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Emotions in social interactions in pre-service teachers' team practica

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ABSTRACT

Emotions are significant in the process of becoming a teacher, especially during the teaching practicum. While studies have repeatedly shown that pupils impact the emotional experiences of student teachers, little is known about student teacher emotions that are triggered by social interactions with their mentor teacher and their team partner. This is the focus of the present research. It is investigated: (1) which emotions are experienced in social interaction situations in the practicum, (2) which factors trigger these emotions, and (3) based on self-determination theory, how the evoked emotions are linked to the fulfilment of basic psychological needs. In order to explore these research questions, semi-structured qualitative interviews with 27 Swiss student teachers were conducted. Thematic qualitative text analysis shows that in different interaction situations, such as successful teaching-related cooperation, support, positive feedback, and goodwill of the mentor teacher, positive emotions are triggered, which are strongly connected to need fulfilment. On the contrary, situations of failed communication, negative feedback, and lack of support are related to need threat and evoke negative emotions. This study shows the importance of emotions in interaction situations during practica and the need to focus more strongly on emotional dimensions of becoming a teacher in teacher education.

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Introduction

A lack of new teachers and dropout rates amongst the workforce is an ongoing challenge worldwide (Ingersoll & Strong, 2011). Against this background, studies on teachers' emotions, health and well-being become highly relevant. Since an early study by Hargreaves (1998), the crucial role of teacher emotions seems to have been largely unquestioned, though research on this topic has steadily increased. Studies have found clear associations between teacher emotions and quality of teaching (e.g., Sutton & Wheatley, 2003), quality of social relationships (e.g., Hagenauer et al., 2015), teacher well-being (e.g., Frenzel et al., 2016) and teacher burnout (e.g., Chang, 2009).

Not only teaching, but also teacher education as well as the transition into a professional role can be regarded as emotional endeavours. It is expected that prospective teachers experience and must deal with a variety of emotions (Hascher & Hagenauer, 2016). Social interactions in particular are important sources of both positive and negative emotions during practica (Kelchtermans & Deketelaere, 2016), reflecting the social nature of human emotions (Fischer & Manstead, 2008).

Thus far, the role of social interactions for emotional experiences in student teachers' practica has rarely been explored in depth. Therefore, the present study aims to investigate how student teachers' emotions are linked to the perceived quality of social interactions in a team practicum. Further, it is examined how this association can be explained as threat to or fulfilment of basic psychological needs.

Emotions

As early as 1962, Wenger et al. (p. 3) pointed to the difficulty in defining emotions. Although a uniform definition of the term 'emotion' is still lacking, today, there is consensus on three core characteristics: (1) Emotions are complex phenomena and consist of various components (e.g., Scherer, 2005). (2) Emotions refer to a stimulus to which the individual ascribes a certain meaning (Pekrun, 2006). (3) Emotions are mutually linked to various contextual and individual factors (Pekrun, 2006). From an appraisal-theory perspective, it is not the situation itself but rather the individual cognitive interpretation of a situation that triggers emotions (Ellsworth & Scherer, 2003).

Based upon appraisal theory, the question arises why an event gains personal relevance for an individual and, as a consequence, triggers emotions. Parkinson (1996) argues that relevance is social in nature and occurs in the form of social encounters and in the development of relationships over time. Eisenberg and Hernandez (2018) state: 'emotional experiences are frequently reactions to social factors in the family, community, and culture' (p. 213). Accordingly, schools should be considered as a social space, where teachers, students and other participants daily experience a variety of emotionally evocative interaction situations.

Previous research has investigated emotions of students and teachers predominantly from this appraisal-theory perspective. For example, Pekrun (2006) developed the 'control-value theory'; accordingly, Frenzel (2014) proposed a model for teacher emotions. Both models highlight the importance of cognition/appraisals for students' and teachers' emotions. Control-value theory (Pekrun, 2006) proposes that

control and value appraisals are important antecedents for students' emotions. For example, if (situational) control is perceived as high and if the situation is of high intrinsic value, students are likely to experience enjoyment. Furthermore, control-value theory introduces important distinctions on how to categorise emotions, namely valence (positive/negative), focus (activity/outcome) and arousal (activation/deactivation). According to the theory, enjoyment (of learning), as an example, can be classified as a positive, activity-related and activating emotion, while sadness is classified as negative, outcome-focused and deactivating (Pekrun et al., 2007, p. 16).

Yet, the role of social interactions is addressed only indirectly in these models, although social interaction with students (Hargreaves, 1998) and with colleagues (Cowie, 2011) are important sources of teacher emotions. Despite growing empirical literature about teacher emotions (for an overview, see Frenzel, 2014) and an increasing interest in student teachers' emotional experiences, research with a focus on emotions elicited by social interactions is still scarce.

As previous studies have revealed, student teachers experience various emotions while teaching as part of their practicum (Hascher & Hagenauer, 2016; Timoštšuk et al., 2016). With regards to the variety of emotions, Anttila et al. (2016) were able to distinguish 18 distinct positive and 20 distinct negative emotions. Yet, the ratio of positive to negative emotions remains unclear. Some findings indicate that student teachers experience more positive emotions (e.g., Hascher & Hagenauer, 2016; Timoštšuk et al., 2016), other results reveal predominantly negative emotions (Timoštšuk & Ugaste, 2012). In terms of social interactions in practica, Kelchtermans and Deketelaere (2016) showed that the quality of cooperation with team partners (fellow student teachers in the team practicum), mentor teachers (schoolteachers who supervise student teachers in the practicum placement) and university supervisors were core triggers of emotions. Positive and negative emotions are equally triggered by mentor teachers (Yuan & Lee, 2016), university supervisors (Timoštšuk & Ugaste, 2012) and team partners (Saariaho et al., 2018).

