Šeďová, Klára; Šalamounová, Zuzana; Švaříček, Roman; Sedláček, Martin

Teachers' emotions in teacher development: do they matter?

TEACHERS' EMOTIONS IN TEACHER DEVELOPMENT: DO THEY MATTER?

KLÁRA ŠEĎOVÁ, ZUZANA ŠALAMOUNOVÁ, ROMAN ŠVAŘÍČEK, MARTIN SEDLÁČEK

Abstract

This paper examines the emotions that eight teachers experienced during intervention research project on the transformation of their teaching practices. During the program which we designed, the teachers were trained to transform their teaching practices so that they would include more features of dialogic education. In this paper, we analyze data from repeated interviews with teachers who participated in our project. Based on qualitative analysis of our data, we differentiated among four groups of teachers, each with a unique self-understanding. The groups included teachers who were: perfect, eager to learn, in a good mood, and uncertain. Our paper shows that each group experienced specific emotions during the program. The only group that did not experience negative emotions was teachers in a good mood. These teachers also implemented the fewest changes in their teaching practices. Our results thus show that a lack of negative emotions limited the efficacy of teacher development.

Key words

teacher development program, teachers, researchers, change in teaching practices, emotions, self-understanding

Introduction

This paper examines the emotions that teachers felt during a teacher development program that aimed to change their teaching practices. Teacher professional development, which we primarily understand as a transformation of teaching practices, has been our main research interest for several years. We carried out two waves of an intensive development program for lower secondary school teachers during 2013–2015 to help their teaching practices approximate the ideal of dialogic teaching and trace and observe the process. Our research thus can be found at the intersection of educational research and in-service education.

In using the term dialogic education, we are referring to an approach described by Alexander (2006) that "harnesses the power of talk to engage children, stimulate and extend their thinking, and advance their learning and understanding" (p. 37). In dialogic teaching, classroom discourse is used as an external arena where students can practice using tools of rational and collective thinking (Reznitskaya & Gregory, 2013). In dialogic education, therefore, students talk often and produce elaborate utterances containing arguments and reasoning (Reznitskaya et al., 2009). To reach such a stage, however, student talk needs to be supported by teachers who stimulate students to produce complex expressions and create spaces for open discussion (see, for example, Nystrand, Gamoran, Kachur, & Prendergast, 1997).

The program we created proved to be effective as it resulted in changes in communicational behavior for, first, the teachers and, second, the students (Šeďová, Šalamounová, & Švaříček, 2014; Šeďová, Sedláček, & Švaříček, 2016a). At the same time, we noted that not all of the teachers who participated in the program implemented changes in their teaching practices to the same degree. This paper then seeks to provide an answer as to why this occurred by focusing on the role of teachers' emotions and self-understanding. We were inspired by Korthagen's (2017) observation according to which a teacher's behavior is always ruled by personal conglomerates of needs, concerns, values, meanings, preferences, feelings, and behavioral tendencies united into a single inseparable whole. As Korthagen suggested, teachers' thinking, feeling, and wanting need to be considered if one wishes to promote their learning (Korthagen, 2017, pp. 390–391). In a similar vein, Immordino-Yang and Damasio (2007) used the term emotional thought and argued that rational thought is not separated from emotions since the phylogenetically older system of decision-making is based on emotions. According to these authors, emotions are key in influencing behavior in various situations. The data collected in our project were examined from this perspective to determine which emotions the teachers experienced and what the relationship between the experienced emotions and the program results was.

Emotions in teaching and teacher education

Teacher emotions have been regarded as an important field of research over the past two decades (Frenzel, Goetz, Stephens, & Jacob, 2009; Fried, Mansfield, & Dobozy, 2015). There is consensus that teaching has a strongly emotional nature (Scott & Sutton, 2009) and teachers' emotional experiences are an integral part of their thought processes and views of reality. According to some researchers, emotions can even influence teacher behavior (Saunders, 2013). Investigating teachers' emotions thus helps us understand their thinking and behavior, which in turn enables a more precise understanding of how to improve instructional quality in educational contexts (Frenzel et al., 2009).

Emotions are typically defined as feelings produced after certain stimuli (Pekrun, Goetz, Titz, & Perry, 2002). Mulligan and Sherer (2012) defined the basic characteristics of emotions by claiming that they: (1) have an episodic nature (a certain duration with a beginning and an end), (2) have intentionality (in the sense that they are directed towards achieving an objective), (3) include appraisal (which evaluates the objective as good or bad), and (4) are connected with bodily changes. Emotions can be seen as adaptation mechanisms organisms use to regulate their social and organic survival. Emotions control human behavior because they are basic forms of decision-making used by humans to respond appropriately in various situations (Immordino-Yang & Damasio, 2007).

In the field of educational research, emotions have often been related to the conditions of teachers' work and professional well-being (Akın, Aydın, Erdoğan, & Demirkasımoğlu, 2013; Bracket et al., 2010; Chang, 2009; Näring, Vlerick, & Van de Ven, 2011), various aspects of classroom life (Claessens et al., 2017; Daley et al., 2005; Maria et al., 2003; Roorda, Koomen, Spilt & Oort, 2011; Yan, Evans & Harvey, 2011), and such educational changes as reforms (Hargreaves, 2005; Schmidt & Datnow, 2005; van Veen & Lasky, 2005; Zembylas, 2005). This line of research brought us to examine the relationships among teacher emotions, education, and learning because a reform is always a request for a change in teaching practices and for teachers to learn new things (Shoffner, 2008; Yoo & Carter, 2017).

There is general agreement that teacher learning evokes a diverse range of emotions and that professional development programs often initiate strong emotional reactions in teachers (Lasky, 2005; Reio, 2005). At this point, it is beneficial to mention a number of empirical studies on the topic. Saunders (2013) observed a group of teachers who underwent a four-year development program aimed at changing their instructional practices. During the program, the teachers mentioned their negative emotions and the impact these emotions had on them. They also expressed unease regarding how their colleagues

viewed them as they began to implement new instructional practices. Eventually, the teachers managed to overcome these negative emotions because they had accepted change and integrated it into their personal belief systems and identities. Van Veen, Sleegers, and van de Ven (2005) conducted a case study on one teacher's perceptions of an educational reform. Even this teacher spoke of the negative emotions of anxiety, anger, guilt, and shame and identified having too much work and lacking time and support from his colleagues, school, management, and government as the source of these emotions. Still, the teacher also exhibited positive emotions when he came across opportunities to improve his teaching and reinforce his professional identity. Yoo and Carter (2017) carried out an ethnographic study in the form of a professional development program focused on creative writing and writing practices. They identified four different types of emotions that the participants experienced: (1) energy, excitement, and passion; (2) inner conflict, frustration, and discouragement; (3) vulnerability, engagement, and hope; and (4) generosity, gratitude, and inspiration. This line of research shows that every change, reform, or development in teaching is accompanied by various emotions, a considerable number of which are negative. It is therefore safe to assume that any process of change activates emotions. However, there are very few studies documenting how emotions influence the process of change (see, for example, Darby, 2008; van Veen et al., 2005). It is worth noting that research by Darby (2008) and van Veen et al. (2005) emphasized the important role that emotions play. Emotions activate change but can also hinder it.

Even research in fields other than teacher education implies that there is a relationship between the effectivity of education and emotions. Typically, this type of research has emphasized the importance of positive emotions (Danner, Snowdon, & Friesen, 2001; Fredrickson, 1998, 2001; Fredrickson & Joiner, 2002; Wyer, Clore, & Isbell, 1999). Nonetheless, Pekrun et al. (2002) suggested that learning can be supported even by negative emotions. These authors divided emotions into four categories in relation to their positive or negative charge and their influence during the process of learning. They introduced the following typology of emotions: (1) positive activating emotions (joy, hope, and pride), (2) positive deactivating emotions (relaxation and relief), (3) negative activating emotions (anger, anxiety, and shame), and (4) negative deactivating emotions (boredom and despair). When they used this typology to examine student emotions in relation to their learning and achievement, it turned out that positive activating emotions had positive effects on learning and negative deactivating emotions had negative effects on learning. This much could have been predicted. They also determined that the influence of positive deactivating emotions and negative activating emotions varied and depended on contextual characteristics such as perceived

support in the environment (see Darby, 2008). However, findings related to the influence of emotions in the process of teacher learning are fragmentary and raise more questions than they provide answers.

Teachers' self-understanding and emotions

Even though emotions are defined above as feelings produced after certain stimuli, it is known that different individuals react differently to identical impetuses. This is caused by mediating variables that determine what emotion each person experiences and at what intensity. It is therefore safe to presume that emotions influence behavior. When it comes to teachers, teachers' self-understanding—which we understand as a way for teachers to define themselves for themselves as well as others—is considered to be an example of a mediating variable (see, for example, Lasky, 2005; van Veen et al., 2005; Zembylas, 2003, 2005). Kelchtermans (2005) spoke of five components to self-understanding: (1) self-image, the manner through which teachers define themselves; (2) job motivation, the driving force to perform their profession; (3) future perspective, the expectation teachers have of their future selves; (4) self-esteem, an assessment of their teaching; and (5) task perception, an ethical dimension containing assumptions as to what teachers have to do to become good teachers and carry out their profession in the best interest of their students. These components then together influence how teachers deal with professional challenges and how they approach their further education and development (Uitto, Kaunisto, Kelchtermans, & Estola, 2016). This is because it is teachers' self-understanding that can explain their commitment to change along with the behavior that accompanies it.

