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## STUDENT EMOTIONAL REACTIONS TO UNEXPECTED GRADES IN PUBLIC SPEAKING COURSES

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### Abstract

Although rigorous and demanding courses are frequently cited as the hallmarks of elite higher education, the impact of assessment on communication instruction is at once pervasive and poorly understood. The current study seeks to extend Mottet et al.'s (2006) emotional response theory (ERT) to this problem by examining the impact of performance evaluation on two dimensions of student affect: mood and psychological arousal. In the first of two survey experiments, course rigor and student self-efficacy meaningfully contributed to the performance ratings that basic course students *expected to receive* on their public speaking assessments. In the second study, performance ratings that were higher or lower than students' expectations substantially accounted for their mood. Furthermore, a quadratic U-shaped function was observed between student mood and arousal. These findings are discussed for their potential impact on undergraduate instruction. Areas for future research involving teacher credibility and affective learning are described.

### Keywords

Emotional Response Theory, Rating Discrepancy, Course Rigor, Self-Efficacy, Student Expectations, Public Speaking

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Universities traditionally regard themselves as meritocracies that reserve the highest evaluations for their most deserving students. Furthermore, it is widely held within the professoriate that the relative scarcity of glowing evaluations promotes greater student effort, thereby resulting in higher overall achievement. Despite the pervasiveness of the impact of evaluating students' performance on instruction, the underlying mechanisms that account for these phenomena remain unclear. However, one promising explanation for how performance evaluation affects students' perceptions of instruction is Mottet et al.'s (2006) emotional response theory (ERT). According to this perspective, teachers' messages elicit emotional responses and condition whether learners will approach or avoid their classroom experiences. A chief goal of ERT is to identify the specific situations that promote students' emotional reactions that enhance student achievement. According to Wrench, Richmond, and Gorham (2009), evaluating student performance constitutes one such message and has been linked to a wide variety of emotional reactions that impact instruction. According to Kluger (2001), the direction and strength of students' emotional responses depend largely on whether their instructors award higher or lower performance ratings than students expect to receive. Thus, the present study will seek to extend Mottet et al.'s (2006) ERT by examining the emotional reactions of undergraduate students to a graded skill assessment immediately after their first speaking assignments. The focus of the study is the emotions of novice speakers when they receive assessment scores that are either higher or lower than they expected. This phenomenon is known as rating discrepancy (Sinha, Mesmer-Magnus, & Viswesvaran, 2012).

### Theoretical Perspective

#### *Explaining Student Rating Expectations*

Extending ERT into the arena of evaluating speaking skills necessitates accounting for how students form their expectations about being evaluated. Students appear to derive these expectations from two main sources of information, namely, the rigor or difficulty with which courses are conducted and how students perceive their own academic abilities. In their componential analysis of students' expected grades, Larseingue et al. (2012) reported that course rigor and students' self-perceived academic competence largely accounted for the grades students expect to receive in public speaking assignments. Likewise, approximately 20% of students' expected grades were

determined by how well they had performed in previous academic courses. A similar proportion of variance was attributed to individual differences, such as personality traits, with a trace amount (approximately 5.5%) of variance in expected speaker ratings attributable to teacher immediacy (Larseingue et al 2012). The following section and accompanying study will demonstrate the usefulness of Larseingue's (2012) model applied to rating discrepancies.

### ***Academic Rigor and Expected Grades***

Although no single authoritative definition of academic rigor appears in scholarly writings, its main components appear to be an intensive workload (Marsh & Roche, 2000) and policies that embody high standards of evaluation (Braxton, 1993). That is, to be valued by their peers, university faculty must be considered demanding teachers who are also discriminating judges of classroom performance.

Heavy workloads and strict evaluation procedures serve as benchmarks or standards against which students base other expectations. Key characteristics of a demanding academic workload, such as covering difficult material at a rapid pace and requiring numerous hours of reading and other assignments outside of class, indicate the effort students must expend to attain the grades they aspire to (Marsh & Roche, 2000). For example, distributing course syllabi during the initial class meeting allows students to gauge course workload and adjust their class schedules, if needed. It is reasonable to conclude that students' expectations regarding evaluation vary inversely with course rigor, as reported in previous studies.

Based on previous research, we advanced the following hypothesis:

H<sub>1</sub>: Students will expect to receive higher performance ratings on public speaking assessments in easier (less rigorous) courses than they will for harder (more rigorous) ones.

