



German higher education academic staff's positive emotions through work domains



Katharina Thies^{a,*}, Robert Kordts-Freudinger^b

^a Ostwestfalen-Lippe University of Applied Sciences and Arts, Institute for Science in Dialogue, Emiliensstraße 45, 32756 Detmold, Germany

^b University of St.Gallen, Competence Center for Educational Development and Research in Higher Education (CEDAR), Dufourstrasse 40a, 9000 St. Gallen, Switzerland

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ABSTRACT

This experience-sampling study explores positive state emotions (enjoyment, contentment, pride, relief) and cognitive appraisals (value, control) of $N = 50$ German higher education academic staff in work domains (teaching, research, service). Results indicate that academic staff experience contentment and enjoyment stronger than pride and relief. Value and control are both positively related to the four emotions. The teaching domain enhances stronger experiences of enjoyment, pride and relief when compared with research, and stronger enjoyment when compared with service. The appraisal-emotion relations were not specific for the domain with the exception of research moderating the relation between control and contentment. In sum, the present study suggest differences of emotion intensities between domains, whereas the appraisal-emotion relations are found as domain independent.

1. Theoretical background

Emotions are essential for human experiences, mental processes and behavior (Mayer, Salovey, & Caruso, 2000). Positive emotions in particular are assumed to broaden attention, thinking, and actions, as well as to increase physical, intellectual, and social resources (e.g., Fredrickson, 1998, 2001). Positive emotions are even able to regulate destructive effects of negative emotions, as research indicates (e.g., Lazarus, 1991). This is true for general and for workplace settings, as evidenced, e.g., by the links between positive affect and effective job-related task performance, prosocial behavior (e.g., Dalal, 2005) and favorable job attitudes (e.g., Xiaoxiao & Kaplan, 2014). If positive emotions render positive effects in the work setting, they should also do so in the work domains of academic staff. However, basic research on the occurrence and intensity of positive emotions of higher education academic staff in their work activities is scarce. Few studies revealed that specific emotions are omnipresent for this group as well, especially concerning their teaching tasks (e.g. Hagenauer & Volet, 2014; Kordts-Freudinger, 2017; Postareff & Lindblom-Ylänne, 2011). Given the positive effects of academic staff's positive emotions in the teaching context, this study investigated them from a broader perspective, taking into account the occurrence and the origin of positive emotions in all main work domains – research, teaching, and service, and not exclusively in teaching. We think that this is especially important in the current age of increasing managerialism, high value of research productivity, and student massification on the one hand, and the greater emphasis on the quality of education on the other hand (e.g. Enders, 2001; Enders & Musselin, 2008; Schimank & Lange, 2009). In this age, higher education institutions and their academic staff are challenged with fulfilling their responsibilities in teaching, research, and service without risking mental or physical problems. A meta-analysis by Sabagh, Hall, and Saroyan (2018)) indicated that academic staff experience burnout is present

* Corresponding author.

E-mail addresses: katharina.thies@th-owl.de (K. Thies), robert.kordts-freudinger@unisg.ch (R. Kordts-Freudinger).

on an international scale. Occupational factors, personal characteristics and stressors within and outside the workplace are related to academic staff burnout, bearing serious consequences for their students, among others (e.g., Sabagh et al., 2018, for a review). A more comprehensive understanding of occupation-specific factors might therefore help to improve academic staff's working conditions on both the institutional as well as the individual level.

We are convinced that findings on the occurrence and antecedents of higher education academic staff's emotions are a starting point for improving their work environment. This study therefore investigated their work-related positive emotions. Building on the research presented in the following paragraphs, positive emotions are necessary for building personal resources for enhancing or preserving cognitive processes, work performance and well-being.

1.1. Conceptualization of emotions

According to the multi-component approach (Scherer, 1984), emotions consist of several components: an evaluation component reacting to the emotion-related stimulus (e.g., is the stimulus good or bad?), a somatic component including physiological responses (e.g., an increased heart rate), a motor component including expressive behavior (e.g., laughter), an experiential component including the perception of the emotional experience (e.g., the feeling of joy) and a motivational component implying action tendencies or action readiness (e.g., approach or withdrawal). Emotions therefore are complex phenomena, affecting individuals' cognition, physiology and behavior in a direct and multifaceted way.

How do different emotions, such as enjoyment or anger, originate? Current appraisal theories of emotions suggest that qualitative distinctions among emotions are caused by the evaluation component (e.g., Frijda, 1986; Lazarus, 1991; Ortony, Clore, & Collins, 1988). Their main assumption is that emotions are elicited by the individuals' cognitive interpretations of events, for instance, in terms of pleasantness, certainty, goal significance, or coping potential (see Ellsworth & Scherer, 2013). Therefore, the same stimulus can elicit different emotional experiences both between individuals and within individuals (e.g., Barrett, 2009). For instance, teaching a group of students can elicit enjoyment in one person and anger in another. The emotional experiences might also be variable within a person, for instance, depending on the predictability or novelty of the students to be taught. The appraisal approach has successfully been applied in educational contexts, prominently in the Control-Value Theory of Achievement Emotions (Pekrun, 2006). This theory highlights the importance of control appraisals (i.e. control over achievement activities and their outcomes) and value appraisals (i.e. value of these activities and outcomes), both of which are made by individuals as reactions to situational and environmental aspects. The theory further implies that the intensity of positive emotions increases with an increasing subjective value and increasing controllability (Pekrun, Frenzel, Goetz, & Perry, 2007), thereby corroborating the idea that subjective interpretations of stimuli elicit emotions, and not the stimuli itself. It also emphasizes the role of researching distinct discrete emotions instead of summarizing emotions, which has long been a usual approach in the tradition of dimensional theories on emotions (e.g., based on valence and arousal dimensions, Fredrickson, 1998, 2001). Following the Control-Value Theory, different positive emotions result from qualitatively different cognitive appraisals. For instance, control appraisals are considered to be highly relevant for the experiences of pride, but less so for enjoyment (e.g., when enjoyment refers to a past outcome, Pekrun, 2006). Based on these lines of thought, the current study focused on discrete emotions instead relying on affective dimensions.