Self-determination theory

As outlined above, a variety of factors contribute to the emotional experiences of student teachers. In order to bundle these triggers of emotions, this research is based on Self-Determination Theory (SDT) (Ryan & Deci, 2002). SDT posits basic psychological needs, which 'provide the basis for categorizing aspects of the environment as supportive versus antagonistic to integrated and vital human functioning' (Ryan & Deci, 2002, p. 6). Three needs are necessary for optimal human functioning and wellbeing: the need for autonomy, the need for relatedness, and the need for competence (Deci & Ryan, 2000; Ryan & Deci, 2002). *Need for autonomy* describes the desire to be perceived as the 'origin or source of one's own behaviour' (Ryan & Deci, 2002, p. 8). *Need for relatedness* refers to the need to form and maintain interpersonal relationships, to feel connected to others, to care for and be cared for by others, and to belong to groups or communities (Baumeister & Leary, 1995; Ryan & Deci, 2002, p. 7). *Need for competence* 'refers to feeling effective in one's ongoing interactions with the social environment and

experiencing opportunities to exercise and express one's capacities' (Ryan & Deci, 2002, p. 7). Previous research has shown clear linkages between the fulfilment of vs. threat to basic psychological needs and the experience of positive vs. negative emotions. That is, the better basic psychological needs are met, typically the more positive emotions are experienced (Tong et al., 2009).

Applied to the educational setting, Uzman (2014) reported basic need fulfilment to negatively correlate with depression in student teachers, and positively correlate with students' reported psychological health. In another study, Hagenauer et al. (2017) showed that high need fulfilment positively predicted the experience of positive emotions and negatively explained the experience of negative emotions in student teachers. With a specific focus on practica during teacher education, Evelein et al. (2008) found an increase in need fulfilment for competence and autonomy corresponding with increased time student teachers spent in schools.

The present study

Emotions are significant in the teaching profession and in teacher education. During a practicum, social interaction situations are likely to trigger emotions. From an appraisal-theory perspective, how student teachers perceive and evaluate these situations is crucial. However, little is known about how student teachers appraise interaction situations and student teachers' emotions in those situations. The present study, thus, aims to explore the role of social interaction situations for student teacher emotions when interacting with team partners and mentor teachers. As a team partner, a fellow student teacher cooperates as a peer in a team practicum: Both student teachers have the same learning goals. A mentor teacher is a schoolteacher who typically has a specific qualification for mentoring student teachers: They supervise the student teachers' teaching experiences in the classroom as part of the respective practicum placement. Although the term 'cooperating teacher' is frequently used in the literature (e.g., Clarke et al., 2014), we prefer the term 'mentor teacher' in order to underline the specific professional qualification these schoolteachers have for mentoring student teachers during a practicum. This mentoring activity goes far beyond 'cooperation' with university-based teacher education and solely providing the practicum location.

To achieve these aims, the following research questions were addressed:

RQ1: Which positive and negative emotions do student teachers experience in social interaction situations with team partners and mentor teachers during practica?

RQ2: Which emotion-triggering social interaction situations with team partners and mentor teachers do student teachers report and how can these situations be characterised?

RQ3: How are emotion-evoking situations related to fulfilment of or threat to student teachers' basic psychological needs (autonomy, competence, relatedness)?

The present study adds to the previous literature on student teacher emotions in practica by focusing particularly on the emotional impact of *social interactions* with the team partner and the mentor teacher. Additionally, it contributes to the literature that focus on *team practica* as a specific form in teacher education.

Method

Context and participants

The study was conducted at the University of Teacher Education in Bern, Switzerland and was part of a larger study on 'cooperation, relationships, trust and emotions in the team practicum'. The three-year study programme there for pre-primary and primary education leads to a bachelor degree, and student teachers have to complete five practica. Interviews took place a few weeks after the conclusion of Practicum Four, at the beginning of their third year of study. Practicum Four has a subject-specific focus and is planned as a team-practicum, while the fifth and final practicum is an individual practicum. Practicum Four lasts four weeks and is the longest practicum of the study programme that is completed in a team, as Practicum One to Three last two to three weeks. Due to the high intensity of student teacher cooperation with the team partner and the mentor teacher, Practicum Four was selected for the study.

All 181 enrolled student teachers of the 2017/2018 academic year received an email invitation to participate voluntarily in the study. Participants had to meet three criteria: they had recently completed Practicum Four; Practicum Four was done in a team; and the team partner was unknown to the student teacher prior to the practicum. For the present study, 27 student teachers (24 females, 3 males) who volunteered met the criteria and were interviewed. The overrepresentation of female student teachers is typical for pre-primary and primary education programmes at the University of Teacher Education in Bern and in Switzerland in general. Six of these student teachers studied with a focus on kindergarten up to second grade, and 21 with a focus on third to sixth grade. The mean age of participants was 24.8 years ($SD = 4.56$).

Interviews and procedure

Members of the research team conducted semi-structured interviews face-to-face. Informed consent of all participants was obtained prior to interviews. Any personal data that could identify participants were removed from transcripts. Interviews lasted between 32 and 90 minutes. At the beginning of the interview, student teachers were asked to report anything that came to mind with regard to emotions in the team practicum. After that, they were explicitly asked to elaborate on the core emotions of joy, anger, and anxiety in their team practicum, as these emotions have been identified as significant teacher emotions (Frenzel et al., 2016). Finally, student teachers were asked to report one positive and one negative experience with their team partners, as well as with their mentor teachers. The stimulus question was, 'Could you please describe a situation in which you felt good or which you remember positively in your cooperation with your mentor teacher/team partner?' The same question was asked in terms of negative experiences (see Appendix for interview questions).

