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Changes in sensed dis/continuity in the development of student teachers throughout teacher education

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ABSTRACT

Initiatives aimed at supporting student teachers for entering and staying in the teaching profession require a better understanding of the nature of student teachers' development as it unfolds during teacher education. Accordingly, we focused on changes in the extent to which student teachers perceive and expect dis/continuity in their development during the programme. The design of the study included 25 authentic supervision dialogues/conversations, enabling the analysis of development within and across six student teachers' developmental trajectories. Findings showed that student teachers' initial sense of dis/continuity is not necessarily predictive of progress and (un)successful completion of teacher education. Furthermore, sensed dis/continuity varies differently over time in student teachers, both in terms of when it changes as well as in terms of with what types of past perceptions and future expectations these changes occur.

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Introduction

Development as a teacher has been conceptualised as a complex internal process that includes 'struggling' with questions such as 'who am I as a teacher?' and 'what kind of teacher do I want to become?' (Beijaard and Meijer 2017, 177). Exploring the answers to these questions can prompt tensions in student teachers, that is conflicting beliefs about themselves and the profession, which can lead to a loss of self-confidence (Alsup 2006; Beltman, Mansfield, and Price 2011; Pillen, Beijaard, and den Brok 2013). Moreover, research has shown that teachers, because of tensions between their personality and the demands of the profession, decided to leave the profession (Beijaard, Meijer, and Verloop 2004; Flores 2014; Hong 2010; Hong, Greene, and Lowery 2017). Attrition is not only problematic because of the personal frustration of (student) teachers, but also because of growing teacher shortages in many countries (e.g. Ingersoll and Strong 2011; Johnson et al. 2014). A better understanding of when and how student teachers experience tensions can help prevent dropout from teacher education and later attrition from the profession.

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Up to now, knowledge about the nature of student teachers' tensions is often based upon studies analysing the reflections of graduates, after finishing teacher education (cf. Alsop 2006; Meijer 2011; Pillen, Beijaard, and den Brok 2013). More recently, researchers have also started to focus on teacher development as it unfolds, and the role of tensions therein. For instance, Flores (2014) reported on tensions in the development of beginning teachers in different school contexts and Hong, Greene, and Lowery (2017) studied development over time in student- and beginning teachers, analysing interviews about feelings of change and stability, and assimilation and disequilibrium (Hong, Greene, and Lowery 2017). In line with such a longitudinal approach, and aiming to study student teachers' tensions as they occur, we designed a study that included analysing successive authentic supervision conversations during a teacher education programme. This design allowed us to focus on student teacher development, independent of whether, how, and when student teachers completed teacher education (Leonard-Barton 1990). Moreover, the design helped to avoid effects of hindsight bias (Roese and Vohs 2012) and allowed analysis of student teacher' development as it unfolds in teacher education. We report on how student teachers describe themselves, their experiences and their development as teachers throughout these conversations. Besides contributing to more theoretical insight in the dynamics of ongoing teacher development and the role of tensions therein, our findings can support university supervisors in addressing tensions and contribute to avoiding drop out.

Theoretical framework

The vocational self-concept and sensed dis/continuity

To study student teacher' development we turn to Super et al. (1963), who defined the *vocational self-concept* as 'the constellation of self-attributes considered by the individual to be vocationally relevant' (Super et al. 1963, 20). A vocational self-concept consists of self-attributes that are considered traits by the individual (e.g. 'I am friendly'), including characteristics that are known because of interaction with others (e.g. 'students consider me to be reasonable'). New experiences can trigger the renegotiation of vocational relevance and/or accuracy of self-attributes (Super et al. 1963) and thus influence further development. Recurring renegotiation of self-attributes can be conceptualised as narrative *sense making* (Ezzy 1998; Hermans 2002). Past perceptions, an individual's selection of appropriate past events, and future expectations (i.e. one's forecast about what may happen in the future), determine the process of sense making (Britzman 2007; Bruner 1990; Polkinghorne 1996; Zittoun et al. 2013).

The main motive of sense making is the human need for *sensed continuity*: the urge to experience coherence in the understanding of one's self over time (Akkerman and Meijer 2011; Zittoun et al. 2013). A sense of continuity is central to well-being, as without a sense of permanence maintaining a coherent self-concept would be impossible. Moreover, a sense of continuity is functional as it enables people to learn from past experiences, 'to take moral responsibility for our behaviour and choices, and to plan future action' (Sani 2008, 3). However, teaching experiences have been shown to elicit reflections about the relevance and/or accuracy of self-attributes for the vocation. Discrepancies among these reflections have been referred to as professional identity tensions: 'internal struggles between aspects relevant to the teacher as a person and the teacher as a profession' (Beijaard and Meijer 2017,

186, see also Pillen, Beijaard, and den Brok 2013). These tensions are related to *sensed discontinuity* in student teachers: experiencing a lack of coherence over time, which can lead to anxiety (Hong, Greene, and Lowery 2017). It has been shown that people who experience a sense of discontinuity will typically try to reinstall a sense of coherence over time (Caspi and Moffitt 1991). Research shows that sensed discontinuity in teachers can lead to a decrease in self-confidence (Akkerman and Meijer 2011), negatively influence motivation (Sutton and Wheatley 2003) and may result in attrition (Beijaard, Meijer, and Verloop 2004; Flores 2014; Hong 2010).

