Feedback, Affect, and Creative Behavior

A Multi-level Model Linking Feedback to Performance

by

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ABSTRACT

Researchers lament that feedback interventions often fail. Traditional theories assume a cognitive relationship between the receipt of feedback and its impact on employee performance. I offer a theoretical model derived from Affective Events and Broaden and Build Theories to shed new light on the feedback-performance relationship. I bridge the two primary streams of feedback literature—the passive receipt and active seeking—to examine how employees' affective responses to feedback drive how they use feedback to improve performance. I develop and test a model whereby supervisor developmental feedback and coworker feedback seeking relate to the positivity ratio (the ratio of positive as compared to negative affect), enabling them to be more creative and thus improving their performance. I test my model using Experience Sampling Methodology with a sample of MBA students over a two week working period.
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The giving and receiving of feedback is ubiquitous in organizations. Feedback provides information regarding the effectiveness of employees’ work behaviors (Kinicki, Prussia, Wu, & McKee-Ryan, 2004) and is a key component of performance management systems used around the world. A survey of nearly 300 corporations across 15 countries revealed that 91% of the studied organizations implemented a formal performance management system (Cascio, 2006). Unfortunately, research suggests that such systems may be ineffective. Pulakos (2009), for example, showed that only 30% of workers reported that their company’s performance management system helped them improve their performance and less than 40% said their systems provided clear goals or generated honest feedback. Further, a meta-analysis showed that over one-third of feedback interventions resulted in subsequent decreases in performance (Kluger & DeNisi, 1996), leaving Smither, London, and Reilly (2005: 42) to conclude that the effects of feedback on performance, when not negative, were “very small.” All told, research reveals that feedback does not tend to consistently spur enhanced performance.

Scholars have pursued two streams of research to address this problem. The first views the feedback recipient as a passive receiver who may choose to respond to the feedback message based on unidimensional characteristics such as sign and specificity (e.g., Northcraft, Schmidt, & Ashford, 2011; Prussia & Kinicki, 1996; Van Dijk & Kluger, 2011). The second stream regards the recipient as an active seeker of performance-related information (e.g., Ashford & Cummings, 1983). Both streams confirm the importance of feedback for learning, motivation, and performance, but related research is limited in three ways.
First, research in these two traditions has developed separately (Kinicki et al., 2004), resulting in a lack of integration across past studies. Recipients obtain feedback both passively and actively from multiple sources and feedback in real job situations is more complex than research on single dimensions reveals. This study is based on the premise that researchers can gain a better understanding of the link between feedback and performance by jointly considering elements from both streams. Second, both traditions assume that feedback translates directly to performance or indirectly through cognitive mechanisms such as employees' desire or intent to respond (Fedor, 1991; Ilgen, Fisher, & Taylor, 1979; Kinicki et al., 2004). This study, in contrast, builds from the proposition that affect influences employees’ responses to feedback. Affect encompasses both emotions and moods as the felt experiences of individuals in reaction to situations or events (Mischel & Shoda, 1995), placing demands on attentional resources and influencing how individuals behave in response to events (Beal, Weiss, Barros, & MacDermid, 2005; Smith & Lazarus, 1990). Affect can be detrimental to performance, such as when employees feel depressed or ashamed, or it may enhance performance when employees experience positive affective states such as excitement or interest (Beal et al., 2005; Russell, 1980). Understanding the behavioral implications of employees' affective responses to feedback is important in understanding why certain types of feedback elicit desirable responses.

Third, creative behavior, defined as the generation of new and useful ideas concerning processes, procedures, services, and products at work (Amabile, 1988; Oldham & Cummings, 1996), may be an important missing link in the feedback–performance process. Feedback, in an instructional capacity, signals to employees that
they may need to try a different approach for accomplishing tasks or that they may need to alter their efforts altogether (Taylor, Fisher, & Ilgen, 1984). Accordingly, employees need to consider the exhibition of new behaviors, approaching their tasks differently upon the receipt of performance feedback. This is contrary to past research traditions that assume that feedback, if accepted, translates directly into performance. While feedback provides a guide as to how to improve performance, employees must discover for themselves how to implement that feedback and approach tasks in a manner that is new or different to them. This underscores the need to consider the role of creative behavior within the feedback–performance relationship.

The overall goal of this study is to enhance understanding about the relationship between feedback and performance. I draw on affective events theory (AET: Weiss & Cropanzano, 1996) and the broaden and build theory of positive emotions (Fredrickson, 1998, 2001) to provide a theoretical foundation for the hypotheses. I integrate the two dominant streams of past feedback research by adopting the view that employees are not solely individuals who await information from their supervisors but who also proactively self-regulate their performance by seeking information from those around them (Ashford, Blatt, & Walle, 2003). I consider the impact of developmental feedback delivered by the supervisor and feedback actively sought from coworkers. Supervisor developmental feedback is information intended to help employees learn, develop, and make improvements on the job (Li, Harris, Boswell, & Xie, 2011; Zhou, 2003). Employees may also proactively seek feedback from coworkers to supplement information provided by supervisors. Both supervisor developmental feedback and coworker feedback seeking provide employees with important task related information and support that are expected
to influence employees' positive affect, which in turn is expected to foster creative behavior and subsequent task performance. The model shown in Figure 1 represents the theoretical predictions tested in this study.

Figure 1—Theoretical Model

The relationships in Figure 1 are derived from affective events and broaden and build theories. Supervisor developmental feedback and coworker feedback seeking increase employees' experiences of positive as compared to negative affect (i.e., the ratio of positive to negative affect, termed the positivity ratio; see Fredrickson, 2013). Positive affect prompts individuals to make diverse mental associations and promotes approach and exploration behaviors, influencing creative behaviors (Fredrickson, 1998; Isen, Johnson, Mertz, & Robinson, 1985b). I propose that a greater ratio of positive as compared to negative affect works as a stimulus to employees’ creative behavior through broadened mental associations and new perspectives provided by broader information processing strategies (Sutcliffe & Vogus, 2003). Creative behavior, in turn, enhances performance by providing employees with new and useful approaches to their work (Zhang & Bartol, 2010).
Contributions

This study contributes to the feedback literature by integrating the two dominant streams in the literature by considering how supervisor delivered developmental feedback and employees' own attempts to seek feedback from coworkers influences performance and by emphasizing the importance of affective responses to feedback. In addition to developing a model derived from AET and broaden and build theories, this paper contributes to the feedback literature by drawing from Fredrickson’s broaden and build theory (Fredrickson, 1998, 2001) to examine creative behavior as a key mediator in the feedback–performance process. Time is an important parameter in the relationship between events, affect, and behaviors as they fluctuate in the workplace (Weiss & Cropanzano) so I test this model using experience sampling methodology over a 10 day period (two working weeks) to examine within- and between-person relationships.

Structure of this Dissertation

This dissertation is structured as follows. Chapter 2 reviews the literature relevant to the theoretical model, including work on feedback and performance, feedback and affect, affect and creative behavior, and creative behavior and performance. I develop the hypotheses for the theoretical model in Chapter 3. I detail my study methodology and results in Chapters 4 and 5 and conclude with a discussion in Chapter 6.
CHAPTER 2: LITERATURE REVIEW

The emphasis in this dissertation is to understand the mechanisms through which feedback influences employee job performance. Feedback is information regarding the effectiveness of employees' behaviors at work (Ilgen et al., 1979), and performance is the effectiveness of those behaviors in promoting organizational goals (Campbell, 1990). Management scholars and organizational psychologists have long believed that feedback is an important enabler of enhanced performance; indeed, feedback is one of the most frequently used behavioral modification tools and motivational strategies in organizations (Ilgen et al., 1979; Zhou, 2008).

Researchers have developed two separate streams of research to understand the relationship between feedback and performance. The first stream views the feedback recipient as a passive receiver, and depending on several factors which will be discussed below, the recipient may accept the feedback and choose to respond to the feedback message (Fedor, 1991; Ilgen et al., 1979; Kinicki et al., 2004). Alternatively, the recipient may not accept the feedback, resulting in no changes in subsequent behavior and performance. The second stream views employees as active seekers of feedback who use this information in pursuit of the need to feel competent or autonomous (Ryan & Deci, 2000). Empirical investigations, however, reveal that feedback oftentimes has no effect and even negative effects on performance (Kluger & DeNisi, 1996; Smither et al., 2005). In this section, I review the conceptualizations and mechanisms of the feedback–performance relationship in the passive and active literatures. Then I review the small body of work that has examined the relationship between feedback and affect, followed
by work on affect and creative behavior, and finally creative behavior and performance. These literatures all contribute to the theoretical framing of the model shown in Figure 1.

Two Views of Feedback and Performance

I review two streams of feedback research: the employee as passive recipient and as active seeker. I begin by reviewing four primary theoretical models and empirical research in the passive recipient tradition. I then review work done on a less researched type of feedback—developmental feedback—that is one of the main focuses of this dissertation, followed by a review of the active seeking literature.

The employee as passive feedback recipient: Theoretical models and empirical tests. There are four primary theoretical models (Fedor, 1991; Ilgen et al., 1979; Kluger & DeNisi, 1996; Taylor et al., 1984) outlining processes through which employees respond to feedback. These models position the feedback message as originating outside the employee as opposed to being actively sought. Models in this tradition generally examine employees' desire to respond to feedback based on antecedents such as feedback acceptance, source, valence, consistency, and specificity. The mechanisms outlined in these models are largely cognitive and assume that employees—if they choose to respond to the feedback—apply it directly, resulting in enhanced performance. The majority of empirical research in this tradition has rarely examined the proposed mediating mechanisms within these models (Kinicki et al., 2004; Smither et al., 2005).

Ilgen and colleagues (1979) developed a theoretical process model based on individuals' perceptions of feedback, acceptance, desire to respond, and intended
response. Perceptions of feedback are based on the receivers’ characteristics (such as expectations, frame of reference, and self-esteem), the source delivering the message, and the timing, sign, and frequency of feedback. Perceptions of feedback are formed subjectively. Feedback messages have no value in themselves until they are interpreted. Thus, the value or quality of the message can only be determined by the recipient’s perception and cognition. From there, individuals judge the accuracy of the feedback (i.e., acceptance), and if they desire to respond to the message, form an intention to respond which is then expected to result in performance changes. Kinicki and colleagues (2004) tested this model longitudinally and found evidence for the mediating chain of variables.

Taylor and colleagues (1984: 82) noted that, "even when feedback is provided in a direct, timely manner, it often fails to affect a recipient's behavior in the way intended by the source." These researchers updated Ilgen et al.’s (1979) model using control theory (Carver & Scheier, 1981) as an organizing perspective. Taylor and colleagues (1984) discussed how performance standards are set and the comparison process used to evaluate feedback in relation to standards. Individuals may increase, decrease, or make no change in their behavior based on the value of their goals (Campion & Lord, 1982) and their responses to the feedback. This perspective suggests that behavioral responses to feedback, when they occur, include changes in effort, intensity, and persistence of behavior. Research on the control theory perspective suggests that feedback draws recipients’ attention toward aspects of the task on which feedback is provided and influences goal setting (e.g., DeShon, Kozlowski, Schmidt, Milner, & Wiechmann, 2004; Kernan & Lord, 1990).
Building on these previous models, Fedor (1991) theorized that individuals respond to feedback messages similarly to how they respond to persuasive messages: feedback is given with the intention to persuade others of the need to change their behavior. Individuals respond to messages that have personal significance by perceiving and developing attitudes toward them (Fishbein & Ajzen, 1975; Petty & Cacioppo, 1979). Feedback recipients react to factors of the message source, such as power and credibility, and characteristics of the message itself such as timing, valence, and specificity. Individuals form behavioral intentions based upon their reactions to the feedback, yet behavioral change only occurs when recipients feel they have volitional control over the intended changes (Ajzen & Fishbein, 1977). This model is useful in explaining how recipients react to feedback as a persuasive message in forming behavioral intentions, yet less is known about how behavioral change occurs to enhance performance. Fedor and colleagues (2001) found that supervisor power moderates the relationship between recipients’ self-esteem and performance improvement and Kinicki and colleagues (2004) found that the source’s credibility influenced recipients’ perceptions of feedback accuracy.

