ABSTRACT

Title of Proposal: LIFTED UP OR FEET ON THE GROUND? HOW LEADER EMOTIONAL BALANCING MODERATES THE EFFECT OF DEVELOPMENTAL FEEDBACK ON EMPLOYEE LEARNING

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Leaders expect their developmental feedback to help employees develop skills and improve performance, yet the effect of developmental feedback on learning remains unclear. In this dissertation, the concept of developmental feedback (DFB) is extended to include two dimensions, gap identification and gap elimination. I focus on the affective mechanisms underlying the DFB – learning relationship and identify trade-offs in each of the DFB dimensions. I argue that while gap elimination elicits employee positive affect (PA) that facilitates learning via increased learning self-efficacy, it undermines learning via PA and decreased learning need recognition. In addition, gap identification induces employee negative affect (NA) that works in the opposite way. Emotional balancing, or leaders' dynamic engagement in both affect improving and affect worsening behaviors, is proposed to attenuate the negative mechanisms. I conducted a pilot study in the field to develop measures for the two DFB dimensions, followed by a three-wave, multisource field study to test my theoretical model at the between-person level, and a daily dairy field study to test the model at the within-person level. The findings largely support my proposed model. The results indicate that gap identification positively predicts employee NA, while gap elimination predicts PA. Gap identification is positively associated with learning via employee learning need recognition, but negatively predicts learning via employee NA and learning self-efficacy. I also find that gap elimination positively predicts learning through PA and improved employee self-efficacy in learning. Importantly, the results demonstrate the beneficial effects of emotional balancing, which significantly moderates the effects of PA and NA. Taken together, these findings indicate that receiving DFB is a highly emotional experience that creates a tension between feeling uplifted and keeping feet on the ground, and leaders can use emotional balancing to manage employee affect to achieve better learning outcomes.

LIFTED UP OR FEET ON THE GROUND? HOW LEADER EMOTIONAL BALANCING MODERATES THE EFFECT OF DEVELOPMENTAL FEEDBACK ON EMPLOYEE LEARNING

by

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Dissertation submitted to the Faculty of the Graduate School of the University of Maryland, College Park, in partial fulfillment of the requirements for the degree of Doctor of Philosophy

[2022]

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Acknowledgements

I thank everyone I have met in my life who has inspired me to pursue this career. Thank you to the late, great Jenessa Shapiro, for the unforgettable social psych class you taught that opened the door for me to organizational psychology. I gained my first exposure to research and grad school at your research lab. I have been using, and still use, what I learned from you in my own teaching. Thank you to my friends from all these years and all the places – my former students and colleagues back when I was an English teacher in China, my friends from college in LA, my dearest friends from Singapore who are family to me, and my zoom writing-group friends during the pandemic – for having listened to me talk about psychology, about how it makes us better communicators, leaders, and creators. Thank you for indulging me and my passion with your time, and for expressing fascination and curiosity along the way. Unbeknownst to you in those moments, you planted a seed in my heart that later grew to become a wish, a desire, and finally, a full-blown commitment to obtain a PhD in organizational behavior. Thank you for planting that seed in me. You are the reason I embarked on this journey.

I thank, greatly, the faculty members and students in the M&O department at Maryland. Your help and support gave me the strength to complete this PhD journey. I particularly want to thank my advisor, Myeong-Gu Seo. Your mentorship is the best gift I received at Maryland. I am extremely fortunate to have a mentor who shared my research interest and poured hours and hours of work into developing my research skills. From you, I learned the art of theorizing, I learned how to write a good introduction, how to constructively respond to feedback by using it to better my manuscript, and how to present my work to an academic audience. Despite all of these, what I learned from you extends far beyond the craft and techniques of doing research and managing projects. I'm speaking of navigating the most difficult project of it all, that is life itself, especially the life-long pursuit of this career. When there are important/difficult decisions to be made, I will look back to you and find strength and guidance in making those decisions.

I also want to thank my committee members who have given me incredibly constructive feedback over the years on my dissertation and other projects – Vijaya Venkataramani, Hui Liao, Trevor Foulk and Edward Lemay. To Hui, I can never forget our road trip to Baltimore before the pandemic, or the opportunities to sit in your EMBA classrooms where I learned how to teach more advanced classes. You showed me how to collect high-quality field data, work with collaborators, juggle many projects, and so much more! To Vijaya, all my projects have benefited from your brilliant feedback over the years. I enjoyed brainstorming ideas with you and designing experiments together. I will always be inspired by your persistent dedication to doing excellent research. Furthermore, I have to also thank Trevor for never hesitating to offer help to anything asked, be it productivity, methodology, job application or teaching related. I am incredibly thankful to you for your generosity and openness to sharing. Ed has also helped me by providing great insights on how to improve my dissertation. I am truly grateful to all of you, and to every other faculty in the OB department. Each and every one of you have helped me at some point on this journey, in one way or another. I also wish to thank Justina Blanco, for going beyond what is required of your job to be there for us when times get rough. You make sure our PhD journey goes smoothly, and that we also stay sane along the way. We are truly blessed to have you! And thank you, Tina, for your loving presence. I gained a lot of strength from your unconditional support.