Zembylas (2005), in accordance with van Veen et al. (2005), showed that when teachers are confronted with a request to change, the emotions they experience differ in relation to their self-understanding. With a case study of one teacher, Zembylas (2005) demonstrated that when an educational reform validates a teacher's task perception (i.e., the reform is in accordance with what the teacher held as correct before the reform), it is followed by a positive emotional response and an enthusiastic acceptance of the reform. This finding was confirmed by van Veen et al. (2005), who researched six teachers, of which three were teacher centered and three student centered. The researchers then observed these teachers' reactions to a constructivist teaching reform and noted that the two groups of teachers reacted differently. While the student-centered teachers were content with the reform, the teacher-centered group experienced concern and annoyance. Even this research showed a clear correlation between teachers' task orientation and their attitudes to change, which influenced their behavior.

It is understandable that teachers feel negative emotions at times when they are asked to accept changes that go against their convictions. Nevertheless, Darby (2008) demonstrated that such emotions can be overcome if teachers are provided with strong support, which is in accordance with the research of Pekrun et al. (2002). Darby conducted research at a school that was undergoing a comprehensive school reform initiative to improve academic achievement among its students. During the reform, teachers' practices were found to be ineffective, which resulted in feelings of fear and intimidation as their professional self-understanding (especially their self-esteem and self-image) was challenged. A literacy coach and university faculty involved in the reform helped the teachers overcome their nervousness and fear of being judged. Eventually, both students' academic achievement and teachers' instructional practices improved. These positive changes led also to emotions of pride and excitement. At the same time, Darby observed that strong negative emotions stimulated the teachers to change. In order to improve their self-understanding (which had been challenged by negative emotions), the teachers were willing to cooperate with the literacy couch and university faculty, which they otherwise would not have done (Darby, 2008).

Aims and questions addressed

All of the aforementioned studies show how situations in which teachers participate to improve their instructional practices are strongly emotionally loaded. The strength of the emotions is given by the fact that the undergoing change influences teachers' identity and self-understanding. It is therefore very likely that the emotions that teachers experience affect whether their practices change and, if they do, the extent to which they change. However, this assumption has not yet been validated by research. For this reason, in this paper we will examine this assumption with data gathered during our intervention research program aimed at helping teachers implement methods of dialogic education in their teaching practices.

By analyzing our teacher interviews, we aim to (1) identify the emotions teachers participating in our program experienced, (2) explore how these emotions were related to teachers' self-understanding, and (3) determine what role these emotions served in communications between the teachers and researchers. Subsequently, we will connect the results of our qualitative analysis with the results of our quantitative analysis (as the latter results measure the real change observable in the teachers' practices due to the development program).

We will address the following research questions:
1. What emotions did the teachers experience during the program?
2. How were these emotions connected to their self-understanding?
3. What role did the teachers' self-understanding and emotions have in their interactions with researchers?
4. Is there a connection between these emotions and subsequent changes in teaching practices?

Methods

Teacher development program

We designed a teacher development program and cooperated with eight teachers who participated over the course of either the 2013–2014 (four teachers) or 2014–2015 (four teachers) school year. During the program, the teachers were trained to transform their teaching practices so that they would approximate the ideal of dialogic education, a type of classroom discourse in which students verbally participate in education, are engaged and cognitively stimulated, and express elaborate thoughts with the help of explanations and reasoning (Alexander, 2006; Lyle, 2008; Reznistkaya & Gregory, 2013). Research studies carried out in various countries have repeatedly shown that commonly used teaching practices are quite distant from the ideal of dialogic teaching (see, for example, Burns & Myhill, 2004; Kumpulainen & Lipponen, 2010; Nystrand et al., 1997; Parker & Hurry, 2007; Šeďová et al., 2014). Our intervention program thus aimed at transforming teaching practices and monitoring the process of change.

The teacher development program consisted of several components: (1) workshops for teachers with group discussions, (2) documentation of lessons through video recording, and (3) reflective interviews between a researcher and a teacher during which video recordings of individual lessons were discussed. Appendix 1 shows the progress in the project. During the workshops, the teachers were acquainted with the theoretical background of dialogic education, including its principles, indicators, and methods. In between workshops, the teachers tried to include features of dialogic education in their lessons, which were video recorded by researchers. Each teacher cooperated with one researcher who subsequently chose sequences for reflective interviews. During these conversations, the teacher and researcher discussed the recorded sessions and whether they included indicators and principles of dialogic education. Plans for subsequent lessons were also formulated during these interviews.

Research participants

We cooperated with eight lower secondary school teachers and their students. The teachers were experienced and motivated and volunteered to participate in our program, which focused only on the subjects of Czech language and literature and Civics. This narrow scope was caused by our wish to prevent overly diverse heterogeneity in our research data and facilitate sharing of experience among the teachers. All of the schools in which our research took place are situated in the South Moravian Region. Three of the schools are in a city, one in a town, and one in a village. Table 1 describes the characteristics of the individual teachers. All of the teachers agreed to participate in both the development program and the related research. The teachers have been given pseudonyms to protect their anonymity.

Table 1
Research participants

Teacher	Experience teaching	Subject	Grade	Number of students in class	School	Cooperating researcher
Jonas	6 years	Czech language and literature	7	21	School A	Zuzana
Radek	8 years	Civics	9	22	School A	Roman
Hana	20 years	Czech language and literature	7	18	School B	Klara
Vaclav	3 years	Civics	9	20	School C	Martin
Marcela	22 years	Civics	8	26	School C	Martin
Daniela	11 years	Czech language and literature	7	20	School D	Klara
Marek	12 years	Czech language and literature	7	19	School E	Zuzana
Martina	5 years	Civics	7	19	School E	Roman

Data collection

We used two types of data in our study: qualitative and quantitative. The former were used to answer the first three research questions and the latter to answer the fourth question.

Qualitative data came from interviews with teachers (see Appendix 1). These took the form of initial interviews recorded before the beginning of the program (n = 8), concluding interviews recorded at its end (n = 8), and video-stimulated interviews that took place between recorded lessons (n = 40). Interviews recorded before the beginning of the program aimed at mapping the teachers' subjective theories regarding classroom discourse and teaching, their self-understanding, and their perception and evaluation of the students

in the observed classrooms. Video-stimulated interviews between individual lessons were planned so as to enable reflection on delivered lessons and planning of those that were to be delivered. Concluding interviews were intended to provide the participants with the chance to reflect on the experience they had gained during the project and evaluate its merits and outcomes. All of the interviews were conducted in pairs of one researcher and one teacher (see Table 1). Each teacher was interviewed seven times, giving our corpus a total of 56 interviews. The interviews typically ranged between 45 and 60 minutes. Verbatim transcripts of these interviews amount to 800 pages of text.

For our fourth research question, we relied on quantitative data that we had used previously (Šeďová et al., 2016a) and that describe the degree of change in classroom discourse in the classes of individual teachers. These data were video recorded before the start of the program (two pre-lessons for each teacher) and at its end (two post-lessons for each teacher), as can be seen in Appendix 1. Observed lessons lasted 45 minutes and each was divided into episodes (see Lehesvuori et al., 2013; Lehesvuori & Viiri, 2015). The basic analytical unit was one episode, which we understand as a distinct entity within a lesson consisting of a specific activity, having its own theme, and characterized by one consistent goal. An episode comes to an end with a change in activity, theme, or communication approach. Individual lessons in the sample contained varying numbers of episodes with a mean of 4.5 episodes per lesson. Mean episode duration was 9.7 minutes.

We consider the acquired data to be rich in information, but the fact that only eight teachers participated in our research is a significant limitation to the study. Our sample is not saturated to such an extent that our study can describe all possible emotions experienced by teachers or all types of self-understanding that can take place during a teacher development program focused on achieving change in teaching practices. On the other hand, our data are rich in information to a degree that enables us to answer our research questions.

Data analysis

All of the interviews were transcribed verbatim and then coded in Atlas.ti. We focused on identifying expressed emotions as listed by Pekrun et al. (2002) using deductive coding. Pekrun et al. (2002) provided the following list of emotions: enjoyment, anticipatory joy, hope, joy about success, satisfaction, pride, relief, gratitude, empathy, admiration, sympathy and love, boredom, hopelessness, anxiety, sadness, disappointment, shame and guilt, anger, jealousy and envy, contempt, antipathy, and hate. For each interview, we coded passages that corresponded to individual emotions. They were not explicitly named, and so coding was based on the interpretations of the

researchers. During coding, we followed Mulligan and Sherer's (2012) conceptualization of emotions. We identified as emotions those affective states that were related to an object (whether a student or students, the teacher, the researcher, or even a teaching situation) and included an appraisal (either a positive or negative evaluation of the object). During interpretation, we took into consideration not only verbal messages but also non-verbal bodily keys (such as laughter, an ironic tone of voice). Consequently, we relied on both interview transcripts and audio recordings.

Since it is difficult to identify an emotion with absolute certainty, we also made use of two techniques to ensure the credibility of our research. First, we tried to ensure consistency in the use of codes (Richardson, 2005) so that identical codes described recurring phenomena. While coding, we therefore used not only a list of codes at all times but also a manual with examples of representative occurrences. Further, our manual was constantly updated for accuracy. We also decided to make use of double coding (Jensen & Winitzky, 2002), in which the same passage is coded by two researchers who then have the chance to examine any irregularities in their interpretations.