Finally, Kluger & DeNisi (1996) conducted a meta-analysis of the feedback literature and found that over one-third of feedback interventions decreased performance. This finding led them to put forth their feedback intervention theory, hypothesizing that feedback interventions that draw attention to the self—such as those that threaten self-esteem—attenuate performance; and interventions focused on the task increase performance through motivation and learning. Vancouver and Tischner (2004), in support of this model, found that feedback sign positively related to task performance when
individuals were given an opportunity to reaffirm their self-concepts. Ilies and Judge (2005) further found that feedback comparing individuals to their peers was less effective than feedback focused on individuals' own performance.

Researchers agree that higher quality feedback, defined as feedback that draws attention to the task (e.g., Taylor & Fiske, 1978) and keeps performance goals at the top of recipients' attention (Shah & Kruglanski, 2003), is more helpful to recipients and should increase performance more than lower quality feedback (Kinicki et al., 2004; Larson, Glynn, Fleenor, & Scontrino, 1986; Northcraft et al., 2011). Larson and colleagues (1986), in support of a move away from single dimensions, noted that factors such as timeliness, specificity, and frequency were highly related and were more appropriately conceptualized as an overall quality construct. Kinicki and colleagues (2004) found evidence of this and found that higher quality feedback environments, consisting of frequency, specificity, and positivity, related to individuals' perceived accuracy of feedback. Northcraft, Schmidt, and Ashford (2011) similarly found evidence that feedback quality, consisting of timing and specificity, was associated with task salience and motivation to complete tasks.

Higher quality feedback is task-related and focused on learning and development, notably, task-focused and not person-focused (Kluger & DeNisi, 1996); yet researchers have rarely investigated recipients' perceptions of feedback beyond specific dimensions such as timing, specificity, frequency, and valence (Fedor, 1991; Li et al., 2011). Feedback is perceptual—individuals react to their environments as they perceive them (Endler & Magnusson, 1976). Feedback may be timely and frequent, but if it invokes defensiveness or threatens self-esteem, learning may be circumvented (Kluger & DeNisi,
The previously mentioned theoretical models suggest that behavioral change following feedback is most likely to occur when feedback is supportive, nonthreatening, gives the recipient perceptions of control over the behavioral outcome, and is goal- or future-oriented (Fedor, 1991; Fishbein & Ajzen, 1975; Kluger & DeNisi, 1996; Taylor et al., 1984). Specific feedback dimensions (i.e., specificity and frequency) capture only parts of these components. More research is needed that captures recipients’ perceptions of the quality of the feedback they receive beyond single dimensions.

**The role of developmental feedback.** One task-based approach that focuses on learning, motivation, behavioral control, and future orientation is the study of developmental feedback. Developmental feedback is defined as the extent to which individuals perceive that information provided by others is intended to help them learn, develop, and make improvements on the job (Li et al., 2011; Zhou, 2003). This type of feedback provides useful, quality information to receivers and is focused on helping recipients make improvements. The focus on improvement distinguishes this type of feedback from traditional performance feedback that is either positive or negative and focused on past outcomes. The influence of developmental feedback is independent of sign—it may convey both positive and negative information, but it is likely to propel individuals to improve future performance because of its informational and motivational orientation. Prior work has found that developmental feedback is positively associated with helping behaviors and task performance (Li et al., 2011) and with creativity when combined with the presence of creative coworkers (Zhou, 2003). Future research is needed to examine the process by which developmental feedback affects performance.
Summary of research on the employee as passive feedback recipient. Work in this research tradition has focused more heavily on unidimensional and specific aspects of feedback (e.g., timing, frequency, and valence) and less on recipients' perceptions of the quality of feedback (for exceptions, see Li et al., 2011; Zhou, 2003; Zhou & George, 2001). Research has focused primarily on cognitive variables, such as perceived accuracy and desire to respond, that influence the relationship between feedback and performance. Other researchers, in contrast, have suggested that feedback is an affect-driven process; that is, recipients may not necessarily respond to specific feedback dimensions cognitively, but rather they respond to the tone of the overall message affectively (Kluger & DeNisi, 1996; Kluger, Lewinsohn, & Aiello, 1994). Research examining the effect of feedback on affect has largely studied the effect of feedback sign (i.e., positive or negative) on positive and negative feedback (e.g., Brett & Atwater, 2001; Ilies & Judge, 2005). Studies rarely examine the influence of feedback on affect beyond this dimension.

Feedback in real job situations, however, is complex: messages are rarely unidimensional, and recipients obtain feedback through multiple methods (passively and actively) and from multiple sources such as supervisors and coworkers (Greller & Herold, 1975). More research is needed that examines employees' affective responses to supervisor developmental feedback and employees' own efforts to supplement this feedback with information from coworkers. Scholars have provided several useful theories regarding the relationship between feedback and performance, yet the role of affect in the feedback–performance relationship remains developed to a lesser extent. The purpose of this dissertation is to provide a perspective of the feedback–performance relationship that more closely approximates the complexity of real job situations by
examining developmental feedback passively received from supervisors, employees’ efforts to seek feedback from coworkers, and the influence of affect on feedback.

The next section reviews work done from the perspective that employees are active feedback seekers, followed by a review of work done on the relationship between feedback and affect.

**The employee as active feedback seeker.** Ashford and Cummings (1983) reacted to the feedback literature's emphasis on annual performance reviews by noting that employees actively seek feedback from various sources and methods; employees desire and use feedback in their everyday lives—they do not simply wait for feedback to be delivered to them. Employee feedback seeking behavior is a means through which employees gather information about their work-related behaviors on their own schedule and terms and according to their own needs. The feedback seeking literature has examined three primary motives that employees engage in seeking: image defense/enhancement, conformity, and self-regulatory performance improvement. The first two motives view feedback seeking as a strategy employees use to influence others’ views of them, manage how they appear to others, and fit in with the environment (Ashford et al., 2003; Lam, Huang, & Snape, 2007; Tsui, Ashford, Clair, & Xin, 1995). The third motive views feedback seeking as an employee-driven, proactive behavior that employees use to self-regulate their performance (Ashford & Tsui, 1991; Grant & Ashford, 2008; Parker & Collins, 2010; Porath & Bateman, 2006). This view is consistent with Deci and Ryan’s (2000) self-determination theory in that it assumes that employees seek feedback so that they can improve their performance and therefore satisfy the innate need for competence and autonomy. I adopt this latter view for the basis
of this dissertation because the question of interest is how employees use feedback to influence performance; the underlying assumption in the theoretical framework of this study is that employees desire to perform well in organizations and that they work towards their own standards and goals.

Employees seek feedback to achieve their personal goals—they are not solely individuals who await information from others and who work merely to meet the expectations of others (Ashford & Cummings, 1983). Employees take control of their work-related behaviors and goals in line with self-regulation theory’s (Carver & Scheier, 1981; Vohs & Baumeister, 2004) view that employees guide their own goal-directed activities by establishing their own standards and monitoring progress towards their goals. It also is consistent with self-regulation theory and the proposition that employees can experience a sense of competence vis-à-vis the feedback received from others. The perspective that feedback seekers are self-determined contributors who set their own goals and standards is in line with Ashford and Cummings’ (1983) original conceptualization of feedback seeking (Ashford et al., 2003).

Seeking enhances employees’ ability to perform well by adapting to continuously changing work environments and responding to changing goals and role expectations (Morrison & Weldon, 1990; Tsui & Ashford, 1994). Feedback seeking informs individuals of others’ views of their work, and allows individuals to gain differing perspectives as views of their work change over time in response to shifting conditions—even if, in extreme cases, recipients seek only from a single source (De Stobbeleir, Ashford, & Buyens, 2011). Seeking stimulates divergent thinking by providing differing views and increasing the amount and diversity of information about employees’ work,
leading to enhanced task and creative performance (Chen, Lam, & Zhong, 2007; De Stobbeleir et al., 2011). More frequent feedback seeking allows for more views of employees’ work-related behaviors. Empirical research reveals that more frequent seeking is related to heightened feelings of control (Ashford & Black, 1996) and increased goal setting (Renn & Fedor, 2001). More research is needed that investigates the mediating mechanisms through which seeking relates to performance (Ashford et al., 2003).

Ashford and Cummings (1983) proposed two strategies that employees use to seek feedback: through the direct tactic of inquiry and the indirect tactic of monitoring. Inquiry involves direct requests to others for information regarding performance. Employees may ask multiple sources to supplement information from themselves or others. Monitoring involves individuals' observation of the environment for personally relevant information, including their own task progress and the actions of others around them (Ashford & Cummings, 1983; Greller & Herold, 1975). Research has shown that monitoring may be subject to greater perceptual bias and is less accurate than information gained through inquiry (Ashford & Tsui, 1991). Reflection of task performance without direct feedback delivered from others has been found to have no effect on performance improvement (Anseel, Lievens, & Schollaert, 2009). Direct verbal inquiry provides employees with a clear picture of how others see their work and behaviors, allowing for behavioral adjustments and improvements to work behaviors and ideas (De Stobbeleir et al., 2011). This dissertation looks specifically at seeking through inquiry because this strategy allows for deeper information from others and is prone to fewer biases.

**Summary of research on the employee as active feedback seeker.** Research to date on the passive receipt and active seeking literatures has been developed separately.
Research suggests that feedback seeking is a valuable supplement to formally delivered feedback from supervisors (Ashford & Cummings, 1983), yet supervisors' attempts to deliver quality feedback and employees' own efforts to gain additional feedback have not been examined in tandem. This is problematic because it fails to capture the reality of organizational life. This study attempts to address this by bringing together these two streams of work and expanding them to include theory on affect. Research in the active seeking tradition has not examined employees' affective responses to feedback seeking and research in the passive area has given it little attention despite suggestions that affect may be an important mediator in predicting performance (Kluger & DeNisi, 1996; Kluger et al., 1994). The next section reviews work on the relationship between feedback and affect.

**Feedback and Affect**

Although feedback has the power to help individuals develop and understand workplace standards (Ilgen et al., 1979), certain factors determine whether individuals actually use the feedback they receive (Fedor, 1991). Individuals' affective response to feedback is one of these factors. I apply affective events theory (AET; Weiss & Cropanzano, 1996) as a useful framework for studying the role of affect in the feedback–performance relationship. I begin by explaining the conceptualization of affect used in this dissertation, then summarizing affective events theory to establish a foundation for the theoretical model advanced in the hypotheses section, and finally reviewing work on the relationship between feedback and affect.
**Affect.** Affect includes both emotions and moods. Emotions are generally tied closely to the appraisal of an event and can be summarized as a feeling of pleasantness or unpleasantness stemming from an event (Frijda, 1993). Emotions may elicit physiological changes, such as a body’s action readiness and increased arousal and vigilance (Frijda, 1993). Emotions also accompany cognitive appraisals, such that cognitive appraisals of the situation may inform or be informed by emotions (Plutchik, 1994). Both emotions and moods are experiences, that is, they are temporary felt states, in contrast to individual trait differences in chronic levels of affect. Moods differ, however, from emotions on three primary features: duration, intensity, and diffuseness. Moods are generally longer lasting than emotions and are generally less intense. Additionally, moods are more diffuse than emotions in that the moods may not be as tightly connected to their sources as are emotions, and as a result, a wider variety of cognitive and behavioral responses may stem from moods (Frijda, 1993; Morris, 1989).

These distinctions, however, are sometimes arbitrary (Frijda, 1993; Morris, 1989). Emotions sometimes last longer than moods and may be as diffuse as moods in their consequences. Emotions may turn into moods when individuals no longer actively focus on the cause of the emotion, but when reminded of the cause, moods may transform back into emotions (Clore, 1992). The distinction between moods and emotions is not entirely clear and can be taken too far (Weiss & Cropanzano, 1996). For this reason, I follow previous research (Beal et al., 2005; Bledow, Schmitt, Frese, & Kuhnel, 2011; Weiss & Cropanzano, 1996) and use the term affect to encompass both emotions and moods as the felt experiences of individuals in reaction to different features of situations or events (Mischel & Shoda, 1995). It is important to note that while some individuals are more
likely to experience chronic levels of affect over time (i.e., trait-like affect characterized as trait positive affect or trait negative affect; Watson, Clark, & Tellegen, 1988), the focus here is on affect as states, or affect that is subject to temporal change.