The vocational self-concept of student teachers can differ in terms of a general sense of dis/continuity because of the combination of past perceptions and future expectations at the beginning of teacher education. In previous empirical research on 35 so-called profiles of student teachers, four types of past perceptions and four types of future expectations were identified (van Rijswijk et al. 2016). Student teachers were found to express *a general sense of continuity*, with both past perceptions and future expectations reflecting a sense of continuity. For instance: 'I always knew I wanted to be a teacher. I played school with my younger sister at an early age and I feel my enthusiasm for instruction will benefit my growth as a teacher.' A general sense of continuity suggests that student teachers are confident about their further development as a teacher, based on their positive way of looking back on the past (cf. Sani 2008). Student teachers were also found to express *a general sense of discontinuity*, with both past perceptions and future expectations reflecting a sense of discontinuity. For instance: 'I know I can be very impatient and I will have to change that in order to be a teacher. I feel this will be a struggle and I do not know if I will like it.' A sense of discontinuity suggests that becoming a teacher is a new and challenging process (cf. Beijaard, Meijer, and Verloop 2004). Finally, student teachers were found to express *an ambiguous sense of dis/continuity* at the start of teacher education. For instance: 'Because of my work as a travel guide, I know I can explain things quite well; but doing this in a group of 30 fifteen-year-olds will be tricky for me.' An ambiguous sense of dis/continuity suggests that development as a teacher for those student teachers is a variable process.

To summarise, the vocational self-concepts of student teachers at the start of teacher education differ because of individual perceptions of the past and expectations of the future. Accordingly, student teachers differ whether and how they experience tensions when they enter teacher education. In this current study, we set out to study how this initial experience of dis/continuity changes throughout teacher education. Amongst others, this will inform us about the stability of perceiving the past and expecting the future within individuals and if and how new experiences impact student teachers' experience of dis/continuity throughout teacher education. The question we aim to answer is: When and with what type of past perceptions and future expectations does the initial sensed dis/continuity of student teachers change during teacher education?

Method

Context

The one-year, post-master, teacher education programme from which the participants in this study were selected, is located at a research university in the Netherlands and supports student teachers in obtaining a subject-matter specific teaching licence. This licence allows

them to teach at all levels of secondary education in the Netherlands. About 80% of the student teachers of this programme graduate after one year of teacher education, 11% graduate after two, three or four years, and about 9% of the student teachers quit the teacher education programme (COLUW 2013). The teacher education programme is characterised by a strong emphasis on learning from practice, using supervision strategies to stimulate reflection and connecting practice and theory. Scholars have referred to this as a realistic approach towards teacher education (Korthagen et al. 2001).

The one year programme consists of a so-called university-based part and, parallel to this, two consecutive practice periods. During the two practice periods, student teachers teach at least 20 lessons in the presence of a mentoring teacher, that is a cooperating teacher who agreed to host and mentor the student teacher (cf. Cuenca 2013) and at least 100 lessons without a mentoring teacher being present in the classroom. Student teachers finalise each practice period by composing a portfolio to show the level of their professional performance by including documents, videos and evaluations illustrating their abilities (cf. van Tartwijk et al. 2008). Student teachers are also supervised by university supervisors, who, amongst others, visit the student teacher periodically at their placement school, provide them with feedback on methods and theory and monitor developmental progress throughout teacher education.

Throughout the programme, university supervisors autonomously schedule different types of supervision meetings: (1) introductory conversations, up to three weeks after the start of teacher education; (2) reflection meetings held after the university supervisor visits a lesson of a student teacher during the practice periods; (3) discussions about the portfolio at the end of the first and second semester; and (4) meetings to discuss the progress of the student teachers. With the exception of the supervision meetings about the portfolio, the university supervisors decide if and when the meetings take place, leading to a varying amount of supervision meetings during the one year programme per student teacher.

Participants and data collection

For this study we selected six student teachers from the teacher education programme described above. For the purpose of exploring changes in past perceptions and future expectations within different developmental trajectories, we applied a 'typical case sampling' approach (Patton 1990). Because of their responsibilities in monitoring development within student teachers throughout teacher education, we interviewed university supervisors as 'key informants' (Patton 1990) about their student teachers after about six weeks of teacher education. By then, the university supervisors had experienced the student teachers in group meetings (about six to eight meetings of three hours in the first six weeks) and in individual supervision meetings (generally one meeting in the first month of teacher education per student teacher). The group meetings included student teachers' micro-teaching, exchanging stories about their first experiences in school practice, and discussing different professional roles. All supervisors had a background in teaching in secondary education, but also had at least two years of experience as a university supervisor. Each one supervised at least five student teachers.

In the interview we asked the university supervisors to describe their student teachers and prompted them to estimate for each student teacher (1) the extent to which he/she experienced a match with the profession (i.e. dis/continuity because of the past) and (2) the

extent to which he/she was confident about their development as a teacher (i.e. dis/continuity in terms of the future). From the estimates at start, we purposefully selected six student teachers: two student teachers were estimated by their university supervisors to experience a match because of their past and to expect some challenges for the future (an ambiguous sense of dis/continuity); two student teachers were estimated to experience a problematic match and who doubted their successful development as teachers (a general sense of discontinuity); and two student teachers were estimated to experience a match and to feel confident about their development as teachers (a general sense of continuity). In this study, half of the included student teachers decided to leave the teacher education programme before graduation, which does not match the average completion rate of 80% described in the subsection Context. When asked about this in an interview at the end of the academic year, conducted for another study about university supervisors' perceptions of student teacher development, the university supervisors of the student teachers that quit the teacher education programme declared that they viewed the higher drop out percentage to be a coincidence.