Examples of codes from the manual:
Enjoyment: *I like history, right. I like philosophy and law, right?*
Gratitude: *I learned so much thanks to Klara. This project was the best thing in my professional life during the past year.*

Once the recorded emotions were coded, it was possible to divide the participants into four groups based on their experienced emotions. The participants were divided into the following groups: (1) Marek; (2) Daniela and Vaclav; (3) Radek, Hana, and Marcela; and (4) Jonas and Martina.

In the next phase, we decided to examine the teachers' self-understanding. We identified all of the passages in which teachers spoke of their self-understanding and focused on all five components of self-understanding proposed by Kelchtermans (2005; Kelchtermas, Ballet, & Piot, 2009): self-image, job motivation, future perspective, self-esteem, and task perception.

Examples of codes from the manual:
Self-image: *I don't know. I think that the way I teach is related to my character; I don't like orders, and that's what I meant by saying that I'm non-directive.*
Task perception: *The students have loads to do and lots to learn. In Civics, I want them to really make use of what we did and not be stressed, so Civics will be ... a subject in which they can relax a bit, so to speak.*

In the next phase, the researchers inductively created partial codes that were placed into sub-groups based on belonging to one of the several already

identified components of self-understanding. In this phase, we followed the principles of open coding (Strauss & Corbin, 1998).

Examples of codes from the manual:
Self-image: non-directive approach to students: *I don't know. I think that the way I teach is related to my character; I don't like orders, and that's what I meant by saying that I'm non-directive.*
Task perception: offering students a chance to relax: *The students have loads to do and lots to learn. In Civics, I want them to really make use of what we did and not be stressed, so Civics will be ... a subject in which they can relax a bit, so to speak.*

During this phase, we wrote memos related to individual parts of the transcript that included notes and the rudiments of our emerging interpretations. While creating the memos, we focused on examining how teachers' self-understanding and related emotions affected our interactions. In the next step, we put codes associated with individual teachers into different groups dedicated to identified emotions so as to establish what teachers in each group had in common in terms of self-esteem. The subsequent identification of recurring or similar codes resulted in a typology of four different types of self-understanding. In our findings, we therefore differentiated among teachers who: (1) thought they were perfect, (2) were eager to learn, (3) were in a good mood, and (4) were uncertain.

In sum, qualitative analysis of data led to a typology in which different emotions correspond to different types of self-understanding. These findings answered our first and second research questions. Our third question was answered by our description of how different types of teachers behaved during the project and how they interacted with us.

To answer our fourth question, we relied on results from quantitative analysis that were already available to us. We counted student utterances with reasoning, the presence of which we consider to be the most reliable indicator of dialogic education (Šeďová et al., 2016a). This is because the higher the number of student utterances with reasoning, the closer the classroom discourse is to the ideal of dialogic education. We then compared the number of student utterances with reasoning in pre- and post-lessons to find out whether or not they had increased due to teachers' participation in the program. On the whole, there was an increase in the number of student utterances. However, the increase was moderate in the case of two teachers and even absent in the case of one teacher. Once we had placed these findings into the context of our typology of teachers' self-understanding and emotion, we could see that these three teachers all belonged to one group: teachers in a good mood.

Findings

Our analysis shows that teachers experienced a number of emotions during the project. Some of the emotions were positive: admiration, empathy, enjoyment, gratitude, hope, joy about success, pride, satisfaction, and sympathy. Some of the emotions were negative: anger, anxiety, disappointment, hopelessness, and shame and guilt. Since these emotions recurred in stable configurations, they enabled us to differentiate groups of teachers based on the emotions they experienced. Our analysis revealed that combinations of experienced emotions corresponded with teachers' self-understanding. In the following section, we introduce the different types of self-understanding we identified in our sample and describe what emotions the different types of teachers experienced.

Perfect teachers: Pride and anger

This type was represented by one teacher in our data: Marek, who spoke of himself as the embodiment of a perfect teacher who is always right. As he said, "*You know, I got the reputation that, probably, I'm the best English teacher at this school. You dig? So, as I was saying, like the kids know that I translate and they know I'm like super capable.*" According to Marek, his reputation is widespread since his greatness is no secret to his students, their parents, or Marek's colleagues. Throughout the course, Marek's self-image was based on pride and positive self-evaluation.

Marek did not perceive his participation in the project as an opportunity to learn: he believed that he had been teaching in accordance with the principles of dialogic teaching even before its start. Marek mentioned that he sees the method of Socratic dialogue as a staple of his teaching practices: "*Y'know, I like Socratic dialogue. I'm convinced the kids know things that could help them understand the term I'm teaching.*" In short, Marek saw his participation as an opportunity for the researchers to see how good teaching practices look. It was clear that he was consistently creating the image of a perfect teacher, which corresponded with his high self-esteem.

During the project, Marek behaved in accordance with his constructed self-understanding. In the video-stimulated interviews, Marek was generally content with his own performance and the development of the lessons. He managed to remain content even when the researcher Zuzana critiqued a particular aspect of his teaching practices. In the following quote, Marek was reacting to Zuzana's observation that his long sequence of questions was not cognitively challenging since his students were only asked to guess the correct answer:

> *If you look at it from the perspective, from the perspective of how I worked with the kids, with their thinking, and how much they classified their thoughts, I think this was way more effective than if I had planned the whole lesson differently.*

Marek presents his approach not only as correct but also as the best he could have chosen. The extract nicely shows Marek's need to not lose face and to maintain his image as the perfect teacher (which comes at the cost of some self-delusion in reflection).

Pride and anger were the emotions that Marek experienced above all others. Marek felt pride in connection to himself, as can be seen from the quotation above ("*I am the best teacher*," "*I'm like super capable*"). Marek felt anger in connection to other people. In many cases, the recipients of Marek's anger were his students, who in his eyes did not react quickly enough, who seemed unmotivated, and whose answers lacked the sophistication that Marek would expect. For example, in the following quotation Marek was describing a situation in which his students needed more time to find the right answer than he found appropriate:

> *I think I was generous enough by giving them this vast space brimming with information, which was unrestrained and which they could use to formulate the answer. Until I got fed up with it all since it they couldn't get it even after 10 minutes.*

Here, Marek was experiencing anger ("*I got fed up*") that was primarily connected to his students. Since he characterized himself as generous, Marek did not see his methods as the source of the students' inability to formulate the correct answer.

Another recipient of Marek's anger was Zuzana. His anger, in combination with his pride and positive self-evaluation, significantly influenced their relationship during the project. Since Marek often tried to avoid critical reflection, Zuzana's task as a researcher was more demanding since she was trying to help Marek to see his own limitations. His pride prevented him from acknowledging any critique whatsoever. Our data reveal two possible scenarios that occurred when the researcher attempted to bring the teacher toward reflection and revision of his methods. The first scenario entailed a fierce rejection often accompanied by an alternative solution proposed by the teacher. This can be seen in Extract 1.

Extract 1: Interview between the researcher Zuzana and the teacher Marek after the third recording

> 1 Researcher Zuzana: *So, I was thinking* (1) *that you* (1) *could tell him at the beginning that because there were two sides you could ask him if this was a war, because there were those two sides and you could list everything later.*
> 2 Teacher Marek: *No, a different thing would have worked there.*
> 3 Researcher Zuzana: *Do tell, do tell.*
> 4 Teacher Marek: *It would've worked if they had read to me where the place was* (.) *because* (1) *I teach them to read while tracing the text with a finger.*
> 5 Researcher Zuzana: *Hmm.*

In a number of cases, Zuzana accepted Marek's avoidance. In other cases, she did not accept his rejection or escape and insisted on discussing her observations. In such cases, the emotions experienced by the teacher changed: pride was replaced by anger that Marek felt at either the students—who were to blame for that particular activity not being a complete success—or the researcher. This was typically followed by a confrontation in which Marek explained to the researcher that she did not understand that part of the lesson or that the recording was incorrect or its transcription faulty.

This is evidenced by Extract 2 in which Marek and Zuzana discussed a communication sequence in which Marek asked his students to name a group of people from the Middle Ages that had distinct privileges. Some of his students suggested that the people in question might have been monks since they were beloved by God. Regarding this, Zuzana pointed out that since it was not clear what privilege that might have entailed in a medieval society, Marek could have relied on uptake. Instead of considering this option, Marek countered by arguing that the transcription of his lesson was not correct.

Extract 2: Interview between the researcher Zuzana and the teacher Marek after lesson four

> 1 Researcher Zuzana: *So they're trying to figure it out* (.) *and I'm not really sure what exactly they meant by that answer* (.) *Why being beloved by God should be a privileged position in the Middle Ages. Which is why I made a note that uptake could have been useful there.*
> 2 Teacher Marek: *But they surely didn't say beloved by God. That must be a mistake.*
> 3 Researcher Zuzana: *But what do you think they said? I even checked the student camera.*
> 4 Teacher Marek: *What I think is that ... he is saying that they were believing in God. No, in fact, he was saying that they were beside. Beside God. And that explains why I didn't need uptake.* (4) *Yeah, most def.*
> 5 Researcher Zuzana: *I see.*

Marek confidently rejected Zuzana's proposal—although it was based on data gathered by two cameras—and volunteered an explanation of his own. By altering the statement from the students, he reasoned that there was no need for uptake and that his handling of the situation was valid. Interestingly enough, even Marek's new explanation would still benefit from uptake as it is unclear why being beside God would entail privileges in the Middle Ages.