Affective events theory. Affective events theory (AET; Weiss & Cropanzano, 1996) provides an overarching framework that focuses on employees’ affective responses to events at work. The theory suggests that individuals' behaviors may be in reaction to emotional responses stemming from work occurrences. Events happen in the workplace and individuals respond affectively—for example, feeling angry, frustrated, inspired, or joyful. These reactions have behavioral consequences, such as the effort that employees put towards their work, how they approach tasks, or the manner in which they interact with their colleagues. The impact of events on affective reactions may vary in part due to individual differences such as goals, personality, or disposition. AET recognizes the importance of time as a parameter in the relationship between events, affect, and behaviors or attitudes. Employees’ affective states fluctuate over time and it is important to consider those fluctuations when studying how affect influences individuals.

Events represent important happenings in the workplace that bring about a change in what individuals are currently experiencing in regard to goals or personal desires (Weiss & Cropanzano, 1996). Events that are important to individuals’ goals evoke affective reactions (Frijda, 1988, 1993); those that help individuals reach their goals generally yield positive affective responses and those that threaten individuals goals lead to negative affective responses (Frijda, 1988). Further, events in the workplace appraised as opportunities for learning, goal attainment, and growth generate positive affect and attitudes (Cavanaugh, Boswell, Roehling, & Boudreau, 2000). Lazarus (1991a)
supported this view, maintaining that events indicating achievement and progress toward desired outcomes elicit pleasurable emotions. Empirical studies show that positive affect is associated with challenge stressors, goal attainment, and task satisfaction (Gabriel, Diefendorff, & Erickson, 2011; Ilies & Judge, 2005; Locke & Latham, 1990; Rodell & Judge, 2009) and that negative affect is associated with events hindering growth and goal attainment, such as those that increase role ambiguity and work constraints (Chen & Spector, 1991; Rodell & Judge, 2009).

Affect is an important part of individuals’ experiences at work and has consequences for work-related behaviors and attitudes (Weiss & Cropanzano, 1996). Affect is driven externally by features or events in the environment, including employees' own behaviors, and also internally by the relevance of those events to individuals’ goals and desires. The next section examines the effects of feedback on affect.

**The relationship between feedback and affect.** Feedback represents one such event that elicits affective reactions because feedback is closely tied to individuals’ egos and goals (Kluger & DeNisi, 1996; Kluger et al., 1994). Taylor and colleagues (1984: 111) note that “feedback virtually always provokes an affective response.” Individuals’ affective reactions to feedback stem primarily from the tone and implicit meaning of the feedback message. Individuals react primarily to the *content* of the feedback message, for example, whether the feedback signals progress towards goals or yields opportunities for learning (Kluger et al., 1994; Swann & Schroeder, 1995). Individuals consider their perceptions of the feedback situation and how to respond to the feedback in a way to maximize the potential outcome in reacting to feedback and deciding whether to act or set higher goals (Swann & Schroeder, 1995). Recipients use the feedback for development of
their skills if they believe they have control over the needed behaviors to improve the situation and have control over the expected outcome (Ajzen, 1991; Ilgen & Davis, 2000). Situations that are supportive of learning and development are expected to increase individuals’ feeling of control over the situation, providing them with the drive to apply themselves to improve their skills and the situation (Mathieu & Martineau, 1997; Maurer, 2001).

Feedback provides individuals with important information regarding workplace standards and their own performance (Ilgen et al., 1979). Individuals experience positive or negative affect in response to the overall message provided by the feedback (Swann & Schroeder, 1995). After receiving feedback, individuals may set higher goals or engage in corrective actions to reach their previously set goals (Bandura & Locke, 2003; Ilies & Judge, 2005). Feedback that is delivered in a developmental or supportive manner is expected to influence individuals by raising their self-efficacy beliefs, thereby influencing their affective states and ensuing behaviors (Kluger et al., 1994).

Many studies have examined the effect of feedback valence on affect and have found that, in general, positive feedback elicits positive affect and negative feedback elicits negative affect (Belschak & Den Hartog, 2009; Brett & Atwater, 2001; Ilies, De Pater, & Judge, 2007; Kluger et al., 1994). Researchers recognize that affect is important to employees' behaviors and attitudes at work, yet researchers have not examined the impact of developmental feedback on affect. Research supportive of affective events theory suggests that employees react to events on the basis of how supportive they are of employees' goals, and not merely the valence of events. Fugate, Harrison, and Kinicki (2011) demonstrated that employees' negative appraisals of situations were related to
negative affect, while Rodell and Judge (2009) found that employees reacted positively to challenge stressors in their daily lives—events that could be deemed to have a negative valence but do not deter from employees' goals.

Feedback in real job situations is rarely all positive or all negative; feedback is more complex and may signal both positive and negative information. Developmental feedback, unlike performance feedback that has a focus on past outcomes, has a future orientation and may contain unfavorable information (Zhou, 2003). This type of feedback focuses on improvement and provides employees with quality information to help them reach their goals. Research has not examined the impact of developmental feedback on employees' affective states. This is a striking omission because employees' perceptions of feedback and their ensuing responses determine whether they use the feedback. Affect is a natural response to feedback and influences employees' behaviors. The purpose of feedback is to either motivate employees or to instruct them on how to change their behaviors and do something new. The use of creative behavior is one method that employees can use to improve performance. Future research that more closely approximates feedback in the real world by incorporating the role of affect and creative behavior within the feedback–performance relationship is clearly needed. This study attempts to address this void.

**Affect and Creative Behavior**

The purpose of feedback is to persuade others that they may need to try a new or different approach to reach their performance goals (Fedor, 1991; Taylor et al., 1984). Feedback indicates which behaviors are working well and offers suggestions for new
behaviors to enhance performance. The failure to examine how employees use feedback to approach their work in a novel manner by engaging in creative work behaviors is one plausible explanation of the nonsignificant or negative relationships between feedback and subsequent performance.

Creative behavior in organizations is the suggestion of novel and useful ideas, products, or procedures (Amabile, 1988; Oldham & Cummings, 1996). Creative behavior is desirable and possible in a wide array of jobs and applies to services, products, and procedures and varies in terms of the degree to which it departs from existing ideas (Mumford & Gustafson, 1988; Shalley, Zhou, & Oldham, 2004). It may be adaptive or completely original, or incremental or radical (Madjar, Greenberg, & Chen, 2011; Oldham & Cummings, 1996). Researchers agree that creative behavior is important for creative jobs (e.g., Amabile, 1985; Mumford, Scott, Gaddis, & Strange, 2002), yet individuals enact creative behaviors even in jobs traditionally thought to be non-creative, such as workers on an assembly line or in a customs agency (Hirst, Van Knippenberg, Chen, & Sacramento, 2011; Zhou, 2008). This conclusion is supported by both self-regulation and self-determination theories. These theories are based on the proposition that employees are motivated to improve existing work conditions, processes, or behaviors that thwart the accomplishment of meaningful goals or a sense of competence. As such, creative behavior is possible and desirable from individuals at all levels even though it may not be central to a role (Amabile, 1988; Oldham & Cummings, 1996; Woodman, Sawyer, & Griffin, 1993).

According to Fredrickson's broaden and build theory (1998, 2001), positive affect enhances creative behavior because it broadens individuals' thought and action repertoires.
and builds personal resources. Positive affect broadens individuals' thought associations by increasing the cognitive material available for processing and facilitates behavioral flexibility by allowing more diverse cognitive elements to become associated (Isen, 1999a, b). The positive emotion of interest, for example, produces more accurate subsequent knowledge than does a negative emotion like boredom (Fredrickson, 2003). Positivity promotes approach and exploration and opens individuals to experiential learning opportunities. Isen and Reeve (2005) showed that positive affect fosters intrinsic motivation and responsible work behavior—study participants in a positive mood enjoyed novel and challenging tasks more than those in a neutral mood and were more likely to spend time completing work needing to be done.

Positive affect provides individuals with resources to persist and approach problems creatively. Individuals in a positive state have increased coping abilities and are more likely to attend to negative information (Trope & Neter, 1994) and to engage in more careful processing of information when it is important to their goals (Aspinwall & Brunhart, 1996). Positive affect influences individuals' ability to assimilate new information with existing schemas, enhancing flexibility in thinking, decision making, and behavior (Isen, 2008). Experiences of positive emotions induces individuals to discard or amend unnecessary behavioral scripts and to pursue novel and creative thoughts and actions (Fredrickson, 1998). Amabile, Barsade, Mueller, and Staw (2005) found that positive affect influenced individuals' creative behavior in organizations and Isen and colleagues found a similar relationship in several studies (Estrada, Isen, & Young, 1994; Isen, Daubman, & Nowicki, 1987; Isen, Johnson, Mertz, & Robinson, 1985a).
Negative affect has also been linked to creative behavior. Scholars argue that negative mood provides information indicating that something needs to change (Kaufmann & Vosburg, 1997; Martin & Stoner, 1996; Schwarz, 2002). This occurs because affect represents an informational function. When negative emotions such as frustration and anger arise, individuals recognize that something is wrong and they are in turn motivated to overcome the negative mood by trying new approaches to problems. George and Zhou (2002) found that individuals in a negative mood who also experienced their feelings clearly and were in contexts that rewarded creativity were more likely to demonstrate creative behavior. The conclusion from many studies is that negative affect influences creativity under certain conditions, such as when individuals are highly committed to their jobs (Kaufmann, 2003; Zhou & George, 2001).

Researchers agree that both positive and negative affect have important effects on work outcomes. Positive affect promotes approach behaviors (Cacioppo, Gardner, & Berntson, 1999; Watson, Wiese, Vaidya, & Tellegen, 1999) and continued action (Carver & Scheier, 1990; Clore, 1994) and negative affect promotes avoidance (Fazio, Eiser, & Shook, 2004) and narrow thought processes and behavioral options (Bledow et al., 2011; Fredrickson, Tugade, Waugh, & Larkin, 2003). Individuals often experience a mix of positive and negative affect (Bledow et al., 2011; Fong, 2006; George & Zhou, 2007), suggesting that researchers may benefit by examining both types of affect together. I take the perspective in this study that certain types of feedback (i.e., supervisor developmental feedback and coworker feedback seeking) are a positive organizational resource and that, as described previously, are more likely to arouse positive than negative affect. I look specifically at the positivity ratio for this reason.
Feedback, as an event tied closely to individuals' goals, may signal both positive and negative information (Li et al., 2011; Zhou, 2003). Feedback characterized by quality information, focused on improvement, delivered by a supportive source, and sought under employees' own discretion is expected to increase positive affect, controlling for negative affect. Greater levels of positive affect as compared to negative affect—termed the positivity ratio—are expected to increase individuals' behavioral variability and willingness to apply feedback in novel ways. Losada and Heaphy (2004) found that higher levels of positivity were linked to greater behavioral flexibility and performance in business teams and Sutcliffe and Vogus (2003) suggested that greater positivity increased variability in perspectives and information processing strategies. In support of this proposition, Rego and colleagues (2012) revealed that the positivity ratio mediated the relationship between employee optimism and creativity, and Radey and Figley (2007) showed that higher levels of positive to negative affect predicted greater satisfaction in a sample of social workers. Further, Galvin, Christensen, Kinicki, and Reina (working paper) further found that higher positivity ratios in feedback given to CEO’s from their direct reports were positively associated with top management teams' job satisfaction, organizational commitment, CEO effectiveness, and firm performance.

The bulk of work in the management field has focused on studying positive and negative affect as separate constructs, and less work has examined the impact of the ratio of positive to negative affect, even though individuals may experience both types of affect throughout their workday. The objective of this study is to examine two types of feedback and their relation to performance through the positivity ratio and creative behavior. Studies show that increased positivity in organizations makes employees and
managers more successful in the long run (Fredrickson, 2003; Staw & Barsade, 1993; Staw, Sutton, & Pellod, 1994).

**Creative Behavior and Performance**

Creative behavior refers to employees' attempts to develop ideas, methods, and products that are adaptive or original and useful to the organization (Oldham & Cummings, 1996). Creative behavior is a means of communicating ideas, recognizing problems, using intuition and guesswork, developing hypotheses, and offering contradicting viewpoints (Torrance, 1988). Problems change in organizations and employees need to develop solutions and ideas that are novel or adaptive from what has been tried in the past. Successful performance at work requires the ability to form novel and useful ideas (Drazin, Glynn, & Kazanjian, 1999).