Table 1 provides an overview of the selected student teachers, including their age, subject, the estimated sense of dis/continuity and information about the supervision meetings that were recorded during the teacher education programme. Please note that all names are pseudonyms. The length of the audio-recorded supervision dialogues used in this study varied from about ten minutes up to sixty minutes (mean: thirty-four minutes) and all types of supervision conversations explained above were included in the data collection. Because we wanted the data collection to be as unobstructive as possible, we asked the university supervisors to audio-record all supervision meetings themselves and provided them with recorders. Common to all supervision meetings was the focus on discussing the development of the individual student teacher in view of their performance as a teacher *and* the demands held by the profession. Accordingly, past perceptions, future expectations and consequent sensed dis/continuity were likely to feature in the supervision meetings.

Informed consent was collected from all participants, both university supervisors and student teachers, and the study was approved by the Ethics Committee.

Table 1. Overview of the data collection.

Name	Age at the start of teacher education	Subject	Sense of dis/continuity estimated by the university supervisor	Number of recorded supervision meetings	Average length of a supervision meeting in minutes
Lionel	23	Biology	General sense of continuity	3	29
Rebecca	26	Dutch	Ambiguous sense of dis/continuity	6	39
Tina	22	English	Ambiguous sense of dis/continuity	4	32
Samuel	27	Music	General sense of discontinuity	5	52
Mike	26	Religion	General sense of discontinuity	4	27
Doris	49	French	General sense of continuity	3	27

Analysis

As this study focused on intra-individual development (Zittoun et al. 2013), we first applied a within-case strategy (Yin 2009). All recorded supervision meetings of the six students were written out in detail by the first author while listening to the recordings, excluding a limited number of remarks about practical issues – such as assignments or technical specifics of the portfolio. First, all remarks about being (past reference) or becoming (future reference) a teacher were identified and listed chronologically. Second, all references were coded as past perceptions or future expectations. For this the first author used an existing coding scheme that was developed in a prior study to gather data on the vocational self-concepts of student teachers at the start of teacher education (van Rijswijk et al. 2016). This coding scheme includes four types of past perceptions and four types of future expectations and is integrated in Table 2. Third, in order to be able to identify in detail with what type of past perceptions and future expectations the initial sensed dis/continuity changed, sub-categories were iteratively determined by comparing and contrasting items in the four past perceptions and future expectations (Miles and Huberman 1994). For instance, the general type of past perception expressing ‘consistency related to characteristics’ was refined by adding the sub-categories: *self-description*, *appreciation of the profession*, *current status as teacher* and *role model*. The general type of future expectation ‘challenge’ was refined by adding the sub-categories: *pitfalls*, *difficulties of the profession*, and *insecurity*. For an overview, see Table 2. Examples of student teachers’ references for all codes are included in Appendix 1. To ensure consistency of the coding, the third author, who was not part of the research team that performed the analysis, checked the elaborated coding scheme with 29 categories. The independent double coding of the 48 references resulted in a satisfactory overall agreement (Cohen’s Kappa of 0.89). The six references that were coded differently by the first and third author, were discussed and altered in full agreement.

Table 2 presents an overview of the complete coding scheme used in this study. The four types of past perceptions and four types of future expectations are in bold case. Underneath each type of perception the related sub-categories are presented in cursive case.

For comparing changes in sensed dis/continuity between student teachers, we then made a systematic cross-case comparison (Yin 2009). First, a time-ordered matrix (Miles and Huberman 1994) was made for each student teacher with the sub-categories of perceptions and expectations in the rows and the supervision meetings in the columns. Next, a summary of the dominant expressed sense of dis/continuity of each student teacher at different moments was deduced from this matrix. The type of references that were most strongly emphasised during the conversation and/or represented the final conclusion were considered ‘dominant’.

Results

In this section, we will first present the results of the within-case analysis. We will successively describe changes of past perceptions and future expectations within student teachers who expressed (1) a general sense of continuity (2) a general sense of discontinuity, and (3) an ambiguous sense of dis/continuity in their first supervision meeting. For each student, dominant past perceptions and future expectations are presented in a table and elaborated on in a description of their development. In this description, the type of references will be