While all of the other teachers respected the researchers they worked with, Marek placed himself in a dominant role by, for example, continually telling the researcher what she needed to read up on, choosing the length

of the reflective interviews (which at times were very short and less than 60 minutes), and ignoring the researcher's e-mails with commentary on observed lessons despite insisting on receiving them first. He explained his behavior by stating that since he is a perfect teacher he is naturally in demand and thus his time is limited.

It can therefore be induced that his attempts to not lose face limited the potential of the project and of the reflective interviews to be opportunities for learning. For Marek, maintaining his self-image was more important than improving in task orientation. If we relied only on data gathered during the interviews, we might say that pride among teachers prevents the process of change. However, the findings from our observations (Šeďová, Švaříček, Sedláček, & Šalamounová, 2016b) show that even Marek's classroom discourse changed positively. Even though Marek rejected the idea that he had learned anything during the project, repeated video recordings, their observation, and interviews (which were at times confrontational) clearly led to some learning.

Eager-to-learn teachers: Hope, joy, disappointment, anxiety

This type of self-understanding was represented in our sample by Daniela and Vaclav, who saw themselves as ready to learn and improve and carry out their professions as well as possible. For example, both suggested that they make long preparations for each lesson without relying on course books and curricular plans but instead creating their own lesson plans and teaching materials. At the same time, they did not think that their teaching is always perfect. Vaclav described himself in the initial interview by stating, "*I've got to say that I don't leave each lesson feeling great. But as I see it, there are several ways I can tell if things have worked.*" It follows that Vaclav acknowledges that as a teacher he can fail to some extent and that he actively investigates how well his lessons went. This includes feedback questionnaires that he gives his students to fill in. If such teachers feel that their lessons did not go as planned, they see the cause in themselves, as the following statement by Daniela shows: "*It can sometimes happen that they're not paying attention, that they're having a bad day. I take it as a sign for myself. They're not paying attention because maybe something is over their head or they don't get it.*"

Throughout the project, Daniela and Vaclav behaved in accordance with the characteristics described above. They saw the project aims as compatible with their own task perception and so tried to maximize the input from researchers. They actively tested the tools introduced in the workshops. In the following extract after the third workshop, Daniela evaluates her own development to that point:

> So, I learned that I need to react way more to their responses. I mean, I always
> praised them for an answer, but I praised them more when they gave me an answer

I expected. Which is what I saw in the recording. So I now try to avoid that. I try to accept their answers and I think I can appreciate them more. And it's difficult for me. Well, it's not difficult, but I need to focus on giving them the best scaffolding possible. That's the way I see it. And it's tough to think on your feet about how you can develop their answers more. I think I'm doing quite well, but I need to work on it more.

This extract summarizes all of the essential characteristics of the eager-to-learn teachers: they were eager to learn even though they found the tasks given to them by the researchers to be challenging. They thought they achieved some improvement, but they perceived it as a temporary stage and committed to further improvement in the future.

They also easily accepted critiques from the researchers because they understood it as a tool for feedback. This is well documented in an interview between researcher 5 and Vaclav.

Extract 3: Interview between the researcher Martin and the teacher Vaclav after the third recording

1 Researcher Martin: *There were clearly lots of moments in the lessons that were really good from the perspective of dialogic education.*
2 Teacher Vaclav: *Could I ask you to talk about the negative bits first?*

It can be seen that Vaclav asked the researcher not to waste time listing the positive moments and instead go straight to commenting on the weaker aspects of his lesson. It appears that eager-to-learn teachers were also eager to be criticized.

Both Daniela and Vaclav felt a wide range of emotions during the project. They were mostly positive, with emotions of hope and joy about success being dominant. In the interviews, both of them often said "*I hope I will do it well*" (before their lessons) and "*I hope I did it well*" (after their lessons). In the concluding interview, Daniela said:

I really like this dialogic education because I think our students don't really have lots of opportunities to talk in the lessons. Or they talk but there aren't any arguments in it. So I think it's just perfect that I'm focusing on this a lot now. That when I get an answer from a student I can provide some feedback so that the idea can be elaborated. Well, that's just nice. So I'm trying to use it in my history lessons, not just in grade seven, but also in other grades. So students can get used to it.

Daniela expressed joy because her implementation of new teaching methods enabled her to achieve better results: her students spoke and presented arguments more than in the past, which from Daniela's perspective is a sign of certain success. She described this new state of teaching as "*perfect*" and "*nice*" and commented on how she was implementing this new practice even beyond the confines of the classroom in which our dialogic education project

took place. She expressed hope that even students from other grades will get used to dialogic education and will profit from it.

As for their relationship with the researchers, eager-to-learn teachers expressed the positive emotions of sympathy and gratitude. For example, in the concluding discussion Daniela claimed, "*I learned so much thanks to Klara. This project was the best thing in my professional life during the past year.*" Vaclav summarized his relationship with Martin as follows:

> *I'm really happy with the feedback. ... I don't really mind when someone tells me what I'm doing wrong, I just tell myself off. To be honest, I didn't really think that you were some imbecile lecturing at me how to do things. On the contrary, I know when something is not right and I somewhere who came to tell me how to do things. On the contrary, I know when something is not right and I want to change it. And when somebody else tells me, I don't take it as some rebuke, cause it's beneficial for me. And your arguments are just good.*

We can discern both gratitude for the ideas provided by researchers ("*I learned so much thanks to Klara*") and acknowledgment of the researchers' erudition ("*your arguments are just good*"). Such positive emotions are in accordance with the teachers' self-understanding because the researchers led the teachers in line with their task orientation. This in turn strengthened the teachers' self-esteem and improved their self-image: the teachers wanted to learn and get better and the researchers provided them with support to do so.

Still, even eager-to-learn teachers felt negative emotions during the project. This was particularly the case when the lesson did not go as planned in spite of all their preparations. After one such lesson, Vaclav proclaimed that the students "*were spouting nonsense,*" by which he was suggesting that they participated—even eagerly and actively—but with low quality in their utterances. It can be said that disappointment is the other side of hope: eager-to-learn teachers expect success and when it fails to appear they experience negative emotions.

Such disappointment can evoke yet another negative emotion: anxiety. These teachers did not feel this when trying new methods for the first time but after partial failures. Daniela commented:

> *I started to be really nervous when the lesson didn't go as planned two times in a row. I got really nervous and started to over think my preparations for the next lessons and it backfired because instead of allowing them to talk, I tried to force my elaborate plan on them. So that's what was difficult for me and I got nervous about whether I'd pull this off or not. But in the end, it worked, I learned the ropes and realized that I can rely on my students and that they're capable of talking and asking questions. When they're supported.*

In this quotation, Daniela clearly described how disappointment transforms into anxiety and nervousness about upcoming lessons. Yet her perseverance and ability to learn ("*I learned the ropes*") lead not to rejection of the new methods but to their continuous testing until they started to serve her well.

Teachers in a good mood: Enjoyment, satisfaction, and sympathy

This group was represented by three teachers in our sample: Radek, Hana, and Marcela. These teachers had very positive self-esteem and perceived themselves as teachers who perform their profession without problems. They also said that they are evaluated by students and colleagues positively and so are content with their self-image. Their self-definition also mirrors the personal affection they feel for teaching in general and their subjects in particular. Radek described himself as follows:

> *In our school, we have people who are, in their way, real professionals, right. For their subject, I mean. They like their subject, you know. For example, I like history, right. I like philosophy and law, right? Take, for example, my colleague over there. He likes physics and astronomy, right? So everybody over here has their subject as their hobby. Moreover, loads of teachers at this school just really like their work.*

This quotation emphasizes the connection between a teacher's expertise in their subject and their enjoyment of teaching it. Teachers in a good mood were hedonistic and so tried to enjoy their work. The most common emotions they experienced were enjoyment and satisfaction. The quotation also reveals an emphasis placed on a communal spirit at the school. In contrast with perfect teachers, teachers in a good mood did not perceive themselves as exceptional and above the others. Instead, they felt they are a part of a community that shares similar values and acts in similar ways.

Teachers in a good mood were visibly interested in the well-being of their students, who they wanted to be in as good a mood as they are. Therefore, sympathy and empathy dominated in their relationships with their students. These teachers enjoyed teaching and wished that their students would feel the same. As Hana said, it is important to "*have good times*" during lessons. However, this wish for students to be in a good mood can also lead to decreased subject difficulty. As Marcela noted:

> *The students have loads to do and lots to learn. In Civics, I want them to really make use of what we did and not be stressed, so Civics will be ... a subject in which they can relax a bit, so to speak." This quote shows that Marcela felt an apparent interest in the well-being of her students, affection, and sympathy, along with empathy for their needs.*

This aspect of caring for students was common even in interviews of eager-to-learn teachers, but the theme of decreasing the difficulty of their subject was not present there. It could be said that eager-to-learn teachers showed their care by trying to stimulate their students and being interested in their thoughts and opinions. In contrast, teachers in a good mood showed their care by decreasing the difficulty of their subjects and emphasizing shared fun and relaxation.