Research to date has examined creative behavior primarily as an outcome and has rarely extended it to examine the impact on overall job performance. Studies have shown that creative behavior occurs and is desirable in a wide range of jobs, including those in which creativity is not an explicit requirement. Oldham and Cummings (1996) found a significant relationship between creative behavior and overall job performance in a setting of manufacturing engineers and technicians. Gong, Huang, and Farh (2009) found a significant relationship between creativity and employee sales and job performance in a sample of insurance agents. A study by Ng and Feldman (2009) reported a significant correlation between creative behavior and job performance in a sample of employees in professional jobs.
Study Overview

This study aims to make several theoretical contributions. The integration of the passive receipt and active seeking feedback literatures provides a broader view and new perspectives of employees’ experiences with feedback at work. The study of employees’ affective responses to feedback suggests a means through which employees can thrive at work through their experience of positive affect and by improving their job performance through creative behavior. I develop hypotheses for the theoretical model in the next chapter.
CHAPTER 3: THEORY AND HYPOTHESES

I use affective events theory (AET; Weiss & Cropanzano, 1996) and the broaden and build theory of positive emotions (Fredrickson, 1998, 2001) to develop a theoretical understanding of how feedback impacts employee performance. This is an important contribution to the literature because feedback is one of the most frequently used performance management tools in organizations and research reveals that feedback oftentimes has little to no effect on performance (see Kluger & DeNisi, 1996; Pulakos, 2009; Smither et al., 2005). Many studies assume that feedback directly translates to performance or that the relationship is mediated by employees' cognitive responses to feedback. I take a different perspective by theorizing that employees' affective responses to feedback and their ensuing creative behaviors are what relates feedback to performance.

This study focuses on feedback as a positive organizational resource because positive affect and positive organizational practices have been linked to effectiveness and optimal functioning at work (Fredrickson & Losada, 2005; Losada & Heaphy, 2004; Sutcliffe & Vogus, 2003). I contribute to the feedback literature by integrating the passive approach to studying feedback (i.e., supervisor developmental feedback) with the active feedback seeking approach into one theoretical model. Specifically, I test a model that considers the influence of supervisor developmental feedback and coworker feedback seeking on the ratio of employees' positive as compared to negative affect at work and how this ratio, termed the positivity ratio, broadens individuals' thought and behavioral repertoires to enhance creative behavior and thereby overall job performance.
Supervisor Developmental Feedback and Positive Affect

Theory suggests that feedback is most effective when it is task- and goal- or future-oriented, focused on learning and improvement, and provides recipients with perceptions of behavioral control (Fedor, 1991; Fishbein & Ajzen, 1975; Kluger & DeNisi, 1996; Taylor et al., 1984). Empirical research on feedback, however, has not focused on these developmental aspects of feedback and instead has evaluated specific dimensions of feedback such as valence, frequency, and timing (e.g., Northcraft et al., 2011; Prussia & Kinicki, 1996; Van Dijk & Kluger, 2011).

Developmental feedback provides recipients with helpful and useful (i.e., quality) information and is future-oriented in that it directs recipients to make improvements on the job (Li et al., 2011; Zhou, 2003). Feedback is closely tied to individuals' egos and goals and thus represents a salient event that elicits affective reactions (Kluger & DeNisi, 1996; Kluger et al., 1994). Recipients respond to the tone and implicit meaning of feedback messages, determining whether they signal support and yield opportunities for growth and development in line with individuals' goals (Kluger et al., 1994; Swann & Schroeder, 1995). Developmental feedback delivered from the supervisor may signal both positive and negative information, yet because of its informational and motivational orientation, is likely to evoke more positive than negative affective reactions.

AET posits that employees react to events based on how supportive they are of their goals and not merely on whether events are positive or negative. Individuals make appraisals of situations and respond on the basis of the perceived harm or benefit in relation to their goals (Fugate et al., 2011; Smith & Lazarus, 1990). Appraisals are based
on beliefs regarding individuals' constraints, demands, and resources. Employees are more likely to experience positive as compared to negative affect when they perceive they have the needed resources to act on the situation. Fugate, Prussia, and Kinicki (2012), for example, showed that individuals with greater self-efficacy and perceived behavioral control were less likely to make negative appraisals of change situations. Rodell and Judge (2009) further found that employees experienced positive affect in response to challenge stressors in their workday—events that are generally seen as stressful yet associated with growth and improvement. Positive affect is experienced when individuals feel progress towards a goal and appraise situations as supportive for growth and learning (Cavanaugh et al., 2000).

Supervisor developmental feedback focuses on recipients' growth and learning and is hypothesized to be associated with more positive as compared to negative affect. Developmental feedback provides recipients with resources and quality information to help them reach their goals. It emphasizes improvement, signals support, and boosts recipients' behavioral control even though it may contain both favorable and unfavorable information. Other studies support the relationship between goal-related events and positive affect. Rodell and Judge (2009), for instance, found that stressful events associated with learning and goal attainment were associated with positive affect and Ilies and Judge (2005) found that feedback supportive of goals was also related to positive affect. I examine the positivity ratio, as opposed to positive affect on its own, because I theorize that employees experience both positive and negative affect in response to feedback, but that they will be more likely to experience positive as compared to negative affect when receiving developmental feedback, leading to the following hypothesis:
Hypothesis 1: Supervisor developmental feedback is positively related to the positivity ratio.

Coworker Feedback Seeking and Positive Affect

Supervisors are expected to give feedback as part of their role because it is a key component of the performance management process (Kinicki, Jacobson, Peterson, & Prussia, 2013). Even so, supervisors may not always be aware of specific information that employees need or they may not always be available to provide timely feedback. This is why employees’ feedback seeking is a valuable resource employees use to gain information on their own schedule and according to their own needs. This in turn allows them to make timely adjustments and improvements to their work as goals and expectations change (De Stobbeleir et al., 2011). Feedback seeking in this view is a proactive, self-regulatory strategy that employees use as they set their own standards and seek feedback to achieve their goals (Ashford & Tsui, 1991; Porath & Bateman, 2006).

I look at employees' attempts to seek feedback specifically from coworkers because supervisors may not be aware of particular information that employees need or they may not always be available to deliver feedback. In the absence of feedback from one's manager, employees are likely to seek feedback from coworkers because the costs of seeking this feedback is lower than trying to get it from their manager. The costs of feedback seeking include the effort involved in obtaining feedback, the possibility of "losing face," and feelings of embarrassment (Ashford & Cummings, 1983; Fedor, 1991). Employees' immediate coworkers mitigate these costs by providing high levels of support and encouragement and by being more immediately accessible in dealing with work-
related issues (Madjar, 2005). Employees actively seek feedback from coworkers because coworkers have no formal authority to give it and may not readily offer it unless they are asked (De Stobbeleir et al., 2011). Further, seeking feedback from coworkers supplements information obtained from supervisors and the task itself. Taking this approach contributes to the literature because most past research focused on seeking from supervisors (Chen et al., 2007; Lam et al., 2007) or was mute with respect to the feedback source (for exceptions, see Callister, Kramer, & Turban, 1999; De Stobbeleir et al., 2011).

Seeking is an emotionally charged event because it provides employees with information about themselves (Ashford et al., 2003) and may contain both positive and negative information. Politeness theory (Brown & Levinson, 1978) suggests that coworkers are more likely to deliver information with sensitivity and to put the information in a positive light. Coworkers generally provide support and encouragement for each other (Madjar, 2005) and are on the same hierarchical level and don't want to risk losing face in such psychologically and physically close situations (Albrecht & Hall, 1991; Albrecht & Ropp, 1984). Politeness theory further proposes that employees will soften comments that may damage face (Harrison, Kinicki, Galvin, & Jacobson, working paper). Employees are more likely to seek from those who put a positive light on the feedback (Festinger, 1954) and are less likely to actively seek feedback when they expect the information to be negative (Ashford et al., 2003; Northcraft & Ashford, 1990).

More frequent seeking brings employees closer to others' perspectives of their work as views shift over time and conditions change (De Stobbeleir et al., 2011). Feedback seeking, regardless from what source, reduces uncertainty, giving employees a
sense of control over their work environment (Ashford & Black, 1996; Callister et al., 1999; Morrison, 1993) and fostering goal attainment (Ashford et al., 2003). This occurs because frequent seeking enables employees to respond positively to events that support their goals, thereby gaining control over situations (Lazarus, 1991b). AET predicts that these factors—environmental control and goal attainment—are associated with higher levels of positive affect.

I hypothesize that though employees may experience both positive and negative affect in response to feedback seeking, more frequent seeking is associated with higher levels of positive as compared to negative affect because it provides employees with behavioral control and support and information needed to achieve their goals in organizations. The above discussion leads to the following hypothesis:

_Hypothesis 2:_ Coworker feedback seeking is positively related to the positivity ratio.

**The Positivity Ratio and Creative Behavior**

Fredrickson’s broaden and build theory of positive emotions (Fredrickson, 1998, 2001) suggests that the experience of positive affect encourages approach behavior (Cacioppo et al., 1999; Watson et al., 1999) and continued action (Carver & Scheier, 1990; Clore, 1994). Isen (1999a, b) proposed that positive affect has three main effects on cognition: first, positive affect leads to the ability to process more complex cognitive content; second, it increases the cognitive material available for processing, allowing for broader associations; and third, it enhances cognitive flexibility, increasing the number of diverse cognitive associations. Positive affect broadens thought–behavior repertoires by
prompting individuals to explore ideas, take in new information, and consider a broader array of cognitions and behaviors, resulting in greater creativity (Fredrickson, 2001; Kahn & Isen, 1993). Positive affect has been shown to enhance individuals' creative ability and behaviors across many settings, including those where creative behavior was not explicitly desired (e.g., Amabile et al., 2005; Isen, 1999a, b; Isen et al., 1987; To, Fisher, Ashkanasy, & Rowe, 2012).

I look specifically at the ratio of positive to negative affect in predicting creative behavior because I adopt the view that feedback is a positive organizational resource (Ashford, 1986). Greater levels of expressed positivity have been shown to enhance behavioral variability within business teams (Losada & Heaphy, 2004), expand information processing strategies and broaden perspectives in organizations (Sutcliffe & Vogus, 2003), and increase individuals' ability to adapt to unexpected situations (Fredrickson et al., 2003). A study by Galvin, Christensen, Kinicki, and Reina (working paper) further found that greater levels of positivity were positively associated with top management teams' aggregated job satisfaction and organizational commitment, CEO effectiveness, and firm performance. The above discussion results in the following prediction:

Hypothesis 3: The positivity ratio is positively related to creative behavior.

Creative Behavior and Overall Job Performance

Creativity theorists point to a positive connection between creative behavior and creative performance (Amabile, 1996; Shalley et al., 2004; Zhou & Shalley, 2003). Evidence suggests that willingness to try new things, explore new processes, and
otherwise engage in new ways of improving work results in creative performance (Amabile, Conti, Coon, Lazenby, & Herron, 1996; Gilson & Shalley, 2004; Mumford, Baughman, Threlfall, Supinski, & Costanza, 1996), even in jobs where creative performance is not typically seen as an essential element of the role, such as in the case of physicians (Estrada et al., 1994) or employees in a customs bureau (Hirst et al., 2011).

Theory further suggests that creative behavior may be an important element influencing overall job performance. Regardless of the job, employees frequently face new challenges and problems that require novel or adaptive solutions. Creativity is a means through which employees consider new perspectives, develop hypotheses, generate and communicate ideas, and explore different options to approach their work (Torrance, 1988). Madjar, Greenberg, and Chen (2011) found a positive relationship between creativity and routine, noncreative performance and Gong, Huang, and Farh (2009) found a similar relationship between creative performance and job performance in a group of insurance agents. Oldham and Cummings (1996) further found a significant relationship between creative performance and overall job performance in a setting of manufacturing engineers and technicians. Successful performance in jobs depends on the incorporation of novel and useful ideas and approaches to work (Drazin et al., 1999), leading to the following hypothesis:

Hypothesis 4: Creative behavior is positively related to overall job performance.
The Mediating Role of the Positivity Ratio and Creative Behavior in the Feedback–Performance Relationship

I predict that the influence on performance by supervisor developmental feedback and coworker feedback seeking is partially mediated by the positivity ratio and creative behavior. I predict partial mediation because other factors such as knowledge transfer or skills acquisition may also be responsible for affecting employees’ performance. Feedback itself is information that must be processed, interpreted, and applied to increase performance. This suggests that the relationship between feedback and performance is indirect. I propose that a combination of AET theory (Weiss & Cropanzano, 1996) and Fredrickson’s (1998, 2001) broaden and build theory of emotions provides the theoretical pathways for feedback to influence performance. Consider how this process unfolds.

