, Leijen, & Löfström, 2018; Pillen, Den Brok, & Beijaard, 2013; Smagorinsky, Cook, Moore, Jackson, & Fry 2004; Warin, Maddock, Pell, & Hargreaves, 2006). Professional identity tensions in a broad sense refer to a feeling of dissonance between perceived expectations about the teaching profession and actual experiences during fieldwork (cf. Friesen & Besley, 2013; Pillen et al., 2013; Warner, 2016). Sometimes it is even described as an internal struggle to synthesize the expected with the experienced (Gedik & Ortactepe, 2016; Lampert, 1985; Pillen et al., 2013; Swennen, Jörg, & Korthagen, 2004; Warner, 2016; Woolhouse, Bartle, Hunt, & Balmer, 2013).

Results of former research indicate that noticing and experiencing professional identity tensions is inextricably associated to the process of becoming a teacher (cf. Akkerman & Meijer, 2011; Anspal et al., 2018; Britzman, 1991; Lim, 2011; Warin et al., 2006). Professional identity tensions invite student teachers to re-examine their changing role and encourage them to reflect on questions such as “Who am I?” and “What is my professional role?” (Henry, 2016; Warner, 2016). Perhaps the ability to overcome and/or handling tensions is even one of the core characteristics of ‘good teachers’ (Bullough & Baugman, 1997; Lortie, 1975; Nias, 2002).

Supporting student teachers in dealing with professional identity tensions is of vital concern for teacher education institutions. If professional identity tensions are not properly managed, they can limit teachers’ learning and enthusiasm for the profession (cf. Akkerman & Meijer, 2011; Güngör, 2017; Lim, 2011; Smagorinsky et al., 2004; Smith, Anderson, & Blanch, 2016; Warin, Maddock, Pell, & Hargreaves 2006). Additionally, these tensions may lead to feelings of insecurity and exhaustion (Pillen et al., 2013), which, in time, increases the risk of delay or dropout during training or shortly after graduating (Hong, 2010; Pillen et al., 2013). Study-delay and dropout are in many countries a serious problem jeopardizing the quality of education, because they can impose a heavy burden on teacher education institutions and can lead to shortages in the labor market in the long term (Brownell, Sindelar, Bishop, Langley, & Seo, 2002; Dove, 2004).

Studies conducted so far have focused mainly upon beginning teachers in secondary schools—those who are in their final year of the program or in their first year as a professional

teacher—and apply qualitative small scale methods (Davis, 2012; Day & Leitch, 2001; De Vos, De Wilde, & Beusaert, 2018; Dorman, 2012; El Masry & Saad, 2017; Horn, Nolen, Ward, & Campbell, 2008; Huang & Varghese, 2015; Murphy, Pinnegar, & Pinnegar, 2011; Parks, 2015; Rijswijk, Akkerman, Schaap, & Tartwijk, 2016; Robinson, Anning & Frost, 2005; Scotland, 2014; Shakman, 2009; Sikes & Everington, 2003; Sinner, 2014; Warner, 2016). Only a small number of research has been directed at understanding professional identity tensions among primary student teachers in earlier years of their studies (e.g., Van Diepe, Geldens, & Wubbels, 2016). Moreover, most of these studies concern small and/or specific samples of respondents which makes it difficult to generalize results and implications to other populations.

It is also notable that the environmental context has not been related explicitly to the professional tensions teachers experience. Yet, results of research into teacher perceptions (e.g., Banks, 2008; Haberman, 1995; Ladson-Billings, 1995; Nias, 2002; Sleeter, 2008; Weiner, 2016) indicate that teaching in urban areas can especially be demanding. Schools in urban contexts have distinctive factors that differentiate them from suburban and rural contexts (McKinney, Haberman, Stafford-Johnson, & Robinson, 2008; Sachs, 2004). In urban located schools regular tensions such as workload, classroom discipline, and competing institutional requirements (Pillen et al., 2013) are often practiced more intensively. Moreover, teachers can experience tensions linked to differences between their own social background and those of their students (Banks, 2008; Sleeter, 2008). Therefore, research into the complexity of professional identity tensions related to urban contexts may provide new insights.

To reveal the professional identity tensions that primary student teachers may experience this research aimed to develop and investigate the psychometric properties of an instrument for measuring professional identity tensions. In the present research characteristics of professional identity tensions were analyzed by means of the framework of cognitive dissonance theory. Based on this analysis and the vignette-driven instrument of Pillen et al. (2013) an instrument for measuring primary student teachers' professional identity tensions was constructed. Resembling Van Diepe et al. (2016) the vignettes of Pillen et al. (2013) were used to develop multiple items representing different subscales for measuring specific tensions as reliably as possible. Following insights from the literature (cf. Banks, 2008; Haberman, 1995; Ladson-Billings, 1995; Nias, 2002; Sleeter, 2008; Weiner, 2016), urban related professional identity tensions were added to make the instrument also applicable for student teachers who are trained for education in urban contexts. In two separate part studies with different groups of respondents, different types of validity—face and content validity, factorial validity, and convergent and discriminant validity (cf. DeVon et al., 2007)—of the

Professional Identity Tensions Scale (PITS) were examined by means of both exploratory and confirmatory factor analysis.

The PITS can be used for fundamental research about the professional development of primary student teachers during their educational program, thereby gaining insight into the cognitive dissonance they experience in the process of becoming a teacher. Insights obtained from the PITS could be translated by primary education institutions to adjust their curriculum to student teachers' needs by reducing insolvable and/or unnecessary tension-triggers. Moreover, at class level, primary teacher education institutions might use the PITS as a tool to evoke, reflect upon, and discuss identity tensions during training. This may help primary student teachers reflect on the things that really matter to them professionally as well as personally.

CONCEPTUALIZATION OF PROFESSIONAL IDENTITY TENSIONS

To understand teachers' professional identity tensions, the majority of researchers have commonly conceptualized this concept in terms of internal struggles (e.g., Delaney, 2015; Pillen et al., 2013; Smagorinsky et al., 2004; Warner, 2016). Hence, professional identity tensions are defined according to the more generally known construct of cognitive dissonances. From such a cognitive dissonance perspective, internal struggles can be seen as a form of dissonance between expectations of the teacher as a person and the teacher as a professional. Given the extensive literature on dissonance theory, the current research specifically employed Festinger's (1957) seminal work. Unlike revised versions of dissonance theory (cf. Cooper & Fazio, 1984; Harmon-Jones, 1999), Festinger's theoretical approach has been used by the majority of dissonance researchers (Cooper, 2007; Harmon-Jones & Harmon-Jones, 2007). This well-developed and substantiated theory may help educational researchers to highlight characteristics of professional identity tensions, which is essential to generate valid item questions.

According to the theory, cognitive dissonance occurs if a person performs an action that contradicts cognitive elements—personal beliefs, emotions, ideals or values (see Festinger, 1957, in Cooper, 2007). This causes mental discomfort which results in an unpleasant psychological tension state (Festinger, 1957). Instinctively, this leads into mental and/or behavioral activities to resolve, reduce, and/or avoid this unpleasant state. Dissonance can also occur between different cognitive elements, for example between personal beliefs and emotions or between emotions and values. Experiencing cognitive dissonance is viewed as a subjective and personal process since it depends on the meaning

that is attached by an individual to perceived mental discomfort. Attaching meaning, in turn, is influenced by a complex mixture of environmental and personal factors.

Professional identity tensions can be identified as cognitive dissonance, because they too are always accompanied with unpleasant, irritating and/or uncomfortable emotions and/or feelings. An identity tension may, for example, occur in case a student teachers' beliefs about innovative teaching do not match with traditional beliefs of a mentor (cf. Smagorinsky et al., 2004) or when, a student teacher has controversial feelings (cf. Volkmann & Anderson, 1998) about how to behave in order to manage a class effectively – e.g., being warm and caring versus being tough and maintaining control to earn students respect.