Positive emotions' potential to increase action rationales has been described by further research. Theories on positive emotions (e.g., Fredrickson, 2004) indicate qualitatively different effects for each distinguishable positive emotion, for instance, pride increasing the personal worth, and enjoyment enhancing the individuals' activity repertoire (e.g., Fredrickson, 2004). Applied to the educational context, positive emotions are assumed to influence academic behavior in qualitatively different ways, as shown in a large analysis of school and university students (Pekrun, Goetz, Titz, & Perry, 2002). In this study, the positive activating emotions enjoyment, hope and pride correlated positively with students' motivation and effort, self-regulatory learning strategies and academic achievement. By contrast, the positive deactivating emotion relief tend to undermine the latter. Further studies corroborated the positive relations between positive emotions, academic learning and performance variables (e.g. Ahmed, van der Werf, Kuyper, & Minnaert, 2013; Pekrun, Elliot, & Maier, 2009), mainly investigating students in educational contexts. Based on the assumption that emotional processes are ubiquitous for all individuals, it can be assumed that the effects of positive emotions likely apply to higher education academic staff as well.

1.2. Positive emotions of academic staff in higher education

1.2.1. Occurrence and work domains

Previous research on emotions of academic personnel shows that faculty members experience a variety of positive emotions related to teaching. Pre-tenured faculty members of a Midwestern US research university, for instance, reported positive emotions such as enjoyment, happiness, hope, or excitement as more frequent than other emotions (Stupnisky, Pekrun, & Lichtenfeld, 2014). A study by Postareff and Lindblom-Ylänne (2011) on university teachers in Helsinki found enjoyment and enthusiasm, empathy, respect, reward, and excitement to be the most common positive emotions reported. Even graduate student instructors at an US-American research university experience positive emotions regularly, as indicated by Meanwell and Kleiner (2014). The participants in their study reported more positive than negative emotions when reflecting on their teaching after the actual teaching, which surprised them as they had expected different findings. Further studies by Hagenauer and Volet (2014) with teacher educators of two public universities in Australia and Kordts-Freudinger (2017) with university instructors of all ranks at German universities confirmed the ubiquity and importance of positive emotions. Kordts-Freudinger (2017), for instance, asked participants about the frequency of experiencing emotions during teaching and found contentment, enjoyment and pride to be experienced most often. In

addition and confirming results of previous studies, positive emotions were experienced more often than negative emotions. In addition, the study by Postareff and Lindblom-Ylänne (2011) indicated differences between teaching and research. The Finnish teacher educators experienced more enjoyment in teaching than in research. This finding was corroborated by Stupnisky et al. (2014) who found positive emotions, such as enjoyment and pride, more frequently mentioned for teaching than for research with their US-American sample. In their study, negative emotions, such as anxiety or guilt, were experienced more often during conducting research.

Even if teaching and research are conceived as integrated domains (e.g., Khan, 2017), the relations between academic staff's emotions and their work obligations are far from understood. For one, higher education academics have further obligations in addition to teaching and research, in service, such as departmental or administration and management functions. So far, no study has investigated all three work domains with respect to staff emotions. Some research has been conducted regarding their stress level and job satisfaction. For instance, US-American faculty members reported similar degrees of stress in teaching, research and service functions, whereas they experienced their teaching activities as most stressful (Gmelch, Wilke, & Lovrich, 1983). UK academics mentioned that they were most satisfied with teaching, followed by satisfaction with research and least with administration and management (Oshagbemi, 2000). In our knowledge, previous research has not differentiated higher education academic staff's specific positive emotions between the three main work domains. Given that the prevalence and frequency of specific emotions vary between teaching and research activities, and given that stress experience and job satisfaction differs between domains, positive emotions might also vary between all three domains.

1.2.2. German higher education system

The results on emotions of academic staff should be cautiously interpreted with respect to their academic and cultural contexts. For instance, experiences of US-American pre-tenured faculty members (Stupnisky et al., 2014) might differ in their quality or intensity from those of Finnish teacher educators (Postareff & Lindblom-Ylänne, 2011) regarding their working conditions. The German higher education system includes various higher education institutions such as universities and universities of applied sciences (*Fachhochschule*). While universities are both teaching- and research-oriented, universities of applied sciences focus more on application and on teaching. The German academic profession includes specific ranks that might not find equivalents in other systems (e.g., Teichler, Höhle, & Jacob, 2017): university professors and junior academics (*wissenschaftlicher Mitarbeiter*). The latter, most of which are regular employees with non-permanent contracts, include academic staff working on their doctoral dissertation or on their habilitation, but as well junior professors (assistant professors). All of these staff members have functions in teaching, research and service – with professors at universities of applied sciences usually serving larger teaching obligations than those at universities. Lecturers (*Lehrkraft für besondere Aufgaben, Hochschuldozent* or *Akademischer Rat*) form another rank that is primarily responsible for teaching. During semester terms, German professors spend approximately one-third each of their working time with teaching, research and service or administration, whereas German junior academics spend about half of their working time with research (e.g., Jacob & Teichler, 2011). As mentioned, most German academic staff have priorities in both teaching and research; however, staff at universities prioritize research stronger than staff at universities of applied sciences (Jacob & Teichler, 2011). As no research has investigated positive emotions of German higher education academic staff in detail so far, the current study researched a broad sample of individuals from diverse institutions and ranks. It compared positive emotions of academic staff between three work domains: teaching, research, and service.