I owe many thanks to friends in the program who have offered me help during the past five years. I learned how to do research, and how to navigate this profession, from all who joined the program before me – Bradford Baker, Shuye Lu, Insiya Hussain, Tom Yan, and Helene Cao. Thank you for passing down your teaching and comps preparation materials, and for being so generous with your time when I go to you for research and career advice. All PhD students who overlapped with me in the program have given valuable feedback on my dissertation and projects, during our weekly student presentation series or informal get-togethers. I am grateful to all of you for making my work better.

Last but not least, I will forever be grateful to my parents for their unwavering love and support.

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List of Abbreviations

Supervisor Developmental Feedback: DFB

Gap Identification: GI

Gap Elimination: GE

Positive Affect: PA

Negative Affect: NA

Leader Affect Worsening: AW

Leader Affect Improving: AI

Learning Need Recognition: LNR

Learning Self Efficacy: LSE

Chapter 1: Introduction

In today's workplace, great leaders should be good at developing people. Unlike their predecessors, millennial workers consider opportunities for learning and growth the biggest priority when applying for new jobs (Gallup, 2016). Helping the people learn can also be greatly beneficial to leaders and their organizations: it promotes trust (Guo et al., 2020), positive job attitudes (Lankau & Scandura, 2002), subsequent passing of this act of kindness by engaging in OCB (Liu & Fu, 2011), and organizational learning and adaptability (Argote and Miron-Spektor, 2011). It enhances employee commitment to the organization (Payne &Huffman, 2005), job satisfaction (Rowden & Conine, 2005), and perceived meaning of work (Boeck, Dries & Tierens, 2019). Employees subsequently work harder and are less likely to leave (Egan, Yang & Bartlett, 2004). Despite the ever-growing need for learning and the overwhelming benefits of developing employees on the job, we still do not know how leaders can effectively achieve this objective during daily work interactions with their employees, where opportunities to learn via receiving developmental feedback constantly emerge. The management literature has left a jarring gap regarding how managers can use feedback to develop people, or more specifically, how developmental feedback should be crafted and delivered to effectively facilitate employee learning and growth.

Existing literature on feedback in the developmental context is very scarce. One subject matter that falls within this domain is supervisor developmental feedback (Li, Harris, Boswell & Xie, 2011; Zhou, 2003; Zheng, Diaz, Jing & Chiaburu, 2015). Despite its theoretical focus on employee development, this body of literature has not yet examined how developmental feedback influences employee learning and growth. Rather, the few prior studies focused on other organizational outcomes such as task performance (Li et al, 2011) and creativity (Zhou, 2003; Thanh, 2019), and have failed to find consistent support for the proposed effectiveness of supervisor developmental feedback on these outcomes. The reason for this lack of clear, consistent findings regarding the effect of developmental feedback on key organizational outcomes could be because developmental feedback elicits paradoxical affective reactions in employees (London, 1995; Kluger et al., 1994). Receiving feedback often triggers harm-benefit appraisals for the self that leads to affective experiences (Tversky & Kahneman, 1986; Baron, 1990; Ilgen, Fisher, & Talyor, 1979). Feedback receivers' affective reactions such as positive affect (PA) or negative affect (NA) may in turn influence cognitive and motivational factors that precede learning. Thus, affect plays a crucial role in facilitating or undermining learning outcomes. Despite the importance of employee affect in shaping learning, existing feedback literature has not examined the affective processes underlying the feedback-learning relationship.

In addressing this issue, I ground my analysis in the transactional stress theory (Lazarus, 1991; Lazarus & Folkman, 1987) to unpack the affective processes underlying the receiving of developmental feedback (DFB). I argue that receiving DFB elicits both positive and negative affect. Upon receiving helpful and supportive developmental information, receivers may feel energized, hopeful for the future, and uplifted (Deci & Ryan, 1980). However, often accompanying the developmental massage is the discomforting truth that they are not there yet, that their skills are still in need of improvement. Such revelation could trigger negative affects encompassing feelings of inadequacy, embarrassment, stress, and fear (London, 1995; Kluger, Lewinsohn & Aiello, 1994; Ilies & Judge, 2005; Tversky & Kahneman, 1986). I argue in this dissertation that these complex emotions may be elicited by different dimensions of DFB and could be the reason for a lack of support in the existing literature for the hypothesized positive relationships between DFB and performance improvement (Li et al., 2011) or creativity (Zhou, 2003; Thuan & Thanh, 2019). Therefore, in order to shed light on how and when DFB facilitates/undermines employee learning, it is crucial to understand how each DFB dimension, independently and separately, elicit distinct affective reactions. In line with this objective, I first broaden the concept of DFB to include both a gap elimination component that is uplifting and a gap identification component that keeps feedback receivers grounded in reality.