Experiencing a professional identity tension automatically incorporates the need to resolve, reduce or avoid it. However, the urge to control an identity tension depends to a large extent on how it is experienced. In accordance with dissonance theory the weight someone attributes to a professional identity tension is influenced by both environmental – e.g., educational demands, practical constraints, and cultural influences – and personal factors – e.g., teachers' self-esteem, motivation, and self-efficacy. As a result, student teachers can evaluate the impact of identity tensions differently from each other.

An available tool for revealing professional identity tensions is the vignette-driven questionnaire of Pillen et al. (2013). This questionnaire is directed to professional identity tensions of beginning teachers in both primary and secondary education regarding their changing role from student to teacher, their care for students and their orientations towards learning to teach (Pillen et al., 2013). The questionnaire contained the description of thirteen professional identity tensions identified from literature and interviews with beginning teachers (Pillen et al., 2013). By means of a four-point Likert scale – 1= not at all, 4= very much – respondents were asked about the extent to which they recognized their own experiences regarding the tension as described in the vignette. In two recent studies this vignette-driven instrument has been adapted or extended. Van Diepe et al. (2016) have transformed each vignette into one single item question to investigate the dependency between professional tensions of primary student teachers and the quality of their relationship with students. Results of an exploratory factor analysis showed four overarching constructs of professional identity tensions. In the study of Van der Want, Schellings, and Mommers (2018) the vignettes of the questionnaire of Pillen et al., (2013) were reformulated – changes on sentence level and a slightly adapted description of the professional context – to explore professional tensions among teachers with approximately 25 years of experience in secondary education.

The instrument of Pillen et al. (2013) and the adaptations made in the follow-up studies can be very useful for a wide range of purposes. For example, based on cluster analysis, Pillen et al. (2013) distinguished six teacher profiles: teachers struggling with—views of—significant others, teachers with care-related tensions, teachers with responsibility-related tensions, moderately tense teachers, tension-free teachers, and troubled teachers. However, because the different tensions are explored with single vignettes and/or single items scale reliability coefficients for measuring a single tension cannot be calculated nor could further factor analysis be established about the interdependence of the different theoretically derived tensions (cf. Kline, 2011; Stevens, 2009). As a result the instruments are less ideal for making fine-grained discriminations among specific professional identity tensions that student teachers might experience during the process of becoming a teacher. Furthermore, given that vignettes are detailed descriptions of hypothetical teaching situations, they pose a greater reading burden on respondents and have the risk of being misinterpreted (Stecher, Le, Hamilton, Ryan, Robyn, & Lockwood, 2006).

Like others (e.g., Van der Want et al., 2018), we derived the content for our professional identity tension items from the work of Pillen et al. (2013). In their study, thirteen potential professional identity tensions and corresponding vignettes were formulated after carefully reviewing the literature about tensions, concerns, and dilemmas in combination with interviewing beginning teachers. These are explained in detail in Pillen et al. (2013), but in Table 1 we present a brief overview of each tension and corresponding vignette. In essence, each tension designated in a corresponding vignette, represents a mental dilemma that beginning teachers may experience as an unpleasant psychological state in different ways. For example, in the vignette operationalizing the tension “feeling like a student versus being expected to act like an adult teacher”, a situation is indicated about student teachers who feel they are in the middle of contrary expectations regarding their position and role at the internship school.

Although the thirteen professional identity tensions of Pillen et al. (2013) may also be applicable to an urban environment, none of these specifically apply to such a context. Those who teach in schools located in urban contexts sometimes face unique tensions as compared to schools located outside urban contexts (Sachs, 2004). Since the goal of this research is to develop a measurement instrument that can be used in urban contexts as well, some seminal publications in the field teaching in urban contexts were examined to find tensions, problems and dilemmas regarding that educational practice (Banks, 2008; Haberman, 1995; Ladson-

Billings, 1995; Sleeter, 2008). From the review of these seminal studies two not previously identified tensions emerged that are specifically linked to teaching in urban areas.

A first tension relates to treat the class as homogeneous versus treat the class as heterogeneous. Teachers in urban contexts need to handle relative big differences between students regarding their social background (e.g., ethnic, cultural, and religious) in addition to cognitive and emotional differences. In particular, dealing with social differences can result in tensions because on the one hand teachers want to serve all children as a homogeneous group as not to stigmatize, whereas on the other hand they want to maintain individual attention for pupils' background (e.g., Banks, 2008; Fukkink & Oostdam 2016; Gaikhorst, Beishuizen, Roosenboom, & Volman, 2017; Haberman, 1995). Exemplary of this tension is the experience of a teacher—Kerrie—outlined in Bullough and Baughman (1997):

“That was a struggle to get used to what the kids were like. They are so diverse. We are talking about kids whose dads are millionaires... and kids who live in the poorest section of the city. That was very difficult to get used to.” (p. 41).

A second tension concerns the discrepancy between the background of teachers and their students. In the Netherlands, as in many European countries, most teachers in urban educational contexts are categorized as white middle class from a non-urban context (Weiner, 2016). These differences in background may lead to a professional identity tension of a teacher as a result of conflicting personal beliefs, emotions, ideals or values with students and/or their parents (Sleeter, 2008). It is even reported that the difference in background may negatively influence the relationship teachers have with students, parents, and the local community and that teachers indicate experiences of feeling “uncomfortable around them” (Sleeter, 2008, p. 595; Weiner, 2016).

TABLE 1. *List of tensions and corresponding vignettes (Pillen, 2013).*

	Professional identity tensions	Vignettes
1	Feeling like a student versus being expected to act like an adult teacher.	Because Mary still feels like a student, she finds it hard to behave as a teacher and to be treated like this by students and/or colleagues. Maria still feels a bit young to be a teacher. Although she has the responsibility of a teacher, she cannot handle that responsibility.
2	Wanting to care for students versus being expected to be tough.	In order to maintain order in the classroom, Nicole needs to be strict with her students. This is difficult, because she wants the students to like her and she adheres to a positive atmosphere in the class room. Nicole wants her students to feel that she is there for them, but that does not allow her to be strict.
3	Feeling incompetent of knowledge versus being expected to be an expert.	Mike teaches physics. He has the feeling that his students expect him to have more knowledge of the subject than is actually the case. He cannot respond to all student questions and would like to be on a certain knowledge level, but that is not the case yet. He does not know how to deal with the situation.
4	Wanting to invest time in practicing teaching versus feeling pressured to invest time in other tasks that are part of the teaching profession.	Gert experiences that he has not learned many things during teacher training that he should have learned to function properly at practice school/work. It is therefore difficult for him to do the things that are expected of him at the internship school.
5	Feeling treated like a student versus wanting to take responsibility as a teacher.	Alex is a student teacher in his last year of teacher education. He feels that he is treated too much like a student teacher, while he should be preparing for being an independent teacher next year. Alex is unsure of what to do. He wants to stand up for himself and be treated seriously. At the same time, he does not want to be too obtrusive, because he is still a student.
6	Feeling like a peer versus wanting to take responsibility as a teacher.	Eva is a teacher and has the responsibility for her students. She takes that responsibility too, but at the same time she is still young. She is very close to her pupils in terms of age. She likes having fun with her pupils in the classroom, but she also regularly meets pupils when she goes out. She finds it difficult to determine which role she has to take inside and outside school in relation to her pupils. She wants to be able to make fun with the pupils, but she is aware of her position as a teacher. If she goes too far, the pupils no longer take her seriously, but she also thinks she should be able to have fun.
7	Wanting to respect students' integrity versus feeling the need to work against this integrity.	A pupil has taken Fatima in confidence about a personal problem. Fatima is now experiencing a dilemma. She has promised the pupil would not share her personal problem. Now that she knows the problem, however, she no longer knows what to do: she wants to preserve the pupil's integrity, but at the same time she thinks she needs to intervene, because the pupil can be a danger to herself and/or others.
8	Wanting to treat pupils as persons as a whole versus feeling the need to treat them as learners.	Jana finds it difficult to judge pupils solely on their performance. She also wants to take the pupil into account. Jana finds it difficult to focus on performance, because she thinks other things are at least as important, like pupils' well-being. She experiences this as a dilemma.
9	Experiencing difficulties in maintaining an emotional distance.	Michiel is very concerned about his pupils' well-being. He has a hard time accepting that he is not capable of helping his students to fulfil their needs.
10	Experiencing conflicts between one's and others orientations.	Geoff finds that he did not learn the things that he should have learned during teacher education in order to be able to function well at the school.
11	Being exposed to contradictory institutional attitudes.	Samir feels that he is never good enough: he has learned certain ideas about teaching in teacher training that he does not see at the internship school. He cannot try out at the school what he has learned during training and some assignments from the program are not feasible at the practice school. If he 'chooses' for the practice, his training program is not satisfied and vice versa.
12	Feeling dependent on a mentor (colleague/supervisor) versus wanting to go one's own way in teaching.	Karin feels that she is very dependent on her mentor. He forces her to teach in a way that does not match her own way of teaching. She likes to experiment and wishes there was another way of dealing with her students other than as her mentor does. On the other hand, she wants to listen to her mentor, because she is dependent on him regarding her assessments.
13	Wanting to invest in a private life versus feeling pressured to spend time and energy on work.	Mara wants to perform well in her teaching job, but she also wants to be there for her family/roommates. She does not know how to divide her time properly.