Similarly to their relationship with students, teachers in a good mood felt sympathy and empathy for the researchers, as well. They wanted their shared time to be as pleasant as possible and strove for the researchers to be content. This motivated them to follow the researchers' instructions, which is apparent in Extract 4 from an interview between the researcher Martin and the teacher Marcela.

Extract 4: Interview between the researcher Martin and the teacher Marcela after the third recording

1 Researcher Martin: *So, how do you feel now after having been video-recorded three times? You already regret doing this with us?* (Laughter.)

2 Teacher Marcela: *No, I do not, but I'm thinking every time at the end of my lessons, like, poor guys, will this be of any use to them. And gals.*

3 Researcher Martin: *And gals, yeah.*

4 Teacher Marcela: *I'm always thinking: what do they to do with all this? They want to turn it into something? And I think, poor them, aren't they regretting having started this thing with us* (.) *I'm often thinking they can't turn this into anything* (.) *I mean I like it. I like the fact that I have to think a bit differently and that there is someone who understands it. ... When I'm preparing, I'm like, 'Yeah, the guys would like it to be this or that way,' so yeah, I'm trying to deliver.*

In this extract, Marcela evaluated the entire project positively and appreciated the presence of an impartial and erudite observer in the classroom. She clearly considered what the observer and the research team thought of her lessons and attempts to meet their expectations ("*the guys would like it to be this or that way*"). Her intention to satisfy the expectations of researchers then generated increased effort while teaching ("*I'm trying to deliver*"). She also cared for the mental well-being of the researchers and wished that they would not regret conducting the project with their chosen teachers.

The remaining teachers in a good mood behaved similarly with their researchers during the project. They were friendly and sociable to the point of preparing snacks for the interviews. Their talks often veered into discussions of personal matters with no connection to the project, which the researchers accepted and maintained such conversations throughout the project. While the teachers clearly looked forward to talking with the researchers, they took the acts of video recording as a task that just needed to be done. During her interviews, the teacher Hana often asked the researcher Klara, "*Will this be enough?*" and inquired whether her lesson included a satisfactory number of the observed indicators. It can be stated that teachers in a good mood tried to achieve progress above a certain minimal threshold so that the researchers would be content and, in turn, so would the teachers. In this, they differed

from the eager-to-learn teachers, who understood progress as a temporary stage on a continuum of success requiring further work and strove to reach higher and higher stages.

When the researchers suggested that a teacher's performance was not entirely satisfactory, teachers in a good mood tended to avoid such a communication or downplay its significance. This can be seen in the following extract in which the researcher Roman asked the teacher Radek about the purpose of a communication sequence in which students were to guess the theme of the lesson.

Extract 5: Interview between the researcher Roman and the teacher Radek after recording 6

> 1 Researcher Roman: *Why exactly were they supposed to guess the theme of the lesson. It seems to me that this is …*
> 2 Teacher Radek: *A waste of time.*
> 3 Researcher Roman: *Right.*
> 4 Teacher Radek: *Yeah, yeah, I get it. I just make the whole thing longer, but I don't know why. I guess I'm a bit slowed down or something. I don't know.*
> 5 Researcher Roman: *Right.*
> 6 Teacher Radek: *Yeah, I really don't know. I'm desperate, you know.*
> 7 Researcher Roman: *Well, I think you could …*
> 8 Teacher Radek: *You know, before we met I thought I was a good teacher. So, thanks a bunch, I guess.* (Laughter.)
> 9 Researcher Roman: (Laughter.) *I'm so sorry.*
> 10 Teacher Radek: (Laughter.) *Nah, I'm just joking around. Though I have to say that this chair is really uncomfortable today.*

In Extract 5, Roman was trying to lead Radek to reflect on his teaching. However, Radek quickly took over: he interrupted Roman on lines 2 and 7. At the same time, he did not try to justify his actions nor understand why they were inefficient (lines 4 and 6). Instead, he used humor to downplay the situation and commented on his temporary discomfort (lines 8 and 10) by accusing the researcher of undermining his self-evaluation. Even though the accusation was delivered in a humorous tone (and is accompanied by laughter), it is apparent that it expressed the teacher's real feelings. Teachers in a good mood did not appreciate when their good times are called into question. Nonetheless, they did not worry about such an interruption for long; they could skillfully change the direction of the conversation, soften the critique (or completely avoid it), and reestablish sympathy between themselves and the researchers.

Uncertain teachers: Hopelessness, anxiety, disappointment, gratitude, admiration
This type of self-understanding was represented in our sample by two teachers: Jonas and Martina. These are teachers who are not certain whether they should perceive themselves as good teachers. They wanted to see themselves in this way, which explains why they chose to participate in our educational program. As for their teaching practices, they were unsure whether their methods were correct and whether they would be found worthy by the researchers, which worried them. This uncertainty, which was apparent in both their self-image and task orientation, can be seen in Martina's self-description as a teacher:

> *I don't know. I think that the way I teach is related to my character; I don't like orders, and that's what I meant by saying that I'm non-directive and that maybe it's a problem, I don't know* (2). *But I don't think I have no authority* (2). *mean, what's the point in ordering students around?* (1) *That's what I think, but maybe it's wrong, I don't know.*

Martina described herself as a non-directive teacher, but she was quick to add that perhaps this is a problem. She stated that she did not find it necessary to give orders to students, but she again suggested that it might be wrong. This uncertainty in choosing one type of task orientation complicates teachers' possibilities for setting their self-esteem since they do not have criteria against which to evaluate themselves. Therefore, they keep questioning their subjective opinions, which brings about uncertainty.

Uncertain teachers regularly experienced negative emotions during the project. They often showed disappointment regarding their performance and anxiety over whether they would be at all capable of changing it in the future. Such disappointment is apparent in Extract 6, in which the researcher Zuzana asked the teacher Jonas to evaluate his lesson.

Extract 6: Interview between the researcher Zuzana and the teacher Jonas after the sixth recording

> 1 Researcher Zuzana: *So, when you see this now, how do you evaluate the whole class discussion?*
> 2 Teacher Jonas: *Well, it was just horrific.*
> 3 Researcher Zuzana: *No, that's not what I'm after, if it's horrific, I mean—*
> 4 Teacher Jonas: *You asked about evaluation, so I'm just saying that—*
> 5 Researcher Zuzana: *You think it was horrific.*
> 6 Teacher Jonas: *Yeah, I do, because I don't think the students got good instructions for the activity.*

It can be noted that Jonas was actively criticizing the lesson he had taught and described the analyzed sequence as horrific (line 2). The researcher did not contribute to this line of commentary. Since uncertain teachers tended

to criticize themselves to such a high degree, critique from the researchers was almost non-existent.

While they often questioned their own teaching methods, they accepted the researchers' suggestions without reservations and appreciated the input. It can be stated that these teachers were often thankful to the researchers since they believed that the researchers were trying to help them become better teachers. This can be seen in an interview between Jonas and Zuzana:

Extract 7: Interview between the researcher Zuzana and the teacher Jonas after the sixth recording
> 1 Teacher Jonas: *So, coach me again.*
> 2 Researcher Zuzana: *I don't coach.*
> 3 Teacher Jonas: *That's what you think.* (1) *No, really, since the start of this* (2) *project in which I'm participating, I gotta say that I see things* (.) *completely differently.*

On line 3, Jonas claimed that his participation in the project had entirely changed his understanding of teaching. At the same time, he asked Zuzana to coach him, acknowledged her expertise, and wanted to benefit from it. This can be understood as a type of admiration, which can also be seen in the following example from an interview between the researcher Roman and the teacher Martina:

> *It seems to me that when I hear you talk about this, I just didn't really have an aim for each activity. And when I'm thinking about it, I'm like, 'Yeah, damn, he's right.' So why didn't I actually do that? I think I didn't really think it through. I had a vision, but I didn't really check whether it was in line with my aims or not. ... That seems to be beyond me.*

We can note the teacher's agreement with the researcher and acceptance of the proposed solution. The teacher also showed the emotions of self-disappointment and even guilt for not having acted as the researcher suggested ("*So why didn't I actually do that? I think I didn't really think it through*"). She also showed gratitude to the researcher, which stems from an acknowledgment of his erudition.

Uncertain teachers share thoughtfulness and an eagerness to understand with teachers who are eager to learn. However, uncertain teachers are more skeptical in their expectations of their future abilities as well as their critical reflection. Even when these teachers identified partial successes in the video recordings, they showed no signs of higher self-esteem or success in the subsequent reflective interviews.

The above quotation from Martina also displays another feature typical for uncertain teachers: questioning the possibility of their improvement in the future. By stating "*That seems to be beyond me*," Martina was expressing hopelessness regarding her future prospects. She suggested that she was not sure whether future improvement was likely, even though she wanted to achieve it. However, expressing hopelessness is not an excuse for giving up attempts at improvement. Uncertain teachers were active in trying to understand how they could implement methods proposed by the researchers into their teaching practices. After accepting proposals from the researchers, uncertain teachers asked follow-up questions for specific details about implementing the methods into their teaching practices. After the researcher Zuzana commented on changing the cognitive difficulty of instruction, Jonas stated, "*I gotta admit that I'm not entirely clear about these types of questions. What I'll need ... I guess I need to be more certain about this type of question.*" It is clear that hopelessness as a negative emotion does not prevent these teachers from further activity. We think that uncertain teachers used self-critique and self-undermining as a defensive strategy. By setting the bar low, uncertain teachers might have made it easier to surpass this goal and at the same time the researchers could not say anything worse than what the teachers had already said.