1.2.3. Cognitive appraisals

So far, research on emotions of higher education academic staff has revealed little about the role of cognitive appraisals in their positive emotions. Previous research focusing on teaching does, however, indicate that faculty's positive emotions might be triggered by social interactions with students. For instance, the teacher educators interviewed by Postareff and Lindblom-Ylänne (2011) experienced empathy specifically towards students, and reward and excitement specifically about student learning processes. Further evidence indicated that satisfaction, enthusiasm, and excitement were most often triggered by the students' role and activity during teaching and by interaction with students (Postareff & Lindblom-Ylänne, 2015). Hagenauer and Volet (2014) highlighted the importance of appraisal components for teacher educators' emotions. These authors, corroborating the appraisal approach followed in the current study, suggested that it is not the objective student success that triggered these emotions, but rather the teachers' expectations towards their students that does so. Their study found that the positive emotions were triggered when the students' progress, motivation or behavior fulfilled or surpassed the staff's expectations (Hagenauer & Volet, 2014). In addition, positive emotions were experienced when staff fulfill their expectations on themselves (e.g., on their role as teachers), whereas their assessment of limited control (e.g., teaching a new group of students) caused insecurity which was accompanied by negative emotions (Hagenauer & Volet, 2014). Stupnisky et al. (2014) also applied the Control-Value Theory to investigate pre-tenured faculty emotions in teaching versus research work domains. They found that value specifically predicted enjoyment, pride, and relief in teaching, whereas control predicted enjoyment and pride in research. Enjoyment and pride also mediated effects of value on the perceived teaching success, as well as effects of control on the perceived research success (Stupnisky et al., 2014). These findings indicate that emotions in the teaching domain may be elicited by qualitatively different appraisals than emotions in the research domain.

Further studies have investigated the role of academic staff's control beliefs in regard to their well-being and work demands. For instance, perceptions of job control are related to burnout in university professors (e.g. Fernet, Guay, & Senécal, 2004; Navarro, Mas, & Jiménez, 2010), and faculty's self-efficacy beliefs were positively related to organisational change processes (e.g., Ellet, Demir, & Monsaas, 2014). In addition, research indicates that self efficacy-beliefs (conceptualized as similar to control appraisals) are related to

academics' motivation and performance in teaching (e.g. Evans & Tress, 2009; Hora & Ferrare, 2012). Few studies have, however, examined how academic staff's self-efficacy beliefs differ between teaching and research. One study with US-American academics implies differences between self-efficacy beliefs for research versus teaching-related tasks (Bailey, 1999). Again, the service domain was not in the focus of this study.

Taken together, the results indicate that control beliefs play an important role in the academic staff's positive emotions. As laid out, research has not yet investigated the role of cognitive appraisals for the occurrence and intensity of specific positive emotions. The following paragraphs will present and describe the specificities of the four positive emotions investigated in the current study.

1.3. Emotions discussed: enjoyment, contentment, pride, and relief

The present study focused on four specific positive emotions, to which theory provides clear frameworks: enjoyment, contentment, pride, and relief. *Enjoyment* is an activating, activity-focused emotion (e.g., Pekrun et al., 2007) that is also partially directed towards the self. It occurs when an event is in favor of one's welfare (e.g., Ortony et al., 1988) and will increase the activity repertoire of the individual's physical, intellectual and social capacities (e.g., Fredrickson, 1998, 2001). *Contentment*, by contrast, is a deactivating, object-oriented emotion (e.g., Pekrun et al., 2007). It is also oriented towards events and the self, and it occurs when an intended prospective outcome has been realized (e.g., Ortony et al., 1988). This emotion is assumed to build personal resources due to the integration of actual and previous experiences (e.g., Fredrickson, 1998, 2001). *Pride* is an activating, outcome-focused emotion (e.g., Pekrun et al., 2007) and arises from appraisals of actions or achievements being socially praiseworthy (e.g., Ortony et al., 1988). These actions could be either the individual's own actions or those of another in-group member. Pride's main function thus is to confirm and enhance the personal worth (e.g., Lazarus, 1991). Finally, *relief* is a deactivating, outcome-oriented emotion (e.g., Pekrun et al., 2007). It is focused on actual or prospective outcomes; but for relief to occur, there must have been first an uncertain desired outcome or negative stimulus, which then changed for the better or went away (e.g., Lazarus, 1991). The uncertainty or negative stimulus can be stopped or avoided either actively by one's own behavior or passively by external factors (Deutsch, Smith, Kordts-Freudinger, & Reichardt, 2015). Although the functions of relief are not as clear as the functions of other emotions (e.g., Goetz, Frenzel, Stoeger, & Hall, 2010), it can be argued that relief can build personal resources, particularly if one's own actions cause the change of the incongruent conditions. Taken together, the four positive emotions show distinct theoretical foundations and functions. The choice of these four positive emotions was further motivated by their omnipresence in K-12 teachers (e.g., Hargreaves, 1998; Sutton & Wheatley, 2003; Keller, Frenzel, Goetz, Pekrun, & Hensley, 2014). Research on *academic staff* has investigated these emotions to a far lesser degree. In Stupnisky et al.'s (2014) study, enjoyment, pride and relief indicated high frequency values, both in the domain of teaching ($M_s > 4.73$) and research ($M_s = 4.51$; all scales with a maximum of 10 *very much so*)¹. In another assessment of academic staff emotions intensities, Kordts-Freudinger (2017) found that contentment, enjoyment, and pride were the most dominant emotions reported ($M_s > 3.51$; on scales to 5 'quite often') for Germany². These studies indicate that the four emotions selected not only show a high level of distinctiveness, but also seem to be frequently experienced by higher education academic staff.

