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Teacher emotion research: Introducing a conceptual model to guide future research

Leanne Fried
Edith Cowan University

Caroline Mansfield
Murdoch University

Eva Dobozy
Curtin University of Technology

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Leanne Fried
Edith Cowan University, Australia
Caroline Mansfield
Murdoch University, Australia
Eva Dobozy
Curtin University, Australia

This article reports on the development of a conceptual model of teacher emotion through a review of teacher emotion research published between 2003 and 2013. By examining 82 publications regarding teacher emotion, the main aim of the review was to identify how teacher emotion was conceptualised in the literature and develop a conceptual model to illustrate the findings. Interestingly, few papers explicitly defined 'emotion' or 'teacher emotion' but described the functions of emotion (such as providing information) and influences on emotion (such as personal characteristics), so these were also used to build the conceptual model. The literature also highlighted the complexities of emotion, with implications for how teacher emotion should be studied. The model proposed aims to clarify how emotion research has been conceptualised within education research contexts.

Introduction

Since Sutton and Wheatley's (2003) review of the then limited research on teacher emotions, studies in this field have been steadily gaining prominence and teacher emotion research has had a variety of foci. Some researchers have explored the relationship between teacher emotions and a wide variety of aspects of classroom life, for example teacher-student relationships (Yan, Evans & Harvey, 2011), the learning environment and student engagement (Roorda, Koomen, Spilt & Oort, 2011), teacher identity (Beauchamp & Thomas, 2009), student emotions (Meyer & Turner, 2002) and teachers' ability to manage uncertainty and change (Kelchtermans, Ballet & Piot, 2009). Other researchers have specifically investigated emotional intelligence (Wong, Wong & Peng, 2010), emotional competence (Garner, 2010), emotional labour (Isenbarger & Zembylas, 2006) emotional exhaustion (Astrauskaite, Perminas & Kern, 2010; Näring, Vlerick & van de Van, 2011) and emotional geographies (Hargreaves, 2001; Kenway & Youdell, 2011). Findings from these studies have highlighted the importance of teacher emotion in classrooms and the potential influences on classroom life. More recently, Neville (2013) argued that because "cognition and emotion are fully integrated" (p. 22), we must pay more attention to the role emotions play in classroom life. However, several researchers (Meyer & Turner, 2006; Pekrun & Schutz, 2007) have stated that the study of teacher emotion is in need of conceptual clarity.

As teacher educators, and previously school teachers, the authors have long been aware of the importance of understanding the role of emotion in education. We embarked on the presented research with the aim of bringing clarity to the field of teacher emotion. This

paper explains the process and outcomes of the research. It begins by outlining the importance of teacher emotion research and explaining why emotion research needs to be situated in the context of the teaching profession. This is followed by a short discussion about how emotion has been defined historically, and then the process undertaken to develop a model for conceptualising the term teacher emotion is outlined. This process started by investigating how emotion had been defined in the teacher emotion papers, extracting the key emotion characteristics used in the definitions and descriptions, and placing these in the teaching context. The model is then presented through a discussion of the emotion characteristics and their relevance to teacher emotion, and includes a summary of how these are addressed in the identified papers.

Teacher emotion research

Twenty years ago research into teacher emotions was sparse. One explanation for this lack of research on teacher emotions is the prejudice against emotion in Western culture (Zembylas, 2003c), stemming from an understanding that emotions are complex and difficult to understand. Also, emotions are associated with women and feminine philosophies and have therefore lacked importance as research foci (Zembylas, 2003c). Sutton and Wheatley (2003) also argued that the word *emotional* has had negative associations with words like *irrational,* and emotions have been viewed as "destructive, primitive, and childish, rather than thoughtful, civilized, and adult" (p 328).

Teacher emotion is now regarded as an important field of research for a number of reasons. Firstly, in the context of high rates of teacher attrition, teacher emotional wellbeing has become critical. Emmer (1994) reported that teachers experience negative emotions more often than positive ones. When asked to assess the outcomes of their own teaching, teachers referred to feelings of inadequacy and failure, together with anger towards their students (Lortie, 1975). Stress and poor emotion management continue to rank as the main reasons why teachers leave the profession. Darling-Hammond (2001) and Woolfolk Hoy (2013) argued that teachers are "neither warned about nor prepared" (p. 264) for the emotional demands of their chosen career, sometimes resulting in decisions to leave the profession (Richardson, Watt & Devos, 2013). In an attempt to better understand teacher attrition, researchers have investigated teacher burnout (Akın, Aydın, Erdoğan & Demirkasımoğlu, 2013; Høigaard, Giske, & Sundsli, 2011; O'Brien, Goddard & Keeffe, 2008), teacher wellbeing (Parker, Martin, Colmar & Liem, 2012) and teacher resilience (Day & Gu, 2009; Hong, 2012). The teacher resilience literature suggested that emotions play an important role in a teacher's capacity to thrive, not just survive in their professional life (Mansfield, Beltman, Price & McConney, 2012).

In addition, teachers' work has become increasingly driven by accountability and high-stakes testing. Policy debates have even included discussion about connecting teacher pay with some measure of 'merit'. This focus has impacted in various ways on the classroom emotional climate, through influencing the nature of student/teacher interactions and behaviours (Schroeder, 2006). Although evidence suggests an increased emphasis on high-stakes testing and accountability is changing the nature of classroom transactions (Shutz, Rodgers & Simcic, 2010), and is associated with increased teacher attrition (Behrent, 2009)

and teacher stress (Valli & Beuse, 2007), pressure and anxiety (Thompson, 2014), further research is needed to fully understand the emotional impact of such a focus.

Teacher emotions have also been shown to be inextricably linked to student emotions (Meyer & Turner, 2006). Researchers determined that teacher and student enjoyment within classrooms are positively associated (Frenzel, Goetz, Ludtke, Pekrun & Sutton, 2009) and that student and teacher relationships act as an important "emotional filter" (Hargreaves, 1998). Newberry (2010) stated that teachers need to be given instruction or support for the development of personal relationships with students, as this often involves considerable emotional work. Classrooms that are characterised by positive emotion in regards to teaching and learning are likely to provide the best conditions for student development and achievement (Frenzel et al, 2009; Yan, Evans & Harvey, 2011).

As noted above, learning is just as much an emotional process as a cognitive one. Emotions serve as a powerful vehicle for enhancing or inhibiting learning (Greenleaf, 2002). Linnenbrink and Pintrich (2002) acknowledged, for example, that negative teacher emotions contribute to negative student emotions and lessen the probability students will use cognitive strategies for deeper, more elaborate processing of information. Furthermore, it has been argued that emotions *shape* cognition (Mesquita, Frijda & Scherer, 1997) and therefore may have an important influence on motivation (Pekrun, Goetz, Titz & Perry, 2002), efficacy beliefs and goals (Kaplan, Gheen & Midgley, 2002). Indeed, not only do emotions influence academic performance via their effect on cognitive resources, learning behaviours and motivation, but the reverse is also true (Frenzel & Stephens, 2013). These connections between emotions and learning, together with the obvious inter-relationship between student and teacher emotions, further illustrate the need to study teacher emotion.