**Table 2.** Four general types of past perceptions and future expectations (adapted from van Rijswijk et al. 2016).

Expressing a sense of	Past perceptions		Future expectations
Continuity	Consistency related to characteristics Perception of the past that reflects certainty and confidence about specific characteristics and abilities, as they became known prior to teacher education		Confidence Expectation indicating clarity and certainty of future characteristics and professional conduct as a teacher and indicating confidence in a continuous development
	a. <i>Self-description</i> Positive attributes as they are known to the student teacher		a. <i>Eagerness</i> Positive excitement towards further development as a teacher
	b. <i>Appreciation of the profession</i> Positive esteem of the profession and/or specific elements thereof c. <i>Current status as teacher</i> Ones' own development up to now and ones' own professional performance d. <i>Role model</i> A known teacher as benchmark		b. <i>Enthusiasm</i> Faith in success of development as a teacher
Continuity	Consistency related to experiences Perception of a specific experience with teaching, with other professional experiences, and/or as a student		Development Expectation indicating probability of anticipated characteristics and professional conduct as a teacher and indicating a phased nature of the developmental trajectory
	a. <i>Teaching in general</i> Being a teacher in general terms		a. <i>Focused development</i> Specific learning object, including plans to get there
	b. <i>Specific teacher behaviour</i> Being a teacher in terms of specific behaviour and/or specific teacher roles c. <i>Students</i> Being a teacher in terms of student interaction		b. <i>Growth as a teacher</i> Exploring the relationship between the person and the profession c. <i>Development as objective</i> Desire, need, or necessity of development in general
Discontinuity	d. <i>Education</i> Experiences with teaching in the context of courses in the teacher education programme		
	e. <i>Former work/education</i> Experiences with teaching in the context of former work or ones' own education prior to teacher education		
	f. <i>Being a student</i> Experiences as a student g. <i>Private setting</i> Experiences outside the setting of education		
Discontinuity	Lack of experience Perception of the past that indicates no or no relevant experience with teaching		Goals Expectation indicating pursued characteristics and professional conduct, without specific information about what it will take to reach these goals
	a. <i>Teaching in general</i> Lack of experience with teaching in general terms		a. <i>Teaching in general</i> Being a teacher in general terms
	b. <i>Specific teacher behaviour</i> Lack of experience with teaching in terms of specific behaviour and/or specific teacher roles		b. <i>Specific teacher behaviour</i> Being a teacher in terms of specific behaviour and/or specific teacher roles

(Continued)

Table 2. (Continued).

Expressing a sense of	Past perceptions	Future expectations
Discontinuity		c. <i>Well-being</i> Desired changes beneficial to ones' own well-being
		d. <i>Investigation</i> Aspects of teaching in need of further investigation
	Problems in the past Perception of negative characteristics and problems that reflect weak teacher conduct	Challenges Expectations problematize the feasibility of acquiring required characteristics and carrying out professional conduct, and the developmental trajectory towards this
	a. <i>Professional conduct</i> Problems with specific teacher behaviour and/or teacher roles	a. <i>Pitfalls</i> Impeding characteristics of ones' own behaviour and learning
	b. <i>Unnaturalness</i> Negative attributes, not compatible with the profession	b. <i>Difficulties of the profession</i> Difficult aspects of the profession
	c. <i>Confusion</i> Lack of control of one's own development	c. <i>Insecurity</i> Doubt about the ability to make necessary changes
	d. <i>Impeding patterns</i> Repeating unwanted behaviour and/or recurring problems	

mentioned in italics, illustrating the dominating sub-category applicable in the specific conversation. Finally, we will present the results of the cross-case analysis, using a graphical representation of the different developmental trajectories of the six student teachers.

Changes of past perceptions and future expectations following an initial general sense of continuity

The dominant past perceptions and future expectations of Lionel in his first supervision meeting expressed a general sense of continuity. Table 3 provides an overview of his past perceptions and future expectations during subsequent supervision meetings.

Lionel. In his first supervision meeting, Lionel emphasised what he *appreciated about the profession* and elaborated about his *current status* as a teacher. He mentioned how much he liked the fact that being a teacher enabled him to be creative when designing lessons. In terms of the future, he stressed the importance of *development as an objective in itself*; he wanted to be a teacher in a way that was a good fit for him. Although he could think of *role models*, he emphasised the importance of finding his own voice. In the second supervision meeting, Lionel elaborated on his experiences with teaching by talking about *specific teacher behaviour*, which was mostly about what he did to ensure a good classroom atmosphere. With regard to the future, he predominantly demonstrated *enthusiasm*; he felt things would be all right and he trusted his future experiences in practice would help him to extend his skills. In the third supervision meeting, Lionel emphasised his *current status* as a teacher when talking about the past and reflected on finding it easier to relate to older students. With regard to the future, he explicitly mentioned the *difficulties of the profession* he expected to encounter during his second practice period. He feared he might feel disappointed: 'Maybe it will never be this good again.' Lionel left the teacher education programme about half way through the programme, two weeks into the second practice period.

Changes of past perceptions and future expectations following an initial general sense of discontinuity

The dominant past perceptions and future expectations of Doris and Mike in their first supervision meeting expressed a general sense of discontinuity. Table 4 provides an overview their subsequent past perceptions and future expectations.

Mike. In the first supervision meeting, Mike emphasised his *lack of experience with teaching in general* and *formulated goals in general terms* – for instance, 'I want to learn to become a real teacher', without elaborating on what this means precisely. In his second supervision

Table 3. Past perceptions and future expectations following an initial sense of continuity.

		References to the past		References to the future	
		Discontinuity	Continuity	Discontinuity	Continuity
Lionel	Aug/Sept				
	Oct/Nov		Consistency characteristics		Development
	Dec/Jan		Consistency experiences		Confidence
	Feb/Mar		Consistency characteristics	Challenges	
	Apr/May				
	Jun/Jul				
<i>Lionel left the teacher education programme in the beginning of March</i>					

Table 4. Past perceptions and future expectations following an initial general sense of discontinuity.

		References to the past		References to the future	
		Discontinuity	Continuity	Discontinuity	Continuity
Doris	Aug/Sept	Problems in the past	Consistency characteristics	Challenges	
	Oct/Nov				
	Dec/Jan	Goals			
	Feb/Mar	Challenges			
	Apr/May				
Jun/Jul					
Doris left the teacher education programme in the beginning of March					
Mike	Aug/Sept	Lack of experience	Consistency characteristics	Goals	
	Oct/Nov				
	Dec/Jan			Development	
	Feb/Mar			Development	
	Apr/May			Development	
Jun/Jul					
Mike graduated from the teacher education programme in the beginning of July					

meeting, Mike stated that teaching turned out better than he first expected. He found that relating to students was easier than he feared and he thus commented on his *current status* as a teacher. Looking at the future, he *focused on further development*; for instance, in concretizing what he wanted to do to discover his own ‘style’. In the next supervision meeting, Mike predominantly talked about *teaching experiences in general terms*: ‘Having an affiliation with students is really one of the best parts of teaching.’ In terms of the future, he continued to stress *focused development*, stating that he regards *development as an objective in itself* and emphasising how much he values personal growth. Mike graduated from teacher education at the end of the one-year teacher education programme.