The affective events theory framework (Weiss & Cropanzano, 1996) portends that employees' experienced affect in response to events at work influences their cognitions and behaviors. Feedback represents a salient event in the workplace and provokes affective reactions by invoking individuals’ egos (Ashford et al., 2003; Kluger et al., 1994). Supervisor developmental feedback signals support to employees and focuses on learning, motivation, behavioral control, and future orientation (Li et al., 2011; Zhou, 2003), all of which are expected to increase positive as compared to negative affect. Coworker feedback seeking, as a supplement to supervisor feedback, is a self-regulatory strategy that employees use to achieve their own goals in the workplace and helps employees to make behavioral adjustments and improvements to work behaviors and ideas (Ashford et al., 2003; De Stobbeleir et al., 2011), which is also likely to increase positive as compared to negative affect. The experience of more positive as compared to
negative affect broadens individuals' modes of thinking, enhances flexibility, and increases the ability to assimilate new information, resulting in creative behavior (Fredrickson, 1998, 2001; Isen, 2008). Creative behavior, in turn, is expected to enhance individuals' overall job performance. Employees often face new challenges at work and need to approach their work in a way that is novel and useful for them. The essence of feedback is to improve employee job performance by influencing them to change their work behaviors (Fedor, 1991), making creativity an important component in the feedback–performance relationship. The following hypotheses are derived from this discussion:

**Hypothesis 5a:** The relationship between supervisor developmental feedback and overall performance is partially mediated by the positivity ratio and creative behavior.

**Hypothesis 5b:** The relationship between coworker feedback seeking and overall performance is partially mediated by the positivity ratio and creative behavior.
Sample and Procedure

The sample consisted of 63 students in a full-time MBA program who were all taking two core courses at a large southwestern university in the United States in the final term during their first year of the two-year program. The final sample included 51 males (81%) and 12 females (19%). Participants’ average age was 28.65 years ($SD = 4.56$), and they had on average 60.75 months of full-time work experience ($SD = 41.17$) and 18.76 months of part-time work experience ($SD = 24.76$). Participants’ ethnicities were 59% Caucasian, 35% Asian, 3% African American, and 3% Hispanic. Participants were recruited by the author and the chair of this dissertation, neither of whom were teaching the participants at the time. Respondents were told about the voluntary nature of the study and were assured that none of their professors would see their individual data and that participation would have no effect on their grades. Individuals were directed to an online survey link where they were able to opt in to the study by completing an initial survey that assessed demographic characteristics and control variables. Participants received a $25 gift card at the end of the study.

The sample was chosen to enhance internal validity of the study. All students worked in the same groups for two core courses and the final grades were associated with a combination of individual work and group work worth approximately 70% and 30%, respectively, of their final grades for these two courses. Feedback norms at this institution were for professors to provide developmental feedback and for students to receive feedback from their group members regarding their group work. Students were
also taught in their first term by one of the authors on how to provide specific, descriptive feedback. I confirmed the feedback norms by interviewing the two professors teaching the stimulus core classes about the nature of the feedback normally given to students and by interviewing several students about the feedback seeking habits of themselves and their peers several weeks before the study began. I found that feedback seeking frequency varied among students, but that it was indeed happening.

I used experience sampling methodology (ESM) because several of the variables—supervisor developmental feedback, coworker feedback seeking, affect, and creative behavior—were expected to vary day by day. ESM enhances ecological validity by capturing responses in naturally occurring situations in which I expected to observe the study variables (Brunswick, 1949) and reduces memory-based bias associated with reports that ask respondents to recall longer periods of time (Csikszentmihalyi & Larson, 1987; Wheeler & Reis, 1991). Beal and Weiss (2003) noted that ESM allows for an investigation of between- and within-person variability and can eliminate spurious third variable explanations and coincidental trends in the data. Altogether, I sent 10 surveys, including the initial survey of control variables. I sought to strike a balance between collecting enough information and not overburdening respondents (Uy, Foo, & Aguinis, 2010).

I used an event-contingent protocol requiring participants to respond only when instances of our independent variables were expected to take place (Uy et al., 2010). I learned from interviews with the two professors teaching the stimulus courses being used in the study that three of the assignments across the two classes were related and that professors were planning to give helpful, written feedback to the students so that students
could build on their work for the next assignment. Professors were also available during
class and office hours and by email to give additional feedback. I timed the surveys to
coincide with the dates students were expected to receive developmental feedback on
these projects and when I expected students to seek out feedback from each other.

More specifically, I timed the surveys around the students’ three major term
projects in which the professors would be delivering feedback to the students.
Measurements of participants’ ratings of supervisor (in this case, professor)
developmental feedback were collected on the days when professors returned graded
assignments, approximately one week after the assignments were due. Measurements of
coworker feedback seeking were collected up to two days before an assignment was due
because there is typically a flurry of work that occurs right before a project's deadline;
coworker feedback seeking and supervisor developmental feedback were measured on
separate days because the events did not occur on the same days. All told, this process
resulted in collecting supervisor developmental feedback on three days and coworker
feedback seeking on six days. See Table 1 for a timeline of the variables and their
measurement days.

Table 1—Measurement Table

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</table>
Measurements of affect and creative behavior were collected on all days so that they could be matched with the respective independent variables. All daily variables were measured using 5-point Likert-type scales to reduce difficulty for participants to respond and to provide adequate range without problems associated with scale coarseness (Aguinis, Pierce, & Culpepper, 2009). I used the students' final course grades as a measure of overall performance. I asked students for permission to collect grades at the end of the study. The daily surveys required a considerable amount of effort on the participants' part, and I wanted to be sensitive to grade privacy during the study so as not to affect responses or the participation rate. Professors reported students' total raw points at the end of the study.

An online survey link was emailed to every participant at 4:00 pm on each measurement day. A reminder email was sent at 8:00 pm to those who had not yet completed the survey. Participants had until midnight that day to complete the survey—after midnight, the survey link closed to eliminate problems with late responses. The survey instructions prompted individuals to reflect upon their day at school or while working on school related tasks. I obtained 548 observations out of a possible 630, which equals a response rate of 87%. Participants completed an average of 8.7 surveys each. Sixty-four individuals volunteered for the study, but one dropped out after completing only one survey, resulting in a final sample of 63 individuals. This represents 85% of the class that I attempted to recruit. Both the number of participants and the response rate are comparable to similar ESM studies. For example, the number of participants in the study by Huang and Ryan (2011) was 56 and the overall response rate in the study by Bledow, Rosing, and Frese (2011) was 73%.
Measures

**Supervisor developmental feedback.** Supervisor developmental feedback was measured using a three-item Likert-scale ranging from 1 ("strongly disagree") to 5 ("strongly agree") adapted for the sample from Zhou (2003). To fit the sample, the word “supervisor” was changed to “core professors.” I asked participants to reflect on their core professors because I timed the surveys around the assignments in those classes. Sample items included, “While giving me feedback, my core professors focused on helping me to learn and improve” and “My core professors provided me with useful information on how to improve my performance on my school work.” The mean coefficient alpha (averaged across days) was .72.

**Coworker feedback seeking.** To assess the frequency which participants sought feedback each day, participants were asked to indicate on a Likert-scale ranging from 1 to 5, how often they sought feedback from their team members for that day only (1 = “didn’t ask;” 2 = “once;” 3 = “twice;” 4 = “3 times;” 5 = “more than 3 times”). I asked participants to reflect on their team member seeking behavior because of the close contact that participants had with their teams and because they were working on both individual and team projects during the measurement period. I asked participants to reflect on their “core” team members because a set of core classes was required for all students in the program—of which they belonged to one team for those classes—in addition to their specialty classes (e.g., supply chain, finance, etc.). To fit the sample, I adapted three items from De Stobbeleier, Ashford, and Buyens (2011) and Callister, Kramer, and Turban (1999). Items included, “Today, I asked one or more of my core team members about my performance on our assignments” and “Today, I directly asked
The mean coefficient alpha (averaged across days) was .93.

**Positivity ratio.** I assessed daily levels of affect using items from To, Fisher, Ashkanasy, and Rowe (2012). To et al. (2012) adapted items from the Positive and Negative Affect Schedule (PANAS; Watson et al., 1988) and from De Dreu et al. (2008). I used a Likert-scale ranging from 1 ("very slightly or not at all") to 5 ("extremely") as used by Watson et al. (1988). The four adjectives used to measure positive affect were, “inspired,” “enthusiastic,” “interested,” and “excited.” The four adjectives used to measure negative affect were, “angry,” “upset,” “ashamed,” and “disinterested.” An exploratory factor analysis of the eight affect items revealed a two-factor solution, suggesting that the items revealed two distinct factors. The mean coefficient alpha (averaged across days) for positive affect was .96 and for negative affect was .90.

Following Fredrickson (2013) and Rego et al. (2012), the positivity ratio was derived by dividing the mean of the positive affect items by the mean of the negative affect items.

Trait-like affect was taken into consideration by separating individuals' mean scores from their daily scores to account for people's average levels of affect, as discussed in the following section.

**Creative behavior.** Group members rated each others’ creative behavior on a daily basis (excluding their own) because participants worked closely in groups and they were in a better position to rate each other’s creative behavior than were professors.

Respondents were asked to rate each of their group members’ creative behavior for today only on a Likert-scale ranging from 1 (“not at all”) to 5 (“very”). I used Oldham and Cummings’ (1996) three-item scale. Sample items were, “How CREATIVE was this
person’s work? Creativity refers to the extent to which the person develops ideas, methods, or work that are both original and useful to the team” and “How ORIGINAL and PRACTICAL was this person’s work? Original and practical work refers to developing ideas, methods, or work that are both totally unique and especially useful to the team.” The mean coefficient alpha (averaged across days) was .96. Participating groups had an average of 4.2 individuals ($SD = .77$); an average of 81% of group members rated each other each day. The $r_{wg(j)}$ (James, Demaree, & Wolf, 1984) within groups for each particular individual as rated by peers averaged .75 across days.

**Overall performance.** I used participants’ final course grades from their two core classes to measure overall performance. Grades were reported on a scale of 0-100 for each class.

**Control variables.** I controlled for intrinsic motivation, conscientiousness, and learning goal orientation. Prior research has shown that individuals’ intrinsic motivation may affect their creative performance (Amabile, 1985, 1988). I controlled for intrinsic motivation using a four-item scale developed by Grant (2008). The question stem for all items read, “Why are you motivated to do your work?” Participants were asked to respond to items on a scale of 1 (“strongly disagree”) to 5 (“strongly agree”). Sample items included, “Because I enjoy the work itself” and “Because I find the work engaging.” The coefficient alpha was .86.

I controlled for conscientiousness because it has been related to individuals’ reactions to feedback in prior studies (Colquitt & Simmering, 1998) and is related to performance (Barrick & Mount, 1991a). Respondents were asked to rate how well several
statements described themselves as they generally are now and not how they wished to be seen in the future. Participants responded to three items from Donnellan et al. (2006) using a scale ranging from 1 (“very inaccurate”) to 5 (“very accurate”). Sample items included, “I get chores done right away” and “I make a mess of things” (reverse coded). The coefficient alpha was .69.

I controlled for learning goal orientation (Vandewalle, 1997) because it has been related to reactions to feedback (Brett & Atwater, 2001) and to feedback seeking behaviors (Ashford et al., 2003; Morrison, 2002). Participants were asked to rate how they behave in general using a Likert-scale of 1 (“strongly disagree”) to 5 (“strongly agree”). The items were adapted slightly to fit the sample. Sample items included, “I often read materials related to my program of study to improve my ability even if they are not required” and “I am willing to select a challenging school assignment that I can learn a lot from.” The coefficient alpha was .77.