Historically, emotions and emotional experiences have been conceptually elusive and what is now required is the development of a conceptual model of teacher emotion. This view is shared with authors such as Meyer and Turner (2006), who advocated the need for a conceptual framework and a common vocabulary to underpin teacher emotion research. Similarly, Hargreaves (2005) stated that in the context of teachers' work, some clarity of emotion terms is required in order to discuss and analyse their emotional experiences. Linnenbrink-Garcia and Pekrun (2011) also argued the necessity for conceptual clarity so that emotion research encompasses the complexities of emotion and facilitates productive discussions on teacher emotion.

Defining emotion

Emotions have been notoriously difficult to define and there has been little agreement across disciplines, or for that matter within disciplines (Boler, 1999) on how to conceptualise and map this elusive concept. Researchers use the word *emotion* in ways which reflect their different theoretical viewpoints including physiological, philosophical, historical, sociological, feminist, organisational, anthropological and psychological perspectives (Oatley, 2000). In the 1970s, Vygotskian theory (1978) presented an integrated perspective on emotions, stating they were part of a social-cognitive process of

development, intimately connected to thoughts and actions and shaped by the institutional, cultural and historic contexts in which we live (Kozulin, Gindis, Ageyev & Miller, 2003) . This perspective failed to influence the focus for early emotion research with most researchers adopting a psychological viewpoint (Zembylas, 2003a).

More recently, Izard (2010) has argued that defining emotion is still challenging, although there appears to be some agreement on the structure and function of emotion. There is now consensus that emotion is multi-componential; that is, each emotion consists of a number of more or less unordered collections of components, jointly activated by how an event is appraised and by component propensities (Scherer, 2000). Although different terminology is used depending on theoretical perspective, most scientists refer to similar, or the same components. For example, the education psychologists Sutton and Wheatley (2003) refer to components of emotion as appraisal, subjective experience, physiological change, emotion expressions and action tendencies. Izard (2010), a clinical psychologist, while referring to similar components, used the terms neural systems, response systems, feelings or a feeling state, expressive behaviour, antecedent cognitive appraisal and cognitive interpretation. Sutton and Wheatley (2003) highlighted the fact that the components influence each other but are partly independent, and Izard (2010) argued the components be viewed as socially constructed rather than as purely individual and psychological. In order to have a broad-based understanding of emotion it is important to understand how the 'biological' and 'psychological' components of emotion interact with the social domain (Corcoran & Tormey, 2012). Zembylas (2004) identified emotions as evaluative, relational and political, and shaped by the politics and power relations within a school and broader society, and therefore need to be viewed through such a lens.

The process

An initial search of major databases was conducted, including *ERIC, PsychArticles, PsychInfo, SAGE, Science Direct, Proquest* and *Web of Knowledge* using the search terms *emotion** and *teach*,* with search parameters limited to the years 2003-2013 and papers in peer-reviewed English language journals. This time period was chosen because since Sutton and Wheatley's review in 2003 considerable research has been conducted on the topic of teacher emotion and few efforts have been aimed at taking stock, or providing an overview, of these investigations. Once the initial search identified particular journal articles, *Google Scholar* was also used to search for relevant book chapters. As a result of this process, 151 papers were read, reviewed and analysed to identify the focus of each paper. The majority of papers focused on the emotions of teachers, followed by a focus on emotions of students and on pre-service teachers. The 82 papers specifically focused on teacher emotions were used for the analysis.

Analysis

Three researchers were involved in the analysis process. Initially the selected papers were divided and each researcher constructed a summary table, outlining for each paper: the aim, how emotion was defined and/or described, main themes addressed in the paper and key findings. The three tables were then collated into a single table. Two distinct phases of

analysis were then undertaken, focusing specifically on the information regarding how emotion had been defined and/or described. The goal of the analysis was to use the commonly used definitions and descriptions of emotion to build a conceptual model of teacher emotion. Using this process, the model would encompass various perspectives and theories and could therefore be used not only to provide a holistic picture of teacher emotion but also to enable teacher emotions to be viewed through different lenses.

Phase one

Phase one was designed to investigate the definitions of emotion presented in the papers. A specific search was conducted for definitions of emotion in the relevant column of the table. Key definitions were identified along with the authors citing each. Where necessary, original sources were located (for example, where definitions cited other authors) and included as seminal works. The definitions of emotion are presented in Table 1 in the following section. In the process of examining definitions, it became apparent that while a few authors presented concise definitions of emotion, many in fact provided lengthy descriptions instead. It was therefore important to examine the descriptions of emotion as well. In doing so, characteristics of emotion embedded in definitions and descriptions were identified to inform the next phase of analysis.

Phase two

Phase two of the research was designed to build the conceptual model of teacher emotion by connecting the definitions and descriptions of emotion, derived from phase one, to the teaching context. To this end, the emotion characteristics identified in phase one were sorted into groups. For example, characteristics that referred to the functions emotions performed, such as to *inform* or *motivate,* were grouped as emotion functions. The characteristics were then presented diagrammatically in the teaching context. Reviewed papers that addressed the emotion characteristics were also identified in this phase. Figure 1 summarises the phases of the research.

Results and discussion

Defining emotion

To understand how teacher emotion has been conceptualised in the reviewed papers, attention was focused initially on the definitions of emotion used, as described above. Analysis showed that specific definitions of emotion were infrequently used with only a small portion of papers defining emotion (Bahia, Freire, Amaral & Teresa Estrela, 2013; Fu, Lin, Syu & Guo, 2010; Hastings, 2008; Maria, dos Santos & Mortimer, 2003; Meyer & Turner, 2006; Oplatka, 2007; Sutton & Wheatley, 2003; Zembylas, 2003b, 2005a). The definitions drawn upon were taken from the work of the following authors (Table 1).