CONSTRUCTION AND VALIDATION OF THE PITS

Based on the conceptualization of professional identity tensions, the vignette-questionnaire of Pillen et al. (2013), and the issues that emerge in relation to professional identity tensions in urban education a new instrument was constructed: the Professional Identity Tensions Scale (PITS). This instrument consists of different subscales with multiple items for measuring specific professional identity tensions as reliably as possible (see part study 1 below). To examine the psychometric quality the measure was administered to primary student teachers from several teacher education institutions located in urban areas in the Netherlands (part study 1). In a second part study, using a new sample of students, it was examined whether the results obtained from study 1 could be replicated.

The following sections present part study 1 and 2. Method, participants, procedure, analysis and results will be reported for both studies separately. All student teachers that participated in the part studies provided informed consent—on paper or electronic. Ethical approval was granted by the Ethics Review Board of the Faculty of Social and Behavioral Sciences, University of Amsterdam, The Netherlands (file number 2017-CDE-8109).

PART STUDY 1

This part of the study is aimed at the construction of an instrument for measuring student teachers' professional identity tensions in the Netherlands. Four phases have been completed during the development process and guidelines for scale construction were followed (e.g., DeMonbrun et al., 2017; DeVon et al., 2007; Rattray & Jones, 2005). Methods and results for each phase are outlined in the following. Scale reliabilities and factorial structure were examined based on data collected from 211 primary student teachers.

INSTRUMENT DEVELOPMENT

The first phase involved the *item generation process* (cf. Rattray & Jones, 2005). Items were developed according to the main principle of cognitive dissonance. In each item a mental dilemma was represented that student teachers may experience as an unpleasant psychological tension state in different ways. This entailed that each item consists of a statement with opposite aspects concerning personal beliefs, emotions, ideals or values. Because professional identity tensions may also incorporate negative emotions and feelings, the items sometimes comprised words such as annoying, doubt, and problems. An item pool

of 67 new items was generated. Items were formulated in such a way that they could only be related to just a single tension (cf. Clark & Watson, 1995). Of these 67 items, 60 were related to the thirteen identity tensions from Pillen et al. (2013). The other seven items represented the two urban education tensions that emerged in literature about teaching at urban schools (referred to as ‘treat the class as homogeneous versus treat the class as heterogeneous’ and ‘background of teachers versus background of pupils’). The initial 67-item pool was reduced through a critical review process by all four authors. Overlapping items were merged, leaving those items that were formulated in a manner that only one tension was expressed. After consensus was reached, 52 items were retained for the next phase.

In phase 2, *expert validation*, three researchers—all specialized in the field of professional identity tensions—and seven teacher educators—all with more than five years of training experience—were consulted to increase the instrument’s content and face validity (cf. DeVon et al., 2007). Based on their recommendations, the formulation of certain items has been adjusted or tightened up. More important was the proposal of the experts to add a tension with regard to dilemma’s concerning stopping the teacher education program and/or leaving the profession of teacher (referred to as ‘leaving training versus becoming a teacher’). Five new items were generated in response to this suggestion, such as ‘I do not want to leave teacher education program, but I increasingly feel that teaching doesn’t suit me’. This resulted in a refined and customized list of 57 items.

In the third phase, *cognitive interviews*, student teachers were interviewed to further examine the quality of the items. To help respondents think and express their thoughts more freely, the cognitive interviews (cf. Collins, 2003) were guided by five person-centered questions (cf. Harlen & Qualter, 2014): (a) ‘How would you describe a tension dilemma between you as a person and you as a teacher’, (b) ‘What do you think this question means?’, (c) ‘What memories does this item recall’, (d) ‘Why did you score this item like this?’, and (e) ‘How do you think this tension will develop over time during your development?’. Each question was followed with probes (e.g., ‘how’, ‘what’ and ‘when’) to help students teachers to further explore their thoughts (Holstein & Gubrium, 1995). Four student teachers were selected for the cognitive interviews: two students who definitely want to become a teacher, one student who hesitates and one student who decided not to become a classroom teacher after completing the training. The idea behind this so called purposeful sampling method is the possibility to review items from several perspectives, which in turn can lead to a variety of possible interpretations (Etikan, Musa, & Alkassim, 2016). All four student teachers were in their final year of their bachelor program making it possible to let them reflect upon their

experiences over time. At the same time, they could pinpoint which words in the items they might not have understood well at the start of their teacher education program. Examples of such words are: 'interdisciplinary', 'super diversity', and 'constructivism'. All words that might encounter problems according to the students were replaced. The refined pool of 57 items was input for a pilot study (see Appendix A for the list).

In final phase 4 the items were piloted by means of a digital questionnaire administration. By means of a five-point Likert scale—1= not at all, 5= very much—respondents were asked about the extent to which they recognized their own experiences regarding the tension as described in the item. Aim was to determine whether student teachers' interest and concentration decreased during filling-in and how much time they needed to complete the whole questionnaire (cf. Hertzog, 2008). Thirteen third-year primary student teachers (ten of whom were female) were recruited from an academic teacher education institution located in an urban area in the Netherlands. The questionnaire took on average 12 minutes to complete, which is considered to be an acceptable length (cf. Worthington & Whittaker, 2006). After completion, student teachers received a mail to evaluate the questionnaire. No difficulties were reported regarding the understanding of items. The four phases eventually resulted in an initial Likert scale instrument questionnaire consisting of 57 items representing 16 professional identity tensions (see Appendix A). This version was ultimately used for a large-scale administration.

METHOD

PARTICIPANTS AND PROCEDURE

Following a convenience sampling strategy, student teachers were recruited from three primary teacher education institutions located in urban areas across the Netherlands. The managers of the institutions were contacted in advance for permission to cooperate. Prior to data collection, student teachers provided informed consent. After reading and signing the informed consent, the questionnaire was administered online during planned sessions at student teachers' institutions. All sessions were under the supervision of a teacher educator and a researcher. Data for this study were collected in May and June of 2017.