Doris. In the first supervision meeting, Doris predominantly emphasised *confusion* about the teacher education programme and teaching itself, and she stressed *impeding patterns* such as her tendency always to focus on the negative in her behaviour and performance. In terms of the future, she only mentioned goals and challenges. She elaborated on her own *insecurity* and she stated that: ‘Things will really have to change if I want to persevere in teacher education.’ During the third supervision meeting, Doris emphasised her *current status* as a teacher when she looked to the past; when looking at the future, she mainly focused on *goals in terms of specific teacher behaviour*, without discussing what it would take to reach these goals. In the fourth supervision meeting, Doris referred mainly to *impeding patterns* and *expected pitfalls* for the future, explicitly mentioning that she would have to work hard to avoid them. Doris left the teacher education programme after two weeks into the second practice period.

Changes in past perceptions and future expectations following an initial ambiguous sense of dis/continuity

The dominant past perceptions and future expectations of Rebecca, Tina, and Samuel in their first supervision meeting expressed an ambiguous sense of dis/continuity. Table 5 provides an overview of their past perceptions and future expectations during successive supervision meetings.

Table 5. Past perceptions and future expectations following an initial ambiguous sense of dis/continuity.

		References to the past		References to the future	
		Discontinuity	Continuity	Discontinuity	Continuity
Rebecca	Aug/Sept		Consistency characteristics	Challenges	
	Oct/Nov		Consistency experiences		Development
	Dec/Jan		Consistency characteristics		Development
	Feb/Mar	Problems in the past		Challenges	
	Apr/May	Problems in the past			Development
	Jun/Jul		Consistency characteristics		Development
<i>Rebecca graduated from the teacher education programme in the beginning of July</i>					
Tina	Aug/Sept		Consistency characteristics	Challenges	
	Oct/Nov				
	Dec/Jan				
	Feb/Mar		Consistency experiences		Development
	Apr/May		Consistency experiences		Development
	Jun/Jul		Consistency characteristics		Development
<i>Tina graduated from the teacher education programme in the beginning of July</i>					
Samuel	Aug/Sept	Problems in the past			Development
	Oct/Nov	Problems in the past		Challenges	
	Dec/Jan	Problems in the past			Development
	Feb/Mar	Problems in the past			Development
	Apr/May	Problems in the past			Development
	Jun/Jul				
<i>Samuel left the teacher education programme at the end of May</i>					

Rebecca. At the start of teacher education, Rebecca emphasised consistency related to characteristics by giving *self-descriptions*. She elaborated on why she felt the profession suited her: 'Becoming a teacher is a positive choice. I felt really at home at school when I was a student.' She expected challenges for the future related to classroom management because she doubted if she could be strict. She considered this to be her *pitfall*. During the second supervision meeting, Rebecca stressed *specific teacher behaviour*; for instance, being able to use creative teaching methods. For the future, she *focused on concrete developmental issues*, elaborating on what she would do in order to improve her lessons in terms of efficiency. Halfway through the programme, Rebecca reflected positively on her *current status* as a teacher by making comments such as 'I am content with the steps I have taken so far', but she acknowledged that the relationship with students could be improved. She thought this would happen if she could: 'really take the role of a teacher'. She emphasised the importance of personal *growth* for her development as a teacher. During the fourth supervision meeting, halfway through the second practice period, Rebecca spoke about her problems with classroom management and referred to *impeding patterns*: she started off on the wrong foot and now could not escape the behavioural pattern she has developed with her students. She formulated goals and challenges and she focused on how her *teaching in general* should be changed in order to be a successful teacher. During the fifth meeting, Rebecca again described the *impeding patterns* she noticed because of the problems she faced in school. In terms of the future, she stressed *focused development*. She was determined to engage in personal conversations with her students at the start and end of each lesson. In the final supervision meeting, Rebecca mostly referred to her *current status* as a teacher and references to the future were scant. She evaluated the steps she made as a teacher. Although she professed to know that she was not yet the teacher she could be, she felt she was growing into the teacher she wanted to be. Rebecca graduated at the end of the programme.

Tina. In the first supervision meeting, Tina described herself as friendly and compliant; *self-descriptions* indicative for consistency related to characteristics. At the same time, she claimed to expect challenges for the future: she was *insecure* about whether she would succeed in classroom management. During her second supervision meeting, Tina again gave *self-descriptions*, but also commented on her *status as a teacher* when she expressed her pride about the successes she had during the first practice period. With regard to the future, she *focused on further development*; for instance, when she elaborated on the strategies she wanted to apply in order to improve in classroom management. In consequent supervision meetings, Tina elaborated on her experiences in school practice by emphasising *specific teacher behaviour* and her *current status* as a teacher, concretizing her conduct as a teacher. She stressed that she expected *focused development*, indicating that she wanted to improve as a classroom manager. In addition, she emphasised how much she valued *development as an objective in itself*. Tina graduated from teacher education at the end of programme.