1.4. Methodological requirements in research on emotions

Concerning their temporal properties, emotions are usually defined as short episodes (distinguishing them from mood, cf., Parkinson, Totterdell, Briner, & Reynolds, 1996) that fluctuate or vary over time and between situations, both within and between persons (Barrett, 2009). As a consequence, their conciseness and variability is not assessed in an adequate way if emotions are assessed only once and/or retrospectively. Two main reasons have been discussed with respect to the methodological challenges caused by their transient nature:

First, emotions that are reported only once and/or retrospectively may rather reflect trait emotions that are impacted by individuals' beliefs about current emotions, and less reflect their real frequencies or intensities (intensity bias, see Robinson & Clore, 2002). A valid assessment of state emotions therefore requires measuring them directly at the moment of their existence, in order to assess their quality and intensity adequately, i.e. via real-time approaches (e.g., Augustine & Larsen, 2012; Schutz & Pekrun, 2007). Second, a measurement of trait emotions only allows insights into interindividual (i.e. between-person) relations, while intraindividual (i.e. within-persons) relations cannot be assessed. As research with school children indicate (e.g., Schmitz & Skinner, 1993), interindividual and intraindividual correlations of emotional experiences are assumed to be statistically independent from each other, indicating a variety in their direction and magnitude. Real-time approaches are therefore required that assess the variability of individuals' everyday life experiences at the moment when they happen (e.g., Augustine & Larsen, 2012).

The Experience-Sampling Method (ESM; Csikszentmihalyi & Larson, 1987) suits these requirements: ESM enables repeated measurements of individual's current thoughts, feelings, and actions, directly in the moment when they develop. With ESM, participants are asked to respond to open- or closed-ended questions at several points during specific periods when prompted by a signal. Researchers can define the procedure, for instance by defining time intervals or particular events of interest. The data assessed by ESM, in particular, allows insights into interindividual as well as intraindividual emotional experiences (e.g., Hektner, Schmidt, & Csikszentmihalyi, 2007; Mehl & Conner, 2012). The characteristics of ESM render it highly useful for educational research, with its

¹ *Contentment* was not assessed.

² Descriptives of *relief* are not reported.

potential ranging from assessing the momentary experience of students or teachers, to investigations of developments in educational processes over time (e.g., Zirkel, Garcia, & Murphy, 2015).

To our knowledge, ESM has been successfully adapted to emotional experiences of K-12 teachers (e.g., Becker, Goetz, Morger, & Ranellucci, 2014; Keller, Chang, Becker, Goetz, & Frenzel, 2014, 2014b), but underutilized in the context of higher education teaching. The only study using ESM in a tertiary context focused on different types of boredom, affective states and frequency of situational occurrence in German university students (Goetz et al., 2014). All previously mentioned studies on emotions of higher education academic staff investigated emotions in a retrospective way (e.g., Meanwell & Kleiner, 2014; Postareff & Lindblom-Ylänne, 2011), or only once (e.g., Stupnisky et al., 2014). None of the existing studies has used real-time approaches such as ESM. According to the reasoning above, previous findings on academic staff emotions therefore likely reflect rather their *beliefs* about their emotions; *actual* or *current* emotional experiences have most likely not been assessed so far. In addition, this limitation also applies to past assessments of appraisals. All above-mentioned studies have assessed value and control appraisals (and related constructs) once and retrospectively, even if self-efficacy beliefs (and related constructs) are considered to be situational rather than stable (e.g., Linnenbrink & Pintrich, 2003). To our knowledge, academic staff's cognitive appraisals have not been assessed several times and *in vivo*, i.e. directly when they occur in work-related situations. ESM is therefore also better suited to estimating intraindividual differences and emotional correlates of appraisal variables, such as control and value appraisals. Taken together, only the repeated measurement of emotions and appraisals in academic staff's work life enables valid insights into their emotional states and relations to variables thought to elicit them. The present study therefore employed an ESM approach assessing state emotions and current appraisals.

1.5. The present study

In sum, positive emotions are assumed to have positive effects in the work setting – including the academic profession. However, research on the specificity of distinct positive emotions of higher education academic staff members is limited. Previous studies confirmed that faculty members experience a variety of emotions, in particular positive emotions, during their work. These studies focused primarily on the work domain of teaching, while other work domains such as research or service have attracted less attention. According to an appraisal approach, emotions are evoked by individuals' evaluations of the respective situation. This issue has also been discussed for faculty positive emotions, although substantial research on relations between faculty members' emotions and cognitive appraisals is still scarce. In addition, previous studies on staff emotions have assessed emotions only once and/or retrospectively, so that a valid state assessment of emotions is missing. Intraindividual relations of faculty members' positive emotions to appraisals were not yet investigated.

In response to the lack of research addressing the aforementioned aspects, the current study aimed to investigate four specific positive emotions directly at the time of their occurrence in different work domains. We also intended to clarify intraindividual relations between cognitive appraisals, positive emotions and domains. Therefore, the study first investigated how strongly staff members experienced enjoyment, contentment, pride, and relief, in the domains of teaching, research, and service. Second, it focused on the relations between value appraisals and control appraisals and the four positive emotions. Third, it investigated whether the emotion intensities or the appraisal-emotion relations are effected by the work domains.

2. Method

2.1. Sample

Requests for participation were sent to several teaching support centers and institutions at German universities and universities of applied sciences, asking that they be forwarded to the academic staff. A requirement for participation was that the academic staff had responsibilities in teaching, research, and service. To employ the Experience-Sampling Method (ESM), the participants had to agree to use their own smartphone. The convenience sample included $N = 50$ academic staff from government-funded higher education institutions in Germany. The majority of the sample worked at a university (41), nine worked at a university of applied sciences. The sample includes 36 females and 14 males, with an average age of 36.73 years ($SD = 10.26$) and teaching experience of 12.87 semesters ($SD = 13.76$, one did not have any teaching experience before the beginning of the data collection). Nine participants were professors, two were junior-professors, two were postdocs, 31 were *wissenschaftliche Mitarbeiter*, six were lecturers (for a description see above). Thirty participants worked in the social sciences and humanities, eight in health or sport sciences, eight in engineering disciplines, two in the natural sciences and two in the economics. Twenty-four participants were employed full-time, 21 part-time; five did not answer this item.