### ***Academic Self-Efficacy and Expected Grades***

In addition to perceptions of course rigor, the grades students expect to receive in college courses are often shaped by their beliefs about their own abilities to organize their resources and attain desired levels of performance, also known as *academic self-efficacy* (Zimmerman, 1995). Stubblebine (1998), for example, found that the grades students expected on performance examinations varied inversely with perceptions of course difficulty but were positively correlated with students' self-efficacy. Academic self-efficacy refers to how well students plan, manage time, and employ effective preparation strategies. Each of these factors is pertinent to the successful delivery of public speeches (Menzel & Carrell, 1994). Students imbued with high levels of self-efficacy are more likely to attribute not meeting high academic standards to a lack of effort than inadequate talent (Bandura, 1991).

Academic self-efficacy appears to be influenced by prior academic achievement and self-confidence (Bandura, 1993), which may help explain the positive bias among college students regarding their academic abilities. That is, students' ability to prepare for and perform in their previous academic assignments creates the expectation that they will enjoy a similar level of success in future assignments. Many undergraduates have strong academic backgrounds, including secondary school experiences that demonstrate talent and intellectual achievement. It is no surprise, then, that university students frequently expect to perform well in their coursework. Wendorf (2002) found that students generally expect to receive higher evaluations than their actual GPAs reflect. Moreover, even after they received lower assessments throughout the academic term, the students in Wendorf's (2002) study continued to expect better marks than would be consistent with their actual performance. Similarly, Landrum (1999) found that students expect letter grades of "A" or "B" nearly three-quarters of the time, despite receiving "C" or average-quality grades from their instructors. Even when students rated their own course performance as average, they were more likely to expect a "B" than a "C" in their courses (Landrum, 1999). Therefore, the ratings that students expect for speaking assignments in public speaking courses should be influenced by their academic self-efficacy.

Based on the preceding discussion we advanced the following hypothesis:

H<sub>2</sub>: Students will expect to receive higher performance ratings on public speaking assignments under conditions of high self-efficacy than under low self-efficacy conditions.

## **Study One: Accounting for Student Expected Grades**

### **Method**

#### ***Participants***

Participants were 240 undergraduates (89 male, 151 female) enrolled in an introductory communication course at a mid-sized university in the Southwest. Of this group, 67.1% (N = 161) described themselves as first-year students, 20.8% (N = 50) as sophomores, 7.5% (N = 18) as juniors, and 4.6% (N = 11) as seniors. Participant ages ranged from 18 to 25 years, with an average of 19.1 years. All study participants provided informed consent in accordance with university policies and received credit toward an undergraduate research participation requirement. Although

several hundred students were eligible to participate in this phase of the study, the data-bearing sample was restricted to the first 240 to volunteer for a study of communication effectiveness.

### **Procedures**

All participants completed a survey designed to assess the degree to which expected numerical ratings on basic course public speaking skills assessments vary with course rigor and academic self-efficacy. The survey comprised 8 vignettes, with a 2 x 2 factorial design embedded, using two alternate forms for each vignette. Although all participants completed the entire survey, random assignment procedures were used to assign expected grade scores to each participant across four conditions in the 2 x 2 design ( $N=60$  per cell).

### **Instrumentation**

Descriptions of public speaking situations were presented to participants according to standard procedures for factorial vignette studies (Atzmüller & Steiner, 2010; Jasso, 2006). Specifically, all survey items depicted hypothetical introductory college public speaking courses with either heavy workload and strict grading policies (Hard Courses) or light course requirements and lenient grading practices (Easy Courses). These workload descriptions reflected Marsh and Dunkin's (1992) previous research. *Hard Course* survey items further described a difficult classroom speaking assignment, such as a 7- to 10-minute persuasive speech, for which students were asked to assume they had less than a week to prepare. In the *Easy Course* vignettes, students were required to prepare a shorter speech with more than a week of preparation time allowed by the instructor. Student self-efficacy was assessed by asking participants to imagine that their preparation strategies were either less effective (Low Self-Efficacy) or more effective (High Self-Efficacy) than their peers.