Samuel. In his first supervision meeting, Samuel predominantly perceived problems when referring to the past, emphasising that teaching to him was *unnatural*: 'My personal problems can possibly threaten my functioning as a teacher'. However, when he looked at the future, Samuel predominantly focused on his development, especially on *growth as a teacher*. Samuel repeatedly mentioned that for him teacher education represented the possibility to change as a person. For instance, he said that he found it very difficult to relate to other people and that teacher education is a context that would force him to do this with students. In his second supervision meeting, Samuel continued to highlight problems in the past, especially focusing on *impeding patterns*. When looking at the future, he mostly expected challenges, revealing that he was *insecure* about his ability to change his teaching conduct. In the third supervision meeting, Samuel again focused on problems in his past, stressing both difficult *professional conduct* as well as *unnaturalness*. He returned to quite a optimistic outlook on the future as he mostly talked about *focused development*; for instance, when he reflected on what he wanted to do to stimulate students to perform music in his lessons. During the fourth supervision meeting, Samuel persevered in elaborating about difficult *professional conduct* and *unnaturalness*. For instance, he remarked that he often did not know himself why certain lessons could be useful. However, he again focused on development in terms of the future, this time mostly looking forward to *growth as a teacher*. In the fifth supervision meeting, Samuel elaborated on *impeding patterns* and on specific personal attributes that were, in his own words, 'incompatible' with working in education. With regard to the future, he speculated about the difficulty potentially involved in trying to change or reapply these attributes and was *insecure* about the feasibility of these efforts. Samuel left teacher education in the latter half of the second practice period.

Changes of sensed dis/continuity throughout teacher education

The cross-case analyses allowed us to compare changes over time in terms of sensed dis/continuity for different student teachers. In Figure 1, the changes of sensed dis/continuity are summarised for each student teacher. The first three columns present the student teachers who graduated, the last three columns present the student teachers that left teacher education.

The perceptions and expectations of Rebecca, Tina, and Mike, who all graduated from teacher education at the end of the teacher education programme, did change towards a

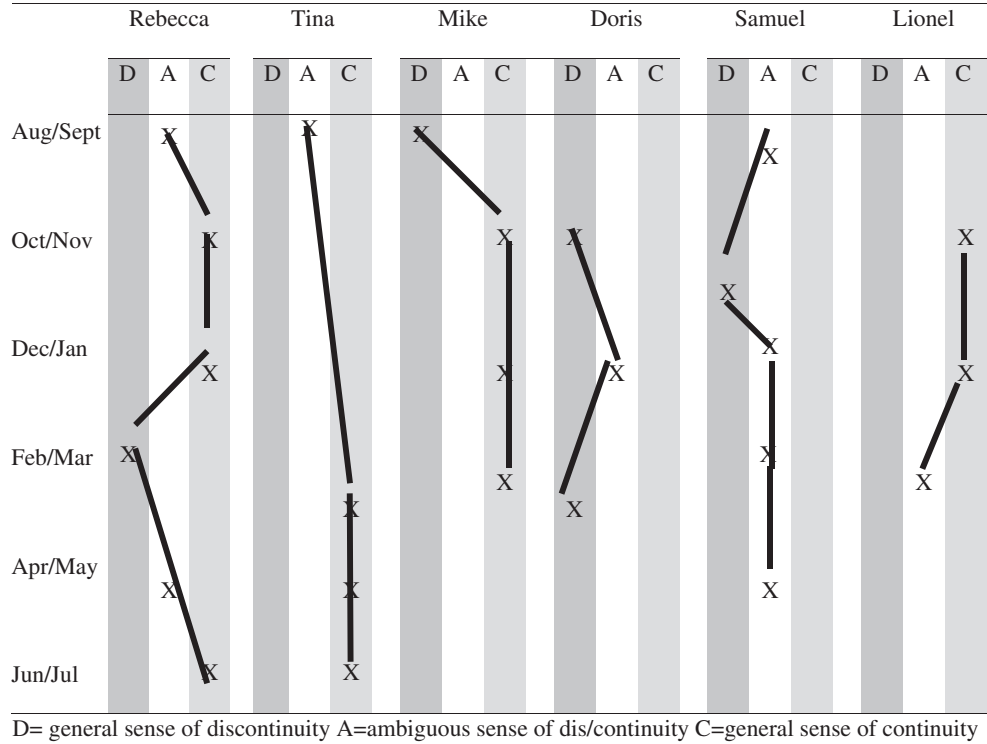


Figure 1. Changes in the general sense of dis/continuity of the six student teachers.

general sense of continuity after the first supervision meeting. The meetings following their first supervision meeting, included future expectations that predominantly focused on *development*, emphasising *continuous growth*, and demonstrating knowledge about what it would take to reach these goals. The past perceptions of Rebecca, Tina, and Mike were similar halfway through the year, when they predominantly reflected on their current status as teachers after the first practice period. For Mike and Tina, the general sense of continuity was consistent throughout the supervision meetings from that moment on. Rebecca, however, reported about difficult professional conduct and impeding patterns during the second practice period, expressing a sense of discontinuity. At first, she expected challenges in the future, but in the course of the second practice period, she returned to expectations of focused development.

