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A focus on theory, measurement, and longitudinal associations

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GENERAL DISCUSSION

CHAPTER VI

THE AIM of this dissertation was to move the field of teacher identity and professional identity tensions forward by, first, *developing reliable and valid measurement scales for teacher identity and professional identity tensions*; and then *advancing understanding of the development of the relationship between teacher identity and professional identity tensions across time in the context of primary teacher education*. Chapters II and III were devoted to developing and validating the Teacher Identity Measurement Scale (TIMS) and Chapter IV to the Professional Identity Tensions Scale (PITS). The development of both instruments was guided by questions about the nature of the construct being measured as well as its underlying components. Chapter V dealt with the nature and direction of the relationship between professional identity tensions and teacher identity. This General Discussion comes back to the issues raised in Chapter I. First, the findings related to the development and validation of the TIMS and the PITS are summarized and discussed. This is done separately for each instrument. Then, the results about the relationship between professional identity tensions and teacher identity are addressed and followed by suggestions for future research. This chapter concludes with implications for teacher training and the educational practice.

THE DEVELOPMENT AND VALIDATION OF THE TIMS

Chapter II reported on a review study to identify components of teacher identity and assessed the psychometric properties of existing instruments that measure teacher identity. The third chapter was largely based on the results of Chapter II and the identity theory framework of Burke and Stets (2009) for developing and validating the Teacher Identity Measurement Scale (TIMS) for primary student teachers. The lack of an appropriate instrument specifically designed for the population of interest in this dissertation was an initial reason for the focus of both studies. Reviewing existing instruments of teacher identity to identify relevant components for teacher identity was an important step in the process of developing a reliable

and valid instrument. Providing an overview served as a means to build on former research and construct a coherent set of meanings tied to the professional identity of teachers.

As discussed in Chapter III—and later in Chapter IV, identity theory suggests that human beings are made up of different identities (Burke & Stets, 2009). These identities are hierarchically structured around ‘the self’, which constitutes the ‘whole’ individual. For student teachers, a teacher identity is one of the identities they develop. This professional identity is the part that takes on, becomes, and preserves their role as a teacher. Development of their teacher identity takes place through socialization in ongoing and organized context(s) where they are taught what it means to be a teacher. Because significant others, including researchers, parents, and media, provide the contours of what it means to be a teacher, student teachers’ professional identity cannot be considered entirely self-generated and/or unique. Rather, the teacher identity student teachers develop is made up of a coherent set of socially shared meanings. Each meaning within this set of meanings, in turn, is a small part of what teacher identity entails. Generally, meanings can be any psychological construct (e.g., beliefs, attitudes) as long as they have the potential to guide teachers’ behaviors, thoughts, or emotions (Burke & Stets, 2009). This highlights the importance of exploring the meanings student teachers provide to their own teaching identity.

After analyzing the content of quantitative instruments that have been developed between 2000 and 2018, motivation, self-image, self-efficacy, task perception, commitment, and job-satisfaction were identified in Chapter II as meanings of teacher identity. Although the list of components should not be considered definitive or exhaustive, these results seem to be largely consistent with findings of previous review studies (e.g., motivation in Carrillo & Flores, 2017; self-efficacy in Van Lankveld et al., 2017) and qualitative studies (e.g., self-image in Kelchtermans, 1994). Nevertheless, it is important to keep in mind that the inclusion criteria used in our review study may have played an important role in determining the scope of the components of teacher identity in this study. Specifically, the meaning of teacher identity is not an entirely fixed construct as it might change over time and across different contexts (Burke & Stets, 2009). For example, if the review had been conducted on studies published before the mid-1970s instead of between 2000 and 2018, the component self-efficacy would probably not have been considered as part of teacher identity as Bandura (1977) was the first that coined this term

The findings of the review study presented in Chapter II also gave rise to an additional reason for developing and validating an instrument of teacher identity: all identified existing instruments measured the construct by single and/or non-hierarchical indicator scales. For

instance, one instrument of professional identity (Beijaard, Verloop, & Vermunt, 2000) consists of three components—didactical, pedagogical, and subject matter expertise, yet it remains unclear how those components empirically link together and contribute to teacher identity. As noted in Chapter III, this unspecified mutual coherence between components in existing instruments makes it difficult to efficiently collect and interpret data for evaluating and reflecting on teachers' identities (Stevens, 2009).