After each vignette, we asked participants to estimate the rating they expected to receive in that speaking situation. We instructed respondents to assume that the teacher in the vignette used a 100-point or percent scale when rating students' speeches. Further, respondents were asked to provide the whole number in this range that best represented the score they would expect to receive. As a manipulation check, we asked respondents to describe whether their estimated scores were lower, about the same, or higher than usual for them on college-level work. Alternative versions of each vignette were prepared, and participants completed both question types in this study. Below are two example survey items: the first represents a Hard Course in which the student is also said to have Low Self-Efficacy, and the second represents an Easy Course in which the student is described as having High Self-Efficacy.

#### **Hard Course/Low Self-Efficacy**

Your speech instructor covers a lot of material in each class meeting, and some of the concepts are difficult to understand. There are numerous readings and other assignments in the course. As a result, it takes you between 8 and 12 hours of outside work per week to keep up with the course. Your instructor has given you less than a week to prepare and present a 5- to 7-minute persuasive speech. You didn't get to spend a lot of time on this assignment and weren't as well prepared as you would've liked. Even so, your speech didn't go as well as your fellow classmates. Your instructor is a very tough grader.

#### **Easy Course/ High Self-Efficacy**

Your instructor doesn't give many notes during each class meeting and the concepts that are presented seem very easy to understand. The instructor seldom makes outside reading assignments. Each week it takes only two hours or less of study to keep up with the course. Your instructor has given you more than a week to prepare a 3- to 5-minute informative speech. You worked very hard to prepare for this assignment, and your presentation went much better than those of your fellow classmates. Your instructor is a very easy grader.

## **Results**

Alternate-form reliability for the numerical expected grade for each item was good ( $\alpha_{xx} = .95$ ). As a manipulation check, participants indicated whether their expected rating on each vignette was Lower ( $Mean = 77.38, SD = 8.84$ ), About the Same ( $Mean = 88.2, SD = 8.69$ ), or Higher ( $Mean = 95.79, SD = 3.78$ ) than the scores that they usually receive in college-level classes. The ordering of these means was consistent with valid survey results. A one-way ANOVA computed on the manipulation check data was significant ( $F_{2, 236} = 121.57, p < .05, \eta^2 = .507$ ).

Students expected to receive higher ratings in Easy Courses ( $Mean = 90.71, SD = 7.32$ ) than for Hard Courses ( $Mean = 77.82, SD = 9.82$ ) and for High Self-Efficacy conditions ( $Mean = 87.89, SD = 9.39$ ) than for Low Self-Efficacy conditions ( $Mean = 80.63, SD = 10.92$ ). A cursory inspection of these data shows an ordering of means that is consistent with previous research and theoretical expectations. That is, course rigor is inversely related to students' performance expectations, whereas student self-efficacy is directly related to them. The results of a 2 x 2 ANOVA, in which course rigor (Hard Course v. Easy Course) and student self-efficacy (Low v. High) served as predictors of students' expected ratings on public speaking assessments, revealed two main effects,

namely, course rigor ( $F_{1, 236} = 160.29, p < .05$ , partial  $\eta^2 = .3582$ ) and student self-efficacy ( $F_{1, 236} = 50.81.29, p < .05$ , partial  $\eta^2 = .1136$ ). Taken together, these two main effects were consistent with the ones reported by Larseingue, et al (2012). Based on these results,  $H_1$  and  $H_2$  were supported.

### **Discussion of Study One**

In Study One, the average expected score for public speeches on a 0–100-point or percentage scale was 84.26 (10.79), a figure like the 86.8 (4.7) and 86.1 (9.86) reported by Booth-Butterfield (1989) and Larseingue et al. (2012), respectively. Overall, students often expect to receive Good or “B” level performance scores. This is consistent with a positive or self-serving bias reported in previous research. Likewise, the finding that students’ expected ratings vary inversely with course rigor but are positively related to self-efficacy corresponds with published studies and anecdotal evidence within the Academy. It appears then that the expected performance evaluation scores of the participants in Study One were in line with established research and practical experience. Thus, the performance expectations of basic course students were largely explained by a combination of course rigor and student self-efficacy. The focus of the following section and the subsequent study turns to how grading discrepancy impacts student emotional reactions.