Uncertain teachers were generally surprised when researchers pointed out their progress in the video recorded sessions. This was the case with Jonas when he commented on an interaction he had conducted well with a female student with the following: "*Wow, she's really cool. I didn't even notice that, you know, in the lesson.*" If an interaction goes well, uncertain teachers believe it is because of the students ("*Wow, she's really cool.*") and not because of their own pedagogic successes. This can also be seen in an interview between the researcher Roman and the teacher Martina.

Extract 8: Interview between the researcher Roman and the teacher Martina after the fifth recording
> 1 Researcher Roman: *So how do you feel about the lesson when you can see it now?*
> 2 Teacher Martina: *I guess better. I mean, they really did a lot of work.*

A key characteristic of uncertain teachers was their unstable self-understanding caused by fear of their own limitations. The teachers were not sure what their goals were, which influenced their task orientation. Consequently, they expressed low self-esteem, which can be seen in their considerable self-critiques. At the same time, this was not used as a strategy to justify passivity: uncertain teachers did want to learn. However, they did not expect any significant improvement or they did not acknowledge it when it happened.

Connection between emotions and changes in teaching practices

The previous sections have shown that the teachers experienced emotions related to their type of self-understanding during the program, as Table 2 shows. This section examines whether there is a connection between the experienced emotions and the effects of the teacher development program (by effects we mean changes in the teachers' teaching practices).

Table 2

Typology of teachers according to their self-understanding and experienced emotions

Type	Teachers	Self-understanding	Emotions
Perfect	Marek	I'm a good teacher because I'm the best at everything	Pride, anger
Eager to learn	Daniela, Vaclav	I'm a good teacher because I want to learn and improve	Hope, joy about success, sympathy, anxiety, disappointment
In good a mood	Radek, Hana, Marcela	I'm a good teacher because I have good relationships with students and teach without any problems.	Enjoyment, satisfaction, empathy
Uncertain	Jonas, Martina	I'm not sure if I'm a good teacher.	Hopelessness, anxiety, disappointment, shame and guilt, gratitude, admiration

To assess differences in teaching practices, we compared episodes recorded before the beginning of the program and at its end (for more information, see Methods). We believe that changes are represented by the presence of selected indicators of dialogic education, with utterances with reasoning being the most important (Šeďová et al., 2016a). Our analysis shows that classroom discourse changed significantly between the observed lessons. There were on average 2.41 student utterances with reasoning per lesson before the beginning of the program. At the end, there were an average of 8.93. This gives 6.52 more student utterances with reasoning per episode on average.

However, Table 3 shows that the results of individual teachers differed: Jonas improved exceptionally well while Radka, Marek, and Marcela were below average.

Table 3
Distribution of student utterances with arguments in episodes

	Pre					Post					
	Mean	N	SD	Min	Max	Mean	N	SD	Min	Max	Difference
Jonas	2.00	5	2.82	0	7	27.00	2	1.41	26	28	25.00
Radek	1.75	8	1.75	0	5	4.00	3	3.61	0	7	1.86
Hana	3.33	6	5.20	0	11	3.33	6	3.61	0	9	0.00
Vaclav	3,57	7	3.31	0	10	13.83	6	14.99	3	40	10.26
Marcela	3.00	5	3.16	0	8	6.14	7	6.81	0	21	3.81
Daniela	1.36	11	1.56	0	5	8.63	8	10.04	0	23	8.68
Marek	0.00	2	0	0	0	8.66	6	6.62	0	17	8.66
Martina	3.43	7	3.95	0	10	10.20	5	10.37	0	26	6.94
All	2.41	51	3.04	0	11	8.93	43	9.72	0	40	6.52

If we combine the results in Table 3 with our previous analysis, we can state that all teachers who showed little (Radek and Marcela) or no (Hana) change belonged to one group of self-understanding and emotions: they were teachers in a good mood. As such, they were content with themselves and felt no inner need to improve. And even though they showed a willingness to follow instructions from the researchers, their results in Table 3 show that their teaching practices were immune to transformation.

Discussion

In this study, we have determined which emotions were experienced by the teachers who participated in our professional development program aimed at changing their teaching practices. We identified recurring combinations of emotions corresponding to different types of teachers' self-understanding. We have also shown that interactions between the participants and the researchers were often affected by the teachers' emotions and their need to maintain a positive self-understanding. Last but not least, we have established that the emotions experienced were related to whether or not changes in teaching practices occurred.

A number of authors have pointed out that teachers' behavior is driven by emotions to a considerable degree (Korthagen, 2017; Immordino-Yang & Damasio, 2007). The results of our study complement current (and rather fragmentary) findings on the role of emotions in further development of teachers. Our findings show that the self-understanding of teachers is related to the emotions they experience. In this matter, our findings correspond with some of the studies cited above (Zembylas, 2005; van Veen et al., 2005). However, our data speak of a more complex reality than that painted by the

other studies, which holds that teachers experience positive emotions if the required change is in accordance with their subjective ideas about good teaching (Zembylas, 2005; van Veen et al., 2005). In fact, none of the teachers with whom we cooperated were against dialogic education. On the contrary, all of the teachers participated of their own volition and agreed with the project's theoretical background. However, all of the teachers (with the exception of the teachers in a good mood) experienced both positive and negative emotions.

We believe that it was not task perception (or, in other words, the teachers' conception of what good teaching should be) but self-esteem and self--image that controlled the teachers' emotions (c.f., Kelchtermans, 2005; Kelchtermans et al., 2009). Therefore, the question of whether and why our teachers perceived themselves to be good teachers proved to be central. The behavior of teachers could therefore be attributed to endeavors to preserve positive self-esteem and self-image (in the cases of perfect teachers, eager-to-learn teachers, and teachers in a good mood). Or, alternatively, to attempts to acquire it (as was the case with uncertain teachers).

Marek, our representative of perfect teachers, believed that he had all the necessary skills. He rejected critical suggestions by the researcher, to which he reacted with anger, antipathy, and ostentatious rejection of her support. Nevertheless, as Table 3 shows, there were changes in his behavior. This was most probably caused by his wish to prevent further critical comments and keep intact his self-understanding as a perfect teacher.

Eager-to-learn teachers defined themselves as those who like to learn and improve. Critical comments by researchers did not result in negative emotions from these teachers. Such emotions arose only when certain aspects of dialogic education were not implemented in their classes in accordance with their expectations. These minor failures were understood as signals of their slow or inefficient learning, which in turn threatened their self-understanding. Nevertheless, these teachers tried hard to overcome early setbacks and succeeded at this task. Therefore, their positive self-understanding was maintained.

Teachers in a good mood were the only ones who did not experience negative emotions. They were sympathetic to the researchers and accepted their critical suggestions only when these could be accommodated with minor changes in their teaching practices. With more substantial critiques, teachers in a good mood retreated but without ire or hostility. Maintaining good relationships with both students and researchers was important to them, which was mirrored in their behavior. They refrained from implementing significant changes in order not to endanger the relaxed atmosphere in their classes. On the other hand, some minor changes were implemented so as not to threaten their good relationships with the researchers. Teachers in

a good mood were able to comment on these less substantial changes and emphasize their significance and usefulness.

Uncertain teachers did not strive to maintain positive self-esteem and self-image. Still, it should not be overlooked that they were intent on achieving this during the project. Uncertain teachers used the negative emotions they experienced (hopelessness, anxiety, disappointment, and shame and guilt) as a protective shield. Researchers diminished their own critiques once they were presented with the self-critiques of uncertain teachers and tried to emphasize that they perceived the uncertain teachers as capable of implementing change. This was met with great responsiveness from the teachers, who were subsequently capable of changing their behavior. This further increased their positive image in the eyes of the researchers and improved their self-esteem and self-image.

A key finding of our research is that negative emotions fuel change. The only group of teachers that did not change for the better did not experience negative emotions. This finding contradicts the current understanding, according to which teaching is facilitated by positive emotions (see, for example, Danner et al., 2001; Fredrickson, 1998, 2001; Fredrickson & Joiner, 2002; Wyer et al., 1999). Pekrun et al. (2002) proposed a more complex model of the role of emotions in teaching wherein they ascribed a significantly positive role to positive activating emotions and a significantly negative role to negative deactivating emotions. In our case, however, uncertain teachers experienced emotions that can be understood as negative and deactivating and still learned to change their practices.

This key finding according to which negative emotions stimulate teaching is supported by the research of Darby (2008), which examined a school undergoing a comprehensive school reform initiative caused by poor academic achievement among its students. According to Darby (2008), negative emotions were necessary for the teachers to improve because these emotions threatened their professionalism and thus served as stimuli for learning. These teachers were willing to change in order to reestablish positive self-understanding.

All of the groups of teachers who underwent transformation in our project experienced a phenomenon known as dissonance (Delaney, 2015; Gelfuso, 2016) or friction (Bakkenes, Vermunt, & Wubbels, 2010; Ward, Nolena, & Horn, 2011). Dissonance describes a situation in which there is a discrepancy between what is expected or wanted and what is true. As such, it is typically associated with negative feelings (Bakkenes et al., 2010). In our project, dissonance was caused by either the teachers themselves (in the case of the uncertain teachers) or the researchers (in the cases of the perfect and eager-to-learn teachers). Some researchers consider dissonance to be an essential component of change. For example, Ward et al. (2011) used the idea

of productive friction, which leads to more sophisticated practices. They claimed that without conflicts that result in productive friction being experienced and reconciled, no lasting change is possible in the teaching profession. According to Gelfuso (2016), experiencing dissonance is closely connected with reflection. Therefore, dissonance is not only recognized in the process of reflection but also enables the process of reflection.