Table 1: Definitions of emotion

Author	Emotion defined as
Denzin (1984)	"Denzin concedes that experiencing emotion is a social, interactional, linguistic and physiological process but he argues that research must go beyond these domains and study emotions from within, as a 'lived, interactional process that has the self of the person' as central (1984, p. 32) – '[e]motions are embodied experiences' (ibid, p. 108). Human emotions are displayed in behaviour that can be seen, heard, smelt and felt. They are in the mind and heart, but they are also and always in the body." (Hastings, 2008, p. 499)
Frijda (1988)	"Frijda's (1988) definition is that emotions are *subjective experiences with situational meaning that evoke action states*" (Meyer & Turner, 2006, p. 379).
Hochschild (1990)	"I would define emotion as an *awareness of four elements* that we usually experience at the same time: (a) appraisals of a situation, (b) changes in bodily sensations, (c) the free or inhibited display of expressive gesture, and (d) a cultural label applied to specific constellations of the first three elements" (Hochschild, 1990, pp. 118-119; cited in Oplatka, 2007, p. 1375).
Damasio (1996)	"*unique adaptations that integrate the mechanisms by which the organisms regulate their social and organic survival.* Emotions provide *patterns of behaviours* for individuals and are connected with ideas and feelings of reward and punishment, pleasure and pain, proximity and distance, personal advantages and disadvantages, etc." (Damasio, 1996, cited in Maria, dos Santos & Mortimer, 2003, pp. 1196-1197).
Rosenberg (1998)	"Emotions are *short, intense episodes, or states*, as distinguished from affective traits or more generalized moods (Rosenberg, 1998). One would expect student emotions to vary over time and contexts." (Meyer & Turner, 2006, p. 379).
Linnenbrink and Pintrich (2002), Pekrun (2002), Russell (2003), Beedie et al (2005)	"Emotions" are the *short and strong feelings* produced after certain stimulations (Linnenbrink & Pintrich; 2002; Pekrun et al.; 2002; Russell; 2003; Beedie et al., 2005), cited in Fu, Lin, Syu & Guo, 2010, p. 4887).
Sutton and Wheatley (2003)	"Many theorists conceptualize emotions as *multicomponential processes* (e.g., Frijda, 1986, 2001; Lazarus, 1991; Planalp, 1999). The emotional process consists of a network of changes in a variety of subsystems (or components) of the organism. These components typically include appraisal, subjective experience, physiological change, emotional expression, and action tendencies. These components influence each other but are partially independent." (Sutton & Wheatley, 2003, p. 329).
Zembylas (2003b)	"… my approach to emotion conceives them not only as matters of personal (private) dispositions or psychological qualities, but also as social and political experiences that are constructed by how one's work (in this case, the teaching) is organized and led." (Zembylas, 2003b, p. 216).
Zembylas (2005a)	Emotion functions as a discursive practice in which emotional expression is productive - that is to say, it makes individuals into socially and culturally specific persons engaged in complex webs of power relations. (Zembylas, 2005a).

An important finding from this review was that few of the investigated papers defined emotion. The difficulties in defining emotion may be due to the fact that the term 'emotion' was lifted from common language and then used in research (Gross & Thompson, 2006). Dixon (2012) argued that from the outset the term emotion was defined as undefinable. Izard (2010) contended that less semantic confusion will result if authors refrained from using the noun emotion without contextualising it and providing a statement of its presumed meanings. Even though Izard referred to literature in the fields of psychology and behavioural neuroscience, this issue is relevant to the education field also. Much greater clarity would be obtained in teacher emotion research if authors made explicit their adopted meaning of the term emotion and clearly defined it prior to use in theoretical and/or empirical investigations.

Building the model

Among the papers that defined emotion there were some common terms used in the definitions. Most authors acknowledged that emotions are multi-componential, with components that operate on intrapersonal and interpersonal levels. That is, some of the components exist or occur within the individual self or mind (intrapersonal) while others exist between persons (interpersonal). The intrapersonal components correlate with the biological and psychological domains of emotion while the interpersonal represents the social domain (Corcoran & Tormey, 2012). Zembylas (2003b, 2005a) went further in his definitions of emotion, acknowledging not only the importance of the social domain but also cultural and political factors. Taking into consideration the main concepts identified in the definitions, teacher emotion is depicted as intrapersonal and interpersonal in Figure 2, with these components shaped by social, cultural and political factors. The shaded area in the diagram represents the connection between the intrapersonal and interpersonal and is labelled expressions of emotion. Most of the definitions used in the reviewed papers referred to this as a component of emotion. Expressions of emotion are shaped by intrapersonal and interpersonal characteristics and experiences and are also determined by social, cultural and political factors.

It is important to view the model depicted in Figure 2 as dynamic, with continual interaction between components, as emotional experiences are cyclical in nature (Corcoran & Tormey, 2012). However, there are limitations in presenting such a model in two dimensions. The shared boundaries between the components, represented in the diagram as circles, indicate that there is interaction both moving outward and inward. The intrapersonal aspects of an emotion affect the expressions of emotion that in turn impact on the interpersonal components. For example, teacher beliefs about learning may affect how they express their emotions to their students. This in turn impacts on the types of relationships they have with their students. The reverse is also true with the interpersonal components affecting the emotion expression which together impact on the intrapersonal components. For example, if a teacher's relationship with students is defined by caring and trust the teacher's beliefs about learning may change and develop through a deep understanding of the students. At the same time, social, cultural and political factors are constantly impacting on the intrapersonal and interpersonal components and expressions of emotion, with the reverse also true.

Phase one

Teacher emotion papers
2003-2013 reviewed

Definitions and descriptions of
emotion retrieved and analysed

Emotion characteristics
identified and grouped

Emotion
functions

Influences
on emotion

Complexities
of emotion

Phase two

Plotted as intrapersonal,
interpersonal, social,
political or cultural and in
teaching context

