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### The influence of teacher emotion on grading practices: a preliminary look at the evaluation of student writing

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## The influence of teacher emotion on grading practices: a preliminary look at the evaluation of student writing

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The evaluation of student work is a central aspect of the teaching profession that can affect students in significant ways. Although teachers use multiple criteria for assessing student work, it is not yet known if emotions are a factor in their grading decisions as has been found in other instances of professional evaluations. Reason to believe that this might be the case not only comes from emotion-congruent judgment research, but also from the emerging field of teacher emotion research which is beginning to reveal that emotion may be an important element in various teacher cognitions and practices. The present study provides initial evidence that emotions may bias the grades teachers assign to their students, such that positive and negative emotions influence grade assignment in emotion-congruent ways. This research offers empirical contributions to research on emotion and cognition as well as on teacher emotion.

**Keywords:** evaluation of student work; emotional valence; teacher cognitions and practices

Evaluating student work is a fundamental responsibility that teachers around the globe regularly fulfill. In the USA, for example, teachers on average assess dozens of assignments per student each marking period (Cizek, Fitzgerald, & Rachor, 1995) and spend approximately 20 hours per week on non-instructional school activities of which evaluating student work is a large part (National Center for Education Statistics, 2007). The result of teachers' evaluation efforts is the grades they assign, and grades have important consequences for students, schools, and the education system as a whole. For instance, poor grades assigned by teachers in elementary school appear to be associated with student dropouts in both middle school and high school, independent of other variables such as socioeconomic status (Alexander, Entwisle, & Kabbani, 2001; Ensminger & Slusarcick, 1992; Greene & Foster, 2003; Rumberger, 1995). Furthermore, high school grades are one of the most important predictors of college admission, and subsequently, first-year college performance (Camara & Echternacht, 2000; Noble & Sawyer, 2002), and both admissions and first year performance have been found to predict college dropout and completion

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rates (Astin, Tsui, & Avalos 1996; Camara & Echternacht, 2000; Strenta, Elliot, Adair, Matier, & Scott, 1994). Given that the ultimate academic goal of most education systems is for students to graduate from college, grades bear a noteworthy influence on how effective schools are in meeting this primary objective.

Past research has examined factors that teachers utilize to assign grades in addition to the quality of student work. These include teacher perceptions of student ability, improvement, effort, rule adherence, attitude, personality, and classroom participation (Cizek et al., 1995; McMillan, 2001). Additional research has found that 76% of teachers reported they inflated the grades of low ability students, 82% considered students' growth or relative improvement in their grading, and 51% reported that class participation affected their grading (Cross & Frary, 1999). This literature suggests that there are various factors that teachers may employ in their grading decisions that are not directly related to the level of student performance.

In the present research, a new factor that may influence teachers' assignment of grades is investigated: emotional valence. An extensive, international body of literature on emotion and cognition has revealed that a primary way in which emotional valence influences judgment is by increasing the accessibility and salience of emotion-congruent information in memory (Forgas, 1995, 2001; George, Jones, & Gonzalez, 1998; Schwarz & Clore, 2003). People experiencing positive emotions tend to recognize and recall positive memories (semantic or episodic) more easily than negative memories, and vice versa (Bower, 1981; Bower & Forgas, 2001; Forgas, 1995, 2001; Forgas & Bower, 1988; Singer & Salovey, 1988). A well-established consequence of emotion congruency is that people in a positively valenced state tend to evaluate people, places, and events more favorably than people in a negatively valenced state (Forgas, 2001; Forgas & Moylan, 1987; Mayer, Gaschke, Braverman, & Evans, 1992; Mayer, McCormick, & Strong, 1995; Schwarz, 2002).

Emotion-congruent effects on judgments of ability and performance have been observed in a number of studies with a variety of evaluators and a range of evaluation contexts (for reviews see Forgas, 1995; Isbell & Lair, *in press*). For example, judgments of job applicants have been found to vary based on interviewers' emotional states (Baron, 1987, 1993). That is, when applicants' credentials were not of particularly high or low quality, interviewers induced to experience positive emotions rated applicants more favorably than interviewers induced to experience negative emotions (Baron, 1993). Another study found that evaluations of medical school applicants varied by whether applicants interviewed on a sunny day (more favorable decision) or a rainy day (less favorable decision) with the former serving as a mild positive emotion induction and the latter serving as a mild negative emotion induction (Redelmeier & Baxter, 2009). In consideration of the range of emotion-congruent effects observed in the contexts of other professional judgments, studies testing for the presence of the effects of emotional valence in the teaching profession are conspicuously absent. However, educational researchers are increasingly investigating and finding a connection between teacher emotion and the quality of teacher-student interactions, classroom climate, and additional educational outcomes of broad interest (e.g. Jennings & Greenberg, 2009; Schutz & Zembylas, 2009).