To some extent, the lack of a multidimensional quantitative measuring instrument in former studies seems to illustrate the complexity of transforming theoretical insights about teacher identity into a reliable and valid instrument. Some researchers even wonder whether it will actually be possible to get a quantitative grip on such an elusive construct as teacher identity (Kelchtermans, 1994; Nias, 2002). From their theoretical position, which includes the *symbolic interactionism* of Cooley (1902, in Burke & Stets, 2009) and Mead (1934, in Burke & Stets, 2009), quantitative methods may be unproductive and may even interfere with the narrative and hybrid characteristics of teacher identity. Theoretical developments in symbolic interactionism from the early 1970s onwards, however, did spur additional ideas about how to measure teacher identity (Burke & Stets, 2009). One of these ideas that grew out of symbolic interactionism is identity theory (Stryker, 1980; 1987). Identity theory opens up the theoretical possibility of measuring student teachers' professional identity in a quantitative way.

An important step in measuring teacher identity is determining the socially shared meaning of teacher identity. In other words: what is the generally accepted way of conceptualizing teacher identity in a given social context? Uncovering such a meaning is crucial to trigger among student teachers the responses related to their professional identity. By reviewing relevant studies to explore this meaning, we identified the shared meaning defined by members of the (social) group of researchers. From an identity theory perspective (Burke & Stets, 2009), our choice for researchers to determine what the components of teacher identity are, was based on the assumption that this group, more than other groups, have played, and continue to play, a profound role in constructing the meaning of teacher identity. Because of their position and access to information, it is safe to assume that researchers have better opportunities, than for example parents, to fuel public debates about educational issues, such as what it means to be a teacher.

To assess how the components as identified in the review study are associated with each other and contribute to teacher identity in the context of primary student teachers, a validation study of the TIMS was conducted. Before subjecting the identified components to factor analysis, the face and content validity of the instrument were evaluated. This was done

by conducting cognitive interviews with primary student teachers, expert validation with a panel of educational researchers and primary teacher educators, and a small pilot validation with primary student teachers. These steps improved the understandability, meaningfulness, and feasibility of the TIMS for primary student teachers and confirmed its face and content validity.

Perhaps the most obvious difference between the results presented in Chapter II and Chapter III is the number of components representing teacher identity. Conceivably, these differences can be traced back to the aims of both chapters. The review study in Chapter II concentrated on identifying components of teacher identity regardless of teaching population, whereas the validation of the TIMS study in Chapter III shifted the attention specifically to primary student teachers. In the latter Chapter, it appeared that only motivation, self-image, self-efficacy, and task perception are meaningful for the context of primary student teachers. The components job-satisfaction and commitment were discarded as being representative of the kind of experiences that typically make up primary student teachers teaching and learning activities.

There are some reasons why these two components of teacher identity are less relevant to primary student teachers. Job-satisfaction refers to the way teachers emotionally experience the school they work for (Canrinus et al., 2012). It relates to an “emotional state” derived from a job experience at a particular school (cf. Menon & Athanasoula-Reppa, 2011). Because student teachers do not yet have an appointment, this component seems less meaningful in relation to their professional development. Additionally, commitment is mostly considered as being dedicated to professional work (cf. Abu-Alruz & Khasawneh, 2013). This domain mainly focuses on teachers’ commitment to the school they are working for. As student teachers have explicitly opted for teacher education, commitment to the profession seems self-evident and commitment to an employer is less relevant. Substantially, commitment-related characteristics that can be considered important for the professional development of student teachers, such as engagement and willingness to become a teacher (Nias, 2002; Stanley, Vandenberghe, Vandenberg, & Bentein, 2013), are generally not associated with commitment but with motivation.

The final confirmatory factor model in Chapter III suggested that motivation, self-image, self-efficacy, and task perception are determinants of teacher identity for primary student teachers, both separately and collectively. The results pointed out that these four components are moderately to strongly related to teacher identity, whereas at the same time they are weakly to moderately correlated with each other. This means that the strength of the

teacher identity depends on the extent to which student teachers are motivated to be a teacher, view themselves as teachers, believe in their capability to organize and perform their daily teaching activities effectively, and have beliefs about teaching and education.