2.2. Data collection

The data were collected in the teaching term 2015-16. Participants were instructed in detail about the technical requirements, the item operationalizations and the Frequently Asked Questions about the procedure. They signed up their own smartphones to a web-based application (SurveySignal, cf. Hofmann & Patel, 2015), which was programmed to send out SMS to the participants' smartphones. Each SMS included a link to the same short questionnaire, which was deposited by another application (EFS Survey). SMS were sent from Monday to Friday, with five messages sent per day, randomly within two-hour segments between 8 a.m. and 6 p.m. A total of $N = 1691$ questionnaires were collected, so that each participant contributed an average of 33.82 responses (68% of a possible maximum of 50 per participant). Forty-five participants also completed an additional questionnaire about their

sociodemographic data, as they had not given all information during the recruitment stage.

2.3. Study variables

In order to minimize the effort spent by the participants, ESM questionnaire contained single items. This operationalization procedure is considered as reliable and valid in ESM studies, as aggregation across multiple signals is appropriate (Hektner et al., 2007), as motivational or emotional constructs are focused (e.g., Gogol et al., 2014) and as it has already been applied in the educational context (e.g., Becker et al., 2014; Goetz et al., 2010; Schimmack, 2003). Participants were instructed that their responses to the questionnaires should register the experiences they had directly before the SMS signal arrived. Each ESM questionnaire contained identical items. First, they stated their current emotion intensity. Second, they specified the activity they were engaged in. Third, they indicated their agreement with the appraisal items. The constructs were operationalized as follows:

Emotions. The intensity of the current positive emotions was assessed with the question *How strongly did you experience...?* each for enjoyment, contentment, pride, and relief, with a five-point Likert scale ranging from 1 *not at all* to 5 *very strongly*.

Work domain. The domain of the current work activity was assessed with the question *Which is the main type of activity that you were engaged in?* The response categories included teaching (preparing or post-processing lecture, performing lectures, student consultation, counseling for exams or thesis), research (applying, implementing, analyzing research content, working on publications, and others such as conversations with colleagues or working on reports), service (service tasks, accounting, general paper work), departmental work (faculty activities such as participating in committees), breaks, private/personal activities and others.

Value and Control Appraisals. Value was assessed with the item *Was this activity important for you?* Control was assessed with the item *Did you feel that you could control the situation?* Both items were based on the measures used by Schallberger (1999), on five-point Likert scales from 1 *strongly disagree* to 5 *strongly agree*.

2.4. Data analysis

During the data collection, participants mentioned that they had difficulties to differentiate between the categories administrative and departmental work. For this reason, the two domains were merged into one, named *Service*, after the data completion.

The data represented a nested structure with two levels. Level 1 represents the repeated measurements within the individual participants (referred to as measurement-level or within-subjects) and Level 2 represents the individual participants (referred to as person-level or between-subjects). Analyses were conducted using the software *Mplus 7.4* (Muthén & Muthén, 1998-2015; Muthén & Muthén, 1998-2015); Full-Information-Maximum-Likelihood (FIML, see Collins, Schafer, & Kam, 2001) was used to deal with missing data. As a first step, intercept-only models (or empty-models) were computed for each workdomain to determine the means and intraclasscorrelations (ICC) of the four positive emotions. ICCs provide information about the variance components and whether an analysis on the measurement-level is appropriate. Even small intraclasscorrelations of 0.01 or 0.05 give way to biases if a nested structure is disregarded (Cohen, Cohen, West, & Aiken, 1983). Then, random-coefficient models were computed to examine the relations on the Level 1. For that purpose, the variables were prepared by first centering the value and control items. With respect to the domain effects, dummy variables were then computed for research and service (e.g., dummy research, *research* = 1, *service* = 0). With respect to effects of domains on the appraisal-emotion relations, interaction terms were then computed by multiplying the centered value and control variables by the respective dummy variables (e.g., value by dummy research). For this, teaching was defined as to be the reference domain. The models were run separately for each emotion, for which the emotion variable was introduced as the dependent variable and the centered, dummy and interaction variables as the independent Level 1 predictors.

3. Results

From the total of $N = 1,691$ responses, $N = 1,030$ responses were given by the academic staff during the three major work domains teaching, research, and service. The remaining responses included domains of other occupational work ($N = 193$), work break ($N = 143$) or private/personal activities ($N = 318$)³. Seven responses contained missing values. Detailed information about the activities related to the work domains teaching, research, and service are given in Table 1.

The preliminary analysis revealed information about the average intensity of the four positive emotions and the distributions of variances with respect to the three work domains. Therefore, intercept-only models were estimated. The average means, standard deviations, ICCs and proportions of the Level 1 variances for this analysis are presented in Table 2. Overall, the academics reported the highest average intensity for contentment, followed by enjoyment – irrespective of the work domain. Pride and relief were on average experienced less intensely by the academic staff. For the teaching and service domains, relief yielded a higher average intensity than pride, whereas pride had a slightly higher average than relief in the research domain. Taken together for all emotions assessed, the highest mean intensities were assessed for teaching, followed by research. Lowest mean emotion intensities were found for service. Emotional intensity patterns, e.g., higher means for contentment than for enjoyment, were similar across the domains, whereas the general intensity differed between the domains, e.g., higher averages in teaching compared to service. Taking these results into account, the study suggests that the average intensity of enjoyment, contentment, pride and relief might be influenced only to some extent by the work domain. The analysis of the intraclass correlations indicates strong proportions of within-subjects

³ 21% of participants worked part-time, which could explain the high proportion of private activities.