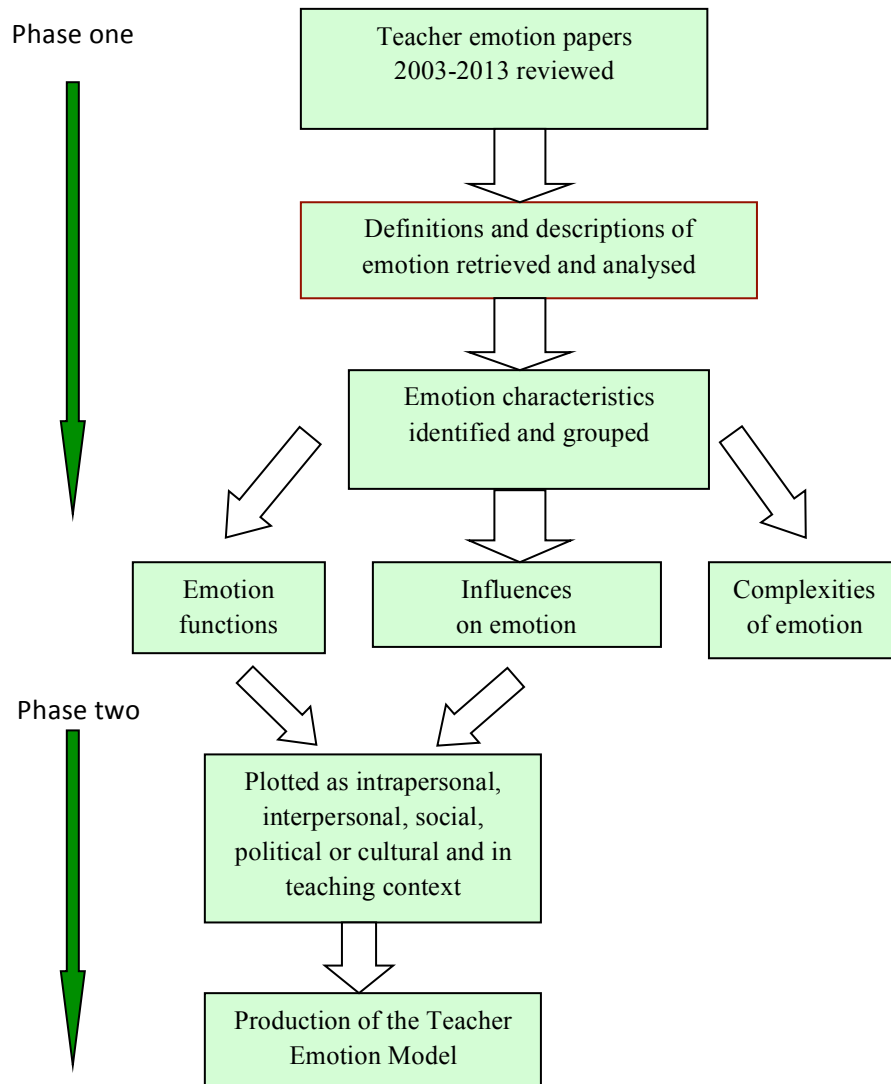Production of the Teacher
Emotion Model

Figure 1: The process involved in developing the teacher emotion model

As previously noted, many authors described, rather than defined, emotion. The descriptions of emotion were extracted from the review table and then analysed together with the definitions, identifying characteristics of emotion in the process. Analysis showed that the characteristics of emotion focused on three main ideas and were therefore grouped as: *influences* on emotion (factors affecting how individuals interpret experiences and therefore shape the type, duration and intensity of the developed emotion); *functions* (the internal and external roles performed by emotions), and *complexities* of emotions (aspects emotions have in common and that dictate the way emotions need to be studied). The *influences* on emotion and the *functions* of emotion, plotted according to whether they

were intrapersonal, interpersonal, social, cultural or political, formed the basis of the teacher emotion model.
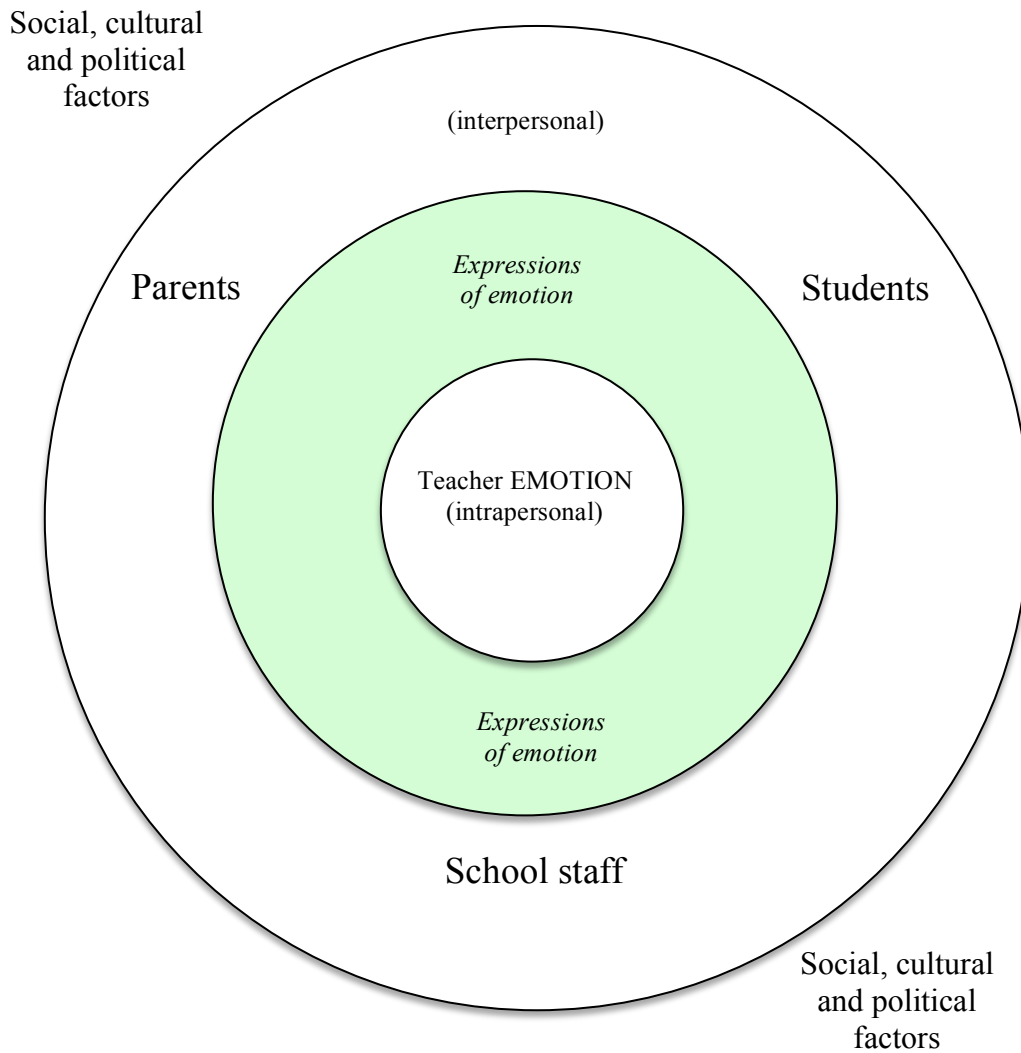
Social, cultural
and political
factors

(interpersonal)

*Expressions
of emotion*

Parents   Students

Teacher EMOTION
(intrapersonal)

*Expressions
of emotion*

School staff

Social, cultural
and political
factors

Figure 2: Main components of teacher emotion as identified in the definitions

Influences on teacher emotion

The influences on emotion included: personal characteristics, appraisals, and social, cultural and political factors. A brief explanation of these influences will be followed by a focus specifically on teacher emotion. Figure 3 builds on Figure 2 by placing each of the influences on emotion according to whether they are intrapersonal, interpersonal or social, cultural and political. The personal characteristics identified in the definitions and descriptions of emotion include identity, beliefs, values and personality traits and are