Among these components, self-image showed to be the strongest determinant of teacher identity, indicating that it occupies a more central role within teacher identity than the other components. Evidently, the high correlation between teacher identity and self-image raises issues with respect to construct and discriminant validity. Yet, in the context of identity theory, the high correlation substantiates the notion that how individuals view themselves is a primary determinant of identity. Previous research outside the field of teacher education has demonstrated that an undesired self-image has been associated with an increased negative emotional reaction and decreased motivation regarding one's identity (Min & Lee, 2011). Accordingly, this might explain why the components self-image and motivation were only modestly correlated to each other in Chapter III. These results tentatively support that a self-image component should be part of each instrument measuring identity.

Task perception, on the other hand, showed the weakest link with teacher identity. However, various researchers have suggested that task perception plays an important role in teacher identity development (e.g., Beijaard et al., 2000; Lamote & Engels, 2010). To some extent, this finding in Chapter III adds nuance to the significance of the relationship between task perception and teacher identity development. Following identity theory (Burke & Stets, 2009), one important reason for this result is the possibility that the task perception component not necessarily activated teacher identity only. In this way, student teachers' reflections were interfered with by other identities (e.g., student identity) they hold, thereby obscuring the centrality of task perception within teacher identity. Whether this actually has been the case and what sub-identity the component of task perception may have triggered, will undoubtedly remain unanswered, since it is not yet possible to look into the minds of students in that way. However, even though it plays a minor role, task perception is a relevant component of teacher identity and should be considered as such. In sum, on the basis of the qualitative and quantitative steps taken in Chapter III, it can be assumed that the content of the TIMS measures student teachers' professional identity in a meaningful way.

THE DEVELOPMENT AND VALIDATION OF THE PITS

Chapter IV reports on the development and validation of the Professional Identity Tensions Scale (PITS). Up until now, Pillen's (2013) vignette-based instrument, and later on some slightly modified versions (van Diepe, Geldens, & Wubbels, 2016; van der Want, Schellings,

& Mommers, 2018), was the only available instrument for measuring this construct. One of the strengths of the vignette-based instrument is the way in which it has attempted to look at the broad range of tensions that beginning teachers may experience during the process of becoming professional teachers. However, because the different tensions are explored with single vignettes, the interdependence of the various theoretically derived tensions could not be investigated. Consequently, Pillen's instrument (2013) seemed less ideal for making fine-grained discriminations among specific professional identity tensions that primary student teachers might experience during the process of becoming a teacher. Moreover, given that vignettes were detailed descriptions of hypothetical teaching situations, they posed a greater reading burden on student teachers. In light of these issues, the PITS was developed.

Considering the novelty of the construct of professional identity tensions (Güngör, 2017), the development of the PITS started with acquiring a theoretical understanding what professional identity tensions are and look like. Based on dissonance theory (Festinger, 1957), this meant that a professional identity tension results from multiple related elements that are inconsistent with each other. Inconsistency can occur between the same type of elements (e.g., beliefs versus beliefs, values versus values), but also between different type of elements (e.g., beliefs versus values). Every professional identity tension is accompanied with negative feelings and automatically carries in it the need to resolve, reduce or avoid this tension, and/or the situation causing it. Environmental and personal variables seem to determine the level of need to handle the professional identity tension.

Making optimal use of Pillen's work (2013), each of the 13 vignettes were transformed into multiple items based on ideas of cognitive dissonance theory (Festinger, 1957). This meant that each item consisted of one statement with opposite aspects concerning personal beliefs, emotions, ideals or values and comprised words such as 'annoying', 'doubt', and 'problems'. Additionally, two other professional identity tensions were formulated: the 'Teaching in urban classrooms' tension and the 'Leaving training versus becoming a teacher' tension.

The tension 'teaching in urban classrooms' was distilled from literature about urban education (e.g., Banks, 2008; Sleeter, 2008). The narrative inquiry of teachers' stories, for instance, revealed that although teachers show sincere willingness to work in urban school environments, they also consider leaving the profession and/or moving to a rural or suburban school environment (Bullough & Baughman, 1997; Nias, 2002). Different interrelated reasons are linked to these considerations. However, one common denominator is the contrast between the background of these teachers and (the background of) their students (Sleeter, 2008). The majority of teachers are white whereas the majority of students are of color,