Data analysis

The interviews were recorded in a digital audio format, and were then transcribed verbatim. Interviews were analysed stepwise according to thematic qualitative text analysis (Kuckartz, 2014) using MAXQDA 2018.2 (VERBI Software, 2019). The process of analysis comprised of various coding phases (Figure 1).

(1) In the first phase, all text passages were selected that contained statements on emotions experienced in social interaction situations with the team partner or the mentor teacher. For defining emotion categories, the work of Scherer (2005) and the Swiss Center for Affective Sciences was adapted, who proposed a semantic structure for aggregating emotions. Thereafter, the emotions were grouped into four major categories: positive-activating, positive-deactivating, negative-activating, negative-deactivating (following Pekrun et al., 2007).

(2) In the second step, the emotion-eliciting social interaction situations were coded. Since there is no study known to us that investigates emotion-eliciting social interaction situations with the team partner and the mentor teacher during the practicum, the situations were analysed following an inductive approach (Kuckartz, 2014). Situations were first divided into positive and negative experiences, and second categorised with regard to the experienced characteristics of the situation (situations of cooperation, support, feedback, communication, personal relationship, shared experiences). The final analyses resulted in seven positive and eight negative situation categories for team partner interactions, and eight positive and eight negative situation categories for interactions with the mentor teacher (for the final categories see Tables 3 and 4).

(3) In the third step, all social interaction situations were revisited and coded with regard to basic psychological need fulfilment or threat. Based on SDT (Ryan & Deci, 2002), we stipulated that some situations may satisfy or threaten different needs, while others neither threaten nor satisfy. In addition, Sheldon and Hilpert

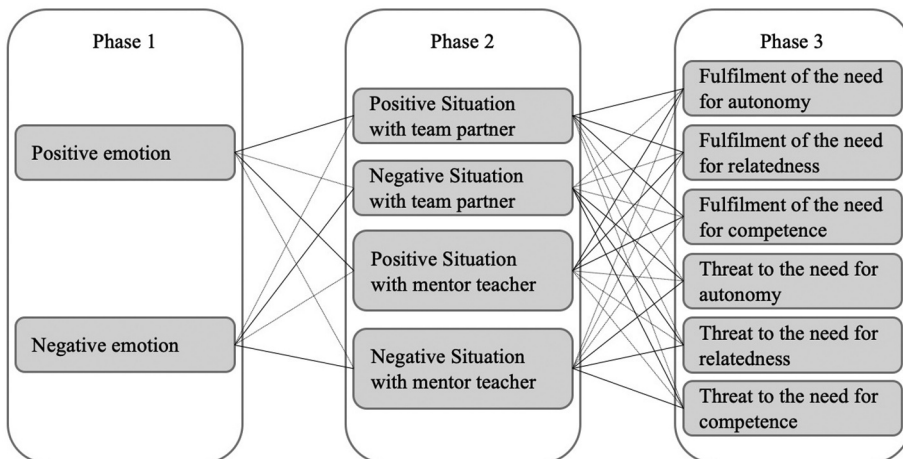


Figure 1. Analysis steps of the coding procedure.

	Positive example with the mentor teacher:
special honour	Interviewee 24: Apart from the two conversations, I have already mentioned? (Interviewer: Yes, maybe one more that comes to mind?). Yes, it was very nice, so I told you that we went to the [place of the excursion] and I organized this visit and she [the mentor teacher] was so excited afterwards. It was a nice experience to see that she was- and we [student teacher and pupils] made a little book for the [guide of the excursion] and she loved it. And just this appreciation of her and that she was so happy that it worked out. It was a positive experience.
proud	
fulfilment of the need for relatedness	
fulfilment of the need for competence	Interviewer: How did you feel in this situation? Interviewee 24: Well proud, because she praised me (laughs). Yeha.
	Negative example with the team partner:
superiority of team partner	Interviewer: Have you ever experienced a situation in which you did not feel as comfortable [as in the previous discussed situation?] with your team partner?
ill at ease	Interviewee 22: Yes, it was like, a little, though it goes back a bit further, more in the direction of the natural science seminar, which of course builds on the practicum. Um, where I just noticed, I didn't feel comfortable, because I noticed that professionally, he already, knows much more than I do (laughs). And then I really, um, noticed a little (.), yeah, that if I really want to make a good contribution to this cooperation, um, as I expect to do, I really have to step it up a notch (.) and really get to grips with this subject a little more. And that was a bit of a stressful moment for me, where I was a bit like, yeah, I-I feel like the metaphor of running after something is quite fitting here. And I don't like that (laughs). Yeah. That was-- but-- yeah, I can't do that now either, so that's not it.
stressed	
irritated	
threat to the need for competence	Interviewer: I find it fitting. (Interviewee 22: Good.) Which emotions were most prominent for you? Interviewee 22: I felt a little overwhelmed. Um, I felt (4) yeah (2), yeah it just... it just stressed me out so. A little irritation the whole time. Yes.

Figure 2. Example of the coding of an interaction situation.

(2012) balanced measure of psychological needs scale was used to define key words for the basic needs coding process. An example of the coding of an interaction situation is given in [Figure 2](#).

Half of the analysed situations (50%) were double-coded by a trained research assistant. The final interrater-reliability of Cohen's weighted Kappa (Brennan & Prediger, 1981) ($\kappa = .81$ for emotions, $\kappa = .81$ for interaction situations, $\kappa = .77$ for basic needs) was good (Döring & Bortz, 2016). An example of the coding scheme is given in [Table 1](#). The entire coding system is available from the authors by request.