Doris and Samuel, who both left teacher education before graduation, perceived the past in terms of discontinuity almost consistently throughout the teacher education programme (Doris once referred to past perceptions consistency related to characteristics). In terms of future expectations, Samuel alternately expected development and challenges. The alignment of past perceptions and future expectations in terms of dis/continuity for Samuel varied quite strongly throughout teacher education and, consequently, he repeatedly expressed an ambiguous sense of dis/continuity. Doris predominantly stressed impeding patterns and reoccurring challenges throughout teacher education. The past perceptions and future expectations of Doris aligned quite consistently throughout teacher education in terms of sensed discontinuity.

Lionel, who also left teacher education before graduation, started teacher education showing a lot of certainty and positivity towards the future. Lionel, however, had a counter-intuitive change towards ambiguous dis/continuity. In the third meeting, Lionel presented a nonalignment between sensed dis/continuity in past perceptions and future expectations: he perceived continuity because of the past and he predominantly expected challenges for the future.

Discussion

The focus of this study was to explore if and how the experience of tensions changes in student teachers during teacher education. Tensions were defined as conflicting beliefs about the person and the profession, that can induce a loss of self-confidence and propel teacher attrition. We conceptualised tensions in relation to sensed discontinuity in development as a teacher. By conducting this study, we aimed to increase our understanding of when and how initially sensed dis/continuity of student teachers changes throughout teacher education. Analyses of 25 audio-taped supervision meetings of six student teachers showed how perceptions of the past, expectations of the future, and the expression of sensed dis/continuity vary for each student teacher throughout the course of teacher education. Furthermore, results showed that sensed dis/continuity varies differently over time within student teachers, both in terms of *when* sensed dis/continuity changes as well as in terms of *what* types of past perceptions and future expectations. An initial sense of dis/continuity could not be related to a specific developmental trajectory and/or successful completion of teacher education. The cross-case analysis of the developmental trajectories did show that the three student who graduated from the teacher education programme expressed a dominant sense of continuity in their final conversation. Therefore, it appears that finalising a developmental trajectory within the context of teacher education tends to coincide with perceiving coherence in past development as well as expressing confidence in future professional development.

The developmental pattern of overcoming disillusionment, described as typical student teacher development in retrospective research (e.g. Meijer, de Graaf, and Meirink 2011), could be related to the past perceptions and future expectations of just one of the six developmental trajectories described in this study. Rebecca described her frustration about recurring inefficient teacher conduct at the midst of teacher education. Although she knew what was wrong, she found it very hard to change because of personal impeding patterns. Sensed continuity reoccurred when she turned her attention more strongly towards further development, instead of concentrating on repeated challenges.

The other five trajectories showed a dissimilar pattern. The perceptions and expectations of Mike and Tina showed hesitance at the beginning of teacher education about the prospects of becoming a teacher. During the course of teacher education, concrete experiences in practice were talked about in the supervision meetings, which seemed to reflect the human need to reinstate continuity in times of challenge in order to feel secure and confident (cf., Caspi and Moffitt 1991). Both Mike and Tina strongly valued development as a goal in itself. Their cautious expectations at the start of teacher education may have contributed to a sense of accomplishment because of their development progresses. Doris, Samuel and Lionel did not overcome the struggle that is often associated with becoming a teacher (cf. Beijaard, Meijer, and Verloop 2004). Doris and Samuel, who quit teacher education after

about four weeks into the second practice period, repeatedly presented a sense of discontinuity. For them, development as a teacher seemed to become more challenging over time. Their attempts to change in order to become a teacher failed, which seemed to fuel their original misgivings about their suitability to the profession. Lionel, who started off very confident and enthusiastic, expressing continuity, gained a more detailed image of the profession over time. Halfway through the year he expressed expected challenges in much more detail, maybe because his experiences in the first practice period helped to specify the demands of the profession. We propose that the developmental trajectories of the six student teachers described in this study are illustrative for the necessity in teacher education to direct attention towards idiosyncratic development and take personal challenges into account during supervision (cf. Korthagen et al. 2001).

A developmental trajectory that changes towards sensed discontinuity during teacher education can be considered problematic, since teacher inflow and retention is increasingly identified as one of the major priorities for professional teaching, in research, policy, and practice (Ingersoll and Strong 2011). However, it could be considered to be a blessing in disguise that Doris, Samuel and Lionel presented sensed discontinuity during the supervision meetings that otherwise would typically be introduced in the induction phase of teaching. Research has shown how tensions are related to attrition (cf., Hong, Greene, and Lowery 2017; Pillen, Beijaard, and den Brok 2013). Addressing challenging issues prior to entering the profession may help to avoid a costly and complex induction trajectory that can lead to burnout. Consequently, further research that will delve deeper into the support of sense making processes provided by university supervisors, is needed. We recommend that this future research will take into account both what is needed to adapt to the idiosyncratic nature of student teachers' development as well as how university supervisors can deal with challenges connected to attending to experiences of dis/continuity in student teachers throughout teacher education.

The real-time, longitudinal approach applied in this study resulted in a description of the development of student teachers, independent of whether, when, and if they complete teacher education. This approach enabled us to explore the developmental trajectories of three student teachers who happened to quit teacher education; a group omitted in studies on development in teacher education in which graduates are asked to look back on teacher education. Although the approach is both time-consuming as well as labour intensive (Leonard-Barton 1990), this specific design, that is, studying real-time cases at consecutive moments, allowed us to describe development as it unfolds over time, yielding complementary insights.

Limitations and implications

As this study focused on intra-individual development (Zittoun et al. 2013), we excluded the context of the supervision meetings in our analysis. In order to explore how interactions between student teachers and university supervisors affect student teacher' development we recommend that future research also tries to incorporate analyses that include interactions surrounding past perceptions and future expectations and consequent expressions of sensed dis/continuity.