particularly in urban school environments (Banks, 2006). There is evidence that white teachers struggle with teaching students who are racially and culturally different from themselves (Ladson-Billings, 1995; Lawrence & Tatum, 1997; Sleeter, 2008). Critical race theory posits that when white teachers have a blind spot where their own racial and ethnic identity are concerned, this can become a barrier to understand and connect with students of color (Ladson-Billings, 1995; Lawrence & Tatum, 1997; Sleeter, 2008). This lack of understanding and connection has been put forward as a central aspect for why white teachers are more likely to leave the profession than teachers of color (Kokka, 2016) and hold predominantly deficit views about the life experiences, family traditions, and communities of students of color (Marx, 2008). Although a critical race theory perspective is still disputed in the Netherlands to some extent (Weiner, 2015), recent research shows that also many Dutch white teachers struggle with teaching students with backgrounds different from their own (e.g., Abacioglu et al., 2019; Sijpenhof, 2019; Weiner, 2014). Taken together, these findings resulted in including a professional identity tension associated with teaching in urban school environments to the PITS.

The tension, 'Leaving training versus becoming a teacher', was added following the recommendations of experts. Although more evidence is needed, this tension seems to be more closely linked to students' teacher identity than other tensions. It assesses the doubts student teachers have in the process of becoming a teacher. Previous studies have suggested that even though student teachers teach sufficiently and/or easily complete training, this does not mean they actually want to become a teacher (e.g., Jungert, Alm, & Thornberg, 2014).

After the qualitative assessment of the instrument (similar to the procedure described in Chapter III), the reliability and validation of the PITS were further evaluated quantitatively in Chapter IV. This included calculating scale reliabilities, performing factor analysis, and analyzing correlations between factors of the PITS. In sum, these steps provided support for a reliable and valid quantitative instrument for primary student teachers directed at measuring nine professional identity tensions: 'Wanting to take care of students versus being expected to be tough', 'Feeling treated like a student versus wanting to take responsibility', 'Feeling like a peer versus wanting to take responsibility as a teacher', 'Experiencing difficulties in maintaining an emotional distance', 'Experiencing conflicts between one's own and others' orientation regarding learning to teach', 'Feeling dependent on a mentor versus wanting to go one's own way in teaching', 'Wanting to invest in private life versus feeling pressured to spend time and energy on work', 'Teaching in urban classrooms', and 'Leaving training versus becoming a teacher'.

LONGITUDINAL RELATIONSHIPS BETWEEN TENSIONS AND TEACHER IDENTITY

In chapter V, the nature and direction of the relationship between professional identity tensions and teacher identity was examined. Based on the theoretical understanding of teacher identity and professional identity tensions provided in Chapters III and IV, three hypotheses were formulated about the development of the relationship between both. A first hypothesis was that student teachers who experience higher levels of professional identity tensions tend to have a less strong teacher identity (H1), and a second hypothesis was that an increase in professional identity tensions relative to one's own average level of professional identity tensions at a given time predicts a negative change in a primary student teacher's professional identity at a later time point (H2). Although both hypotheses may be in contrast with the suggestion of some researchers (e.g., Graham, 1997), who view professional identity tensions as a necessary catalyst for a positive development of teacher's identity, they are in line with the majority of the literature identifying links between professional identity tensions and teacher identity (e.g., Beijaard, 2009; Pillen, 2013). Most researchers assume that when tensions are not dealt with in a proper way, they might limit learning and enthusiasm for the profession (Güngör, 2017; Smith, Anderson, & Blanch, 2016). Subsequently, experiencing tensions arouses a mental discomfort and subconsciously forces a teacher to stand still and try to reduce, resolve, or to avoid the tensions (Festinger, 1957). In turn, in such unsolvable situations, dissonance, and critically engaging in reflective conversations regarding the profession with oneself and others, can result in feelings of insecurity and exhaustion. In time, this may increase the risk of dropout during training or shortly after graduating (Meyer, 2014). We assumed that this negative relationship emerges on both the inter-individual level (H1) and intra-individual level (H2).

A third hypothesis was that the negative relationship between professional identity tensions and teacher identity becomes less strong across time (H3). This is based on the common assumption among researchers that when student teachers become more familiar with the context in which they are trained and/or gain more experience in resolving situations, professional identity tensions are less likely to cause changes in the teacher's identity (e.g. Meijer et al., 2014; Pillen et al., 2013a)

With a sample of primary student teachers, the PITS and TIMS were used to collect longitudinal data on the development of the relationship between professional identity tensions and teacher identity. The development of the relationship between professional identity tensions and teacher identity was evaluated by Random-Intercept Cross Lagged Panel Model Analysis (RI-CLPM; Hamaker et al., 2015). Unlike the Cross Lagged Panel Model

(CLPM), this recently developed analytical procedure separates the inter-individual variance from the intra-individual variance. Disentangling the variance in professional identity tensions and teacher identity can lead to more accurate conclusions regarding the development of the relationship between professional identity tensions and teacher identity.