Results

Student teachers' emotions in social interaction situations

Taking a closer look at interview data, results illustrate that student teachers experience a wide range of different emotions in social interaction situations. Analysis revealed a total of $N = 31$ different mentioned emotions (16 positive emotions, 15 negative emotions; see [Table 2](#)).

Emotions experienced in interaction situations during the practicum did not differ specifically between interactions with the team partner and with the mentor teacher, with one exception: Feelings of inadequacy were only reported in interactions with mentor teachers, not with team partners.

Table 1. Excerpt of the coding scheme.

	Category	Subcategory	Description	Reference example	Coding rules	Theory
Step 1: Emotion	Positive activating emotion	Joyful	Feeling of joy/delight, of being delighted, of being glad Other terms: delight, delighted, pleased, joyful, glad	"But, on the other hand, I was simply glad because the entire morning had already been exhausting anyway." (I8)		Scherer (2005) & Swiss Center for Affective Sciences
Step 2: Team partner	Positive Situation	Support	Students describe a situation in which a team partner supported them by relieving them of work or offering help.	(. . .) and then she offered to drive me home. And I thought that was really nice; that made me really happy. (. . .)'(I25)	Differentiation: There is assistance from the team partner (TP). The team partner provides assistance in a situation	
Step 3: Team partner	Basic need	Fulfillment of the need for	competence	Need for competence is threatened in the social interaction situation. Experiencing competence means feeling effective in one's own actions and interactions with the social environment and seizing opportunities to expand and show one's ability.	Indicators/ samples: 'I was able to successfully master a difficult task.' 'I have mastered a difficult challenge.' 'I managed difficult things well.' it worked/went well. I was successful/I succeeded . . .	

Deci & Ryna (2000)
Ryan and Deci
(2002), Sheldon
and Hilpert
(2012)

Table 2. Overview of reported emotions.

Emotion	Team partner	Mentor teacher	Total
<i>Positive activating</i>			
joyful*	9	11	20
encouraged	3	7	10
happy	3	6	9
astonished	1	1	2
proud	1	1	2
stimulated	-	1	1
amused	1	-	1
trustful	1	-	1
grateful	1	-	1
<i>Positive deactivating</i>			
relieved	4	4	8
contented	3	3	6
at ease	2	3	5
hopeful	1	2	3
serene	1	1	2
moved	-	2	2
calm	1	-	1
positive feeling	5	9	14
<i>Total</i>	<i>37</i>	<i>51</i>	<i>88</i>
<i>Negative activating</i>			
annoyed*	17	15	32
stressed	4	3	7
anxious*	2	2	4
jealous	1	-	1
taken aback	1	1	2
<i>Negative deactivating</i>			
irritated	4	7	11
disappointed	5	6	11
sad	2	3	5
inadequate	-	4	4
lonely	3	1	4
ill at ease	2	-	2
disadvantaged	1	1	2
desperate	-	1	1
stirred	1	-	1
humiliated	-	1	1
negative feeling	3	2	5
<i>Total</i>	<i>46</i>	<i>47</i>	<i>93</i>
Total	83	98	181

*Frequencies of these three emotions should be interpreted with caution, as we explicitly asked for them (see section interviews and procedure).

Characteristics of emotion-triggering social interaction situations during the practicum

Overall, 125 emotion-triggering situations were found in the interviews and subsequently coded. Student teachers described positive emotion-triggering social interaction situations with team partners (n =28) and with mentor teachers (n =37) as well as negative experienced situations (n =31 with team partner/n =29 with mentor teacher).

Social interaction situations with team partners

Experienced positive emotions with team partners were reported in different positive and negative social interaction situations (see Table 3).

Table 3. Social interaction situations with team partner and experienced emotions.

	joyful	encouraged	happy	astonished	proud	amused	trustful	grateful	relieved	contented	at ease	hopeful	serene	calm	pos. feeling	annoyed	stressed	anxious	taken aback	irritated	disappointed	sad	lonely	ill at ease	disadvantage	stirred	neg. feeling	
Support																												
Successful cooperation																												
Shared special event																												
Personal relationship																												
Team spirit																												
Shared positive assessment																												
Success of team partner																												
Failed communication																												
Discrepancies in teaching style																												
Failure of team partner																												
Imbalanced workload																												
Difficulties in joint planning																												
Unpredictability of team partner																												
Missing empathy																												
Superiority of team partner																												

Note: Shades of colour reflects the frequency of the indicated emotion with darker colours representing a higher mentioned frequency.

Positive situations of *support* ($n = 7$) were characterised by assistance that student teachers had received from team partners, for example, if the team partner's offer to help the student teacher went beyond his/her expected workload, such as helping to prepare student teachers' lesson, stepping in when something did not work during student teachers' lesson, or giving assistance when pupils needed help:

Well, finally she was very helpful during my teaching. She was always there, always present and then always helped. [...] I felt such a support from her. Well, it was actually really a nice gesture that she was around. (Interview 16)

Situations of *successful teaching-related cooperation* ($n = 5$) also caused positive emotions. Student teachers reported situations where they successfully planned, taught and/or evaluated a lesson together. Joint planning was especially characterised by discussions, vivid exchanges and mutual negotiations:

And then I really noticed that it works, we're able to sit down together and do this. And we made progress and achieved a final product which is harmonious. [...] It was also really a moment of letting go off a bit of tension and just feeling comfortable in cooperation and relationship. (Interview 22)

Also, *shared special events* ($n = 5$), such as excursions with pupils, going to camps or special extra-curricular events, caused positive emotions in student teachers:

We were also very happy that it worked out that way. I think it was the first trip outside of school for both of us. Maybe, in other words, maybe it was still ... well we just had something to look back on, a common experience. (Interview 12)

Furthermore, positive emotions were experienced (1) when *personal relationships* (n =4) could be established; (2) when student teachers experienced *team spirit* (n =3) and could master a special challenge together; (3) when being *assessed positively* (n =2) by a supervisor of the university of teacher education, and (4) when they could observe *successful teaching* of team partners (n =2).