Analyses

Data were analyzed using SAS Proc Mixed (Littell, Milliken, Stroup, Wolfinger, & Schabenberger, 2006), which allowed me to control for three levels of data. Level 1 included the within-person variables that were measured daily (supervisor developmental feedback, coworker feedback seeking, positivity ratio, and creative behavior). Level 2 included variables that were between individuals (overall performance, intrinsic motivation, conscientiousness, and learning goal orientation), and Level 3 included individuals’ group membership. To reduce potential confounding and improve interpretability of the models, all Level 1 variables were centered at each person’s mean.
value (Hofmann, Griffin, & Gavin, 2000). Person means were added back at Level 2 (Kreft, de Leeuw, & Aiken, 1995; Zhang, Zyphur, & Preacher, 2009). Level 2 predictors were centered at the grand mean.

Participants’ age, work experience, and ethnicity were not significantly related to any of the main study variables and thus were not included in the analyses. Sex was not significantly related to any of the main study variables except performance. The model results predicting performance did not change when sex was included in the analysis—consequently, this variable was not included in the final analyses for simplicity.

The study took place in a natural organizational setting. The two exogenous variables occurred on separate days and thus were measured on separate days as shown in Table 1. This is a case of "planned missingness" in the data design (Graham, 2009). Normal estimation procedures assume that data is missing at random and use a best guess using data from other daily measurements to estimate missing data points. Supervisor developmental feedback was not measured on days that I measured coworker feedback seeking because the two variables did not occur at the same time. To avoid potential distortion regarding the relationship between supervisor developmental feedback and the positivity ratio and coworker feedback seeking and the positivity ratio, I analyzed two parallel models (see Figure 2). To illustrate, the data file for the days measuring supervisor developmental feedback were kept separate from the data file for the days measuring coworker feedback seeking. I controlled for the mean of coworker feedback seeking when analyzing the supervisor feedback models and vice versa. In the models predicting creative behavior, I used the following day’s creative behavior ratings as the outcome to minimize bias associated with using ratings on the same day.
Figure 2—Empirical Model

Supervisor Developmental Feedback (T 3, 6, 8) → Positivity Ratio (T 3, 6, 8) → Creative Behavior (T4, 7, 9) → Overall Performance

Coworker Feedback Seeking (T 1, 2, 4, 5, 7, 9) → Positivity Ratio (T 1, 2, 4, 5, 7, 9) → Creative Behavior (T2, 3, 5, 6, 8)

Level 1 Level 2
CHAPTER 5: RESULTS

Descriptive statistics and correlations are presented in Table 2. Within-person correlations are reported above the diagonal and between-person correlations are reported below the diagonal. Between-person correlations were calculated by aggregating within-person variables (Level 2). Before testing the hypotheses, I estimated the percentage of variance at the within-, between-, and team levels for each of the main study variables, as shown in Table 3, providing support for treating each variable at the hypothesized level. The percentage of within-individual variance for supervisor developmental feedback was 79%, coworker feedback seeking was 76%, positivity ratio was 57%, and creative behavior was 45%. The percentage of between-individual variance for overall performance was 70%. These percentages indicate that there was considerable variance to be explained within and between individuals, and are consistent with other ESM studies (e.g., Scott & Barnes, 2011; To et al., 2012). For example, the percentage of variance in the variables at the individual-level in the study by Rodell and Judge (2009) was about 42% and at the between-level was about 41%.
Table 2 — Descriptive Statistics and Correlations

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Supervisor developmental feedback</td>
<td>3.46</td>
<td>.55</td>
<td>—</td>
<td>-.04</td>
<td>.10</td>
<td>-.05</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Coworker feedback seeking</td>
<td>1.33</td>
<td>.34</td>
<td>.11</td>
<td>—</td>
<td>.13</td>
<td>-.06</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Positivity ratio</td>
<td>2.40</td>
<td>.90</td>
<td>.11</td>
<td>-.17</td>
<td>—</td>
<td>.18</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Creative behavior</td>
<td>3.26</td>
<td>.53</td>
<td>-.22</td>
<td>.10</td>
<td>.15</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Overall performance</td>
<td>172.42</td>
<td>8.61</td>
<td>.12</td>
<td>.08</td>
<td>.03</td>
<td>.34</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Learning goal orientation</td>
<td>3.88</td>
<td>.52</td>
<td>.12</td>
<td>-.08</td>
<td>.04</td>
<td>.01</td>
<td>.10</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>7. Conscientiousness</td>
<td>3.35</td>
<td>.82</td>
<td>.28</td>
<td>-.03</td>
<td>-.09</td>
<td>-.25</td>
<td>.04</td>
<td>.13</td>
<td>—</td>
</tr>
<tr>
<td>8. Intrinsic motivation</td>
<td>3.59</td>
<td>.78</td>
<td>-.21</td>
<td>-.02</td>
<td>.01</td>
<td>-.06</td>
<td>.18</td>
<td>.43</td>
<td>.21</td>
</tr>
</tbody>
</table>

*Note.* Correlations above the diagonal are within-person (Level 1; \(n = 189-378\)).

*a*Correlations below the diagonal are between-person (Level 2; 63).

*b*Between-person correlations were calculated on within-person variables (variables 1-5) by aggregating these variables to the between-person level (Level 2).

*c* \(p \leq .05\). ** \(p \leq .01\).

Table 3 — Percentage of Variability for Null Models

<table>
<thead>
<tr>
<th>Variable</th>
<th>% variability within-individual</th>
<th>% variability between-individual</th>
<th>% variability team-level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervisor developmental feedback</td>
<td>79%</td>
<td>10%</td>
<td>11%</td>
</tr>
<tr>
<td>Coworker feedback seeking</td>
<td>76%</td>
<td>23%</td>
<td>1%</td>
</tr>
<tr>
<td>Positivity ratio</td>
<td>57%</td>
<td>43%</td>
<td>0%</td>
</tr>
<tr>
<td>Creative behavior</td>
<td>45%</td>
<td>22%</td>
<td>33%</td>
</tr>
<tr>
<td>Overall performance</td>
<td>NA</td>
<td>70%</td>
<td>30%</td>
</tr>
</tbody>
</table>

Hypothesis Tests

Model 1 in Table 4 shows that supervisor developmental feedback was significantly related to the positivity ratio \((b = .28, p < .05)\), revealing that perceptions of supervisor developmental feedback were significantly related to the positivity ratio on a daily basis. Hypothesis 1 was supported. Similarly, results for Model 1 in Table 5 revealed that coworker feedback seeking was positively associated with the positivity ratio \((b = .27, p < .05)\), demonstrating that individuals’ feedback seeking behaviors were
significantly associated with the positivity ratio on a daily basis. Hypothesis 2 was supported.

Table 4—Multilevel Results Predicting Positivity Ratio, Creative Behavior, and Overall Performance for Supervisor Developmental Feedback

<table>
<thead>
<tr>
<th>Estimate</th>
<th>Positivity ratio</th>
<th>Creative behavior</th>
<th>Overall performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>2.50 (1.39)</td>
<td>3.00 (.82)**</td>
<td>146.22 (7.47)**</td>
</tr>
<tr>
<td><strong>Level 1 (within-person)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supervisor developmental feedback</td>
<td>.28 (.14)*</td>
<td>-.16 (.08)</td>
<td></td>
</tr>
<tr>
<td>Positivity ratio</td>
<td>.14 (.06) *</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Level 2 (between-person)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supervisor developmental feedback</td>
<td>.30 (.27)</td>
<td>-.17 (.16)</td>
<td>4.26 (1.20)**</td>
</tr>
<tr>
<td>Coworker feedback seeking</td>
<td>-.69 (.39)</td>
<td>.05 (.24)</td>
<td>-.02 (1.71)</td>
</tr>
<tr>
<td>Learning goal orientation</td>
<td>-.10 (.29)</td>
<td>.22 (.16)</td>
<td>-1.04 (1.15)</td>
</tr>
<tr>
<td>Intrinsic motivation</td>
<td>.25 (.20)</td>
<td>-.04 (.12)</td>
<td>2.76 (.82)**</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>-.20 (.18)</td>
<td>-.10 (.11)</td>
<td>-.21 (.78)</td>
</tr>
<tr>
<td>Positivity ratio</td>
<td>-.05 (.09)</td>
<td></td>
<td>-1.04 (.63)</td>
</tr>
<tr>
<td>Creative behavior</td>
<td></td>
<td></td>
<td>5.41 (1.29)**</td>
</tr>
</tbody>
</table>

*Note. Values are unstandardized regression coefficients.

*Standard errors are in parentheses.

*N = 189 nested within 63 individuals.

*Level 1 variables are centered at each person’s mean value.

*Level 2 variables are grand-mean centered.

* *p < .05. ** p < .01.
Table 5—Multilevel Results Predicting Positivity Ratio, Creative Behavior, and Overall Performance for Coworker Feedback Seeking

<table>
<thead>
<tr>
<th>Estimate</th>
<th>Positivity ratio</th>
<th>Creative behavior</th>
<th>Overall performance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Model 1</td>
<td>Model 2</td>
<td>Model 3</td>
</tr>
<tr>
<td>Intercept</td>
<td>2.91 (.26)*</td>
<td>4.07 (.72)**</td>
<td>148.04 (5.54)**</td>
</tr>
<tr>
<td><strong>Level 1 (within-person)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coworker feedback seeking</td>
<td>.27 (.11)*</td>
<td>-.09 (.08)</td>
<td></td>
</tr>
<tr>
<td>Positivity ratio</td>
<td></td>
<td>.12 (.05)*</td>
<td></td>
</tr>
<tr>
<td><strong>Level 2 (between-person)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supervisor developmental feedback</td>
<td>.25 (.24)</td>
<td>-.12 (.14)</td>
<td>4.31 (.87)**</td>
</tr>
<tr>
<td>Coworker feedback seeking</td>
<td>-.47 (.35)</td>
<td>-.19 (.20)</td>
<td>-.17 (1.23)</td>
</tr>
<tr>
<td>Learning goal orientation</td>
<td>-.19 (.27)</td>
<td>-.06 (.14)</td>
<td>-1.00 (.81)</td>
</tr>
<tr>
<td>Intrinsic motivation</td>
<td>.03 (.18)</td>
<td>.06 (.10)</td>
<td>2.64 (.58)**</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>-.14 (.16)</td>
<td>-.03 (.09)</td>
<td>-.25 (.56)</td>
</tr>
<tr>
<td>Positivity ratio</td>
<td>-.01 (.07)</td>
<td></td>
<td>-1.18 (4.5)**</td>
</tr>
<tr>
<td>Creative behavior</td>
<td></td>
<td>4.90 (.96)**</td>
<td></td>
</tr>
</tbody>
</table>

*Note. Values are unstandardized regression coefficients.

\(^a\) Standard errors are in parentheses.

\(^b\) \(N = 378\) nested within 63 individuals.

\(^c\) Level 1 variables are centered at each person’s mean value.

\(^d\) Level 2 variables are grand-mean centered.

\(^e\) \(p < .05\). \(^{**} p < .01\).

In support of Hypothesis 3, Tables 4 and 5 show that creative behavior was significantly predicted by the positivity ratio—Table 4, Model 2 (\(b = .14, p < .05\))—and coworker feedback seeking—Table 5, Model 2 (\(b = .12, p < .05\)). Individuals’ experiences of higher ratios of positive to negative affect were significantly associated with observations of their creative behavior on a daily basis.
Hypothesis 4 predicted that creative behavior is positively related to overall performance. Because final course grades were assessed at the end of the period, creative behavior was aggregated to Level 2. Each person’s average creative behavior score was then grand-mean centered. As seen in Table 4, Model 3 \((b = 5.41, p< .05)\) and Table 5, Model 3 \((b = 4.90, p< .05)\), creative behavior was positively and significantly related to performance. Thus, between individuals, creative behavior was significantly associated with overall performance. Hypothesis 4 was supported.