### **Rating Discrepancy and Affective Reactions.**

Beginning with early studies of personal space (Burgoon, 1978; Burgoon & Aho, 1982; Burgoon, Stacks, & Woodall, 1979), violating the expectations of others has been shown to affect numerous domains of social interaction including emotional expression (Burgoon, 1993), immediacy (Burgoon & Hale, 1988), affection (Floyd & Voloudakis, 1999), marital satisfaction (Kelley & Burgoon, 1991), human mating behavior (Beavan, 2003) and, intercultural communication (Burgoon & Ebesu-Hubbard, 2005). According to White (2008), when humans do not receive what they anticipate from their relational partners, they experience heightened arousal, are more vigilant, and engage in cognitive appraisals aimed at understanding why the violations occurred. Although failing to achieve one’s wants or needs frequently leads to frustration or anger, having one’s expectations exceeded often yields positive emotional reactions, as well (Filipowicz, 2006; Schaubroeck, et al, 2008). Consequently, this perspective helps to explain why both pleasant surprises and grave disappointments arise from similar mechanisms in interpersonal communication.

Similarly, Kluger, Lewinsohn, and Aiello (1994) defined rating discrepancy was defined as the difference between the grades students expected to receive on their mid-term exams and the actual scores they received. In their study, receiving higher or lower scores than expected, and the magnitude of these differences directly contributed to the pleasantness of students’ mood (Kluger et al, 1994). These scholars also detected a quadratic, U-shaped function for psychological arousal and pleasantness (Kluger et al, 1994). That is, greater arousal was detected when students received either much higher *or* substantially lower grades than they expected. However, less arousal was evident when there was little or no discrepancy in ratings. Kluger (2001) reproduced these earlier findings, concluding that student emotional reactions followed the valence of the rating discrepancy. That is, positive emotions were produced when teachers assigned higher scores than the students expected to receive. Conversely, negative emotional reactions were present when teacher ratings fell short of student expectations. Furthermore, the magnitudes of these differences led to high levels of arousal and produced effects noticeable to both laypersons and researchers.

Based on the preceding discussion, we advanced the following hypotheses:

$H_3$ : Students will report more positive moods (pleasantness) when receiving higher than expected ratings than when receiving lower than expected ones.

$H_4$ : Under conditions of grade expectancy violations, a quadratic U-shaped relationship exists between pleasantness and arousal.

## **Study Two: Effects of Rating Discrepancy on Student Affect**

### **Method**

#### **Participants and Procedures**

Approximately three weeks after the initial data collection, we recruited 120 participants (45 male and 75 female) from Study One for a follow-up survey on evaluation and assessment in introductory college courses. To prevent bias in deciding which respondents to recruit for the follow-up survey, we used random selections procedures to contact Study One participants. That is, the names of all study participants were taken from their signed informed consent forms, alphabetized, and then numbered consecutively from 1 to 240. Names were then drawn from this list for contact using a table of random numbers. Participants were contacted using this procedure until 120 agreed to

complete the follow-up survey. Age, gender, and academic classification for this follow-up group were of nearly identical proportions to those in Study One.

As Study One, we used vignette questions to describe basic communication courses in terms of course rigor and student self-efficacy. In Study Two, there were two vignettes for the Expected Rating Condition (Low v. High). In the Low Expected Rating condition, questions described Hard Courses with Low Student Self-Efficacy. Conversely, in the High Expected Rating condition, study participants completed questions that combined Easy Course characteristics with High Student Self-Efficacy. In addition, a rating discrepancy condition was included in the survey. That is, we either instructed participants to assume the instructor had awarded them substantially more or substantially fewer points than they expected for the assignment. After each vignette, respondents completed measures of pleasantness and arousal used in previous studies of rating discrepancy (Kluger, 2001; Kluger, et al, 1994). All participants completed the entire survey but were assigned by random selection procedures to one of four study conditions based on a 2 x 2 factorial design Expected Rating condition (Low v. High) x Grading Discrepancy (Less than Expected v. More than Expected). There were 30 participants assigned to each cell of the 2 x 2 factorial design.

### **Instrumentation**

In addition to the vignette survey described above, respondents also completed measures of student mood and arousal. The mood questionnaire developed by Kluger and his associates (Kluger, 2001; Kluger, Lewinsohn, & Aiello, 1994) in prior research on rating discrepancy was selected for this study because it consistently yields acceptable levels of internal consistency and aligns with theoretical expectations. Based on Mano's (1991, 1992) earlier work, the mood questionnaire contains eight items that tap the dimension of pleasantness and four items that represent arousal. Each mood item is rated on a seven-point scale (strongly disagree to strongly agree) according to the following instructions: Please indicate how this situation would make you feel. Respondents then estimate the extent to which they would experience various moods, such as happy, satisfied, depressed, or sad, and feelings associated with arousal (e.g., surprised or astonished). We used reflected scoring of the items on both scales to produce summative measures of pleasantness and arousal.