depicted as intrapersonal in Figure 3. Appraisals are presented as a link between the intrapersonal and expressions of emotion as they are an internal assessment of the emotional meaning of information that a person receives from his or her interaction with the environment (Lazarus, 1991).
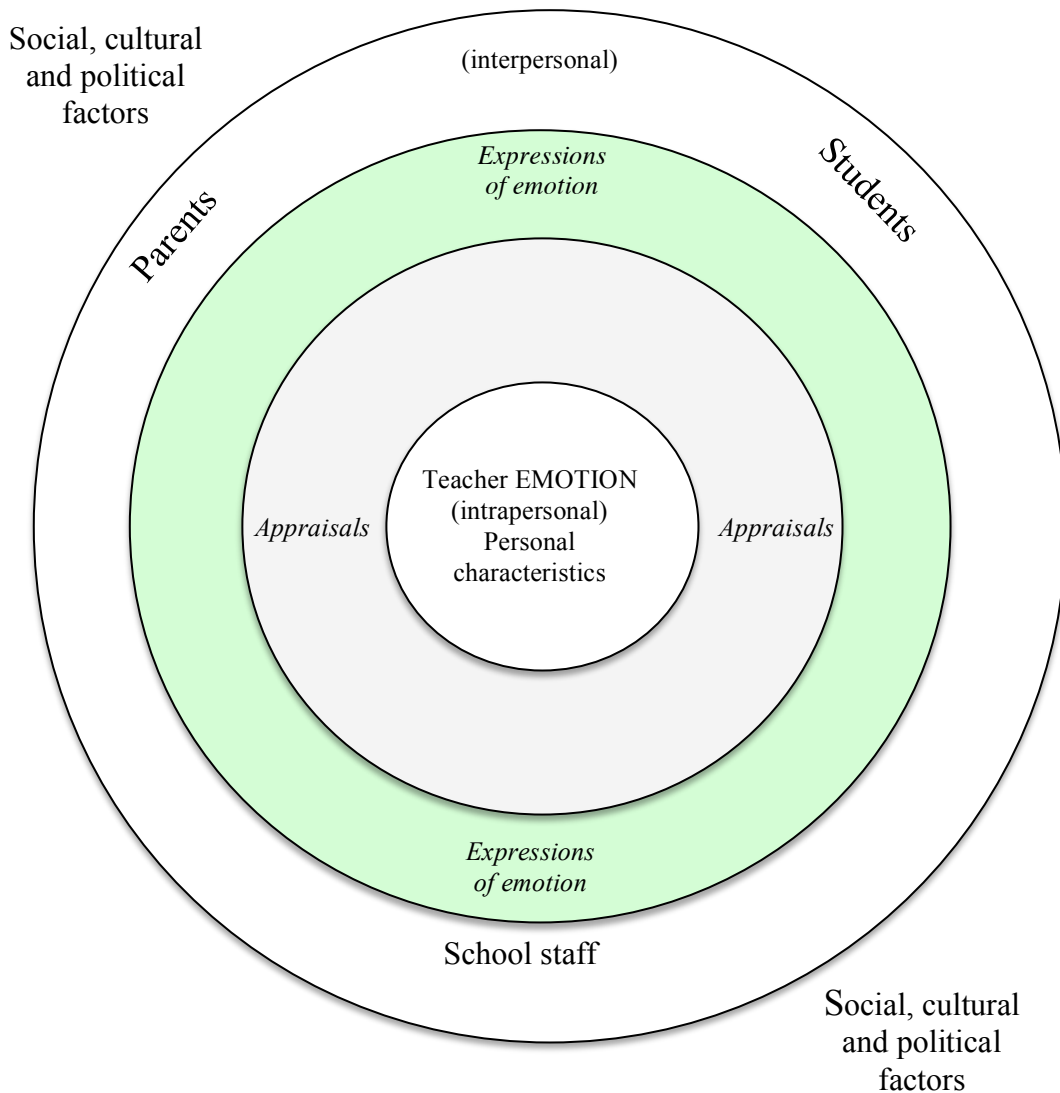

Figure 3: Influences on teacher emotion

Social, cultural and political factors were already part of the model as they had been identified as emotion components in the first phase, but are also identified as influencing teacher emotion development. Social, cultural and political factors are placed beyond the interpersonal, but their placement in the model should not deceive one in relation to their

influence that extends to the interpersonal and intrapersonal aspects of emotion. Nias (1996) said that cognition and emotion cannot be separated from the social and cultural influences that shape them and are shaped by them. Once again, it is necessary to remind the reader of the importance of viewing the depicted models as dynamic.

Personal characteristics
The personal characteristics identified in the emotion descriptions include identity, beliefs, values and personality traits. Identity is expressed through emotions, and identity and emotions are inextricably related to each other through an ongoing, multi-directional process (Schutz, Cross, Hong & Osbon, 2007). Identity is seen as an overarching construct that comprises beliefs and values and provides a framework which can guide the way teachers deal with their emotions in the classroom (Schutz, Cross, Hong & Osborne, 2007). Emotions also play a role in developing teacher identity (Hargreaves, 2005; Hastings, 2008; Schutz, Cross, Hong & Osborn, 2007; Shapiro, 2010; Zembylas, 2005a). As shown in Table 2, a number of papers examined teacher identity, beliefs and values in relation to emotion. For example, Williams-Johnson, Cross, Aultman, Osbon and Schutz (2008) investigated the role that teacher beliefs play in shaping the emotional climate of the classroom. Bullock (2013) identified the value in teachers reliving experiences as a learner in order to understand their own beliefs and established teacher identity. This process is frequently used by the authors in teacher education as a means of helping pre-service teachers become aware of the beliefs that shape their identity. Although teacher beliefs have been found to influence emotions, Zembylas (2005b) identified a reverse relationship, with teacher emotions assisting in the understanding of personal beliefs.

Izard (2009) demonstrated in his research a strong relationship between emotion experiences and traits of personality. Personality traits predict the experience of emotions, as emotions have activation thresholds and individuals have a characteristic threshold for each emotion (Izard, 2009). Emotions can also shape personality traits and attributes. Through experiences of positive emotions, for example, people become more creative, resilient and socially integrated (Tugade & Fredrickson, 2007). Few of the identified papers investigated personality and emotion, although Eren (2013) discussed teacher emotional styles, a broad term that describes how a person responds to life experiences, and encompasses aspects of personality. Teacher emotion competence was also discussed in several of the papers (e.g. den Brok, van der Want, Beijaard & Wubbels, 2013; Garner, 2010; Hosotani & Imai-Matsumura, 2011; Jennings & Greenberg, 2009; Newberry, 2010) and is encompassed to some extent by Eren's (2013) emotional styles, but is also depicted as a series of learned skills which include awareness of emotion, understanding emotion, analysing and using emotion, and managing emotions (Garner, 2010).

Appraisals
Appraisals, previously defined as an internal assessment of the emotional meaning of information that a person receives from his or her interaction with the environment (Lazarus, 1991), can be modified or changed consciously (Smith & Kirby, 2009), and can also trigger and guide emotion expressions (Mulligan & Scherer, 2012). Having worked as

Table 2: Influences on emotion in reviewed papers

Influences on emotion	Related themes investigated in reviewed papers	Authors
Teacher personal characteristics (beliefs, values, identity and personality traits)	The relationship between teacher identity and experienced emotion	Bullock, 2013; Cowie, 2011; Darby, 2008; Hargreaves, 2005; Hastings, 2008; Kelchtermans, 2005; Lee & Yin, 2011; O'Connor, 2008; Reio, 2005; Schutz, Cross, Hong & Osbon, 2007; Shapiro, 2010; Van Veen & Lasky, 2005; Zembylas, 2005a; Zembylas, 2003a
	The relationship between teacher-efficacy and emotional competence	Morgan, Ludlow, Kitching, O'Leary & Clarke, 2010; Penrose, Perry & Ball, 2007; Tsouloupos, Carson, Matthews, Grawitch & Barber, 2010
	Teacher temperament and burn-out	Teven, 2007
	Resilient teachers' emotional experiences	Tugade & Frederickson, 2004
Appraisals	Cognitive appraisal and emotional experiences	den Brok, van der Want, Beijaard, & Wubbels, 2013; Farouk, 2010; Peker, 2010; Schutz, Cross, Hong & Osbon, 2007; Tsouloupas, Carson, Matthews, Grawitch & Barber, 2010
Social, cultural and political factors	The power and politics of emotions in teaching	Collie, Shapka and Perry, 2012; Pini, Price & MacDonald, 2010; Zembylas, 2003b
	Emotions in education policy	Rawolle, (2013)