The topic of emotional valence is particularly relevant to teachers' evaluation decisions because as many as one out of three teachers report experiencing high levels of occupational stress (Borg, 1990; Johnson et al., 2005). Teacher stress is characterized by the repeated experience of a range of negative emotions, such as

anger and anxiety, often triggered by the ‘emotional labor’ of teaching (Hochschild, 1983; Kyriacou, 2001). One effect of high levels of stress is that teachers rank among the top professionals in terms of burnout (de Heus & Diekstra, 1999). In addition, teachers report experiencing a range of positive emotions throughout the school day, including joy, pride, and amusement (Sutton & Wheatley, 2003). Ultimately, teaching is a profession imbued with positive and negative emotions. Therefore, teachers may be at an increased risk for the possible effects of emotion on their judgments compared to other professionals. That is, as a result of the high level of emotions present in the teaching environment, a strong effect of emotion on teacher grading decisions may exist.

In sum, the evaluation of student work is a central aspect of the teaching profession that can affect students in significant ways. Although teachers use multiple criteria for assessing student work beyond quality (Cizek et al., 1995; Cross & Frary, 1999; McMillan, 2001), it is not yet known if emotions are a factor in teachers’ grading decisions as has been found in other instances of professional evaluations (e.g., Redelmeier & Baxter, 2009). Reason to believe that this might be the case not only comes from emotion-congruent judgment research, but also from the emerging field of teacher emotion research, which is beginning to reveal that emotion may be an important element in various teacher cognitions and practices (Schutz & Zembylas, 2009).

### **The present study**

In two experiments, the effects of positively and negatively valenced emotions on the grading of a middle school student’s narrative essay were examined. In Study 1, college students were presented with either a positive or negative emotion induction and then asked to evaluate the student’s essay. Study 2 involved the same procedure except the sample was comprised of middle school teachers. In both studies, the same middle school student’s narrative essay was evaluated using four criteria (creativity, composition structure, spelling/punctuation and vocabulary), and one global criterion (overall performance). These criteria were selected because they are among factors commonly employed by teachers to grade student writing assignments (see Speck, 2009). Drawing from the substantial literature on emotion-congruent judgment and emerging research on teachers’ emotions, the following hypothesis was generated: participants’ grading decisions of all criteria would be higher in the positive emotion condition than in the negative emotion condition.

Acknowledging that these are the first studies in a broader research program, the two experiments presented here are intended as a way to offer novel contributions to the teacher emotion as well as the emotion and cognition literatures. First, an autobiographical recollection procedure was employed to experimentally induce positively and negatively valenced emotions. This procedure allowed for the assessment of the possible causal influence emotion had on judgments of student writing. Second, the grading task was professionally relevant to a range of educators as essays are a common assignment that teachers are responsible for evaluating. Further, instead of utilizing a hypothetical or general behavioral outcome, an actual seventh-grade student’s writing assignment was evaluated. Last, in addition to an undergraduate student sample, a sample of middle school teachers was recruited. Utilizing a teacher sample increases the generalizability of this research and thus sets

the stage for future work to more directly examine the relationship between teachers' daily emotions and their real-life evaluation practices.

## Study 1: College Students

### Method

#### Participants

Participants were 89 college undergraduate students enrolled in an introductory level course on Emotional Intelligence. The sample consisted of 28 males and 61 females. Student ages ranged from 18 to 39 years old ( $M = 20.58$ ,  $SD = 2.56$ ).

#### Procedure

Participants were randomly assigned to complete a packet containing several paper-and-pencil tasks. In the first task participants were asked to describe either a positive or negative autobiographical memory for five minutes as described below:

Life has its ups and downs. Take a moment to recall an experience that made you feel extremely positive, uplifted, and happy [negative, down, and unhappy]. Try to remember exactly when it happened, why it happened, and the range of emotions that you experienced in response to this event. Take a few minutes now to remember the details of this event.