Our results imply that supervising university supervisors should be aware of the relatively unpredictable and idiosyncratic nature of the development of student teachers. The

expanded framework for identifying perceptions and expectations (see Table 2 and Appendix 1) can assist supervisors in constructing a more detailed understanding of changes in the vocational self-concept of individual student teachers during teacher education. The framework enables university supervisors to be sensitive toward changes in the appraisal and interpretation of experiences and, consequentially, discuss changing perceptions and expectations of dis/continuity of student teachers. Future research is then needed to explore the implications of this approach for university supervisors' supervision behaviour and the supervision relationship between student teachers and university supervisors.

Disclosure statement

No potential conflict of interest was reported by the authors.

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Appendix 1. Coding scheme for perceptions of the past and expectations of the future (adapted from van Rijswijk et al. 2016)

Type	Sub-category	Pertaining to...	Example
Perceptions of the past	Consistency related to characteristics	<p>Positive attributes as they are known to the student teacher</p> <p>Positive esteem of the profession and/or specific elements thereof</p> <p>One's own development up to now and one's own professional performance</p> <p>A known teacher as benchmark</p>	<p>I am a very friendly person</p> <p>It feels really good to be a part of the learning process of students</p> <p>Teaching comes much more naturally to me than I first expected</p> <p>My grandfather was a teacher and I admired him for his ability to tell captivating stories</p>
	Consistency related to experiences	<p>Being a teacher in general terms</p> <p>Being a teacher in terms of specific behaviour and/or specific teacher roles</p> <p>Being a teacher in terms of student interaction</p> <p>Experiences with teaching in the context of courses in the teacher education programme</p> <p>Experiences with teaching in the context of former work or one's own education prior to teacher education</p> <p>Experiences as a student</p> <p>Experiences outside the setting of education</p>	<p>I very much liked teaching at school during my first practice period. I regret having to leave this school</p> <p>I have noticed that I can estimate the time that different parts of the lesson will take quite well</p> <p>The students are really sweet, they told me to just hang in there and maybe be a little bit more strict</p> <p>I like the course about literacy, it inspires me to try it at school</p> <p>I worked at a centre for homework support</p> <p>I remember that as a student I did not stay angry with a teacher for very long</p> <p>My relationship with my boyfriend just ended, which makes me rethink what I want in life</p>
Lack of experience	Teaching in general	Lack of experience with teaching in general terms	Starting teacher education is a leap into the unknown. I really do not know anything about teaching yet
	Specific teacher behaviour	Lack of experience with teaching in terms of specific behaviour and/or specific teacher roles	I have not met students with personal problems so I do not know how I can handle being a coach and counsellor
Problems in the past	Professional conduct	Problems with specific teacher behaviour and/or teacher roles	It is really hard to know whether a student has really learned something in your lesson
	Unnaturalness	Negative attributes, not compatible with the profession	As a teacher, I sometimes have to signal my displeasure about certain behaviour, but as a person, I doubt if that is necessary
	Confusion	Lack of control of one's own development	I have to do so much at once, I do not have an overview of how things are actually going
	Impeding patterns	Repeating unwanted behaviour and/or recurring problems	Again and again, I feel the need to explain myself to students about certain, obvious, rules. I am sick and tired of this but haven't been able to change this



Expectations of the future	Future	Confidence	<ul style="list-style-type: none"> a. Eagerness b. enthusiasm 	<p>Positive excitement towards further development as a teacher</p> <p>Faith in success of development as a teacher</p>	<p>I look forward to my next practice period. It will be exciting to have many new experiences</p> <p>Because it is so much fun, I am sure things will be all right at school</p>
	Development		<ul style="list-style-type: none"> a. Focused development b. Growth as a teacher 	<p>Specific learning object, including plans to get there</p> <p>Exploring the relationship between the person and the profession</p>	<p>For me it is important to manage the amount of noise in the classroom better. I will warn students sooner about loud behaviour</p> <p>By experimenting with changing the organisation of the classroom of my mentor in terms of teacher position and the tables of the students, I want to find out what works best for me</p>
Goals			<ul style="list-style-type: none"> c. Development as objective 	<p>Desire, need, or necessity of development in general</p>	<p>It is really nice that as a teacher you can always improve your conduct; it is important to stay open to new things</p> <p>I really want to be like a real teacher</p> <p>I must be strict</p>
			<ul style="list-style-type: none"> a. Teaching in general b. Specific teacher behaviour c. Well-being 	<p>Being a teacher in general terms</p> <p>Being a teacher in terms of specific behaviour and/or specific teacher roles</p> <p>Desired changes beneficial to ones' own well-being</p>	<p>I have to make sure I will get more positive energy from teaching</p> <p>I am curious about how I will act like a coach and counsellor.</p> <p>I am afraid I will take it much too personally if lessons do not go as planned</p>
Challenges			<ul style="list-style-type: none"> d. Investigation a. Pitfalls b. Difficulties of the profession c. insecurity 	<p>Aspects of teaching in need of further investigation</p> <p>Impeding characteristics of ones' own behaviour and learning</p> <p>Difficult aspects of the profession</p> <p>Doubt about the ability to make necessary changes</p>	<p>It is really hard to be explicit about rules, but I have to in order to improve my classroom management</p> <p>As a teacher, I have to be flexible and I don't know if I will be able to realise that since it is out of character for me</p>