classroom teachers, the authors are well aware of the relationship between appraisals and teacher emotion. For example, a student's defiant behaviour can be appraised, with different resultant teacher emotional responses, as a threat to a teacher's authority or as a sign of a student over-challenged by the work task. Variations in appraisals occur because situations can be interpreted in different ways as a result of personal characteristics, social history and cultural expectations (Schutz, Cross, Hong & Osbon, 2007). Thus, referring back to the model in Figure 3, appraisals are affected by, and affect, the factors represented on either side. Emotional experiences were found to emerge during teacher judgments regarding perceived success (Schutz, Cross, Hong & Osborn, 2007) while appraisals of challenge as opposed to threat contributed significantly to psychological resilience (Tugade & Fredrickson, 2007). Emotion is experienced when there is a difference between a teacher's appraisal of an interpersonal experience and their identity standards (den Brok, van der Want, Beijaard & Wubbels, 2013). Chang (2009) stated that more studies on the antecedent appraisals that teachers make are necessary, to help teachers better understand how their emotions are triggered, and learn how to regulate those emotions through the appraisal process. Further studies could also investigate how broader contexts can affect the teacher and student appraisal process.

Social, cultural and political factors

Social, cultural and political factors have a significant effect on how, why and when people develop, manage and show emotions. In Figure 3 'social, cultural and political factors' are depicted beyond the outer circle, due to the constraints of two-dimensional representation. In fact the model sits within these factors that shape and are shaped by each of the depicted emotion concepts. Having taught in a number of schools, the authors can attest to how school culture, for example, can vary remarkably and can greatly affect the day-to-day emotions of the teachers and students.

The emotions teachers feel and express are constructed through the cultures and values of families, schools and the broader community (Zembylas, 2003b). Rules about emotional behaviour are reflected in particular school cultures as well as in the profession of teaching. Zembylas (2003b) stated that the school organisational structure shapes teachers' perceptions of what ought to be felt in pre-defined classroom settings, but acknowledged that it is not certain how these prescriptions about what to express and what to feel actually affect teachers' emotional conducts. In order to understand this more fully, Rawolle (2013) explored the representation of emotions in policy texts while Collie, Shapka and Perry (2012) investigated the way the school climate affected social-emotional learning.

Functions of teacher emotion

Five functions of emotion were identified in phase two: *information provision*, *giving quality to experience*, *influencing cognitive processes*, *regulating internal and external processes*, and *providing motivation*. Figure 4 builds on Figure 3 by overlaying the functions of emotion and illustrating that the five functions operate across both the interpersonal and intrapersonal. The functions are also affected by, and developed through, social, cultural and political factors. The double headed arrows indicate that teacher emotion may, for example, regulate the teacher's own behaviour and internal processes and also regulate the emotions of the students through a process of co-regulation (Pekrun & Schutz, 2007). Figure 4 emphasises the importance of studying emotions as lived, interactional processes with the self as central (Denzin, 1984).

Inform

A function of emotion is to provide information about oneself and about others, thus contributing to building identity and relationships. Emotion also provides information about the broader social, cultural and political context. Some researchers argue that in the school context, teacher emotion cannot be viewed separately from student emotion (Yan, Evans & Harvey, 2011) or that of other personnel (Yariv, 2009). For example, an experience of an emotion can provide the teacher with information about his/her interaction with a student, whereas the expressed component of the emotion presents the student with information regarding his/her interaction with the teacher (see Figure 4).

Through reflection, emotion information can be used to better understand classroom interactions (Winograd, 2003). Emotion information can be used to shape the transition
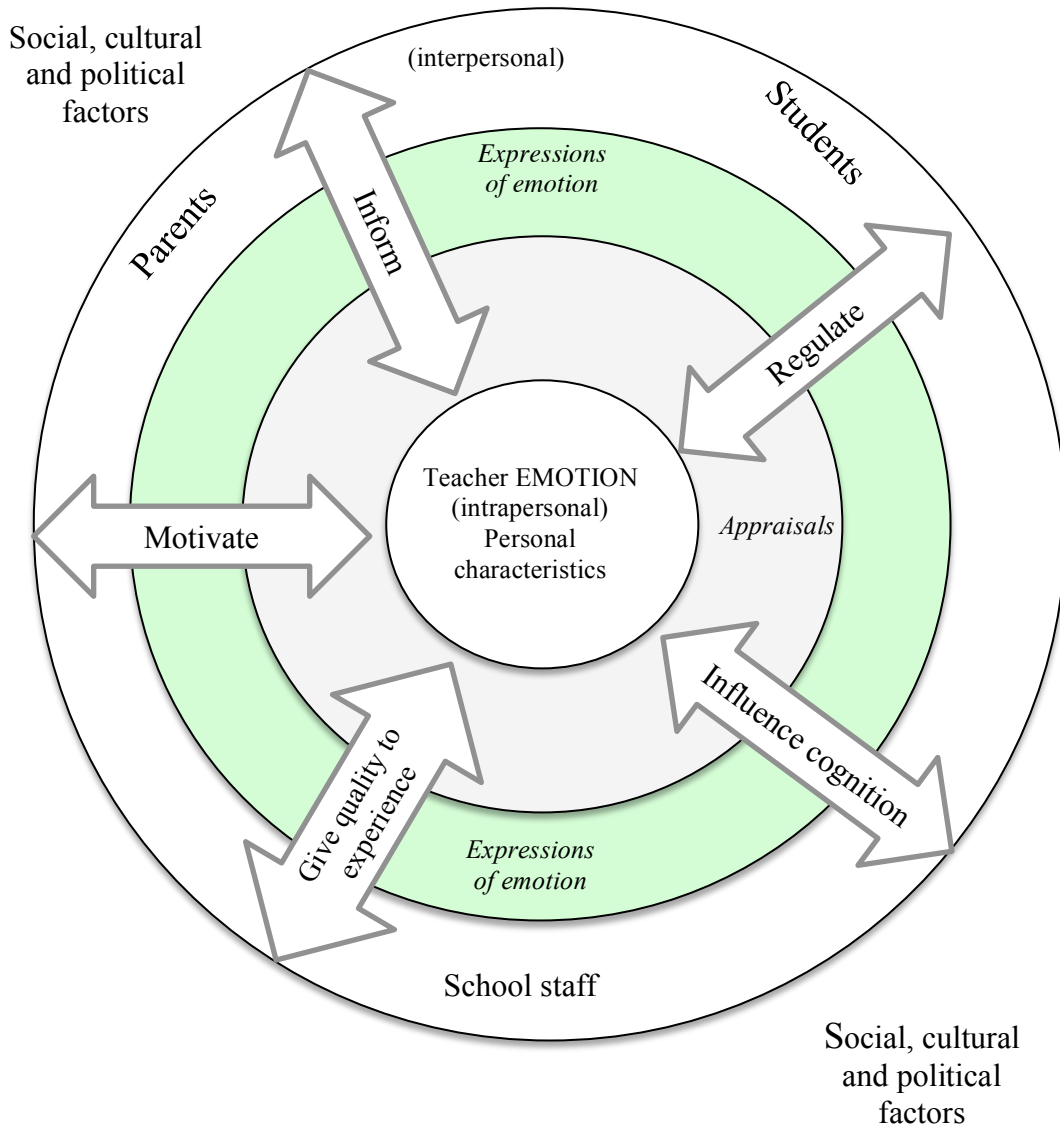
Figure 4: The teacher emotion model