Hypotheses 5a and 5b predicted that the relationship between supervisor developmental feedback and performance and between coworker feedback seeking and performance, respectively, are mediated by the positivity ratio and creative behavior. Following the Monte Carlo Method for Assessing Mediation (MCMAM) as advocated by Selig and Preacher (2008), I used R statistical software to estimate the confidence interval around the product of coefficients for the paths with 20,000 Monte Carlo bootstrapped repetitions. The first three links of my theoretical model are at level 1 and the last link is at level 2 (so that the overall mediation model is 1-1-1-2). A level 2 link requires that the entire chain be tested at that level (Zhang et al., 2009). I therefore used the level 2 coefficients and their standard errors to calculate the confidence intervals. This reduces the total sample size for mediation testing to \(N = 63\). The confidence interval for the supervisor developmental feedback to performance path as mediated by the positivity ratio and creative behavior was -.59 to .28 and the confidence interval for the coworker feedback seeking to performance path as mediated by the positivity ratio and creative behavior was -.42 to .50. Both of the confidence intervals included zero and thus do not support my hypotheses.
It is possible that the mediation tests were not supported because of low statistical power ($N = 63$). Another possibility is that there is not enough variance at level 2 to find a significant mediated relationship at that level. Only 10% of the variance in supervisor developmental feedback and 23% of the variance in coworker feedback seeking was at level 2 (see Table 2). I tested mediation of the day level variables (i.e., supervisor developmental feedback, coworker feedback seeking, positivity ratio, and creative behavior) using the method described above (MacKinnon, Lockwood, & Williams, 2004) to supplement my analysis. Neither of the confidence intervals for these tests included zero (confidence interval for supervisor developmental feedback to positivity ratio to creative behavior = .000457 to .1031; confidence interval for coworker feedback seeking to positivity ratio to creative behavior = .0007628 to .07697), providing support for mediation of this reduced chain at level 1.

I calculated $pseudo-R^2$s for each model using the approach recommended by Snijders and Bosker (1999). This was done because the analytical approach of analyzing relationships in steps did not allow us to test the overall fit of the entire model. I compared each step's new total variance explained (Level 1 and Level 2 variances) with the total variance explained by the null model, or the intercept-only model, using the calculation below:

$$PseudoR^2 = \frac{(Var_{null\ model} - Var_{current\ model})}{Var_{null\ model}}.$$

The $pseudo-R^2$ represents the proportion of total variance in the dependent variable accounted for by the addition of the predictor variables (Snijders & Bosker, 1999). A problem with the $pseudo-R^2$ is that adding predictors may increase the amount
of unexplained variance, leading to negative pseudo-$R^2$s. The pseudo-$R^2$s in the models range from -.02 to .23. I thus supplemented the pseudo-$R^2$s with OLS-based $R^2$s as recommended by Hofmann, Morgeson, and Gerras (2003) because these provide an unbiased assessment of the proportion of variance explained by each model. The OLS-based $R^2$s range from .05 to .24. All models explain a proportion of variance that is comparable to other studies in the management field. For example, Zhang, Waldman, and Wang (2012) reported a pseudo-$R^2$ of .04 and an OLS-based $R^2$ of .06.
CHAPTER 6: DISCUSSION

My study clarifies the mechanisms through which feedback associates with future performance. This is an important pursuit because feedback is ubiquitous in organizations, it represents an integral component of performance management systems, and research reveals that the outcome of many feedback interventions is a decrease in performance (Kluger & DeNisi, 1996; Latham, Almost, Mann, & Moore, 2005). To address this problem, scholars have pursued two dominant lines of research: the active seeking and passive receipt of feedback. I integrate these literatures to examine how employees’ perceptions of supervisor delivered developmental feedback and their own attempts to seek feedback from coworkers influence performance. I use affective events and broaden and build theories to position the positivity ratio and creative behavior as two key mechanisms through which feedback affects performance and test my theoretical model in an experience sampling study over a 10 day period.

Theoretical Contributions and Future Research

The results of my study show that supervisor developmental feedback and coworker feedback seeking influence individuals' positive as compared to negative affective states, which, as predicted by broaden and build theory, influence creative behavior. Creative behavior, in turn, relates to overall job performance. These results provide support for my first four hypotheses. The mediation tests for hypotheses 5a and 5b, however, were not significant. This could be because of low statistical power or because of restricted variance at level 2 as explained in the previous chapter. The mediation tests for the day level variables only (i.e., supervisor developmental feedback, coworker feedback seeking, positivity ratio, and creative behavior) were supported.
Evidence suggests that both supervisor developmental feedback and feedback seeking are beneficial to performance. Bringing these two research streams together using affective events and broaden and build theories represents a different approach wherein the receipt and seeking of feedback are seen as a positive resource within organizations. Supervisors can deliver feedback with the intention of being developmental, helping employees to achieve higher levels of performance. At the same time, employees can supplement supervisory feedback by seeking additional input from coworkers. Theoretically, these results link work on positive organizational behavior (e.g., Cameron, Mora, Leutscher, & Calarco, 2011; Cameron & Spreitzer, 2011), perceived organizational support (Rhoades & Eisenberger, 2002), and self-regulation theory (Carver & Scheier, 1981) by positing that supervisors support their employees' best interests and that employees are self-regulatory individuals who take charge of their own performance in organizations. These findings suggest that future research should consider how organizations can support the giving and seeking of feedback by making structural changes that support open communication among peers and supervisors.

This research advances knowledge about leadership by answering calls to include both the leader and follower in theoretical models (Avolio, Walumbwa, & Weber, 2009). The results of this study suggest that the specific performance management behaviors that leaders exhibit affect employee performance via a chain that includes affect and creativity, variables that have been ignored in past feedback research. This has implications for performance management leadership (Kiniciki et al., 2013) and transformational leadership theory's (Bass, 1985) focus on individualized consideration. Leaders can be most effective when they are in tune to their followers' individual self-
regulatory behaviors. Employees who more actively seek out feedback from others may need less feedback from the supervisor or may need less monitoring. Leaders can also train employees to seek feedback from coworkers as a supplement to leaders' formal feedback.

Importantly, the empirical results of this study show that over 75% of the variance in supervisor developmental feedback and coworker feedback seeking are within individuals and vary day by day (see Table 3). This has implications for leadership research revealing that these behaviors are not constant within individuals and that future research would benefit from experience sampling studies to examine the effects of variability in leaders’ and employees' behaviors. Why are leaders not consistent in delivering developmental feedback? How do employees' daily experiences at work affect their feedback seeking behaviors? Research is needed that explores the factors that lead to the oscillating nature of these variables.

These findings also highlight a contribution to research on interactional psychology (Schneider, 1983). Research shows that individual difference variables such as conscientiousness, learning goal orientation, and intrinsic motivation are related to performance (e.g., Barrick & Mount, 1991b; VandeWalle, Brown, Cron, & Slocum Jr, 1999; Zapata-Phelan, Colquitt, Scott, & Livingston, 2009). I thus controlled for these variables in tests of my theoretical model (e.g., Amabile, 1985, 1988; Ashford et al., 2003; Brett & Atwater, 2001; Colquitt & Simmering, 1998). Results of my study indicate that employees' day to day behaviors, affective states, and perceptions of leader behaviors drive performance over and above oft studied individual differences. This means that while it is important to continue studying stable differences among employees, it is also
worthwhile to consider the situationally-driven daily behaviors they enact to function well in organizations. Conscientiousness, for example, could influence daily feedback seeking behaviors. I tested this in a supplemental analysis and found no support for this idea, though this could be attributable to a lack of statistical power at level 2.

The positivity ratio may be an important construct to consider in other areas of organizational research as well. Although negative affective states such as anger and frustration can be functional for individuals because these emotions signal the need for change (George & Zhou, 2002; Kaufmann, 2003), other scholars (Fredrickson, 2013; Fredrickson & Losada, 2005) underscore the importance of more positive as compared to negative affect for optimal functioning in organizations. Positive affect widens the scope of attention (Fredrickson & Branigan, 2005), strengthens individuals' immune system functioning (Davidson et al., 2003), and increases psychological growth (Fredrickson et al., 2003), all desirable functions for working individuals. Negative affect may also be functional when it motivates employees to tend to the underlying cause of the negativity (Zhou & George, 2001). That is, negative affect is functional when individuals respond to it in an effort to remove the negative state (To, Ashkanasy, Fisher, & Rowe, 2010). Prolonged episodes of negative affect are dysfunctional in organizations, creating stress, health problems, disengagement, and at worst, violence (Andersson & Pearson, 1999; Carver & Scheier, 1990; Watson, 1988). The use of the positivity ratio in the organizational sciences is valuable because it predicts that more positive affect is associated with optimally functioning individuals while acknowledging that negative affect may also be instrumental. Future research is needed to determine the “tipping point” of positive to negative affect and other forms of leader behavior that affect this
ratio. For example, it would be valuable to study how other forms of performance management leader behavior uncovered by Kinicki and colleagues (Kinicki et al., 2013), such as the process of goal-setting, support and coaching, and establishing/monitoring performance expectations, impact this affective “tipping point.”

Neuroscience techniques might also be used to examine how various forms of feedback or types of verbal messages affect the emotional centers of the brain. A qualitative study, for example, might help researchers understand the emotional implications of developmental and non-developmental feedback. How does the receipt of developmental feedback affect coping during stressful job situations? What words do supervisors use in the delivery of feedback that indicate it is developmental? Is there a time period that employees need to process the feedback? How do impressions of the feedback change over time and what is the role of peers in helping each other make sense of the feedback message? These questions are important in understanding more about the role of feedback on performance improvement.

My research invites new thinking about the relationship between feedback and performance by considering the role of creative behavior in theoretical models. Creative behavior is integral to the application of feedback and past models assume that when employees accept feedback they directly apply it. Yet feedback originating from others comes from a different perspective. Models of cognitive processing (e.g., Lord & Foti, 1986) indicate that individuals process information through their own schemas developed from past experiences and pre-existing knowledge systems. This suggests that employees process feedback and apply it according to their unique knowledge, perspectives, and needs. Creative behavior is about approaching tasks differently, about developing
modifications, adaptations, or completely new methods. The inclusion of creative behavior in feedback–performance models adds a behavioral component to the application of feedback. There must be some behavioral change after employees receive feedback and that occurs before performance outcomes are reached. This component is creative behavior.

I contribute to the creativity literature by explicitly drawing a link between creativity and overall job performance. Creativity research implies that creativity is generally good for organizations. My findings supply evidence that creative behavior exhibited on a day to day basis is associated with individuals' overall performance. Management scholars often opine about the changing nature of problems, workplaces, and the broader business environment. Many agree that our world is not stagnant; thus, creativity is germane to enhancing performance. Furthermore, forty-five percent of the variance in creative behavior was within individuals (see Table 3). This underscores work suggesting that creativity is not necessarily a trait within employees (Amabile, 1988) but rather that it is a behavior that anyone can enact to improve performance. Creative behavior involves letting go of existing behaviors and being open to new approaches. Research could investigate the effect of mindfulness training on creativity. Mindfulness enables employees to be more present, thus promoting flexibility and adaptability within the mind and potentially resulting in more creative behavior.

This study points to other areas for future research. Attention could be given to the role of negative affect after the receipt of feedback. My results show that developmental feedback is associated with more positive than negative affect and research suggests that employees often experience a combination of the two states after
receiving feedback. Scholars contend that some negative moods may be functional because they provide energy and information that something needs to change (e.g., moderate levels of anxiety; De Dreu et al., 2008). Scholars could learn more about how employees cope with negative affect and direct the energy in a positive direction. Bledow and colleagues (2011) found that negative affect followed by a shift to positive affect was associated with employees’ work engagement. It is possible that employees experienced more positive as compared to negative affect in their study, but it would be helpful to know more about how negative affect is shifted to positive states.