In the space provided below, describe in as much detail as possible the event that made you feel positive, uplifted, and happy [negative, down, and unhappy]. Try to describe the feelings that you experienced in as much detail as possible.

By eliciting either positive or negative memories, the purpose of this task was to induce a positive or a negative emotional state in participants. Emotion states have been effectively manipulated utilizing similar techniques in a number of studies (Coan & Allen, 2007). Moreover, autobiographical recall inductions have been found to trigger physiologically measurable affective activity (Ekman, Levenson, & Friesen, 1983).

Immediately after completing the emotion induction, participants read a narrative essay written by a seventh-grade student and evaluated it using four criteria: creativity (How creative was the student's writing?), spelling/punctuation (How accurate was the student's spelling and punctuation?), composition structure (How structured was the student's paper?), and vocabulary (How extensive was the student's range of vocabulary?).

Responses were collected on a 5-point Likert scale where 1 = *not at all*, 3 = *somewhat*, and 5 = *extremely*. Participants also provided a grade for overall performance (What was your overall evaluation of this paper?) using a similar 5-point Likert scale where 1 = *very poor*, 3 = *average*, and 5 = *excellent*.

Participants then completed the following: (1) a demographic form (age and gender), (2) one question about how they felt after the emotion induction (completed at the end of the study), and (3) a final question about how they were currently feeling (completed at the end of the study). The last two questionnaires each used three, 7-point bipolar scales, where at the poles of the scale 1 = *positive/happy/good* and 7 = *negative/sad/bad*. Following the completion of all tasks, participants were debriefed and thanked for their time.

## Results and discussion

### *Confirmation of random assignment*

The average age of participants was 20.58 years old in the positive emotion condition and 20.59 years old in the negative emotion condition. An independent samples *t*-test revealed no significant difference in age across conditions. There were 15 males and 33 females, and 13 males and 28 females in the positive and negative emotion conditions, respectively. A chi-square test revealed no significant gender differences across emotion conditions. Random assignment was confirmed.

### *Emotion induction check*

To assess the effectiveness of the emotion inductions, the emotion ratings of participants in the positive valence condition were compared to the emotion ratings of participants in the negative valence condition. Participants reported what their emotional state was after the induction using the three aforementioned, 7-point bipolar scales (positive/negative, happy/sad, and good/bad), with higher scores indicating greater negative emotion. These three items were combined into a single post-induction emotion index ( $\alpha = .93$ ). The average post-induction emotion index rating in the negative emotion condition was 4.31 (SD = 1.34), whereas in the positive emotion condition it was 2.77 (SD = 1.11). There was a significant difference in this index between the two conditions,  $t(79) = 5.66, p < .001$ .

This indicates that the emotion induction was successful at differentially eliciting positive and negative emotion in their respective conditions post-induction. Participants also reported their current emotional state at the end of the study (as the very last question) using the same scales. These items were consolidated into a post-study emotion index ( $\alpha = .90$ ). The average post-study emotion index rating in the negative emotion condition was 3.39 (SD = 1.31), whereas in the positive emotion condition it was 2.97 (SD = 1.27). No significant difference in emotion between the two induction conditions was found,  $t(87) = -1.52, p = .13$ . By the time participants had completed the essay evaluations and the demographic questions, the emotion induction had worn off. Such a pattern is consistent with prior research that has found the effects of experimental inductions of emotion degrade over time (Coan & Allen, 2007).

### *Effect of emotion on narrative essay evaluation*

It was hypothesized that participants who were in the positive emotion condition would give higher ratings on the global criterion (overall performance) and all four criteria (creativity, spelling/punctuation, composition structure, and vocabulary) than participants in the negative emotion condition. The mean grades of these criteria are presented by condition in Table 1. A one-way multivariate analysis of variance (MANOVA) was conducted, testing the overall effect of the emotion induction condition (two levels) on the criteria that participants used to evaluate the essay. The one-way MANOVA showed a significant effect of emotion on creativity,  $F(1,87) = 10.80, p < .001$ , only. Mean creativity scores were nearly one point higher for participants in the positive emotion condition ( $M = 4.60, SD = 1.20$ ), compared to participants in the negative emotion condition ( $M = 3.63, SD = 1.43$ ). Although

Table 1. Essay grades by positive and negative emotion condition (Study 1; college students).