of teachers to the workforce (Randi, Corno & Johnson, 2011), direct pedagogical decisions (Soini, Pyhältö & Pietarinen, 2010) and influence development of student-teacher relationships (Yan, Evans & Harvey, 2011). Student-teacher relationships based on positive emotion encourage students to enter into the process of learning and enhance their desire to learn (Yan, Evans & Harvey, 2011). Table 3 outlines the themes explored in the identified papers related to this emotion function. The authors of this paper, as pre-service teacher educators, suggest that there is much to be investigated connected to this function of emotion, particularly in relation to educating teachers to use emotion information and how this may affect their well-being.

Give quality to experience

Another function of emotion is to give quality to experience. This function of emotion is also depicted in the model as a double-headed arrow across the intrapersonal and interpersonal, and connected to social, cultural and political factors (Figure 4), because of the relationship between the emotion experience of the teacher and the student and the part played by broader contextual factors. The external expressions of both teacher and student emotions in the classroom can affect the classroom emotional climate (Yan, Evans & Harvey, 2011) and therefore teacher and student well-being (Jennings & Greenberg, 2009). Also, if a teacher repeatedly experiences an emotion in a certain way internally, yet displays the emotion in a different manner externally, in a process referred to as emotional labour (Hochschild, 1983), then the quality of experience can be affected and he/she can be vulnerable to emotional exhaustion and burnout (Zapf, 2002). Teacher expressions (as opposed to suppressions) of emotions are regarded as a means of emotional regulation and can be correlated with teacher well-being (Gross & John, 2003), therefore enhancing the quality of teaching experiences. Teachers need to understand how their own and student emotions affect the quality of their experience as a teacher, and learn to use the emotion information (discussed in the previous section) through emotional understanding to shape their teaching experiences, and the learning experiences of the students (Hargreaves, 1998). Table 3 shows all the topics from the identified papers related to this function of emotion with associated authors.

Influence cognition

Emotion also influences cognitive processes. The link between emotion and cognition has been explored in other fields of study, with evidence that negative emotions reduce working memory (Linnenbrink & Pintrich, 2002) and positive emotion may broaden thought-action repertoires (Tugade & Fredrickson, 2007). Cunningham and Kirkland (2012) went as far as saying that emotion should be considered as cognition. As expressions of emotions can directly influence others, it is expected that teacher emotions will not only affect their own cognitive processes but also those of their students. Similarly, the emotions of students will affect their own cognitive processes and those of their teachers. Social, cultural and political factors also have a part to play in shaping emotions and in turn affecting cognitive processes. Therefore this function of emotion is depicted as operating across the intrapersonal and interpersonal in Figure 4 and connecting to the broader contexts. Only two of the identified papers directly investigated the effect of teacher emotion on cognitive processes (see Table 3). There is much that could be explored that will address this gap, particularly in relation to investigating how social, cultural and political factors affect cognition through an impact on teacher emotions.

Regulate

Emotion also has a regulatory function and can regulate the internal systems within the body of the person experiencing the emotion (Damasio, 1996), while the external expressions of emotion can regulate one's own and others' emotions (Izard, 2010). As with the other functions of emotion, the 'regulate' function operates across the

Table 3: Functions of emotion in reviewed papers

Function of emotion	Themes investigated	Authors
Inform and connect	Teachers and caring, e.g. the role of caring as part of teacher duties	Aaron, Auger & Pepperell, 2013; Isenbarger & Zembylas, 2006; O'Connor, 2008; Oplatka, 2007; Teven, 2007.
	Connections between emotional intelligence and teacher self-efficacy	Penrose, Perry & Ball, 2007; Tsouloupas et al, 2010.
	Teacher emotional competence and relationships with students	den Brok, van der Want, Beijaard & Wubbels, 2013; Garner, 2010; Hosotani & Imai-Matsumura, 2011; Jennings & Greenberg, 2009; Newberry, 2010.
	Emotional geographies – the supports and threats to emotional bonds between teachers and students	Hargreaves, 2005.
Give quality to experience	Teacher well-being and emotional experiences	Daniels & Strauss, 2010; Jennings & Greenberg, 2009; Soini et al., 2010; Jakhelln, 2011.
	Teacher stress, burn out and emotional exhaustion	Astrauskaite, Perminus & Kern, 2010; Chang, 2009; Collie, Shapka & Perry, 2012; Isenbarger & Zembylas, 2006; Jennings & Greenberg, 2009; Maag, 2008; Ransford, Greenberg, Domitrovich, Small & Jacobson, 2009; Teven, 2007; Tsouloupas, Carson, Matthews, Grawitch & Barber, 2010.
	Resilient teachers and their use of positive emotions	Morgan, Ludlow, Kitching, O'Leary & Clarke, 2010; Tugade & Fredrickson, 2007
	Emotional labour and the dysfunctional and functional effects of emotions	Akın, Aydın, Erdoğan & Demirkasımoğlu, 2013; Gallant & Riley, 2013; Hasting, 2008; Hebson, Earnshaw & Marchington, 2007; Hosotani & Imai-Matsumura, 2011; Jakhelln, 2011; Kitching, 2009; Oplatka, 2007; Philipp & Schupbach, 2010; Teven, 2007; Schutz & Zembylas, 2009; Winograd, 2003; Zembylas, 2004.
	Teacher emotional competence and their experience of burnout/job satisfaction.	Jennings & Greenberg, 2009; Wong, Wong & Peng, 2010.
Influence cognitive processes	Rational-emotive therapy and teaching	Maag, 2008; Newberry, 2013.
Regulate	Teacher emotion management – emotion expression and regulation	Daley, Renyard & Sonuga-Barke, 2005; Hosotani & Matsumura, 2011; Oplatka, 2007; Schutz & Zembylas, 2009; Sutton, 2004; Sutton, 2005; Sutton, 2007; Sutton et al., 2009; Tsouloupas et al., 2010.
	Classroom emotional climate – emotion skill development of teachers and their students	Yan, Evans & Harvey, 2011; Li Grining et al, 2010.
Motivate	Teacher emotional scaffolding and student motivation	Meyer & Turner, 2007.