Two hundred eleven primary student teachers filled out the questionnaire—78% of all first and second-year students in the participating institutions. Absence was mainly due to no sense to participate, illness, or overlapping appointments. In Table 2, the sample characteristics are described in terms of academic year, gender and educational background.

Similar to the national average, 82.9% of the participants was female (Geerdink & de Beer, 2013). Notably, the percentage of pre-university graduates was almost four times higher than the national average of 10% (Education Council, 2013). This is probably due to one of the three institutions being an academic primary teacher education program with only students with a pre-university educational background.

TABLE 2. *Descriptives of the sample (N = 211).*

	Total (absolute numbers and percentages)	National average (percentages)
<i>Academic year</i>		
First	103 (48%)	
Second	108 (53%)	
<i>Sex</i>		
Men	36 (17.1%)	18%
Women	175 (82.9%)	82%
<i>Educational background:</i>		
Pre-university education	80 (37.9%)	10%
Higher prevocational education	91 (43.1%)	50%
Vocational education	40 (19%)	40%

ANALYSIS

Data were analyzed in four steps, using the statistical software package SPSS version 24.0.0 (IBM Corp, 2016). First, descriptive and missing values analysis was conducted. Second, The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and the Bartlett's Test of Sphericity were used to assess the suitability of the sample for exploratory factor analysis (EFA; Stevens, 2009). Third, a parallel analysis was used as a method to determine the number of underlying factors (Horn, 1965). A parallel analysis generates a random dataset with exactly the same number of data points – variables and observations – as the original data set. Only factors with eigenvalues higher than the eigenvalues from the generated data are retained (Hulbert-Williams, Hulbert-Williams, Morrison, Nael, & Wilkinson, 2011). Fourth, multiple EFA analysis with oblique rotation (direct oblimin) method was carried out, because we assumed that potential factors might be correlated (Stevens, 2009). EFA's were conducted until the best solution was reached. Factor loadings were considered significant when they loaded equal or higher than 0.364 (Stevens, 2009; see table for Critical Values for a Correlation Coefficient).

Both methodological and theoretical considerations for the retention or removal of factors and items were considered. Methodologically, we followed five criteria based on prior research (Costello & Osborne, 2005; Ruscio & Roche, 2012; Yong & Pearce, 2013): (a) factors containing 3-5 items with loadings equal or higher than 0.364 were retained, (b) factor containing two items that are highly correlated ($> .70$) were retained, (c) all items with a loading less than 0.364 were removed, (d) items with cross loadings equal or greater than 0.364 were removed, and (e) items that did not load consistently on the same factor were removed.

Theoretically, the meaningfulness of the factors and items were evaluated by all four authors on the basis of the theoretical framework of this research. Finally, scale reliabilities and item rest correlations were calculated in order to detect poor item performance using Cronbach's α coefficient (Fonseca et al., 2013).

RESULTS

The main assumptions of normality, linearity, and homoscedasticity were evaluated. None of the 57 items was substantially skewed ($< |2|$) or kurtosis ($< |7|$). In addition, the data did not consist of missing values. All items therefore were retained for further analyses (Field, 2013). *Initial analysis.* An EFA was conducted on the 57 items. The KMO value was .80, indicating 'meritorious' sampling adequacy and Barlett's test of Sphericity was significant ($X^2(1596) = 6386.76, p < .001$), indicating the variance-covariance matrix was appropriate for an EFA (Field, 2013).

PARALLEL ANALYSIS

According to the results of the parallel analysis, the first nine eigenvalues exceeded chance level were higher than the generated eigenvalues, explaining 55.96% of the variance. The eigenvalues (% of explained variance) ranged between 10.08 (17.68%) and 1.72 (3.02%).

FINAL ANALYSIS

Three EFA's were performed to derive underlying factors. Each analysis resulted in a clearer picture and moved closer to the final solution. After the first conducted EFA the following 12 items (see Appendix A) were dropped because they loaded less than .346 (see criteria c and d): 1.1, 1.4, 2.5, 3.1, 3.2, 4.1, 4.2, 4.3, 6.4, 7.1, 8.1 and 8.2. An example of an item that was dropped after the first EFA is item 3.1: 'I think pupils expect me to answer all questions, but I know I cannot'. A second EFA was conducted with the remaining 45 items. This resulted in removing 10 more items (items 1.2, 1.3, 11.1, 11.2, 11.3, 11.4, 11.5, 11.6, 13.1, and 15.1), mostly because

they did not consistently load on the same factor. For instance item 11.1 'I feel that I never do right thing: teacher education institute wants me to teach in a different way than my internship' was dropped after the second EFA.

The third conducted EFA revealed the most clearly interpretable factors and therefore was retained as final solution. The KMO value was .79, and Barlett's test of Sphericity was significant ($\chi^2(595) = 3952.25, p < 0.001$), explaining 69,70% of the variance. Appendix B shows the remaining 35 items that loaded moderate to high, ranging from 0.52 to 0.90. (Stevens, 2009). The loadings indicate that items measure different professional identity tension dimensions. A parallel analysis was rerun on the remaining 35 items. This time, the parallel analysis revealed an eight-factor solution instead of a nine-factor solution (explaining 66,17% of the variance, with eigenvalues ranging from 7 to 1.41).

QUALITATIVE EVALUATION

After qualitatively evaluating the items that represented a factor it was decided to retain nine instead eight factors (see Table 3). Thus, the final solution existed of 35 items sorted into nine factors representing different professional identity tensions (see Table 3). Of the original thirteen tensions distinguished by Pillen et al. (2013) only tensions 2, 5, 6, 9, 10, and 12 could be confirmed empirically (see also Discussion). The two scales for urban education coincide to one general scale (subsequently referred to as 'Teaching in urban classrooms').

TABLE 3. *List of the nine retained tensions (number of items and Cronbach's alpha).*

Tension	N of items	Reliability
1. Wanting to care for students versus being expected to be tough.	4	.81
2. Feeling treated like a student versus wanting to take responsibility.	3	.87
3. Feeling like a peer versus wanting to take responsibility as a teacher.	3	.71
4. Experiencing difficulties in maintaining an emotional distance.	2	.76
5. Experiencing conflicts between one's own and others' orientation regarding learning to teach.	5	.84
6. Feeling dependent on a mentor versus wanting to go one's own way in teaching.	4	.85
7. Wanting to invest in private life versus feeling pressured to spend time and energy on work.	4	.83
8. Teaching in urban classrooms.	5	.76
9. Leaving training versus becoming a teacher.	5	.92

SCALE RELIABILITIES, MEANS, AND STANDARD DEVIATIONS

The Cronbach's coefficient of the nine scales range between .71 and .92 (see Table 3). These reliability scores indicate that scales have an acceptable to excellent reliability and the grouped items measure the same professional identity tension (Stevens, 2009). Moreover, Table 3

displays the means and standard deviations of the tensions. Students reported lower levels of Leaving Training versus Becoming a Teacher. The highest reported tension is between Wanting to Invest in Private Life versus Feeling Pressured to Spend Time and Energy on Work, suggesting that students find it difficult to balance between work and home.

PART STUDY 2

The results of part study 1 revealed a nine-factor structure, indicating that the 35 items measure nine professional identity tensions. The aim of part study 2 was to evaluate the psychometric quality of the instrument with a new sample of student teachers for primary education.

METHOD

PARTICIPANTS AND PROCEDURE

For part study 2 a similar selection procedure was followed as in part study 1. The new sample consisted of first-year primary student teachers from three teaching institutes on applied science level located in urban areas in the Netherlands—one teacher education institution differs from the first sample. Again, student teachers were asked for informed consent before the questionnaire was administered online during sessions at the institutions under the supervision of a researcher and a teacher educator. Data was collected in November and December 2017.