Nevertheless, merely inducing dissonance is not in itself enough to create lasting and significant change in teaching practices. Dissonance can also result in teachers reverting back to practices used before the intervention (see Šeďová, 2017). Therefore, as Darby claimed, strong support is needed for change to take place. This support should not be limited to the cognitive and behavioral level (in the sense of providing new methods and instructions for behaving). Teachers need to be supported in reconstructing their unstable self-understanding and reestablishing of positive self-esteem and self-image.

Conclusion

In this study, we have demonstrated what emotions teachers experienced during participation in a teacher development program and showed how these emotions were connected to the teachers' self-understanding. We believe that without trying to understand teachers' emotions, one cannot understand how their self-understanding is affected by the process of change and learning. We also examined the question of whether emotions were related to the results of teachers' learning and development. Our main finding is that a lack of negative emotions limited teachers' learning processes. Negative emotions had an initiatory nature: once teachers' emotional balance was disrupted, their self-understanding came into question, which motivated them to seek ways to transform to reestablish positive self-understanding and emotions.

The literature often mentions the limited efficacy of further educational programs for teachers, since they have seldom created change in teaching practices (Adey, 2006; Butler, Novak Lauscher, Jarvis-Selinger, & Beckingham, 2004; Reznitskaya & Gregory, 2013; van den Bergh, Ros, & Beijaard, 2015). Berson et al. (2015) therefore claimed that it is necessary to identify the basal mechanisms that lie behind successful implementations of change. We believe that one such mechanism, which has received little empirical attention, is the process of reconstructing self-understanding and the emotions that accompany it, which we have discussed in this study.

Acknowledgments

References

Adey, P. (2006). A model for professional development of teachers thinking. *Thinking Skills and Creativity*, *1*(1), 49–56.

Akın, U., Aydın, İ., Erdoğan, Ç. & Demirkasımoğlu, N. (2013). Emotional labor and burnout among Turkish primary school teachers. *The Australian Educational Researcher, 41*(2), 155–169.

Alexander, R. (2006). *Towards dialogic teaching: Rethinking classroom talk*. Cambridge: Dialogos.

Bakkenes, I., Vermunt, J. D., & Wubbels, T. (2010). Teacher learning in the context of educational innovation: Learning activities and learning outcomes of experienced teachers. *Learning and Instruction*, *20*(6), 533–548.

Berson, E., Borko, H., Million, S., Khachatryan, E., & Glennon, K. (2015). Practice what you teach: A video-based practicum model of professional development for elementary science teachers. *Orbis scholae, 9*(2), 35–53.

Brackett, M. A., Palomera, R., Mojsa-Kaja, J., Reyes, M. R. & Salovey, P. (2010). Emotion-regulation ability, burnout, and job satisfaction among British secondary-school teachers. *Psychology in the Schools, 47*(4), 406–417.

Burns, Ch., & Myhil, D. (2004). Interactive or inactive? A consideration of the nature of interaction in whole class teaching. *Cambridge Journal of Education, 34*(1), 35–50.

Butler, D. L., Novak Lauscher, H., Jarvis-Selinger, S., & Beckingham, B. (2004). Collaboration and self-regulation in teachers' professional development. *Teaching and Teacher Education, 20*(5), 435–455.

Claessens, L. C. A., van Tartwijk, J., van der Want, A. C., Pennings, H. J. M., Verloop, N., den Brok, P. J., & Wubbels, T. (2017). Positive teacher–student relationships go beyond the classroom, problematic ones stay inside. *Journal of Educational Research, 110*(5), 478–493.

Chang, M. (2009). An appraisal perspective of teacher burnout: Examining the emotional work of teachers. *Educational Psychology Review, 21*(3), 193–218.

Daley, D., Renyard, L., & Sonuga-Barke, E. J. S. (2005). Teachers' emotional expression about disruptive boys. *British Journal of Educational Psychology, 75*(1), 25–35.

Danner, D. D., Snowdon, D. A., & Friesen, W. V. (2001). Positive emotions in early life and longevity: Findings from the nun study. *Journal of Personality and Social Psychology, 80*(5), 804–813.

Darby, A. (2008). Teachers' emotions in the reconstruction of professional self-understanding. *Teaching and Teacher Education, 24*(5), 1160–1172.

Delaney, K. K. (2015). Dissonance for understanding: Exploring a new theoretical lens for understanding teacher identity formation in borderlands of practice. *Contemporary Issues in Early Childhood, 16*(4), 374–389.

Fredrickson, B. L. (1998). What good are positive emotions? *Review of General Psychology, 2*(3), 300–319.

Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist, 56*(3), 218–226.

Fredrickson, B. L., & Joiner, T. (2002). Positive emotions trigger upward spirals toward emotional well-being. *Psychological Science,13*(2), 172–175.

Frenzel, A. C., Goetz, T., Stephens, E. J., & Jacob, B. (2009). Antecedents and effects of teachers' emotional experiences: An integrated perspective and empirical test. In P. A. Schutz & M. Zembylas (Eds.), *Advances in teacher emotion research: The impact on teachers' lives* (pp. 129–151). New York: Springer.

Fried, L., Mansfield, C., & Dobozy, E. (2015). Teacher emotion research: Introducing a conceptual model to guide future research. *Issues in Educational Research, 25*(4), 415–441.

Gelfuso, A. (2016). A framework for facilitating video-mediated reflection: Supporting preservice teachers as they create 'warranted assertabilities' about literacy teaching and learning. *Teaching and Teacher Education, 58*, 68–79.

Hargreaves, A. (2005). Educational change takes ages: Life, career and generational factors in teachers' emotional responses to educational change. *Teaching and Teacher Education*, *21*(8), 967–983.

Immordino-Yang, M. H., & Damasio, A. (2007). We feel, therefore we learn: The relevance of affective and social neuroscience to education. *Mind, Brain and Education*, *1*(1), 3–10.

Jensen, J. W., & Winitzky, N. (2002). *Exploring preservice teacher thinking: A comparison of five measures*. Paper presented at the Annual meeting of American association of colleges for teacher education, February 23–26, New York.

Kelchtermans, G. (2005). Teachers' emotions in educational reforms: Self-understanding, vulnerable commitment and micropolitical literacy. *Teaching and Teacher Education*, *21*(8), 995–1006.

Kelchtermans, G., Ballet, K., & Piot, L. (2009). Surviving diversity in times of performativity: Understanding teachers' emotional experience of change. P. A Schutz & M. Zembylas (Eds.), *Advances in Teacher Emotion Research: The Impact on Teachers' Lives* (pp. 215–232). New York: Springer.

Korthagen, F. (2017). Inconvenient truths about teacher learning: towards professional development 3.0. *Teachers and Teaching: Theory and Practice, 23*(4), 387–405.

Kumpulainen, K., & Lipponen, L. (2010). Productive interaction as agentic participation in dialogic enquiry. K. Littleton & Ch. Howe (Eds.), *Educational dialogues: understanding and promoting productive interaction* (pp. 48–63). London, New York: Routledge.

Lasky, S. (2005). A sociocultural approach to understanding teacher identity, agency and professional vulnerability in a context of secondary school reform. *Teaching and Teacher Education, 21*(8), 899–916.

Lefstein, A., & Snell, J. (2014). *Better than best practice: Developing teaching and learning through dialogue*. London: Routledge.

Lehesvuori, S., & Viiri, J. (2015) Od teorie k praxi: Od plánování dialogického vyučování k jeho reflexi. [From theory to practice: From planning to reflection on dialogic teaching.] *Studia paedagogica, 20*(2), 9–31.

Lehesvuori, S., Viiri, J., Rasku-Puttonen, H., Moate, J., & Helaakoski, J. (2013). Visualizing communication structures in science classrooms: Tracing cumulativity in teacher-led whole class discussions. *Journal of Research in Science Teaching, 50*(8), 912–939.