The most-often mentioned negative social interaction situations with team partners were situations of *failed communication* (n =7). These situations were characterised by confrontation, accusation, misunderstanding, or conversations in which student teachers felt that the place, time, or tone (like using commanding or aggressive language) of an interaction was inappropriate. For example, the team partner of one student teacher offended her in front of other teachers, which she experienced as inappropriate:

This happened in the presence of five teachers and I thought: “Why can’t you tell me that privately, not right across the lunch table?” [. . .] I felt actually rather sad, because I thought that people should have enough knowledge of human nature to prevent those situations. (Interview 17)

In situations of *discrepancies in teaching style* (n =6) negative emotions were evoked if team partners acted against agreement:

Yes, uhm, certain situations when she just changed the planning. That actually annoyed me a bit. (Interview 25)

In addition, student teachers disliked strongly team partners interrupting or intervening unasked while they were teaching.

Student teachers also reported negative emotions if they observed *failure of team partners* (n =4), for example, if the team partner was not respected by pupils or received negative feedback and assessments.

Another trigger of negative emotions was an *imbalanced workload* (n =4), where student teachers had to do more work than their team partners or, in their view, showed more commitment and dedication than team partners. Also, *difficulties in joint planning* (n =3), as reflected in a lack of agreement about didactics or a lack of good ideas, made them feel annoyed and disappointed. Furthermore, student teachers reported negative emotions when they experienced *unpredictability of team partners* (n =3). Another source was *lack of empathy of the team partners* (n =2). Also, student teachers felt negative emotions when they experienced *superiority of the team partner* (n =2).

Social interaction situations with the mentor teacher

Table 4 gives an overview of the social interaction situations experienced with mentor teachers and the reported emotions in these situations.

In contrast to situations with team partners, where only one category on support could be extracted, support situations with mentor teachers could be assigned to two distinct categories: *goodwill of mentor teachers* (n =8) and *professional support* (n =7). Mentor teachers’ care about student teachers (e.g., about their health or workload) characterised situations of goodwill. Expression of caring could be expressed by sending student teachers

Table 4. Social interaction situations with mentor teachers and experienced emotions.

	joyful	encouraged	happy	astonished	proud	stimulated	relieved	contented	at ease	hopeful	serene	moved	pos. feeling	annoyed	stressed	anxious	jealous	taken aback	irritated	disappointed	sad	inadequate	lonely	disadvantage	desperate	humiliated	neg. feeling	
Goodwill of MT																												
Positive feedback	■																											
Professional support																												
Special honour																												
Personal relationship																												
Positive assessment																												
Team spirit																												
Transfer of responsibility																												
Negative feedback																												
Lack of professional support																												
Expectation-response conflict																												
Unpredictability of MT																												
Failed communication																												
Tighter management																												
Intervention during lesson																												
Expected assessment																												

Note: MT = mentor teacher; strength of colour reflects the frequency of the indicated emotion with darker colours representing a high mentioned frequency.

home when they felt ill, showing concern about their workload or showing personal appreciation with small gifts. Professional support presented as mentor teachers' willingness to provide advice and support to student teachers regarding teaching issues:

And she [the mentor teacher] also gave us tips on what we could improve or do differently so that it works out even better next time. In the end, these were very positive moments. (Interview 27)

Situations of *positive feedback* (n =8) shared some similarities to professional support. However, in contrast to professional support, the emphasis was not on general advice and support, but on positive evaluation specifically of student teachers' performance (comparable to praise):

Satisfaction. Yes, if I, if I received positive feedback, I was content. (Interview 10)

In situations of *special honour* (n =7), mentor teachers showed interest in using teaching materials developed by student teachers or expressed the wish to work together in the future:

So, I played the guitar and all the kids participated, [laughs] – joined in and so on. And she also told me afterwards how great it was and that I must copy the notes for her. [...] [Interviewer: How did you feel?] Just great; maybe even self-efficacy. (Interview 12)

Situations of *personal relationship* (n =4) were specified by student teachers feeling a special connection with the mentor teachers for example, through private conversations and shared interests.

Further, student teachers experienced positive emotions if they were *positively assessed* (n =2) by mentor teachers, if they experienced *team-spirit* (n =3) by showing solidarity against a task perceived to be useless but was expected to be done by the university teacher, and if mentor teachers temporary *transferred full responsibility* (n =2) for teaching to student teachers.

If student teachers received *negative feedback* (n =6), which they interpreted as inappropriate, implausible or too strict, they experienced intensely negative emotions:

Yes, exactly; actually, once when, um, he didn't like the lesson I gave, and he really tore it apart, most severely. (...) So, whoa, it sounded like it was the worst lesson he had ever seen. [...] I could understand these points, but simply- so pissed off. And well, I felt a bit down, certainly frustrated, a bit angry, [...] maybe treated unfairly. (Interview 2)

Lack of professional support (n =5) was coded when student teachers expected help of mentor teachers, but mentor teachers did not fulfil this expectation:

Yes, being angry, that was a bit the case during the phase when she left us alone. (Interview 11)

In situations of *expectation-response conflict* (n =5) mentor teachers acted in a way that was not appropriate from student teachers' perspective, but mentor teachers required them to act similarly. This mainly concerned the implementation of teaching methods such as giving homework, punishing pupils, or how to deal with children in class generally:

He had certain things, (...) that he wanted us to do, and one of them was, that he wanted the pupils to receive homework every day. And, well I don't think that's very good. (Interview 16)

In situations of *unpredictability of mentor teachers* (n =4) student teachers felt irritated due to insecurity about the reactions of mentor teachers to student teachers' work.