In total 271 primary student teachers filled out the questionnaire. This was 60% of all first-year students of these institutions. Absence was mainly due to illness. In Table 4 the sample characteristics are given. In line with the national average percentages, the majority—75%—of the participants is female (Geerdink & de Beer, 2013).

The percentage of pre-university graduates was almost two times higher than the national average of 10%, whereas the percentage of vocational graduates was almost two times lower than the national average of 40% (Education Council, 2013). These differences are likely to be attributed to the fact that the institutions have made effort to increase the number of students with a pre-university graduate educational background, while new government policies made teacher education institutions at the same time less accessible for students with vocational educational background (cf. Snoek, van der Rijst, Verseveld, Tigelaar, & van Driel, 2016).

TABLE 4. *Descriptives of the sample (N = 271).*

	Total (absolute numbers and percentages)	National average (percentages)
<i>Sex:</i>		
Men	69 (25%)	18%
Women	202 (75%)	82%
<i>Educational background:</i>		
Pre-university education	17 (6%)	10%
Higher prevocational education	187 (69%)	50%
Vocational education	67 (25%)	40%

ANALYSIS

CFA was used to assess if the factor structure retained by the EFA would provide a good model fit. Using Mplus Version 7.11 (Muthén & Muthén, 1998-2012), maximum likelihood (ML) was selected as estimator and several fit indices were used to evaluate the appropriateness of model fit: χ^2 test, the Root Mean Square Error of Approximation (RMSEA) and Standardized Root Mean Square residual (SRMR), with values $\leq .05$ reflecting a close fit, and $\leq .08$ a satisfactory fit (Kline, 2011), and CFI, with values $\geq .95$ indicating close fit, and values $\geq .90$ indicating acceptable fit (Bentler, 1999). To diagnose potential misfit in the model modification indices were inspected.

RESULTS

The proposed model was tested including the nine dimensions of professional identity tensions. The fit of this model was not entirely satisfactory, $\chi^2 (524) = 930.21$, $p < .000$; CFI = .891; RMSEA = .053 (90% CI[.048-.059]), SRMR = .061, as indicated by the CFI $< .90$. To diagnose systematic patterns of misfit we evaluated the model's modification indices. These indices suggested model improvement by deleting one item (See Appendix A: 14.1, 'I would like to teach in a multicultural class, but I doubt that I can handle it'). This item appeared to load poorly on its respective factor and at the same time showed considerable overlap with another item (see Appendix A: 14.2, 'I would like to teach in a multicultural class, but I doubt because it seems tough to me'), both conceptually and methodologically (cf. Tabachnick & Fidell, 2007). Removal of this item resulted in more satisfactory fit to the data, $\chi^2 (491) = 817.47$, $p < .000$; CFI = .91; RMSEA = .050 (90% CI[.043-.055]), SRMR = .055. Therefore, this modified model was retained as the final model consisting of nine factors.

The factor loadings show that all items are significant and exceed the critical value of

0.364 (see appendix C). These findings support the assumption that the professional identity tensions represent nine separate tension dimensions. Inter-factor correlations are reported in Table 5. Results indicate that the factor correlations range from $-.01$ to $.63$. Accordingly, these results support the convergent and divergent validity of the nine dimensions of professional identity tensions.

TABLE 5. *Inter-factor correlations among Professional Identity Tensions.*

	T1	T2	T3	T4	T5	T6	T7	T8	T9
T1	1.00								
T2	-.04	1.00							
T3	.62***	.16*	1.00						
T4	.20*	.07	.22**	1.00					
T5	.16	.22***	.15*	.12*	1.00				
T6	.10	.44***	.07	.02	.15*	1.00			
T7	.25***	.08	.21**	.21**	.26***	-.01	1.00		
T8	.38***	.07	.48***	.23**	.07	.05	.19*	1.00	
T9	.34***	.08	.27***	.14*	.23**	.12	.14*	.13	1.00

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

SCALE RELIABILITIES

The Cronbach's α coefficient of most scales ranges between $.71$ and $.93$ (see Table 6). Two factors (T3 and T5) had Cronbach alpha's of $.65$ and $.66$, which is lower than expected. Ideally the Cronbach's α coefficient should be above 0.70 , however in the case of instrument development these alphas can be interpreted as acceptable (cf. DeVellis, 2003). Therefore, these coefficients support the assumption that the scales reveal adequate reliability and that they can be distinguished from each other.

TABLE 6. *List of the nine retained tensions (number of items and Cronbach's alpha).*

Tension	N of items	Reliability
1. Wanting to care for students versus being expected to be tough.	4	.71
2. Feeling treated like a student versus wanting to take responsibility.	3	.80
3. Feeling like a peer versus wanting to take responsibility as a teacher.	3	.66
4. Experiencing difficulties in maintaining an emotional distance.	2	.84
5. Experiencing conflicts between one's own and others' orientation regarding learning to teach.	5	.77
6. Feeling dependent on a mentor versus wanting to go one's own way in teaching.	4	.74
7. Wanting to invest in private life versus feeling pressured to spend time and energy on work.	4	.80
8. Teaching in urban classrooms.	5	.65
9. Leaving training versus becoming a teacher.	5	.93

DISCUSSION

Based on acknowledged methods for scale development (e.g., DeMonbrun et al., 2017; DeVon et al., 2007; Rattray & Jones, 2005; Van der Zouwen, 2000), multiple steps over two studies were followed to develop, validate, and test the psychometric quality of the Professional Identity Tensions Scale (PITS) among primary student teachers. Overall, the adequate scale reliability and factor structure of the PITS seem to provide preliminary support for the psychometric quality of this instrument. As such, the PITS can be applied to measure a variety of professional identity tensions that primary student teachers may experience in their daily teaching practice.

In this research five types of validity have been assessed. More specifically, we evaluated face and content validity using an expert validation, cognitive interviews, and a small pilot to determine the importance and usefulness of the PITS for primary student teachers. Additionally, we assessed factorial validity using factor analysis to examine the extent to which the factors derived matched to those identified in our theoretical framework. Last, we calculated Pearson correlations to evaluate the convergent and discriminant validity of the PITS. These five validation steps resulted in nine factors that tap unique professional identity tensions that are weakly to moderately associated to one another. This indicates that these tensions are related, yet also reflect relatively distinctive sources of dissonance student teachers experience in the process of becoming a teacher. Indeed, each tension reflects a particular teacher activity, including instructional support, classroom support, emotional support, diversity, and balancing work and private life.

Of all nine constructs found in this research, seven are in line with Pillen et al.'s (2013) vignette-driven instrument, which reflected thirteen professional identity tensions. Several explanations can be given for this discrepancy in the number of identified tensions. First, the present research concerns a quantitative approach to verify the number of professional identity tensions, whereas Pillen et al. (2013) laid emphasis on a more qualitative approach based upon literature review and interviews. In this research, following standardized guidelines (e.g., DeMonbrun et al., 2017; DeVon et al., 2007; Rattray & Jones, 2005), an item pool of 57 new items was generated. Applying acknowledged criteria for factor analysis helped removing redundant items. As a consequence the final version of the PITS included 34 items corresponding to nine professional identity tensions.

Second, the process of generating unique and meaningful items based on Pillen et al.'s (2013) vignettes appeared to be relatively difficult. Some vignettes seem to include multiple

tensions related to a particular situation, whereas other vignettes, to some extent, insinuate to measure identical tensions. Consequently, for some tensions only one or two items could be formulated, potentially reducing the chance of finding robust constructs by means of a factor analysis. For instance, the tension 'Feeling like a student versus being expected to act like an adult teacher' is described as follows (Pillen et al., 2013):

"Because Mary feels like a student, she has difficulties acting like a teacher and being treated like a teacher by students and colleagues. Mary feels a bit young to be a teacher. She has the responsibilities as a teacher, but she still cannot handle the responsibilities that come along with the profession".