### **Results**

Alternate-form reliability for the survey used in Study Two was good ( $\alpha_{xx} = .93$ ). An inspection of the means in each of the four survey conditions showed that pleasantness was greater in the High Expected Rating Condition ( $Mean = 36.73, SD = 10.56$ ) than in the Low Expected Rating Condition ( $Mean = 31.91, SD = 11.28$ ). Furthermore, pleasantness was greater when students received higher-than-expected ratings ( $Mean = 47.80, SD = 10.19$ ) than when they received lower-than-expected ratings ( $Mean = 20.83, SD = 11.66$ ). These findings are consistent with theoretical expectations.

We use a 2 x 2 factorial ANOVA to effects of student expected ratings (Low v. High) and grading discrepancy (Less than Expected v. More than Expected) on student pleasantness. One main effect was detected. That is, grading discrepancy was a significant predictor of the affective dimension of pleasantness ( $F_{1,116} = 396.18, p < .05$ ) and accounted for 77.3% of the variance in the dependent variable. Neither expected grades ( $F_{2,114} = 1.01, p = .37$ ) nor the interaction term ( $F_{1,114} = .179, p = .84$ ) made a significant contribution to the model. Hypothesis three, which predicted that rating discrepancy would predict student mood (pleasantness), was supported.

Next, we use polynomial regression to test the prediction of a U-shaped function between pleasantness and psychological arousal. Psychological arousal was averaged for every value on the pleasantness scale. A polynomial regression equation was computed, in which pleasantness served as the predictor of arousal, revealed a quadratic function resembling a U-shape. Psychological arousal was observed to be higher at the polar ends of the pleasantness scale rather than for moderate levels. The resultant equation accounted for 51% of the variance in psychological arousal ( $F_{2,48} = 23.71, p < .05$ ). These findings confirm Kluger's (2001) report of a quadratic function between pleasantness and psychological arousal under conditions of rating discrepancy. Hypothesis four, which predicted a quadratic U-shaped function between pleasantness and arousal, was supported.

### **Discussion of Study Two**

The second study examined the effects of a type of expectancy violation, known as rating discrepancy, on students' mood (pleasantness) and arousal. In this follow-up study, rating discrepancies had a strong effect on student mood, with the effect following the sign of the discrepancy. That is, when teachers awarded more points on assessments than students expected, the result was greater pleasantness, whereas giving students lower ratings than they expected produced a negative student mood. As a result, rating discrepancy accounted for approximately three-quarters of the variance in student mood. Moreover, arousal was found to have a quadratic U-shaped function with pleasantness. Both effects have been observed in previous studies of rating discrepancies in academic grading. This raises the question of how emotional responses produced by grading discrepancies impact affective learning.

Performance evaluation, such as skills assessment, produces different response patterns depending on whether students receive more or fewer points than they expect on basic course speaking assignments. There are, of

course, a number of possibilities in how students will channel their emotional reactions. Once some students recognize that their performance does not measure up to course standards, they will strive to overcome their shortcomings with increased effort. Further, motivational resources, such as arousal and vigilance, would be allocated relative to the size of the performance gap, so that the greater the disparity, the more resources are expended. However, when positive and negative comments about performance yield similar levels of improvement, students' affective reactions are said to be *symmetrical* (Carver & Scheier, 1990). Alternatively, being rated could evoke much stronger emotions that, in turn, differentially affect learning outcomes for some students (Taylor, 1991). For example, students who must maintain a particular level of course performance to keep their scholarships, might interpret low evaluations as a threat to their academic plans thereby causing them to experience anger, fear, or frustration (Stubblebine, 1998). Feelings of despair can arise from receiving low skills assessments, particularly when they suggest to students that they lack the talent for their chosen profession. The inability to achieve one's career or academic goals is a predictor of languishing (Sawyer, Richey, & Goen, 2021). In these cases, continued effort by these students may fall off dramatically. Conversely, a high rating will be seen as a payoff for hard work and will be associated with a sense of elation (Sawyer, Richey, & Goen (2019).