Table 1
Activities of academic staff in teaching, research, and service.

Teaching (<i>N</i> = 438)	41% Preparation or post-processing of lectures, seminars or courses 29% Performing lectures, seminars or courses 17% Student consultations 13% Counseling for exams or theses
Research (<i>N</i> = 273)	57% Application, implementation and analysis of research content 35% Work on publications 8% Other, e.g., conversations with colleagues or work on reports
Service (<i>N</i> = 339)	65% Administrative or service tasks, e.g., accounting, ordering, or general paperwork 35% Faculty activities like participation in committees or councils

Table 2
Means and ICCs of academic staff's positive emotions in teaching, research, and service.

	Teaching (<i>N</i> = 438)		Research (<i>N</i> = 273)		Service (<i>N</i> = 339)	
	M (SD)	ICC (% within-subjects variance)	M (SD)	ICC (% within-subjects variance)	M (SD)	ICC (% within-subjects variance)
Enjoyment	2.93 (0.69)	0.38 (62%)	2.81 (0.72)	0.43 (57%)	2.59 (0.77)	0.47 (53%)
Contentment	3.17 (0.60)	0.31 (69%)	3.02 (0.63)	0.33 (67%)	2.90 (0.69)	0.39 (61%)
Pride	2.37 (0.66)	0.30 (70%)	2.25 (0.70)	0.35 (65%)	2.06 (0.74)	0.42 (58%)
Relief	2.43 (0.68)	0.29 (71%)	2.23 (0.67)	0.27 (73%)	2.16 (0.65)	0.25 (75%)

Note: Mean values and standard deviations are based on the person-aggregated scores; $N_{Teaching} = 50$, $N_{Research} = 43$, $N_{Service} = 49$. The within-subjects variances were calculated as $100(1-ICC)$.

variance, from 53% (enjoyment) to 75% (relief), both found for service. Again, the pattern of the Level 1 variances seems similar across the domains. The lowest variance was found for enjoyment, the highest variance for relief. Taken together, most parts of the variance in all four emotions originated from the variation within the academic staff.

Further analyses investigated the relations between value and control appraisals and the four emotions enjoyment, contentment, pride and relief, and effects of work domains. Random-coefficient models were computed for these analyses. Absence of perfect multicollinearity was indicated by a tolerance higher than 0.20 and a VIF less than 5 for both independent variables in each case of the three work domains. The correlations between value and control were $r = -.08$ for service, $r = -.01$ for research, and $r = .04$ for teaching. Table 3 shows the coefficients of the models for each positive emotion.

Both appraisals, value and control, yielded significant coefficients for all the four emotions. The more important the situation was for the academic staff and the more control they perceived about the current situation, the more intensely they experienced all emotions. Value appraisals seem to explain larger proportions of pride and control larger proportions of enjoyment and contentment, whereas both appraisals explain similar proportions of relief. The dummy variables included several significant coefficients that have to be interpreted on the background of teaching as the reference domain: for research this is true for enjoyment, pride, and relief; for service this is true for enjoyment. The findings indicate that the academic staff reported more intense enjoyment, pride and relief for

Table 3
Emotions of academic staff predicted by appraisals and domains (with teaching as the reference domain).

Predictors		Enjoyment β SE	Contentment β SE	Pride β SE	Relief β SE
Dummies:	Value	.21*** .06	.21*** .05	.25*** .06	.21*** .06
	Control	.33*** .07	.42*** .07	.16* .05	.21*** .06
	Research	-.12* .05	-.08 .05	-.11** .04	-.13** .05
	Service	-.12** .05	-.06 .05	-.10 .05	-.05 .05
Interactions:	Research x Value	.00 .04	-.03 .04	.00 .04	-.01 .05
	Research x Control	-.06 .05	-.08* .04	.07 .04	.02 .05
	Service x Value	-.04 .05	-.06 .04	-.03 .04	.03 .05
	Service x Control	-.04 .06	-.05 .05	.03 .05	.01 .06
	R^2	.14	.16	.12	.10

Note: Models were estimated separately for each emotion. Value and control were centered (person centered), dummies were not centered, interaction terms were not re-centered. R^2 refers to the explained variance on level one. Standardized coefficients are shown.

* $p < .05$, ** $p < .01$, *** $p < .001$, two-tailed.

teaching than for research, as well as more intense enjoyment for teaching than for service. Contentment seems very similar for research and service as compared to teaching. The interaction terms revealed one significant coefficient, for research and control, indicating that the impact of the control appraisal on contentment is lower for research than for teaching.⁴ Finally, the variability of the total explained variance R^2 , ranges from .10 (relief) to .16 (contentment), equalling 10% to 16% of the variance in the emotions of academic staff. This finding indicates that the independent variables explain emotion variability only to moderate degrees.

4. Discussion

The study investigated the positive emotions enjoyment, contentment, pride, and relief of academic staff in the context of their higher education work domains teaching, research, and service. In order to provide empirical evidence about value and control appraisals as antecedents of these emotions, an experience-sampling method was employed that took into account the emotional within-subjects variability. The insights revealed by this method are significant, given the scarce empirical knowledge base on (German) academic staff's state emotions.

4.1. Intensity of emotions of academic staff

The first aim of the study was to investigate the intensity of enjoyment, contentment, pride, and relief of academic staff in their work domains. The findings of the average intensities suggest that academic staff experience enjoyment, contentment, pride, and relief during all three domains. Contentment seems to be the emotion that is on average most intensively experienced by academic staff across all three domains, closely followed by enjoyment. After that, relief and pride followed in the domains of teaching and service, and pride and relief in the domain of research. Bearing in mind the different nature of emotions (as described above), the differences in intensities can likely be attributed to emotion-specific characteristics to some extent. Nevertheless, the current findings imply that emotions connected to the fulfillment of (intended prospective) positive outcomes (enjoyment and contentment) seem to dominate the staff's work days. Emotions based on judgments of activities as socially praiseworthy (pride) or uncertain or negative outcomes that changed for the better (relief) are less common.