intrapersonal and interpersonal, and is affected by social, cultural and political factors (Figure 4). As shown in Table 3, emotion regulation was addressed by several of the identified papers; however most authors investigated how emotions themselves can be regulated rather than the regulatory function they perform. Hosotani and Imai-Matsumura (2011) found that high quality teachers use emotion regulation effectively in the classroom, while Jennings and Greenberg (2009) uncovered a negative relationship between emotion regulation and teacher burnout. Brackett, Palomera, Mojsa-Kaja, Reyes and Salovey (2010) found that emotion regulation ability was positively associated with job satisfaction. Zembylas (2003c) stated that studies on emotion regulation appear to occur within an individualistic behavior model and he suggested that emotions in education be studied as both a private and political matter. It appears that the approach to emotion regulation research in the identified papers is limited. Several authors in the identified papers advocated for further studies into teacher emotion regulation (e.g. Chang, 2009). This could include, for example, investigation into how the political climate can affect the ability of teachers to regulate their emotions, or how the use of particular emotion regulation strategies can shape the culture of a school.

Motivate

Teacher emotion has a motivational function as it may influence personal motivation, student motivation patterns and those of the school community (Seifert, 2004), and as such also operates across the intrapersonal, interpersonal and broader social, cultural and political contexts (see Figure 4). Displays of emotion by the teacher, for example excitement and curiosity, can be used to motivate students (Pekrun, 2005). As teacher educators, the authors encourage pre-service teachers to use their emotions to motivate students to engage with learning and thus achieve goals. Of the identified papers only Meyer and Turner (2007) directly addressed the motivation function of emotion; they investigated how emotion scaffolding can be used to enhance motivation (see Table 3). According to Meyer and Turner (2006), there is a need to make greater links between motivation, emotion and cognition. These links can be investigated from intrapersonal, interpersonal and social, cultural and political perspectives. For example, research can be conducted into how whole school motivation goals affect the emotional competence of students and teachers, and in turn their use of particular cognitive strategies.

Complexities of teacher emotion

The following complexities were identified in the analysis undertaken in phase two: emotions evolve over time (e.g. Meyer & Turner, 2006; Zembylas, 2003c), are individual or unique (e.g. Damasio, 1996; Hargreaves, 1998; Zembylas, 2003c), context specific (e.g. Meyer & Turner, 2006; Schutz, Cross, Hong & Osbon, 2007) and multi-componential (e.g. Frijda, 1988; Lazarus, 1991; Sutton, 2005; Sutton & Wheatley, 2003; Pekrun & Schutz, 2007). The complexities of emotion provide a useful means of guiding *how* teacher emotion should be studied, in contrast to *what* needs to be studied.

As emotions evolve over time, teacher emotion research needs to be longitudinal, acknowledging that moments captured in the classroom are subject to change. Changes in emotion can occur in response to learning, to personal development, to subject area, or to

variations in personnel. Stages in a teacher's career can affect emotional competence, and classroom emotional climates may vary depending on the time within a term or year. Of the papers reviewed, three reported longitudinal studies (Zembylas, 2004; Scott & Sutton, 2009; Philipp & Schupbach, 2010).

Also, as emotions are individual and unique, measures of them are not always accurate. Case studies and narratives can help capture the unique qualities of teacher emotion. However, these methods are less helpful in assessing certain aspects of teacher emotion such as the emotion expressions component, for which there is a need to go beyond the use of self-report and employ observation and physiological measures (Sutton & Wheatley, 2003). Multiple measures research methods, together with a move away in teacher emotion research from an individualistic view to one incorporating intrapersonal, interpersonal and broader social, cultural and political perspectives, will enable the multi-componential nature of emotions to be captured in future studies.

Conclusion

To address the problem of lack of conceptual clarity in teacher emotion research, we developed a model for depicting teacher emotion. This was achieved by integrating perspectives through identification of definitions and descriptions of emotion presented in contemporary teacher emotion literature. In the process of developing the teacher emotion model, it was found that many papers did not provide a concise definition of emotion, although many presented descriptions of emotion. It was also found that some aspects of the model, for example emotion regulation, were addressed in a limited way in the identified papers.

Five main functions of emotion were identified from the emotion definitions and descriptions. Each of these functions highlights the importance of focusing research on teacher emotions. Three influences on emotions were identified from the phase two processes. As depicted by the model, these functions and influences operate dynamically across the intrapersonal, interpersonal and social, cultural and political dimensions. In addition, four complexities of emotion, also identified in the analysis, provide a useful outline of the means by which teacher emotion research should be conducted in the future.

The model developed in this paper (Figure 4) presents an integrated, multi-componential view of teacher emotion. We consider this to be an important achievement of the paper. The model illustrates how teacher emotion, viewed as both intrapersonal and interpersonal, and placed within social, cultural and political contexts, is developed in response to relationships with students, school personnel and parents. Appraisals and expressions of emotion act as links between the intrapersonal and interpersonal components of emotion and are themselves shaped by social, cultural and political factors. Through awareness of these links, the emotion functions and influences on emotion, teachers can shape their own, and their students' experiences of emotion. Building on this awareness, teachers can affect the wellbeing, motivation and cognitive processes of themselves and their students, and contribute to shaping broader contexts. Pedagogical

and school wide practices can be developed that take into consideration the influences on emotion and enable the healthy functioning of both teacher and student emotions.

Future directions for research

The teacher emotion conceptual model developed in this paper can be used to focus and synthesise future research. In the course of developing this model various topics in need of future research were identified. These include research that investigates how social, cultural and political factors affect the functions of, and influences on, teacher emotion. In addition, as teacher emotion was noted as being multi-componential, evolving over time, individual, and context-specific, future work must be conducted in a way that supports these complexities. Pekrun and Schutz (2007) believed that this is necessary as theories of emotion in education have yet to encompass the multi-level, dynamic and contextualised nature of emotions.

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Dr Leanne Fried is currently working as a Post Doctoral Research Fellow at the Telethon Kids Institute. Previous to this appointment Leanne worked at Edith Cowan University where she was involved in research on pre-service teacher and student emotions, the Professional Learning Community model, and student literacy development.
Email: leannefried@iinet.net.au

Dr Caroline Mansfield is a Senior Lecturer in the School of Education, Murdoch University. She coordinates undergraduate and postgraduate units focusing on learning, teaching and assessment processes, collaborative learning and motivation. Caroline's recent research has investigated teacher resilience, teaching and learning in higher education settings, teacher motivation, development of teacher beliefs, and teacher efficacy.
Email: caroline.mansfield@murdoch.edu.au
Web: http://profiles.murdoch.edu.au/myprofile/caroline-mansfield/

Dr Eva Dobozy is a Senior Lecturer in the School of Education, Curtin University. Her research interests include early childhood education, curriculum and pedagogy theory and development, educational technology, learning sciences, teacher education and professional development of educators.
Email: eva.dobozy@curtin.edu.au
Web: http://oasisapps.curtin.edu.au/staff/profile/view/Eva.Dobozy