This vignette might refer to two different mental types of discomfort. On the one hand the tension state of feeling like a student versus being expected to act like an adult teacher, and on the other hand feeling too young to act as a teacher versus taking responsibility as an adult teacher. Looking, on the other hand, to the Pillen et al.'s (2013) description of the vignette operationalizing the tension 'Feeling like a peer versus wanting to take responsibility as a teacher' the vignette seems to be related to the tension feeling like a student versus being expected to act like an adult teacher as well:

"Eve is a teacher and has the responsibility for her students. She takes that responsibility but at the same she is still young and feels close to the pupils in terms of age. [...] If she becomes too familiar with the student, they no longer take her seriously".

A third, more theoretical explanation for the discrepancy in the number of identified tensions might be attributed to the environmental working conditions. The present research focused exclusively on student teachers who are being prepared to teach in primary education, whereas in Pillen et al. (2013) a mixture of primary and secondary beginning teachers were examined. As a result some items were removed from the pool of items because they appeared to be less relevant for primary student teachers. It is therefore understandable that in this sample of students the original classification of thirteen professional identity tensions could not be confirmed by factor analysis. For instance, the tension 'wanting to treat pupils as persons as a whole versus feeling the need to treat them as learner' might have little meaning for those who are teaching in primary education. Unlike in secondary education, primary education teachers spend almost all their time with one group of pupils throughout

the year creating more meaningful and deeper relationships (cf. Nias, 2002). In this sense, such a working condition may reduce the chance of such a tension being evoked.

Finally, some of the tensions highlighted in Pillen et al. (2013) are distilled from studies dating back from the 70s, 80s, and 90s. Given that things have changed over the years with respect to how student teachers are being prepared, it is imaginable that some tensions are less likely to arise today. In this research, this might have led to a smaller set of tensions. For instance, the tension 'Being exposed to contradictory institutional attitudes' has been removed because, in contrast to a couple decades ago, teacher education institutions cooperate more intensively with practice schools to calibrate teaching activities with student teachers learning goals (cf. Lillejord & Børte, 2016). Consequently, this enhanced cooperation might have flatten differences between teacher education institutions and practice schools to the extent that such a tension does not play a profound role in the process of becoming a teacher anymore.

In addition to regular professional identity tensions, in the present research two new professional identity tensions emerged: 'Teaching in urban classrooms' and 'Leaving teacher education versus becoming a teacher'. The former tension ultimately comprised four items reflecting the difficulty of handling social differences among pupils and the tensions caused by the discrepancy between the background of student teachers and that of their pupils. Therefore, the PITS is also applicable for student teachers who are being prepared to teach in urban contexts. The latter tension, which emerged out of the expert validation phase, specifically concentrates on student teachers experiencing dissonance between continuing teacher education program and leaving the profession. Thereby, the PITS may have the potential to detect a possible risk concerning student teacher dropout. Dropout is an important issue for teacher education institutions and is often a problem for beginning teachers. It is therefore important to get an indication at an early stage in order to prevent tensions that can result in dropout.

LIMITATIONS

Despite preliminary evidence for the psychometric soundness of the PITS, there are some issues to be critical about. First, professional identity tension 4—experiencing difficulties in maintaining an emotional distance—consists of only two items and should therefore be interpreted with caution. Specifically, the use of a two-item factor may represent a small proportion of variance concerning that tension (cf. Kline, 2011). Yet, both in study 1 and study 2 the two items were highly correlated with each other, showed relatively low correlations with other professional identity tensions, and appeared to form a reliable scale (cf. Yong &

Pearce, 2013), thereby supporting the robustness of this factor. Nonetheless, adding more items to this tension factor in future research may further strengthen the validity of the PITS.

Second, to ensure the response quality of the PITS, we used several qualitative approaches – e.g., expert validation and cognitive interviews – and quantitative approaches – e.g., 5-point Likert scale (cf. Van der Zouwen, 2000). Yet, to further enhance the response quality of our instrument, future research may use Van der Zouwen’s (2000) indicators of question difficulty to evaluate the 34 items on a micro level. A close examination of items can increase the response quality of the PITS by means of a more accurate and /or unequivocal formulation of items. This will enhance primary student teachers’ motivation to fill out the questionnaire, which in turn, affects the response quality (cf. Van der Zouwen, 2000).

Third, the deletion of items because of inappropriate factor loadings inevitably affected the scope of measurement. Future research could refine and broaden the scope of the PITS. For instance, by reformulating and/or adding new items regarding professional identity tensions that could not be demonstrated as a result of selected item selection criteria in this research and/or that have not yet been distinguished to date.

Fourth, although a relatively comprehensive set of professional identity tensions are identified, it is unrealistic to assume that these are the only professional identity tensions primary student teachers experience. It might be that there are other sources of regular as well as urban context dissonance – for instance, primary student teachers may experience tensions between teaching pupils basic competencies and teaching pupils emotional and social awareness – have been overlooked. However, when adding new tensions, it is desirable to keep the total length of the PITS as short as possible – 10 to 12 min – to keep the administration feasible for respondents (cf. Van der Zouwen, 2000; Worthington & Whittaker, 2006).

Finally, it should be noted that both samples mainly consisted of female primary student teachers. This might have reduced the generalizability and applicability of the PITS to the more general student teacher population in the Netherlands as well as outside. At the same time, however this relatively unequal gender distribution in our sample seems to reflect the general workforce of teachers in primary education, of which the majority is predominately female (CBS, Statline, 2018). Nevertheless, despite these sample related limitations, it seems important to replicate the findings of this research in other and more heterogeneous samples.

IMPLICATIONS FOR FUTURE RESEARCH AND PRACTICE

The PITS can be used by researchers as well as practitioners in the field of teacher education. Researchers may use the PITS to collect data on differences between primary student teachers, teacher education institutions, and explore longitudinal trends. Moreover, future research can focus on examining the relation between professional identity tensions and the professional development of primary student teachers. Although a clear relation is assumed (cf. Nias, 2002), this hypothesis has never been tested formally. Such research may contribute to a better understanding which particular professional identity tensions arise during the different career stages of student teachers (e.g., Pillen et al., 2013; Warner, 2016).

Up until now, research about professional identity tensions have mainly focused on secondary teachers. Using the PITS, which is designed specifically for the primary education context, may help primary teacher education institutions to adjust their program to student teachers' needs. Examples are evoking tensions at the right moment, generating moments of reflection and making meaning about things that really matter to students professionally as well as personally, and helping to resolve dissonance or the tension (Pillen et al., 2013).

The urban-related tensions of the PITS can be used in future research that intends to compare the intensity of experienced tensions between different urban environments. A comparison can be drawn, for instance, between urban environments within a country—e.g., Amsterdam and Rotterdam—or between countries—London and Paris. Such comparisons can reveal whether or not primary student teachers experience urban-related tensions in the same intensity in different contexts. To our knowledge, researchers (e.g., Haberman, 1995; Sleeter, 2008) have not yet discussed this. These insights can lead to more knowledge about the impact of urban related tensions on professional identity development.