The findings found for the teaching domain shows similarities to the emotion pattern found by Kordts-Freudinger (2017) for German academic staff, an exciting finding given the fact that the methodologies of the two studies differed considerably. Whereas the current study used an ESM method on the *intensity* of emotions, Kordts-Freudinger (2017) used a retrospective, one-time method on the *frequency* of emotions in the teaching domain. The emotion values of the latter study are slightly higher (on scales to 5 *quite often*)⁵, whereas the average emotion intensities assessed in the present study are close to the theoretical mean of the scale (on scales to 5 *very strongly*). Bearing in mind that intensity and frequency are conceptualized as independent from each other, the results nevertheless provide important insights. The current findings with differences between means are similar to findings with other ESM studies in educational contexts (e.g., Becker et al., 2014; Keller, Chang et al., 2014). They might corroborate the assumptions about the overestimation of emotion values when using retrospective or one-time assessment (e.g., Robinson & Clore, 2002). The analysis of the variance components corroborated the value of the ESM approach: More than half of the variance in the four positive emotions originated from the variation within the academic staff (Level 1) and only to smaller extent from the variation between them (Level 2), calling for a stronger focus on intraindividual emotional effects. However, the intensity of the positive emotions does not give insights into their effects or functions on academic behaviours such as learning, retention, or performance, as discussed in the Theory section. Future studies therefore should investigate whether enjoyment and contentment enhance the action repertoire of academic staff (as proposed by, e.g., Fredrickson, 1998, 2001), whether pride increased their personal worth (e.g., Lazarus, 1991), or whether relief enhances their personal resources.

4.2. Appraisal-emotion relations

The second aim of the study was to investigate the intraindividual relations between value and control appraisals and the emotions. Positive relations were found between both, value and control, and all the four positive emotions enjoyment, contentment, pride, and relief. The more important the current work activity was to the academic staff and the more they felt that they were in control about the situation, the stronger they experienced enjoyment, contentment, pride, and relief. The findings for the appraisal-emotion-relations are strongly in line with the assumption that the emotional intensity increases with increasing subjective value and controllability (e.g., Pekrun et al., 2007).

However, there are subtle differences in the intraindividual coefficients and variances explained. The relations found between value and enjoyment, and contentment were lower compared to those found between control and enjoyment, and contentment. High control appraisals can influence enjoyment and contentment to a stronger degree than value. At the same time, high value appraisals can enhance pride stronger than control appraisals, indicated by stronger relations between value and pride, than between control and pride. Relief was explained to a similar extent by value and control appraisals. These findings can be explained by specific positive emotions' directions. For instance, enjoyment and contentment are theorized to be directed towards the self, whereas pride

⁴ Research and service were also tested reference domains, yielding no significant mean differences nor appraisal-emotion relations when compared research and service.

⁵ Descriptives of *relief* are not reported.

could be also directed to other people (e.g., Lazarus, 1991), such as being proud of a student's progress (see the Theory section). Although pride is theoretically assumed to be highly dependent on control appraisals (compared to enjoyment, Pekrun et al., 2007), the present findings indicate that the intensity of pride is predicted less by control, when compared to enjoyment. One explanation for this seemingly contradiction to theory could be that pride usually refers to *retrospective* outcomes (Pekrun et al., 2007), which may less relate to *current* control experiences. Another explanation could be that the academic staff are unaware of how much they have contributed to the outcomes (e.g., the student's progress). Further research should take these assumptions and explanations into account. In addition, control seems to be less relevant to relief, compared to enjoyment and contentment. It is possible that academic staff ascribe the change of actual or prospective uncertain or negative outcomes (as indicated in the relief theory by Lazarus, 1991) more to external factors, making relief less dependent on current control experiences. In contrast, the current control appraisals of academic staff seem highly relevant to their enjoyment and contentment experiences. This finding could be explained by a high degree of autonomy in the profession of academic staff, in particular, attributed to German academic staff (e.g., Janson, Schomburg, & Teichler, 2012). Autonomy may be stronger related to the experience of positive outcomes (relevant for enjoyment and contentment) than to the experience of (non-)negative outcomes (relevant for relief). These explanations, however, have yet to be tested in future studies. In general, both appraisals, value and control, have been found to relate to higher education staff's enjoyment, contentment, pride, and relief.

4.3. Effects by work domain

The third aim of the study was to investigate work domain effects on emotional experiences as well as on the relations between appraisals and emotions. Several effects were found for the teaching domain, suggesting that teaching evokes stronger experiences of enjoyment, pride, and relief than the research domain. Teaching activities (e.g., preparing or performing lectures) seem to elicit stronger favorable positive emotions than research activities (e.g., implementing or analyzing research content). These findings are partially consistent with findings by Stupnisky et al. (2014), who found similar results for US-American faculty academics for enjoyment and pride. This latter study, however, did not find domain differences for relief.⁶ The difference between the studies might indicate one strength of the ESM methodology employed in the current study: ESM assessments may be more sensitive to intraindividual differences, here: between work domains.

With respect to the mean intensities of the emotions in service and teaching, the present findings suggests only one domain effect, that one for enjoyment. Teaching activities seem to evoke stronger enjoyment in academic staff than service tasks (e.g., service tasks or paperwork). No domain effects were found for pride and relief, when comparing teaching and service. In addition, no domain effects were found for contentment, independent whether comparing teaching with research or comparing teaching with service; a result that indicates that contentment is similar in all domains. Given the overall high mean values for contentment (Table 2), contentment seems to be rather stable in academic staff work domains. This finding corroborates studies that indicate that German higher education staff are generally content with their teaching (e.g., Heise & Zaepernick-Rothe, 2010) and with their overall job situation (e.g., Jacob & Teichler, 2011).