Grading criteria	Positive emotion <i>M</i> (SD)	Negative emotion <i>M</i> (SD)
Overall performance	4.02 (1.10)	3.78 (1.04)
Creativity	4.60 (1.20)	3.63 (1.43)
Spelling/punctuation	4.44 (1.38)	4.59 (1.41)
Composition structure	3.02 (1.21)	2.71 (1.40)
Vocabulary	3.29 (1.01)	3.34 (1.24)

no other effects were found, the means for overall performance and composition structure were in the predicted directions.

A limitation of Study 1 was that the participants were college students enrolled in a course on emotional intelligence, and therefore some of them may have been aware of research on how emotions influence judgment. Such knowledge might have reduced the impact of the emotion induction on participants' evaluation of the student essay. Another limitation is that the college students who evaluated the middle school student's essay were likely relatively unfamiliar and unpracticed with the task, which reduces the generalizability of these findings to experienced teachers. Accordingly, in Study 2 the same hypotheses were tested in a sample of middle school teachers.

## Study 2: Middle School Teachers

### *Method*

#### *Participants*

Participants were 56 middle school teachers from a suburban school district in the Northeastern United States (45 female and 11 male). Their ages ranged from 23 to 61 years ( $M = 42.21$ ,  $SD = 10.57$ ).

#### *Procedure*

As in Study 1, participants were randomly assigned to complete a packet containing a series of distinct paper-and-pencil tasks. The first task asked participants to describe either a positive or a negative autobiographical memory for five minutes to induce either a positive or a negative emotional state. Immediately after completing the emotion induction task, participants read the same narrative essay from Study 1 and evaluated it using the same five criteria. Then, they completed the same demographic form and emotion questionnaires. Finally, an 'awareness' probe was included to examine whether the teachers believed their emotion state influenced their evaluations. The probe consisted of a single 'yes' or 'no' question: "Do you think that Task 1 (recalling a memorable experience) may have affected your performance on Task 2 (evaluation of the student's essay)?"

## Results and discussion

### *Confirmation of random assignment*

The average age of participants was 42.32 and 42.05 years old in the positive and negative emotion conditions, respectively. There were 9 males and 22 females in the positive emotion condition, and 3 males and 23 females in the negative emotion condition. A chi-square test revealed no significant gender differences across



emotion conditions. The average number of years spent teaching was 12.20 and 10.90 in the positive and negative emotion conditions, respectively. Two independent samples *t*-tests revealed no significant differences in age,  $t(51) = .09$ , *ns*, or years teaching,  $t(53) = 0.56$ , *ns*, between the participants randomly assigned to the two emotion conditions. Random assignment was confirmed.

### ***Emotion induction check***

As in Study 1, the emotion ratings that participants provided were compared after experiencing either the positive or negative emotion induction. The average post-induction emotion index rating in the negative emotion condition was 4.51 (SD = 1.55), whereas in the positive emotion condition it was 2.67 (SD = 1.15). There was a significant difference in the emotion index between the two conditions,  $t(55) = 5.95$ ,  $p < .001$ . This indicates that the emotion induction procedure was effective at differentially eliciting positive and negative emotions in their target conditions. Also, similar to Study 1, there was no significant difference in emotion ratings between the two conditions at the end of the study,  $t(55) = -.28$ , *ns*. The effect of the emotion induction likely degraded over length of the study (Coan & Allen, 2007).

### ***Analysis of awareness probe***

Out of the 56 participants, just eight (14%) indicated that they believed recalling a memorable experience influenced their evaluation of the student essay. Of these eight participants, four were in the positive emotion condition and four were in the negative emotion condition. Because of the small percentage of teachers who responded affirmatively to the awareness probe, the variable of emotion awareness was dropped from all subsequent analyses.

### ***Effect of emotion on narrative essay evaluation***

As in Study 1, it was hypothesized that participants in the positively valenced emotion condition would rate the narrative essay higher on overall performance and creativity, spelling/punctuation, composition structure, and vocabulary than participants in the negatively valenced emotion condition. Because clearly directional, a priori hypotheses were articulated that grading would be influenced in emotion-congruent directions, and initial evidence for these effects was found in Study 1 for creativity, all reported *p* values in Study 2 are one-tailed, which is a more sensitive significance criterion (cf. Roseman & Evdokas, 2004; Roseman, Wiest, & Swartz, 1994).