## General Discussion and Conclusions

The results of the current study support several generalizations regarding performance evaluation and workload in basic communication courses. First, *course rigor* (i.e., workload and evaluation standards) appears to be inversely related to the ratings students *expect* to receive on their public speaking assignments. That is, the more rigorous the course, the lower the expected ratings, whereas the easier the course, the higher the expected ratings. Conversely, *self-efficacy* appears to be *directly* related to the ratings students *expect* to receive on public speaking assessments. Specifically, when students believe that they are better prepared to enter a profession than their peers, they expect to receive higher scores on skills assessments than when they feel less well prepared. Whether the assessment scores awarded to students meet, exceed, or fall short of their expectations, the direction and intensity of students' emotional responses will affect important learning outcomes. Thus, this study contributes to our theoretical understanding of classroom evaluation and offers important implications for teachers.

First, violating students' expectations affects students' affective responses. Specifically, receiving higher scores than expected contributes to a heightened positive mood among learners, whereas receiving lower-than-expected grades is associated with a more negative mood. Moreover, a quadratic (U-shaped) relationship exists between arousal and student mood, with arousal higher at both ends of the pleasantness continuum and lower in the middle range. Because students typically expect to receive a higher score than many instructors are willing to award, discrepancies in negative ratings are more common than many basic course instructors might otherwise suspect. Instructors should adjust their teaching strategies accordingly, not merely assuming that symmetrical emotional responses are the norm.

Rating discrepancies could impact both the credibility of teachers and students' affective learning. One might argue that students will rate their teachers as more competent, caring, and trustworthy if the teacher's scores match students' expected grades. Conversely, students could rate their teachers lower on all three dimensions of teacher credibility if they receive lower scores than they might otherwise anticipate. Among these, the greatest potential impact for rating discrepancy may well be teacher caring. Positive moods will likely produce greater affective learning, while negative moods will more likely reduce these effects. Taken together, these findings help explain why performance evaluations do not always have the effects on learning that teachers intend. For example, giving lower-than-expected scores could evoke negative emotions in learners that impede affective learning rather than stimulating greater motivation to achieve. Conversely, students could perceive both rigorous and lax graders as competent, trustworthy, and caring when the grades they receive are better than expected. Considered from the standpoint of grade discrepancy, there may be little virtue in being over strict and only negligible advantage to being too lenient.

Previous studies have established a direct relationship between scoring student performance and how students evaluate their instructors (Marsh & Dunkin, 1992; Wachtel, 1998). That is, students receiving lower marks tend to rate instructors less favorably than when getting higher ones. Although both revenge and cognitive dissonance have been offered as possible explanations for this effect (Boysen, 2008; Maurer, 2006), neither has the explanatory potential than the findings in the current study. Rigorous instruction, or the lack thereof, contributes to the scores students expect to receive on course assessments, with student self-efficacy further modulating these levels. Instructors who strive to provide realistic assessments of classroom performance and award scores that are much lower than their students expect risk less favorable teacher ratings. Conversely, awarding better-than-expected ratings creates a sense of elation among students, thereby promoting higher faculty evaluations. Consequently, perceptions of faculty and instructional quality are influenced by emotional reactions arising from the violation of students' grade expectations. Clearly, future surveys and field research should be conducted to confirm these results reported in the current study.

Prior attempts at understanding how students learn to value the instruction they receive have been confounded by the failure to recognize the type of affective response evoked by performance evaluation. Symmetrical and asymmetrical rules are distinguished by their reliance on differing systems of arousal. As LePoire and Burgoon (1996) point out, the type of arousal is key to understanding the ensuing effects of communication. These scholars describe two contrasting arousal systems; one that evokes heightened levels of attention such as the orienting response and a second associated with defensive reactions. Their observations are consistent with those of many psychophysicologists (Boucsein & Bacs, 2000) who frequently distinguish the vigilance and cognitive processing arising from the amygdala from emotional reactions, such as fear, emanating from the hippocampus. A potentially fruitful line of research is distinguishing how differing arousal system effect students' responses to instruction. For example, though some students will drop demanding courses, while others will adapt to heavier workloads and, presumably, experience diminishing levels of stress over time (Kelsey, Soderlund, & Arthur, 2004). Future researchers should account for the operation of arousal in students' responses to instruction.

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