The PITS can also be used by teacher educators. One useful way is to use PITS as a pedagogical vehicle to make professional identity tensions visible and discussible with and among primary student teachers. Prior research suggests that doing so supports student teachers professional identity development (e.g., Anspal et al., 2018; Friesen & Besley, 2013). Primary student teachers, for instance, may learn that experiencing professional identity tensions is a fundamental aspect in the process of becoming a teacher and that they are not the only one that is experiencing such tensions. In turn, student teachers can share tension-related experiences and discuss how they dealt and or avoided tensions. It is advocated that when student teachers especially share experiences regarding teaching in urban areas with peers and/or teacher educators may stimulate teacher identity development and increase their enthusiasm for the profession (e.g., Nias, 2002; Sleeter, 2008).

CONCLUSION

The PITS is a validated instrument measuring professional identity tensions among primary student teachers. The 34 items can be used by researchers for different research goals in the field of teacher identity development. Moreover, the PITS can be used by teacher education institutions, and specifically by teacher educators during courses specially concentrating on professional identity development to lay out professional identity tensions on the table. It is claimed that doing so helps student teachers further strengthen their teacher identity.

APPENDIX A. *Professional identity tensions, items, and factor loadings.*

Professional Identity Tensions	Items	Loadings
1 Feeling like a student versus being expected to act like an adult teacher.	1.1 I feel like a student, but at the same time I have difficulty with acting as a teacher.	-
	1.2 I feel like a student, but at the same time I have trouble with students viewing me as a teacher.	-
	1.3 I feel like a student, but at the same time I have difficulty teachers at my internship school treat me as a teacher.	-
	1.4 I feel like a student, but at the same time I have difficulty in taking responsibility for the class as a teacher.	-
2 Wanting to care for students versus being expected to be tough.	2.1 I find it difficult to be tough against students because I want them to like me at the same time.	.84
	2.2 I find it difficult to be tough against students because at the same time I want to keep a good atmosphere.	.85
	2.3 I find it difficult to act friendly to students and at the same time maintain order in a busy class.	.73
	2.4 I find it annoying to be tough against students, because I do not think it fits well with who I am.	.54
	2.5 I want a good class atmosphere and that pupils like me, but I do not want them to walk all over me.	-
3 Feeling incompetent of knowledge versus being expected to be an expert.	3.1 I would like my knowledge base exceed the educational material, because I have the feeling that students expect me to be knowledgeable.	-
	3.2 I think pupils expect me to answer all questions, but I know I cannot.	-
4 Wanting to invest in practicing teaching versus feeling pressured to invest time in other tasks that are part of the teaching profession.	4.1 I want to devote my time mainly to teaching at the internship, but that does not work well because I also have to make a lot of assignments for my teacher training institute.	-
	4.2 I'm upset about I have to spend so much time learning for my exams, whereas basically I want spending my time on teaching.	-
	4.3 I have all sorts of tasks at my internship, but I actually want to teach my class.	-
5 Feeling treated like a student versus wanting to take responsibility.	5.1 I want to be seen as a full-fledged colleague at my practice school, but I do not know how I can change that without being intrusive.	.79
	5.2 I am treated as a student at my practices school, but I actually want to be seen as a fellow teacher.	.94
	5.3 I see myself as a teacher at my practice school, but I'm seen by my colleagues as a student.	.83

APPENDIX A. (Continued)

	Professional Identity Tensions	Items	Loadings
6	Feeling like a peer versus wanting to take responsibility as a teacher	6.1 I like to make jokes with pupils, but find it difficult as a teacher to determine the boundary.	.86
		6.2 I like to have fun with children, but I'm afraid I will go too far so that pupils will not take me seriously anymore..	.85
		6.3 In classroom I feel being a teacher, but I find it difficult to stay in my professional role outside the classroom.	.52
		6.4 I regularly meet pupils outside school, but I do not know how to react.	-
7	Wanting to respect students' integrity versus feeling the need to work against this integrity.	7.1 A pupil has told me in confidence about a personal problem, but now that I know this, I think I should intervene, even though I have promised to keep it a secret.	-
8	Wanting to treat pupils as persons as a whole versus feeling the need to treat them as learner.	8.1 I find it difficult to judge students purely on performance, because I also want to take into account how good the pupils feel.	-
		8.2 I only have to concentrate on test results at my internship, but find it difficult because I think other things are just as important.	-
9	Experiencing difficulties in maintaining an emotional distance.	9.1 I am very concerned about personal problems of some pupils because I cannot do what I want do for them.	.85
		9.2 I am very committed to my pupils, and sometimes I cannot put aside their personal problems.	.89
10	Experiencing conflicts between one's own others' orientations regarding learning to teach.	10.1 I feel that in my training I do not learn the stuff that I can use to function properly at my practice school.	.82
		10.2 I have to do many things at my training, but the learning goal is not always clear.	.77
		10.3 I experience that during my training I do not learn what I want to learn in order to be able to teach well.	.89
		10.4 I feel that assignments in training do not always meet my needs.	.67
		10.5 I find it difficult to do the things that are expected of me at the practice school, because I did not learn the right things at my training.	.62

APPENDIX A. (Continued)

	Professional Identity Tensions	Items	Loadings
11	Being exposed to contradictory institutional attitudes.	11.1 I feel that I never do right thing: teacher training wants me to teach in a different way than my internship.	-
		11.2 I find it inconvenient that I cannot try out at the internship school what I learned during teacher training.	-
		11.3 If I 'choose' for my internship, my teacher training is not satisfied and if I 'choose' for my teacher training, the internship school is not satisfied.	-
		11.4 I have learned a certain pedagogy during training that does not match what is expected of me at the internship.	-
		11.5 I notice that I have to choose between the vision of the teacher training on good teaching and the vision of the internship	-
		11.6 I find the learning theory provided during teacher training interesting, but I find that my internship school works from a completely different theory.	-
12	Feeling dependent on a mentor versus wanting to go one's own way in teaching.	12.1 I have to teach in a certain way from my mentor, but that way of teaching does not suit me.	.69
		12.2 I would like to explore my own ideas and deal with the pupils in a different way than my mentor does.	.83
		12.3 I want to listen to my mentor on the one hand, because that person assess me, but on the other hand, I think I should try to teach in my own way.	.88
		12.4 I find it hard to find a balance between my own educational views and those of my mentor.	.74
13	Wanting to invest in private life versus feeling pressured to spend time and energy on work.	13.1 I want to do my job as a teacher well, but I find it annoying that this is at the expense of spending time with family and friends.	.78
		13.2 I'm fed-up that I often have a lot of work that is not finished yet when it's time to go home	.63
		13.3 I find it hard to divide my time between the training on the one side, and my friends, family, and/or family on the other side.	.90
		13.4 I find it difficult to find a good balance between time for practice school and time for myself, family and/or friends.	.86

APPENDIX A. (Continued)

Professional Identity Tensions	Items	Loadings
14 Background of teachers versus background of pupils.	14.1 I would like to teach in a class located in an urban area, but I doubt that I can handle it.	.73
	14.2 I would like to teach in a class located in an urban area but doubt because it seems difficult to me.	.79
	14.3 I think that I should deal with sensitive issues such as sexuality, terrorism and the Holocaust in my lessons, but I doubt if I should because I am afraid of reactions of pupils and parents.	-
	14.4 I think that in my lessons I have to take into account the values and norms of adherent cultures, but I find that difficult because they sometimes conflict with my own views.	.58
15 Treat the class as homogeneous versus treat the class as heterogeneous.	15.1 I think that pupils should be addressed when they do not speak Dutch to each other, even if that is not the rule at the practice school.	-
	15.2 I experience the diversity in my class as an enrichment, but at the same time I find also difficult to deal with.	.64
	15.3 I find it difficult to pay attention to celebrating differences whereas keeping an eye on the similarities between pupils.	.74
16 Leaving training versus becoming a teacher.	16.1 I do not want to leave training, but I increasingly feel that teaching doesn't suit me.	.85
	16.2 I do not want to leave training, but I do not think that being a teacher fits my ambitions.	.86
	16.3 Although I like to teach, I doubt whether I should continue to become a teacher.	.85
	16.4 I do not want to leave my training, but I doubt whether I want to become a teacher.	.89
	16.5 Although I think I teach reasonably, I doubt to continue to become a teacher.	.88