Lyle, S. (2008). Dialogic teaching: Discussing theoretical context and reviewing evidence from classroom practice. *Language and Education, 22*(3), 222–240.
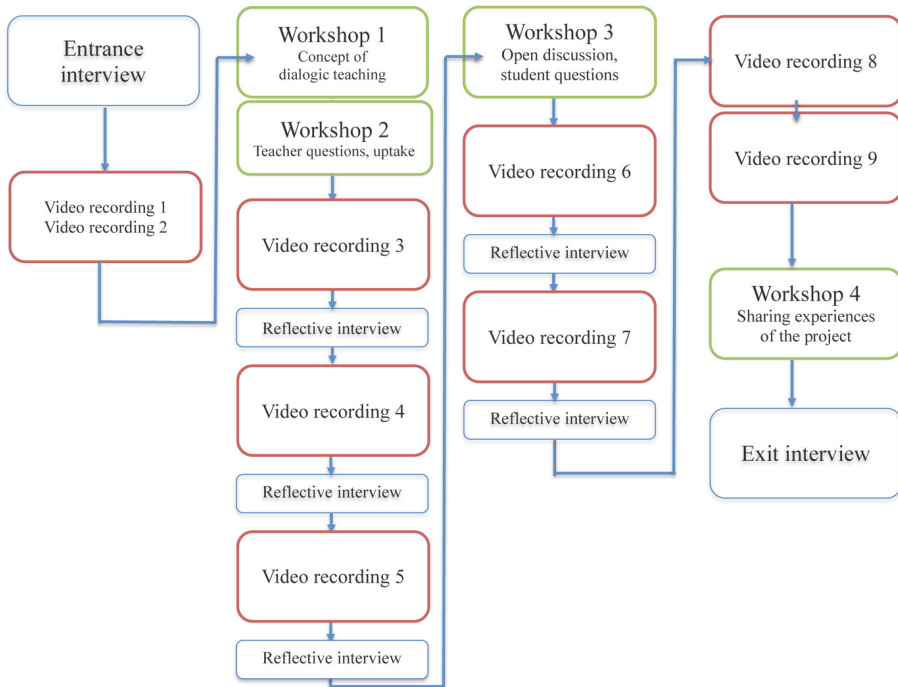
Maria, F., dos Santos, T., & Mortimer, E. F. (2003). How emotions shape the relationship between a chemistry teacher and her high school students. *International Journal of Science Education, 25*(9), 1095–1110.

Mulligan, K., & Sherer, K. R. (2012). Toward a working definition of emotion. *Emotion Review, 4*(4), 345–357.

Näring, G., Vlerick, P. & van de Ven, B. (2011). Emotion work and emotional exhaustion in teachers: The job and individual perspective. *Educational Studies, 38*(1), 63–72.

Nystrand, M., Gamoran, A., Kachur, R., & Prendergast, C. (1997). *Opening dialogue. Understanding the dynamics of language and learning in the English classroom.* New York, London: Teachers College Press.

Parker, M., & Hurry, J. (2007). Teachers' use of questioning and modelling comprehension skills in primary classrooms. *Educational Review, 59*(3), 299–314.

Pekrun, R., Goetz, T., Titz, W., & Perry, R. P. (2002). Academic emotions in students' self-regulated learning and achievement: A program of qualitative and quantitative research. *Educational Psychologist, 37*(2), 91–105.

Reio Jr., T.G. (2005). Emotions as a lens to explore teacher identity and change: A commentary. *Teaching and Teacher Education, 21*(8), 985–993.

Reznitskaya, A., Kuo, L., Clark, A., Miller, B., Jadallah, M., Anderson, R. C., & Nguyen-Jahiel, K. (2009). Collaborative reasoning: A dialogic approach to group discussions. *Cambridge Journal of Education, 39*(1), 29–48.

Reznitskaya, A., & Gregory, M. (2013). Student thought and classroom language: Examinimg the mechanisms of change in dialogic teaching. *Educational Psychologist, 48*(2), 114–133.

Richardson, L. (2005). *Handling qualitative data.* London: Sage.

Roorda, D. L., Koomen, H. M. Y., Spilt, J. L., & Oort, F. J. (2011). The influence of affective teacher-student relationships on students' school engagement and achievement. *Review of Educational Research, 81*(4), 493–529.

Saunders, R. (2013). The role of teacher emotions in change: Experiences, patterns and implications for professional development. *Journal of Educational Change, 14*(3), 303–333.

Scott, C., & Sutton, R. E. (2009). Emotions and change during professional development for teachers. *Journal of Mixed Methods Research, 3*(2), 151–171.

Schmidt, M., & Datnow, A. (2005). Teachers' sense-making about comprehensive school reform: The influence of emotions. *Teaching and Teacher Education 21*(8), 949–965.

Shoffner, M. (2008). The place of the personal: Exploring the affective domain through reflection in teacher preparation. *Teaching and Teacher Education,* 25(6), 783–789.

Strauss, A., & Corbin, J. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory.* Thousand Oaks, London, New Delhi: Sage.

Šeďová, K. (2017). A case study of a transition to dialogic teaching as a process of gradual change. *Teaching and Teacher Education, 67*(1), 278–290.

Šedová, K., Šalamounová, Z., & Švaříček, R. (2014). Troubles with dialogic teaching. *Learning, Culture and Social Interaction, 3*(4), 274–285.

Šedová, K., Sedláček, M., & Švaříček, R. (2016a). Teacher professional development as a means of transforming student classroom talk. *Teaching and Teacher Education*, *57*, 14–25.

Šeďová, K., Švaříček, R., Sedláček, M., & Šalamounová, Z. (2016b). *Jak se učitelé učí. Cestou profesního rozvoje k dialogickému vyučování.* Brno: Masarykova univerzita.

Uitto, M., Kaunisto, S.-L., Kelchtermans, G., & Estola, E. (2016). Peer group as a meeting place: Reconstructions of teachers' self-understanding and the presence of vulnerability. *International Journal of Educational Research, 75*, 7–16.

van den Bergh, L., Ros, A., & Beijaard, D. (2015). Teacher learning in the context of a continuing professional development programme: A case study. *Teaching and Teacher Education, 47*, 142–150.

van Veen, K., & Lasky, S. (2005). Emotions as a lens to explore teacher identity and change: Different theoretical approaches. *Teaching and Teacher Education, 21*(8), 895–898.

van Veen, K., Sleegers, P., & van de Ven, P. (2005). One teacher's identity, emotions, and commitment to change: A case study into the cognitive-affective processes of a secondary school teacher in the context of reforms. *Teaching and Teacher Education, 21*(8), 917–934.

Ward, Ch. J., Nolena, S. B., & Horn, I. S. (2011). Productive friction: How conflict in student teaching creates opportunities for learning at the boundary. *International Journal of Educational Research,* 50(1), 14–20.

Wyer Jr., R. S., Clore, G. L., & Isbell, L. M. (1999). Affect and information processing. *Advances in Experimental Social Psychology, 31,* 1–77.

Yan, E. M., Evans, I. M., & Harvey, S. T. (2011). Observing emotional interactions between teachers and students in elementary school classrooms. *Journal of Research in Childhood Education, 25*(1), 82–97.

Yoo, J., & Carter, D. (2017). Teacher emotions and learning as praxis: Professional development that matters. *Australian Journal of Teacher Education, 42*(3), 38–52.

Zembylas, M. (2003). Emotions and teacher identity: A poststructural perspective. *Teachers and Teaching: Theory and Practice, 9*(3), 213–238.

Zembylas, M. (2005). Discursive practices, genealogies, and emotional rules: A poststructuralist view on emotion and identity in teaching. *Teaching and Teacher Education, 21*(8), 935–948.

Appendix 1

An outline of the project and the individual components of the teacher development program.

```
┌─────────────┐      ┌──────────────────┐   ┌──────────────────┐    ┌──────────────────┐
│  Entrance   │      │   Workshop 1     │   │   Workshop 3     │    │ Video recording 8│
│  interview  │      │   Concept of     │   │ Open discussion, │    │                  │
│             │      │ dialogic teaching│   │ student questions│    │                  │
└─────────────┘      └──────────────────┘   └──────────────────┘    └──────────────────┘

                     ┌──────────────────┐
                     │   Workshop 2     │                            ┌──────────────────┐
                     │ Teacher questions,│  ┌──────────────────┐    │ Video recording 9│
┌─────────────────┐  │     uptake       │  │ Video recording 6│    └──────────────────┘
│ Video recording 1│ └──────────────────┘  └──────────────────┘
│ Video recording 2│
└─────────────────┘  ┌──────────────────┐  ┌──────────────────┐    ┌──────────────────┐
                     │ Video recording 3│  │Reflective interview│   │   Workshop 4     │
                     └──────────────────┘  └──────────────────┘    │Sharing experiences│
                                                                    │  of the project  │
                     ┌──────────────────┐  ┌──────────────────┐    └──────────────────┘
                     │Reflective interview│ │ Video recording 7│
                     └──────────────────┘  └──────────────────┘    ┌──────────────────┐
                                                                    │  Exit interview  │
                     ┌──────────────────┐  ┌──────────────────┐    └──────────────────┘
                     │ Video recording 4│  │Reflective interview│
                     └──────────────────┘  └──────────────────┘

                     ┌──────────────────┐
                     │Reflective interview│
                     └──────────────────┘

                     ┌──────────────────┐
                     │ Video recording 5│
                     └──────────────────┘

                     ┌──────────────────┐
                     │Reflective interview│
                     └──────────────────┘
```

Appendix 2

Transcription conventions (based on Lefstein & Snell, 2014).

(.)   Brief pause (under one second)
(1)   Longer pause (number indicates length to nearest whole second)
((text)) Description of prosody or non-verbal activity
[text]   Overlapping talk or action
text   Emphasized relative to surrounding talk
TEXT   Shouting

Corresponding authors
Klára Šeďová
Department of Educational Sciences, Faculty of Arts, Masaryk University, Brno, Czech Republic
E-mail: ksedova@phil.muni.cz

Zuzana Šalamounová
Department of Educational Sciences, Faculty of Arts, Masaryk University, Brno, Czech Republic
E-mail: salamounova@phil.muni.cz

Roman Švaříček
Department of Educational Sciences, Faculty of Arts, Masaryk University, Brno, Czech Republic
E-mail: svaricek@phil.muni.cz

Martin Sedláček
Department of Educational Sciences, Faculty of Arts, Masaryk University, Brno, Czech Republic
E-mail: msedlace@phil.muni.cz