This study has implications for research on teams and the social side of creativity, though I did not test any team-level constructs. Creativity is often the enmeshment of ideas arising from other people (Perry-Smith & Shalley, 2003)—my results indicate that 33% of the variance in creative behavior was attributable to the team level (see Table 3). The individuals in my study were assigned to their groups, meaning that team-level creativity did not arise out of an attraction–selection process. Groups had similar goals, requirements, and working conditions. Why were some groups more creative than others? Future research could consider constellations of team members' personalities and functional backgrounds, though I was unable to test this idea in my study because of a small number of groups (N = 14). Scholars may also wish to study the personal interactions among team members to find what allows for greater creativity. For example, how do individuals cue that they are open to new ideas from team members, and how does this manifest at the team-level?
Practical Contributions

My research has three main practical implications for managers and employees. Developmental feedback is perceptual. This implies that managers may intend to give developmental feedback but employees may construe it differently. Managers may wish to check back in with employees shortly after delivering feedback to help employees process it and to respond to questions that may have arisen. Supervisors do not always have time to give quality feedback, however, so employees should be encouraged to actively seek it out from their colleagues. Organizations could prepare training programs aimed at teaching individuals how to give, receive, and seek feedback. Supervisors' feedback giving could be measured with an instrument similar to the performance management behavior questionnaire (Kinicki et al., 2013) where employees are asked to rate their manager on relevant behavioral dimensions.

This study emphasizes the importance of positivity in organizations. Positive affect eases the path to new relationships, skills, and knowledge (Fredrickson, 2013). This does not mean, however, that workplaces should be centered on parties and making people feel good. The adjectives used to measure positivity in this study were inspired, enthusiastic, interested, and excited. These moods were chosen because they are functional in the workplace by providing energy and enhanced cognitive capacity (To et al., 2012). Other moods, such as serene and relaxed, do not propel individuals with the motivation to persist or to approach their work differently (Feldman Barrett & Russell, 1998; Seo, Barrett, & Bartunek, 2004). This means that, as work on transformational leadership suggests (Bass, 1985), leaders should seek to inspire and motivate those around them by communicating confidence and helping followers to achieve ambitious
goals. Employees have a dual role. They can proactively manage and regulate their moods by noticing nonfunctional states and engaging in thoughts or activities to shift them (To et al., 2010).

Finally, my research has implications for how supervisors engage in performance management. My findings point to the significance of creative behavior for overall job performance. Managers are responsible for specific productivity outcomes in organizations such as level of sales, quality defects, and safety related incidents. Managers use goal setting as part of the performance management process to set targets for these responsibilities and others (Kinicki et al., 2013). I propose that the process may be improved by empowering employees to creatively determine how they reach their goals. Employees are on the front line and often understand more about their jobs than do supervisors. Creativity, encompassing novel, adaptive, and useful ideas, allows employees to take ownership of work processes, potentially reducing the need for monitoring on management's behalf as employees reach organizational goals. It is possible that a reciprocal relationship exists between creativity and psychological ownership and empowerment. Employees may take more ownership of ideas that they helped create. This, in turn, would provide them with the impetus to persist and engage in future creative efforts. Allowing employees to be creative in their jobs may also enhance the four cognitions of empowerment (meaning, competence, self-determination, and impact; Spreitzer, 1996). These conditions may spur more creativity.

Limitations

My contributions should be qualified in regard to several limitations that lead to areas for future research. MBA students participated in my study, raising questions about
generalizability to full-time working adults. Participants in my study, however, had an average of about five years of working experience and were approximately 29 years of age. I believe my sample was similar to working adults in that participants were enrolled in a full-time professional program, had professors (similar to supervisors) monitoring their work, had standardized performance goals, and worked on a combination of individual and team work. Participants received feedback from their professors and sought feedback from their colleagues. This research setting was not unlike that experienced by employees in other working situations. In spite of this, future research is needed to test the generalizability of these results.

Another strength of my study is that it occurred in a natural organizational setting. Participants received several feedback interventions (i.e., supervisor developmental feedback and coworker feedback seeking) over the course of the measurement period. However, similar to many non-experimental studies, this design potentially suffers from the possibility of demand characteristics where participants knew what I was looking for, causing them to potentially change their behaviors (Orne, 1962). I asked the participants not to change any of their behaviors at the outset of the study to reduce the likelihood of this issue. Further, I led a debrief with the students at the end of the study to find out if anyone had changed their behaviors. I received no indication that participants changed their behaviors or survey responses to accommodate the research process. I feel even more confident that participants were not subject to demand characteristics because the majority of variance in the daily variables is at the individual level (see Table 3). The presence of demand characteristics would systematically bias the between-individual variance upward.
Sixty-three individuals participated in my study. This sample size is not large by typical between-person research design standards. The number of daily observations in my study, however, was 548. This is sufficient to meet sample size requirements for multilevel analysis (Scherbaum & Ferreter, 2009). The sample size is comparable to other experience sampling studies (see Bledow et al., 2011; Rodell & Judge, 2009).

Evidence suggests that too much positivity may be dysfunctional—the problem with "too much of a good thing" (c.f. Grant & Schwartz, 2011). Indeed, Fredrickson (2013) points to research indicating that individuals diagnosed with bipolar disorder experience abnormally high positive moods during manic episodes. Researchers uncovered an inverted U-shaped relationship between positivity and emotional stability (Diener, Colvin, Pavot, & Allman, 1991) and creativity (Davis, 2009; George & Zhou, 2007), providing support for the too much of a good thing hypothesis. Yet others found no evidence that too much positivity was dysfunctional in "mentally normal" adults (Friedman, Schwartz, & Haaga, 2002). To and colleagues (2012), for example, found a linear relationship between positive affect and creativity. Notwithstanding, I tested for a curvilinear relationship in a supplementary analysis and found no support for curvilinearity. It is worth noting that the mean of the ratio of positive to negative affect in my study was 2.40 (S. D. = .90). It is possible that participants in my sample did not experience high enough levels of positivity to make this relationship significant. This raises questions about how much positivity is best. Fredrickson and Losada (2005) tried solving this with the use of nonlinear dynamic models. Their use of the models was called into question (Brown, Sokal, & Friedman, 2013), however, and their claim about the optimal specific level of positive to negative affect was withdrawn. Importantly,
theory and evidence support the notion that more positive as compared to negative affect is beneficial; the exact point at which it is optimal is unknown.

Other unmeasured variables could influence the relationship between feedback and performance. Quality feedback is both informational and motivational. It is possible that motivation and knowledge enhancement are outcomes of feedback. I controlled for trait-like intrinsic motivation but it is possible that intrinsic motivation is less stable than it is conventionally treated and may be better modeled on a day by day basis. Some specific emotions, including several measured in this study, are similar to motivation in that they provide individuals with energy and physical arousal that influence key outcomes of work motivation theories such as the amount of effort and persistence individuals apply to tasks (Feldman Barrett & Russell, 1998; Seo et al., 2004). Future research could consider the interplay of the affective, motivational, and cognitive effects of feedback. Finally, it is possible that individual differences could be a moderating or exogenous influence on the feedback variables. I tested for this in a supplemental analysis and found no significant relationships. This could be because most of the variance was within individuals (see Table 3) or because of a low N (N = 63) at the between individual level.

**Conclusion**

I examine the feedback–performance relationship using affective events and broaden and build theories. I integrate the passive receipt and active seeking feedback literatures and introduce the concept of the positivity ratio as an important mediating mechanism in the feedback to performance process. My study also reveals creative
behavior as an outcome of the positivity ratio and shows that creative behavior is significantly related to employees' overall job performance. I hope this study serves as a foundation for integrating feedback literature and for considering the role of affect and creative behavior in feedback–performance models.
REFERENCES


Gong, Y., Huang, J.-C., & Farh, J.-L. 2009. Employee learning orientation, transformational leadership, and employee creativity: The mediating role of


APPENDIX A

INSTITUTIONAL REVIEW BOARD APPROVAL FORM
The above-referenced protocol was approved following expedited review by the Institutional Review Board.

It is the Principal Investigator's responsibility to obtain review and continued approval before the expiration date. You may not continue any research activity beyond the expiration date without approval by the Institutional Review Board.

Adverse Reactions: If any untoward incidents or severe reactions should develop as a result of this study, you are required to notify the Soc Beh IRB immediately. If necessary, a member of the IRB will be assigned to look into the matter. If the problem is serious, approval may be withdrawn pending IRB review.

Amendments: If you wish to change any aspect of this study, such as the procedures, the consent forms, or the investigators, please communicate your requested changes to the Soc Beh IRB. The new procedure is not to be initiated until the IRB approval has been given.

Please retain a copy of this letter with your approved protocol.
APPENDIX B

SURVEY INSTRUMENTS
Supervisor (professor) developmental feedback (Zhou, 2003). We would like to ask some questions about the feedback that you have received most recently from your CORE PROFESSORS IN TRI 3. Using the scale below, please indicate the extent to which you agree with each item. (1=Strongly disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly agree)

a. While giving me feedback, my core professors focused on helping me to learn and improve

b. My core professors never gave me developmental feedback (reverse code)

c. My core professors provided me with useful information on how to improve my performance on my school work

Coworker feedback inquiry (adapted from Callister et al., 1999; De Stobbeleir et al., 2011). We would like to ask some questions about feedback that you may have sought from ONE OR MORE OF YOUR CORE TRI 3 TEAM MEMBERS TODAY only either in person, by email, phone, or text. Using the scale below, please indicate the extent to which you sought feedback from one or more of your core team members TODAY only. (1=Didn’t ask; 2=Once; 3=Twice; 4=3 times; 5=More than 3 times)

a. Today I asked one or more of my core team members about my performance on our assignments

b. Today, I asked one or more of my core team members if I am meeting my task requirements in the team

c. Today, I directly asked one or more of my core team members for feedback about my work in the team
Positivity Ratio (De Dreu et al., 2008; To et al., 2012; Watson et al., 1988). We would like to ask some questions about how you felt while working on school related tasks or while at school TODAY only. Using the scale below, please indicate the extent to which you experienced feeling each of the following while working on school related tasks or while at school TODAY only. (1=Very slightly or not at all; 2=A little; 3=Moderately; 4=Quite a bit; 5=Extremely)

a. Inspired

b. Angry

c. Upset

d. Interested

e. Ashamed

f. Enthusiastic

g. Discouraged

h. Excited

Creative Behavior (Oldham & Cummings, 1996). We would like to ask about your CORE TRI 3 TEAM MEMBERS’ creativity for TODAY only. Begin by listing the names below of each of your team members. Do not list or rate yourself. (Survey Monkey piped in each team member’s name to a separate creativity scale for each member.)
Using the scale below, please rate [Team member]’s creativity for TODAY only. Regarding [Team member] TODAY… (1=Not at all; 2=A little; 3=Moderately; 4=Quite a bit; 5=Very)

a. How CREATIVE was this person’s work? Creativity refers to the extent to which the person develops ideas, methods, or work that are both original and useful to the team

b. How ORIGINAL and PRACTICAL was this person’s work? Original and practical work refers to developing ideas, methods, or work that are both totally unique and especially useful to the team

c. How ADAPTIVE and PRACTICAL was this person’s work? Adaptive and practical work refers to using existing information or materials to develop ideas, methods, or work that are useful to the team

*Intrinsic motivation (Grant, 2008).* We would like to ask some questions about why you are motivated to do your work at school. Using the scale below, please indicate the extent to which you agree with each item. Why are you motivated to do your work? (1=Strongly disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly agree)

a. Because I enjoy the work itself

b. Because it’s fun

c. Because I find the work engaging

d. Because I enjoy it
**Conscientiousness (Donnellan et al., 2006).** Use the rating scale below to describe how accurately each statement describes you. Describe yourself as you generally are now, not as you wish to be in the future. Please describe yourself honestly. (1=Very inaccurate; 2=Moderately inaccurate; 3=Neither inaccurate nor accurate; 4=Moderately accurate; 5=Very accurate)

a. I get chores and routine tasks done right away

b. I often forget to put things back in their proper place (*reverse code*)

c. I like order

d. I make a mess of things (*reverse code*)

**Learning goal orientation (adapted from Vandewalle, 1997).** The following statements are about how you behave in general. Please indicate the extent to which you agree or disagree with each statement. There are no right or wrong answers. (1=Strongly disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly agree)

a. I often read materials related to my program of study to improve my ability even if they are not required

b. I am willing to select a challenging school assignment that I can learn a lot from

c. I often look for opportunities to develop new skills and knowledge

d. I enjoy challenging and difficult tasks at school where I’ll learn new skills
e. For me, development of my work ability is important enough to take risks

g. I prefer to work in situations that require a high level of ability and talent