The present study further tested whether the appraisal-emotion relations were moderated by work domains. The only significant effect in this respect was found for the relation between contentment and control, which was stronger for teaching than for research, indicating a moderation of the control-contentment relation by work domain (teaching vs. research). We did not confirm the finding by Stupnisky et al. (2014) that enjoyment and pride were stronger predicted by control for research than for teaching. On the one hand, the differences between the results could be attributed to the different cultural contexts (see Jacob & Teichler, 2011) and/or to the different ranks and positions being investigated (see Theory section). On the other hand, the difference may indicate specifics in trait and state appraisal-emotion relations. For subjective conceptions of positive trait emotions, value may be more relevant for teaching emotions; whereas for the specific emotion of contentment assessed directly during its experience, control may be more relevant for teaching than for research. Future research might further investigate these emotion- and appraisal-specific effects. In general, the results of the current study indicate that work domains influence the appraisal-emotion relations only to a small amount. They rather support the notion that relations between cognitive appraisals and emotional experiences are universal (e.g., Pekrun, 2006).

Taken together, the current data indicate that teaching elicits stronger positive emotions, especially enjoyment, when compared to research and service; and pride and relief when compared to research. However, the intensity of contentment is rather stable and independent of work domains. Value did not interact with the domains when predicting enjoyment, contentment, pride, or relief; by contrast, control interacted with the research domain when predicting contentment. Taking into account that this interaction was rather low and unique, predicting emotional experiences by cognitive appraisals seem to be rather domain universal, than domain specific.

4.4. Implications for practice

The study findings indicated that current experiences of enjoyment, contentment, pride, and relief of academic staff are influenced by their subjective interpretation of situations relating to value and control. So, practical implications may arise around the increment of value appraisals, of control appraisals, as well as creating conditions for experiencing positive emotions more in general.

⁶ Mean differences of contentment were not tested.

Increasing the value appraisals of higher education academic staff could include increasing the (explicit) value and worth academics produce in their work. This could be done by creating or fostering a culture of respect and value, by creating space for (respect-driven) exchange between academics, between academics and students, between academics and managers and administrative personnel, as well as outside of higher education institutions. Higher education institutions should create possibilities where academics can present their work and feel its importance, with receiving positive and constructive feedback by all groups mentioned. More generally, in order to positive emotions to occur, higher education institutions need to offer desirable working conditions to academic staff.

Academic staff's control appraisals could be increased by checking and/or partially remediating some of the changes put into practice in higher education systems in previous years. We think that it is important to value and rather increase staff autonomy than to decrease it by (in their view) subjectively harmful restrictions done by managerial or administrative functions. In order to increase autonomy and control experiences and to decrease burnout and other negative outcomes of academic work, it is necessary to support higher education staff directly with resources of multiple kinds: time, financial and work resources and expertise, e.g., for administrative roles. In addition to these consequences, we support activities directed at improving staff's physical and mental directly, as long as they provide conditions for developing positive emotions, e.g., by offering support with negative emotion regulation etc.

4.5. Limitations

First limitations refer to the sample and generalizability of findings. The study's participants were academic staff from German higher education institutions, including different academic ranks, types of employment and disciplinary affiliations with likely different functions or proportions in teaching, research and service. Moreover, the sample is likely biased by the self-selection of participants who might be more prone to the study topic or to the research method. A replication of the study with different academic or cultural contexts or/and with a more exclusively sample focusing on specific ranks, work conditions or disciplines would thus be helpful to test the generalizability of the findings.

Second limitations concern methodological requirements. The study was done during two weeks in the teaching term. The preliminary analysis of the responses of the academic staff indicated that most responses were given while working in teaching and service. Results on the work domains would likely be different if the study had been conducted during semester breaks or similar periods. These latter periods would have likely included more research activities, probably accompanied by stronger contentment or pride experiences. In addition, the time of the day could also have an influence on the experience of the emotions assessed. It is possible that academic staff experience less positive emotions in teaching in the afternoons, when they feel tired or exhausted. We think that it might be useful to conduct more longitudinal studies if the research aim is towards emotion-eliciting situations and emotional impacts on actions and thoughts. In addition, the regression analyses included the predictor variables simultaneously, whereas step-wise models could reveal results without dummy variables and interaction effects. For future studies, we suggest investigating one single (or very few) emotion in order to gain a deeper understanding of emotional processes.

5. Conclusion

The study suggests that German higher education academic staff experience a range of positive emotions in their work domains, thereby opening an avenue for interesting future research. The theoretical traditions summoned in the present research is based on differentiating between specific emotions. Even if positive emotions often go together and if it is harder to distinguish between them than between negative emotions (e.g., [Fredrickson, 2004](#)), detailed analyses of positive emotions yield notable distinctions between them. These relate to their general intensity as well as to differences by the activity, here: the work domain. High proportions of within-subjects variance reveal that the methods employed are of substantial importance for studies on emotions, especially when investigating real-time, state emotions. Finally, the appraisals of value and control made by academic staff have proven to be relevant for their positive emotions and thereby offer implications for the professional development of academic staff: Knowledge about emotion components, or about emotional resilience, should be used so that academic staff may better benefit from positive emotions and their adaptive functions.

Ethical statement

Ethical standards were provided in the study in compliance with the claims of the Federation of German Psychologists Association (Berufsverband deutscher Psychologinnen und Psychologen, 2005) and the American Psychological Association (2010).

Declaration of Competing Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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