Failed communication (n =3) was similar to failed communication with team partners, and was associated with situations in which a misunderstanding between the student teacher and the mentor teacher occurred.

Situations of *tighter management* (n =3) represent the opposite of positive situations involving transfer of responsibility for teaching to student teachers, and were perceived by the student teachers as restrictions. When student teachers wished more responsibility for teaching but mentor teachers refused, anger was evoked. Also, student teachers felt negative emotions if mentor teachers *interfered* in their teaching lesson (n =2). One student teacher mentioned stress regarding the *final assessment* (n =1).

Basic psychological needs fulfilment or threat

In a next step, the emotion triggering situations were linked to fulfilment of or threat to basic psychological needs (see [Figure 3 and 4](#)).

In positive-emotion triggering situations with team partners, the *need for relatedness* was fulfilled in 23 of the 28 situations, while *needs for autonomy* (n =4) and *competence* (n =12) were less frequently indicated by student teachers. Fulfilment of the need for relatedness was found in every form of positive social interaction situation. Fulfilment of the need for competence occurred in situations of support, successful teaching-related cooperation, shared special events, team spirit, and shared positive assessments. Fulfilment of the need for autonomy occurred once in situations of support, successful teaching related cooperation, professional relationship, and team spirit. With regard to the threat to basic psychological needs, a threat to the need for autonomy was mentioned in 16 situations, a threat to the need for relatedness in 15 situations and a threat to the need for competence in ten situations. Failed communication was specifically related to the threat to the need for relatedness, whereas discrepancies in teaching style were

connected to threat to the need for autonomy. The need for autonomy, thus, seems to be more frequently relevant for negatively experienced interaction situations, as compared to positive situations.

In the 37 positive interaction situations with mentor teachers, student teachers reported both fulfilment of the need for competence ($n = 22$) and fulfilment of the need for relatedness ($n = 20$). Fulfilment of the need for autonomy was only mentioned in five situations. Interpersonal aspects in the interaction between mentor teachers and student teachers (e.g., goodwill of mentor teachers, meaningful relationship, or team spirit) were mostly related to the fulfilment of the need for relatedness. On the contrary, aspects related to professional behaviour, such as positive feedback, professional support, special honour and positive assessment, supported the fulfilment of the need for competence.

Threat to basic psychological needs was more evenly balanced between all three basic needs in negatively experienced interaction situations (need for autonomy $n = 13$, need for relatedness $= 12$, need for competence $n = 15$). Threat to the need for autonomy took place in situations of response conflict, failed communication, tighter management, and interventions during teaching lessons. Threat to the need for relatedness was reported in situations of negative feedback, lack of professional support, and untrustworthiness of mentor teachers. Threat to the need for competence thereafter was experienced in a wide range of situations (see [Figure 3](#)).

Discussion

The present study aimed to explore the role of social interactions with team partners and mentor teachers in affecting student teachers' emotions during a team practicum. Furthermore, the study aimed to investigate how these situations are linked to basic psychological needs fulfilment or threat.

Regarding the experience of emotions (Research Question 1), it was found that student teachers experienced a wide range of emotions in social interaction situations represented by 31 distinct emotions. These results support previous studies that demonstrated an array of emotions experienced by student teachers (e.g., Anttila et al., 2016; Hascher & Hagenauer, 2016). Student teachers reported more positive and more negative activating emotions than deactivating emotions in social interaction situations. This pattern is arguably desirable for teacher training, as positive-activating emotions are considered to be more beneficial for personal learning (Pekrun, 2006). However, many negative emotions also occurred. Therefore, it is important to support student teachers in coping with emotions, specifically with negative emotions, that can lead to avoidance and withdrawal from challenging tasks (Anttila et al., 2016). The results support the idea that teacher education should foster student teachers' emotional skills. Research shows that it is possible to promote emotional intelligence and competence through training, which can be theory-based (for example, with case studies or lectures) as well as experience-based (for example, role-plays or reflection sessions) (see Hodzic et al., 2018). Such training can be integrated into teacher education, for example, as compact workshops or exercise lessons spread over weeks or months (see Vesely-Maillefer & Saklofske, 2018). Applying approaches to stress reduction to student teacher education, such as mindfulness and mediation exercises (in

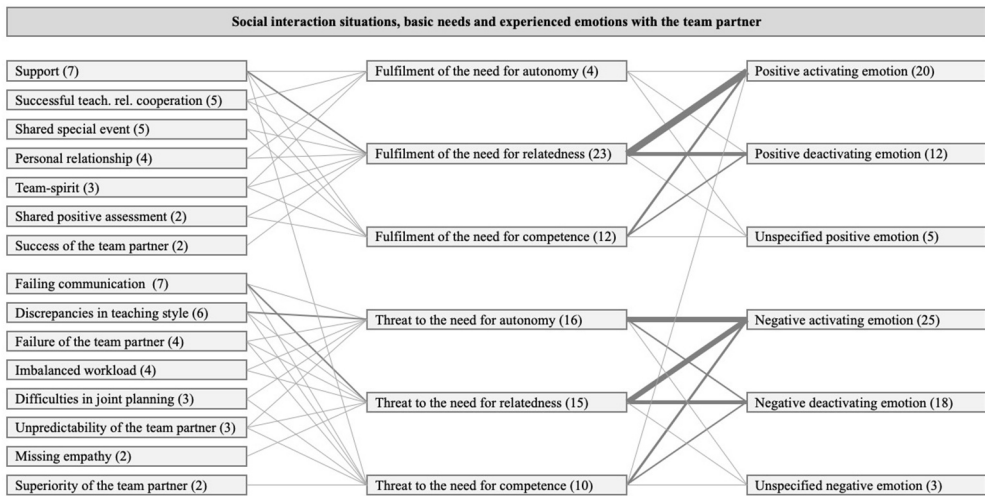


Figure 3. Relationships between triggering factors of emotions in social interactions with *team partners*, basic psychological need fulfilment/threat and emotions. Thicker lines represent more frequent code relations.