The means and standard deviations for all the grading criteria by emotion condition can be found in Table 2. A one-way MANOVA examined the overall effect of emotion (two levels) on the five criteria that participants used to evaluate the student essay. Significant effects were observed for overall performance, creativity, and spelling/punctuation,  $F(1, 55) = 3.11$ ,  $p = .05$ ;  $F(1, 55) = 7.25$ ,  $p < .001$ ;  $F(1, 55) = 2.83$ ,  $p = .04$ , respectively. As predicted, the effects of emotion on teachers' evaluations were in emotion-congruent directions, such that mean scores were higher for teachers' evaluations of overall performance, creativity, and spelling/punctuation in the positive emotion condition compared to teachers in the negative emotion condition (see Table 2). Although the means were in the hypothesized direction for composition structure, a significant effect was not observed for

Table 2. Essay grades by positive and negative emotion condition (Study 2; teachers).

Grading criteria	Positive emotion <i>M</i> (SD)	Negative emotion <i>M</i> (SD)
Overall performance	4.60 (1.33)	4.00 (1.20)
Creativity	4.97 (1.40)	4.08 (1.26)
Spelling/punctuation	4.73 (1.26)	4.15 (1.32)
Vocabulary	3.70 (1.26)	3.85 (1.12)
Composition structure	3.90 (1.27)	3.35 (1.23)

this criterion. No significant differences were found for vocabulary. Finally, it should be noted that the more sensitive significance criterion utilized to analyze the results of this study, i.e., the one-tailed *p* values, may partially explain why Study 2 produced more significant effects than Study 1.

### General discussion

The daily work of teachers is both highly stressful (Borg, 1990; Johnson et al., 2005) and highly rewarding (Shann, 1998). From dealing with lesson preparations and negative interactions with students and administrators to watching students' succeed academically and enjoying extracurricular activities, teachers' daily school experiences are laden with emotion (Sutton & Wheatley, 2003). Teachers' evaluations of student work and their subsequent assignment of grades play a notable role in students' success at eventually earning a college degree (e.g., Alexander et al., 2001; Camara & Echternacht, 2000; Greene & Foster, 2003; Noble & Sawyer, 2002; Strenta et al., 1994). The present work examined whether teachers' emotions influenced a common form of this important educational process: the evaluation of student writing. Across two experiments, one with college students and the other with middle school teachers, the present research showed that the induction of positive versus negative emotion significantly affected evaluation decisions, such that positive emotion led to the assignment of higher grades on certain evaluation criteria compared to negative emotion.

Empirical contributions to scholarship on emotion and cognition as well as on teacher were made by this research. It extends previous investigations of emotion-congruent judgment to a population of professional teachers (Isbell & Lair, *in press*; Mayer et al., 1992, 1995). Further, this work showed that induced emotion significantly affected evaluations of student writing within a population of teachers that had, on average, over 10 years of specialized, judgment-relevant expertise. That a greater number of effects were found in the teacher sample (professional evaluators) than in the college student sample (naïve evaluators) should be noted, and is contrary to what prior research may suggest (Englich & Soder, 2009). These findings may point to the evaluators' demographic characteristics and/or experience as important factors in their susceptibility to rendering emotion-biased judgments. It is also possible that emotion knowledge played a moderating role in this study, as, unlike the teacher participants, the college participants took a course on emotional intelligence during the same period in which they participated in the study.

Additionally, because middle school teachers' emotions were found to affect their grading of a student's writing assignment, this study offers a greater degree of generalizability to actual teacher evaluation practices than is common in research in this field (e.g. Cizek et al., 1995). Moreover, this work adds evidence to the

developing body of research that indicates emotions are a significant factor in the lives of teachers, and accordingly, the academic and social outcomes of their students (Jennings & Greenberg, 2009; Schutz & Zembylas, 2009). The implications of these findings, therefore, should be considered by the international community dedicated to improving teacher and student development.