On the inter-individual level, the results in Chapter V suggested that some, but not all professional identity tensions were negatively related to teachers' identity. Particularly, we observed, in descending order, that student teachers who experienced tensions regarding 'Leaving training versus becoming a teacher', 'Wanting to care for students versus being expected to be tough', 'Feeling treated like a peer versus wanting to take responsibility as a teacher', 'Experiencing conflicts between one's own and others' orientations', and 'Wanting to invest in a private life versus feeling pressured to spend time and energy on work' were likely to perceive their teacher identity as less strong than those who experienced those tensions to a lesser extent. These results suggest that the first hypothesis on the inter-individual level about the relationship between professional identity tensions and teacher identity could be confirmed in the case of these five tensions. Consequently, these preliminary findings raise doubt about the common idea of automatically linking these two constructs with each other, at least in samples of primary student teachers. Conceivably, the link between each professional identity tension and teacher identity needs to be tested in different samples and teaching contexts, including in-service teachers within pre-school, primary, and secondary education. On the intra-individual level, no support was provided for a longitudinal relationship between professional identity tensions and teacher identity and we did not find that the strength of this relationship decreases over time. Therefore, no support was found to confirm the second and third hypothesis. This might mean that experiencing a particular professional identity tension is not related to change in teacher identity over time.

The studies' limitations raise several questions with regard to this interpretation. One question is whether the time span of this study was long enough to observe whether a decrease in tensions leads to a stronger teacher identity and vice versa. As we are the first to measure both constructs over time, a clear answer about the optimal length of the research time span is still missing from the literature. When consulting the literature on teacher identity, however, mixed answers to this question can be found. Some researchers found change in professional development after a 6-month time span (e.g., Runhaar, Gulikers, & Hendricks, 2016; Stappers & Koster, 2016), whereas others used a longer time span of several years to detect changes in teacher identity (e.g., Bullough & Baughman 1997; Nias, 2002). Conversely, data from an interview study among teachers over a two-year period suggested

that not all teacher identities necessarily have to change over time (Van der Want et al., 2018). To provide a definite answer to the question about the time span, future research is needed that investigates the link between teacher identity and professional identity tensions over longer time spans.

A second interesting question is whether the relationship between teachers' identity and their professional identity tensions is non-linear, rather than linear. Drawing on empirical studies it was legitimate to assess linear patterns between professional identity tensions and teacher identity (e.g., Graham, 1997). Yet theoretically it has also been argued that it is essential to view teacher identity and professional identity tensions as highly fluctuating constructs, continuously renegotiated, and transformed during specific person-environment encounters, in order to better understand the relationship between the two (e.g., Henry, 2016; Noonan, 2018). Because student teachers are at the start of their professional development, they might have the highest degree of variability in their teacher identity development and professional identity tensions compared to in-service teachers (Xu, 2013). Given that research about the relationship between teacher identity and professional identity tensions is still in its infancy, this question about the shape of the relationship between the two constructs is still very much in need of attention in the academic literature.

A third question involves whether student teachers are able to internally connect their professional identity tensions and teacher identity formation during formal training, when they are not provided with sufficient opportunities to reflect on both constructs. Although teacher education programs recognize the importance of explicitly focusing on the development of teacher identity and dealing with their professional identity tensions, at this point in time, this has not been an explicit part of teacher training (Snoek, 2019; Yazan, 2019). With such an explicit focus, student teachers can be supported to use the tensions they experience as a way towards forming and maintaining the teacher identity they aspire. Obviously, the question about the benefits of explicitly focusing on teacher identity formation and dealing with professional identity tensions needs further investigation.

Findings from Chapter V show that on the inter-individual level the professional identity tension 'Leaving training versus becoming a teacher' has the strongest association with teacher identity. As described in Chapter IV, this tension is a new addition and a clear explanation for this relation from the literature is missing. However, one explanation is that this tension is more closely linked to teacher identity compared to other tensions. The statements of this professional identity tension address if student teachers want to become a teacher. In contrast, statements of the other tensions have taken interactions with others (e.g.,

peers, mentors) as a starting point. The difference in the root cause of the professional identity tensions may explain the difference in the strength of the relation between professional identity tensions and teacher identity.