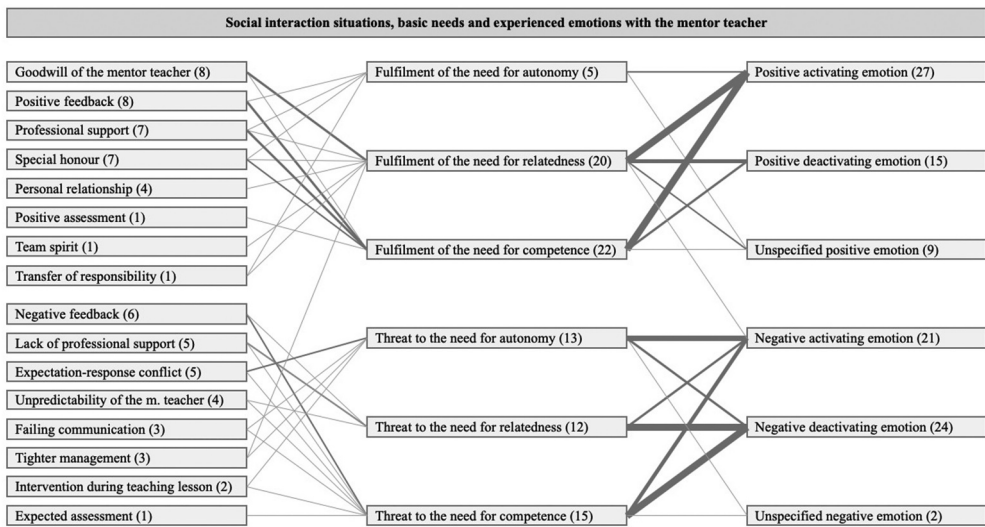


Figure 4. Relationships between triggering factors of emotions in social interactions with *mentor teachers*, basic psychological need fulfilment/threat and emotions. Thicker lines represent more frequent code relations.

order to recognise, understand and influence one's own emotions) or more elaborate training programmes such as presented by Vesely-Maillefer and Saklofske (2018) specifically for student teachers are also conceivable.

The interviews revealed specific emotion-triggering social interaction situations with team partners and mentor teachers (Research Question 2). Student teachers reported many situations with team partners fundamentally connected to interpersonal behaviour (support, shared special events, failed communication, etc.). In contrast, more interaction situations that reflected behaviour on a professional level (positive/ negative feedback, [lack of] professional support etc.) were reported with mentor teachers. This difference may be due to the distinct roles of team partners and mentor teachers: team partners are more likely to be close attachment figures (Gardiner & Robinson, 2009) who provide social and emotional support (Liou et al., 2017). The role of team partners, thus, goes beyond being cooperation partners on a professional level.

Our results are in line with studies that found interaction situations with team partners and mentor teachers during practica to be a source of emotions (for an overview see Kelchtermans & Deketelaere, 2016). Although previous studies have found that relationships and interactions with team partners and mentor teachers may evoke mainly negative emotions (Timoštšuk & Ugaste, 2012) and emotional struggle (Yuan & Lee, 2016) in student teachers, we found no support for this association. Instead, the results parallel the findings of Saariaho et al. (2018), who highlighted the important role of team partners for support and encouragement in co-regulated learning (successfully planning and implementing lessons) during practica. Thus, it is a future task for teacher education to better support student teachers' cooperation and mutual learning.

Social interaction situations during practica can be linked to basic psychological needs fulfilment or threat (Research Question 3). Fulfilment of the need for relatedness was prominent and linked to positive emotions in interaction situations with team partners. In comparison, fulfilment of the need for autonomy was mentioned, but was linked less frequently to positive situations. However, threat to the need for autonomy seems to be a source of negative emotions, especially in interaction situations with mentor teachers. This may point to the challenge for mentor teachers to find and promote the right balance between support and autonomy. An adequate balance between support and autonomy would be essential for need fulfilment and, consequently, for positive emotional experiences as well (Ryan & Deci, 2002; Thomas et al., 2019).

Fulfilment of or threat to the need for competence was more strongly related to interaction situations with mentor teachers. As our results and those of Saariaho et al. (2018) show, negative feedback and lack of professional support from the mentor teacher evoke strong negative emotions in student teachers. Negative feedback and lack of professional support both lead to a threat to the need for competence as well as to relatedness. Not only for student teachers, but also later for beginning teachers, collegial support is inherently important for teacher's competence (Kelchtermans & Deketelaere, 2016) and, thereafter, for intrinsic motivation and job satisfaction (Thomas et al., 2019).