### ***Implications for students, teachers, and teacher education***

It is noteworthy that the main finding in both studies was relevant for the evaluation of creativity. As school curricula evolve to suit the challenges required to function in a globalizing world, creative thinking and problem-solving skills become increasingly important in education (Moran, 2010). Given the frequency of positive and negative emotions that teachers' experience as they navigate their jobs (Hargreaves, 1998, 2001), systematic emotional biases in grades of creativity, or other criteria, could misrepresent students' performance or slow down their development of valuable skills, as students become disengaged from or discouraged by class assignments (see Covell, McNeil, & Howe, 2009; Stiggins, 2006).

Although this research did not determine that emotions influence teacher evaluation practices in systematic ways, the present findings prompt research questions related to the interests of stakeholders in education. One such question with practical implications pertains to the actions that teachers might take to reduce the effect of their emotions on their evaluations. For instance, are there modifications of daily routines or grading procedures that teachers can implement to balance the frequent fluctuations in their emotional states? In response to this question, the present studies, together with prior research on both teachers' emotions and emotion skills (Brackett, Palomera, Mojsa-Kaja, Reyes, & Salovey, 2010) point to the opportunity for teacher education programs to focus on developing emotion-related competencies (Brackett et al., 2009) because they may lessen teachers' susceptibility to emotion-induced judgment biases.

Emotional awareness, for example, is a skill that teacher education programs might target because heightened emotional awareness can diminish effects of emotion on cognition (McFarland, White, & Newth, 2003; Schwarz & Clore, 1983, 2003). A probe of emotional awareness was included in Study 2. Interestingly, the majority of the teachers reported that they did not think their grading decisions were affected by the emotion induction, when in fact, some of them were affected. Ultimately, these preliminary findings highlight the need for future research to explore the extent to which emotion influences teachers' evaluations of student work, and if further evidence is obtained, to examine skills that buffer against these emotional biases.

### ***Research limitations***

There are design limitations of the present work to consider. To begin, because a neutral (control) condition was not included in either study, the degree to which the observed effects were driven by positive emotions increasing favorable evaluations versus negative emotions increasing unfavorable evaluations is unclear. In future research it will be important to illuminate this distinction to better understand the extent to which different emotions appear to influence teachers' evaluation practices. In addition, this study did not test for the processes underlying the emotion biases. Thus, we have yet to determine why emotion was found to influence judgments of

creativity in the college sample and judgments of creativity, spelling/punctuation, and overall performance in the teacher sample, while no effects were found for composition structure or vocabulary in either sample.

It may be the case that the evaluation criteria were differentially susceptible to changes in the information processing styles activated by the emotion inductions (see Bless, 2001; Forgas, 1995, 2001; Fredrickson & Branigan, 2005). For example, judgments that entail a degree of subjectivity compared to judgments that are generally objective are at a heightened risk of emotional bias (Forgas, 1995, 2001). As such, creativity and overall performance, which appear to be more subjective criteria than vocabulary and composition structure, may be more open to emotional influence. However, given that teachers' evaluations of spelling/punctuation, a seemingly objective criterion, were affected by emotion, further research on this topic is needed to elucidate this pattern of findings.

Lastly, although a middle school teacher sample was used in addition to an actual seventh-grade student's essay, and participants employed criteria commonly used to evaluate student writing (Speck, 2009), the degree to which these findings generalize to a typical middle school student writing assignment or a typical middle school evaluation procedure is uncertain. Composition assignments as well as teachers' grading criteria vary considerably (Cizek et al., 1995; McMillan, 2001). Also, formal letter grades were not assigned to the essay (e.g., 'A' or 'B-') as is standard practice in many middle schools throughout North America. Design limitations acknowledged, these experiments represent the first step in a larger research program.

## Conclusion

Teaching is an emotionally demanding profession (Hargreaves, 1998, 2001). Yet, there is a paucity of experimental research examining how the array of emotions teachers confront may affect their evaluations of student work, as well as other important classroom interactions and behaviors (Schutz & Zembylas, 2009). The present study provides initial evidence that emotions may bias the grades teachers assign to their students, such that positive and negative emotions may influence grade assignment in emotion-congruent ways. Teachers in the positive emotion condition evaluated the creativity, spelling/punctuation, and overall performance of a student's narrative essay higher than did teachers in the negative emotion condition. These preliminary findings mark the beginning of a broader research program that aims to elucidate the effects of emotion on a range of teacher behaviors, which has the potential to both inform teacher preparation programs and improve evaluations of student performance.

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