Perhaps the most interesting finding of Chapter V is the absence of evidence that professional identity tensions and teacher identity are related with each other over time. Clearly, this finding is in contrast with the theoretical literature in this field. Using identity theory, one explanation may be that student teachers' professional identity takes a less prominent role within 'the self' compared to other identities they hold. Student teachers, especially at an early stage of their life, could find other identities such as gender-identity or a particular sport-identity more important for who they are. If identities have a relatively low status, like teacher identity, this can prevent tensions to have high impact on behavior and emotions belonging to that identity. Perhaps this was the case in our sample. Given that empirical research about this association is still lacking, more research is evidently needed.

Another explanation comes from dissonance theory (Festinger, 1957). It is well possible that tensions do not provoke a change in teacher identity among primary student teachers because of the importance asserted to these tensions. The importance student teachers attribute to a tension is the result of a complex web of interrelated forces operating on a macro-level (e.g., societal pressure) and micro-level (e.g., personal characteristics).

In sum, the results presented in Chapter V on the inter-individual level are in line with the literature about the negative relation between teacher identity and professional identity tensions, at least for some professional identity tensions. At the same time, the findings at the intra-individual level show that none of the professional identity tensions predict changes in teacher identity over time, and thus, the decline in the strength of the relationship between the two constructs has not been found. The results at the intra-individual level are in contrast with the second and third hypothesis about this connection discussed in Chapters III through V. In this sense, the findings at the intra-individual level expand our knowledge as they underline the complex relationship between professional identities and teacher identity.

FUTURE DIRECTIONS AND PRACTICAL IMPLICATIONS

The studies presented in this dissertation offer several recommendations for researchers. Evidence for the sufficient psychometric properties of the TIMS and the PITS presented in Chapters III and IV, and the empirical study from Chapter V may encourage researchers to conduct more quantitative research within this field. Most studies used qualitative methods to gain answers about teacher identity and professional identity tensions and the link between

both. This has resulted in several important publications regarding teacher identity and professional identity tensions (e.g., Graham, 1997; Nias, 2002). Quantitative research methods can be seen as complementary to qualitative studies when used to substantiate those results. At the same time, as has been shown in Chapter V, quantitative approaches can also make unique contributions to our knowledge base. In this sense, the measurement scales TIMS and PITS offer a valuable basis for designing studies intended to investigate both teacher identity and professional identity tensions. However, because the TIMS and PITS have been designed for a specific target group within a specific context, it goes without saying that both need to be cross-validated before they can be used in other settings (e.g., countries, teaching populations).

The finding of Chapter V that professional identity tensions and teacher identity are not related to each other over time, highlights the need to address the issue of the development over time. As we were the first to investigate the development of the relationship between professional identity tensions and teacher identity, the field is in need of more longitudinal research designs. This helps to generate a stronger empirical knowledge base about the development of the relationship between both constructs over a longer period. One important investigation could be, for example, longitudinally assessing how teacher identity and professional identity relate to one and another when primary student teachers are heading for graduation. Also interesting is how teacher identity and/or professional identity tensions are associated with other constructs, such as future time perspective (Andre, 2019). It has been suggested that supporting the development of a strong teacher identity plays a crucial role in student teachers' future time perspective regarding the profession (Hamman, Gosselin, & Romano, 2010). Student teachers with a strong teacher identity have more positive future-oriented thoughts about their career (as a teacher) and may remain in the profession longer.

Although we had, to some extent, a representative sample of student teachers, the nature of teacher identity and professional identity tensions and the development of the relationship between the two can be more fully understood when including additional constructs (e.g., future time perspective) and variables (e.g., gender, socio-cultural background) in the models. There are, for example, indications that identity may develop differently in a sample of student teachers who will end up working in an urban context (Goodnough & Mulcahy, 2011) or that there are differences in development among students of color (Agee, 2011).