APPENDIX B. *Exploratory factor loadings of the reviewed scale items of the PITS.*

Item	Factor								
	1	2	3	4	5	6	7	8	9
12.3	.88	.03	.05	.01	-.01	-.03	-.05	.04	.02
12.2	.83	.02	-.02	-.09	.04	.02	.02	-.01	-.04
12.4	.74	-.05	-.10	.08	-.05	.16	-.01	-.13	.07
12.1	.69	-.03	-.15	.03	.11	.09	.03	.02	-.01
2.2	-.03	.85	.02	.05	.03	.03	.02	-.02	-.01
2.1	-.04	.84	-.08	-.15	.02	-.01	-.02	-.06	.05
2.4	-.03	.73	-.10	-.03	-.01	-.05	-.09	-.11	.10
2.3	.21	.54	.10	.17	-.04	-.01	-.17	-.07	-.13
16.4	-.01	.02	-.89	.05	-.08	.05	-.01	-.02	-.01
16.5	.04	-.05	-.88	.07	-.03	.02	-.04	-.03	.03
16.2	-.01	-.03	-.86	-.12	.10	.07	-.04	.06	.02
16.1	.08	.07	-.85	.05	-.07	-.09	.01	-.06	-.06
16.3	.02	.03	-.85	.04	.13	-.04	.05	.05	-.02
13.3	-.08	-.01	-.03	.90	-.06	.01	.02	-.04	.05
13.4	-.08	.01	-.14	.86	-.07	.02	.03	-.02	.07
13.1	.03	-.05	.01	.78	.04	-.05	-.07	.02	-.08
13.2	.17	.05	.06	.63	.20	-.01	.06	.06	.13
10.3	.03	.13	.02	-.05	.89	-.03	.03	.06	.01
10.1	.02	.06	-.03	.04	.82	-.05	.05	-.02	-.01
10.2	.02	-.11	.09	-.01	.77	.05	.01	-.05	-.04
10.4	-.02	-.22	-.03	.13	.67	.11	-.19	-.01	-.01
10.5	.04	.08	-.17	-.01	.62	.03	.02	-.03	.13
5.2	.07	-.01	.01	.01	-.08	.94	.04	.01	.03
5.3	.08	-.15	-.08	-.09	.07	.83	-.01	.02	-.01
5.1	.02	.12	.07	.02	.08	.79	-.05	-.05	.08
14.2	-.07	.09	-.01	.01	-.07	.10	-.79	.02	.01
15.4	.10	-.06	-.06	-.11	-.03	-.12	-.74	-.05	.07
14.1	-.13	.20	-.05	.05	-.01	.11	-.73	.16	.01
15.3	.14	.16	.01	.05	-.02	.12	-.64	.02	-.03
15.2	-.01	-.14	.05	.05	.07	-.04	-.58	-.21	-.04
6.1	.12	-.01	.02	.01	-.04	-.03	-.03	-.86	.09
6.2	-.02	.09	.04	-.06	.04	-.04	.02	-.85	.03
6.3	-.12	.12	-.12	.09	.04	.19	-.03	-.52	-.16
9.2	-.08	-.01	-.02	.04	.02	.01	-.02	.03	.89
9.1	.07	.04	.06	.06	.01	.07	-.02	-.07	.85
Cronbach's alpha	.85	.81	.93	.83	.84	.87	.77	.71	.76

APPENDIX C. *Confirmatory factor loadings for the items in the final revision of the PITS (N = 34).*

Tension	Item	Loading
Wanting to care for students versus being expected to be tough (T1).	1.1 I find it difficult to be tough against students because I want them to like me at the same time.	.78
	1.2 I find it difficult to be tough against students because at the same time I want to keep a good atmosphere.	.68
	1.3 I find it difficult to act friendly to students and at the same time maintain order in a busy class.	.44
	1.4 I find it annoying to be tough against students, because I do not think it fits well with who I am.	.58
Feeling treated like a student versus wanting to take responsibility (T2).	2.1 I want to be seen as a full-fledged colleague at my practice school, but I do not know how I can change that without being intrusive.	.68
	2.2 I am treated as a student at my practices school, but I actually want to be seen as a fellow teacher.	.83
	2.3 I see myself as a teacher at my practice school, but I'm seen by my colleagues as a student.	.77
Feeling like a peer versus wanting to take responsibility as a teacher (T3).	3.1 I like to make jokes with pupils, but find it difficult as a teacher to determine the boundary.	.72
	3.2 I like to have fun with children, but I'm afraid I will go too far so that pupils will not take me seriously anymore.	.81
	3.3 In classroom I feel being a teacher, but I find it difficult to stay in my professional role outside the classroom.	.41
Experiencing difficulties in maintaining an emotional distance (T4).	4.1 I am very concerned about personal problems of some pupils because I cannot do what I want do for them.	.94
	4.2 I am very committed to my pupils, and sometimes I cannot put aside their personal problems.	.76
Experiencing conflicts between one's own and others' orientation regarding learning to teach (T5).	5.1 I feel that in my training I do not learn the stuff that I can use to function properly at my practice school.	.67
	5.2 I have to do many things at my training, but the learning goal is not always clear.	.54
	5.3 I experience that during my training I do not learn what I want to learn in order to be able to teach well.	.82
	5.4 I feel that assignments in training do not always meet my needs.	.63
	5.5 I find it difficult to do the things that are expected of me at the practice school, because I did not learn the right things at my training.	.54

APPENDIX C. (Continued)

Tension	Item	Loading
Feeling dependent on a mentor versus wanting to go one's own way in teaching (T6).	6.1 I have to teach in a certain way from my mentor, but that way of teaching does not suit me.	.67
	6.2 I would like to explore my own ideas and deal with the pupils in a different way than my mentor does.	.58
	6.3 I want to listen to my mentor on the one hand, because that person assess me, but on the other hand, I think I should try to teach in my own way.	.54
	6.4 I find it hard to find a balance between my own educational views and those of my mentor.	.81
Wanting to invest in private life versus feeling pressured to spend time and energy on work (T7).	7.1 I want to do my job as a teacher well, but I find it annoying that this is at the expense of spending time with family and friends.	.57
	7.2 I'm fed-up that I often have a lot of work that is not finished yet when it's time to go home	.39
	7.3 I find it hard to divide my time between the training on the one side, and my friends, family, and/or family on the other side.	.95
	7.4 I find it difficult to find a good balance between time for practice school and time for myself, family and/or friends.	.90
Teaching in urban classrooms (T8).	8.1 I would like to teach in a class located in an urban area but doubt because it seems difficult to me.	.40
	8.2 I think that in my lessons I have to take into account the values and norms of adherent cultures, but I find that difficult because they sometimes conflict with my own views.	.47
	8.3 I experience the diversity in my class as an enrichment, but at the same time I find also difficult to deal with.	.63
	8.4 I find it difficult to pay attention to celebrating differences whereas keeping an eye on the similarities between pupils.	.61
Leaving training versus becoming a teacher (T9).	9.1 I do not want to leave training, but I increasingly feel that teaching doesn't suit me.	.83
	9.2 I do not want to leave training, but I do not think that being a teacher fits my ambitions.	.88
	9.3 Although I like to teach, I doubt whether I should continue to become a teacher.	.80
	9.4 I do not want to leave my training, but I doubt whether I want to become a teacher.	.90
	9.5 Although I think I teach reasonably, I doubt to continue to become a teacher.	.86