In conclusion, our results go hand in hand with previous studies that highlighted the role of basic need fulfilment for student teachers' emotions in teacher education in general (Hagenauer et al., 2017; Tong et al., 2009), and extend these findings by confirming this association in a team-teaching practicum. More concretely, the results reveal that a specific situation can lead to different basic need fulfilment or threat

depending on the respective student teachers' perceptions and evaluations of the situation. This is in line with an appraisal-theory perspective as for emotions, not the situation itself but the interpretation and evaluation of a situation is relevant (Ellsworth & Scherer, 2003). Consequently, the perception of basic psychological need fulfilment or threat seems to be a highly personal process. Therefore, a closer look into student teacher's expectations of the team partner and the mentor teacher is also needed. These expectations relate not only to professional behaviours, but also to relationships: as is known from research on the teacher-student relationship, normative as well as anticipatory expectations with regard to the role of interaction partners influence the development of relationships and the experience of emotions in interaction situations (Rosemann, 1978).

Limitations

Although our study has gained insights into student teachers' emotions in team practica, triggering factors related to need-fulfilment or threat, some limitations have to be mentioned. First, this qualitative study addressed exclusively pre-primary and primary education student teachers, which limits generalisability of results as pre-service teachers studying other teacher education programs (e.g., secondary education) might report different experiences concerning emotions in a team practicum. Second, it should be taken into account that basic psychological needs were only coded if they were explicitly mentioned by student teachers. As some aspects of need-fulfilment might also be unconscious, fulfilment or threat might have been underestimated in some accounts. Third, there could be some selection bias, as participation was voluntary. Fourth, there might be some recall errors as answers were given in retrospective interviews. Future studies might use experience-sampling methods in order to gain a more situated picture of student teachers' emotions (e.g., Goetz et al., 2016). Fifth, student teachers were prompted to report explicitly on joy, anger and anxiety, which has to be kept in mind when interpreting the frequencies of the reported emotions.

Future research, implications and conclusion

Notwithstanding the mentioned limitations, our results have shown that social interaction situations with team partners and mentor teachers during practica are accompanied by a variety of emotions that can be clearly linked to fulfilment of or threat to basic psychological needs. For teacher education, a focus on the establishment of successful relationships during practica seems to be of vital importance, especially as a threat to psychological needs during teacher education can lead to psychological problems (Uzman, 2014). We support Korthagen's (2017) idea that teacher education needs to consider cognitive, motivational, and emotional aspects of student teachers as sources of their behaviour in social contexts and, consequently, understand student teachers' learning as learning that occurs in multiple dimensions.

There is a need for further research in this area. Future studies should clarify the roles of different interaction partners with regard to need fulfilment. Since interactions are usually reciprocal processes, future studies should collect the perspectives of all

interaction partners. For example, Hastings (2008) showed that working with problematic student teachers can be associated with high emotional costs for mentor teachers. Thus, observations of interaction situations (e.g., feedback situations or situations of joint planning) with student teachers, team partners and mentor teachers could be fruitful for understanding the predictors of high-quality practica. In addition, studies should explore the link between interaction situations, accompanying emotions, basic needs fulfilment *and* triggered action tendencies more thoroughly. For example, Korthagen and Evelein (2016) found relations between need fulfilment and teaching behaviour during practica. Moreover, it would also be interesting to include so-called 'neutral' emotions or affective states—besides positively and negatively valenced emotions—in research on student teacher emotions in the team practicum (see for example, Gasper et al., 2019).

To sum up, our work offers valuable insight into student teachers' experienced emotions in interaction situations during practica and the link between these emotions and basic need fulfilment. A practicum represents a socially complex and highly emotional phase for student teachers' professional development. Therefore, social and emotional aspects must be taken into account in teacher education. It is crucial to support student teachers in the process of becoming competent and sensible interaction and cooperation partners, who are able to reflect on and deal with their own and others' emotions. This will support them in becoming satisfied teachers offering high quality teaching in the classroom.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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Appendix A

Appendix – Interview guide – Part 3. “Emotions in social interaction situations during the practicum”

Emotional experiences during the practicum	<p>Introduction: You have already described particularly important situations in the relationship with your team partner and your mentor teacher. And we always talked about the emotions you experienced as well. Now I would like to discuss the topic of “emotions” in more detail.</p> <p>Question 1: When you think back on the cooperation during the practicum as a whole - how did you feel? Tell us a bit more about your feelings during the practicum, with special regard to the team partner and the mentor teacher.</p> <p>Optional questions: <i>(If not addressed: Ask for the following emotions and let the participant elaborate)</i></p> <ul style="list-style-type: none"> • Have you experienced XY too? If so, in which situations? <ol style="list-style-type: none"> 1) Nervousness or anxiety (fear) 2) Being (slightly) annoyed (anger) 3) Joy
Emotions in the context of social relationships	<p>Finally, I would like to ask you a few more questions about these situations.</p> <p>Question 1: Let’s start again with the team partner. Could you please describe a situation in which you felt good or which you remember positively in your cooperation with your team partner and a situation in which you did not feel good and which you remember rather negatively. It does not matter which situation you start with.</p> <p><i>Give the participant time to think!</i></p> <p>Optional questions: <i>(If not addressed: ask the following questions to get a detailed description of the situation and the emotions.)</i></p> <ol style="list-style-type: none"> (1) What happened? (2) How exactly did you feel in this situation? Could you name the emotions you felt? (3) What exactly made you feel so (angry, fearful, sad, joyful...)? <i>(reference to the previous mentioned emotion).</i> (4) How do you think your team partner felt? (5) Did this situation lead to a change? (in general / in the relationship) <p>Question 2: Could you please describe a positive and a negative situation in the collaboration with your mentor teacher?</p> <ol style="list-style-type: none"> (1) What happened? (2) How exactly did you feel in this situation? Could you name the emotions you felt? (3) What exactly made you feel so (angry, fearful, sad, joyful...)? <i>(reference to the previous mentioned emotion).</i> (4) How do you think your mentor teacher felt? (5) Did this situation lead to a change? (in general / in the relationship)