When it comes to practice, the findings from the studies presented in this dissertation hold significance in several ways. Several researchers have opted for training approaches that

deliberately support the professional identity development of student teachers (e.g., Beijaard, 2009; Meijer, 2014; Snoek, 2019). In this vein, the TIMS and PITS can be helpful tools for teacher training programs that aim to aid students with their professional development. One way is using the TIMS and PITS as reflective tools to get the conversation started with students about their teacher identity development and the professional identity tensions they experience. The TIMS can help students discuss their development in a more systematic way as they reflect on the obvious and the less obvious aspects of teacher identity. Unlike previous models (e.g., Kelchtermans' self-understanding model, 1994); Korthagen's onion model, 2004) the TIMS is the first instrument that has explicitly been developed and validated for the context of primary student teachers.

Also, the PITS can be used to engage discussions as it might help student teachers pinpoint tensions that are relevant for them to discuss with, for example, their peers or teacher educator. Based on the findings presented in Chapter V, it should be noted that among other professional identity tensions, especially the tension 'Leaving training versus becoming a teacher' deserves special attention in teacher training. This tension, compared to the others, consists of items that explicitly ask student teachers to indicate whether they consider leaving training.

The TIMS and the PITS might serve as tools to monitor and/or evaluate teacher education programs regarding the professional development of their student teachers. In other words, how does the program as a whole add to the professional development of student teachers? By using these instruments teacher education programs are capable of detecting which aspects of teacher identity develop well and which need specific attention. In this vein, the TIMS and PITS can be valuable to facilitate an easy sharing of detected patterns with others, as both provide a clear theoretical base and empirical language to communicate.

Finally, the results at the inter-individual and at the intra-individual level discussed in Chapter V are important for teacher education programs. Unlike previously assumed, teacher identity and professional identity tensions were not found to be associated with each other over time. Hence, it is unlikely that only focusing on professional identity tensions automatically translates to strengthening student teachers' professional identity. This result means that both teacher identity and professional identity tensions need to receive separate and explicit attention within teacher education. Only then, primary student teachers will fully benefit from support in the process of becoming a teacher.

CONCLUSION

Each teacher training program aims at providing primary student teachers with high-quality skills and a determined attitude to teach for a longer period of time. Helping student teachers to build ‘strong’ professional identities is fundamental to accomplish these goals. Successfully handling professional identity tensions student teachers experience has been linked to forming professional identity. Most work underlying the connection between professional identity tensions and teacher identity is theoretical rather than empirical. Consequently, much is to be understood about how the two constructs actually are related over time.

In this dissertation, therefore, we pursued two central aims: (1) *developing reliable and valid measurement scales for teacher identity and professional identity tensions*; and (2) *advancing understanding of the development of the relationship between teacher identity and professional identity tensions over time in the context of primary teacher education*. When it comes to the first aim, this dissertation resulted in reliable and valid measuring instruments for both teacher identity and professional identity tensions. The TIMS is based on principles of identity theory and findings of a review study. As a result, it consists of four components—motivation, self-image, self-efficacy, and task perception—that together form part of teacher’s professional identity. The PITS was developed on the basis of dissonance theory and the refinement and extension of Pillens’ vignette-based instrument. This resulted in nine professional identity tensions for the context of primary student teachers. Findings from this dissertation suggest that the TIMS and PITS hold promising value for research and practice if used as evaluation tools or as pedagogical vehicles during the process of becoming a primary teacher.

As for the second aim, in this dissertation the TIMS and PITS were used to collect longitudinal data among a sample of primary student teachers during their undergraduate program. The results showed that although some, but not all, professional identity tensions are negatively related to the stable differences in teacher identity between student teachers, no evidence was found that professional identity tensions are related to changes in teacher identity within primary student teachers. This means that, if there is any relation between professional identity tensions and teacher identity, identifying such an association over time is complex and probably dependent on other factors (e.g., context, personal traits, and time). Although these findings are preliminary, they seem to be in contrast with earlier theoretical perspectives about the existence of the relation and its direction. On a practical note, the findings underscore the need to focus on teacher identity and professional identity tensions separately during teacher training.

In conclusion, as I have personally experienced, having high-quality teachers is of great importance for one's personal, academic, and professional growth. With this dissertation I hope to contribute to the improvement of the training such teachers receive. Through separately and explicitly paying attention to teacher identity as well as professional identity tensions during training, student teachers will hopefully develop the knowledge and skills necessary to become high-quality educational professionals and to remain in the profession. Additionally, this dissertation may encourage other researchers to continue research into teacher identity, professional identity tensions, and other relevant variables, ultimately with the aim of generating a firmer knowledge base that further contributes to the development of high-quality teachers. Isn't that something every child deserves?