Building on this dual-dimensional view and the expectation that different affective experiences (positive or negative) are separately evoked by gap elimination and identification, I further propose that gap identification and gap elimination will have distinct effects on employee learning. Drawing upon the adaptive learning framework (Fiedler, Nickel, Asbeck & Pagel, 2003; Bless & Fiedler, 1995) and affective motivation theories (Seo, Barrett, & Bartunek, 2004), I argue that negative affect (NA) could enhance employee *learning need recognition,* yet damage *learning self-efficacy,* while positive affect (PA) undermines *learning need recognition,* but strengthens *learning self-efficacy*. However, both recognition of the learning need and confidence in one's ability to learn are necessary preconditions to learning. To resolve these trade-offs in NA and PA, I integrate the transactional stress theory (which focuses on within-person coping) with the emotional regulation literature (which focuses on interpersonal coping) (Gross, 1999, 2002; Zaki & Williams, 2013) to conceptualize a novel emotional regulation strategy that I refer to as *emotional balancing*. Unlike conventional affect regulation strategies that are largely based on either affect improving, or to a much lower degree, affect worsening, *emotional balancing* refers to the leader's dynamic engagement in both affect improving and affect worsening behaviors designated to promote employee recognition of the need to improve and maintain learning self-efficacy during feedback provision. I expect emotional balancing to strengthen the effect of DFB on learning by attenuating the negative effects of employee affect.

This research makes several key contributions to the affect, feedback, and learning literature. First, by conceptualizing DFB as a dual-dimensional construct, I uncover the paradoxical effects that each dimension has on learning and advance understanding of the affective and psychological factors triggered by DFB. In so doing, I offer a theory that reconciles the prior inconsistent findings on DFB. My findings demonstrate that gap identification positively contributes to learning via learning need recognition yet undermines employee learning self-efficacy; on the other hand, gap elimination positively predicts learning via learning self-efficacy, whereas it does not enhance learning need recognition unless the leader uses affect worsening to regulate employees' positive affect.

Second, I contribute to the affect regulation literature by identifying a novel affect regulation strategy, emotional balancing. Unlike other affect regulation strategies, emotional balancing is a dynamic and reactive process. Leaders need to focus on their employees' experienced affect during feedback provision and react with either affect-improving or affect-worsening behaviors. Depending on employees' affective fluctuations, both affect improving and affect worsening may be adopted within the same feedback session, or across multiple sessions over time. By emphasizing on the dynamic, reactive nature of emotional balancing, I draw scholarly attention to a phenomenon that has not received much attention by the previous affect regulation literature. Instead, existing literature has focused largely on a static, one-size-fits-all approach (e.g., Pescosolido, 2002; George, 2000).

Furthermore, by highlighting the functional effect of affect worsening, my findings challenge the predominant view in the feedback and affect literature, which holds that only negative affect needs to be addressed during feedback provision (Young et al., 2017; Ilies, De Pater, & Judge, 2007; O'Malley & Gregory, 2011). My findings suggest that it is important for leaders to occasionally tune down employees' positive affect (depending on the context), just as it is important for them to improve employees' negative affect at other times.

Before I begin the analyses for the hypotheses and theoretical model, in the next Chapter, I will define the construct of DFB and develop a theory that accounts for its two dimensions. To better understand how to craft DFB for the purpose of facilitating learning, it's critical to first understand the concept of learning, and how it differs from mere performance improvement.

Chapter 2: Developmental Feedback: Construct Development and Its Two Dimensions

What is Learning and Different Types of Learning

"There is a developmental process for cultivating compassion for others…. The first step is knowledge… Then you need to constantly reflect and internalize this knowledge… to the point where it will become a conviction. It becomes integrated into your state of mind…. Then you get to a point where it becomes spontaneous."

- Lama & Ekman, 2008, pp. 156-157

Learning is the expansion of one's capability including skills, ways of thinking, insights, knowledge, and values that allow one to function effectively in organizations (McCauley, Ruderman, Ohlott & Morrow, 1994). Learning occurs when individuals, upon receiving new knowledge that misaligns with his or her existing knowledge structure, are able to eliminate or alter his or her accustomed schema (i.e., fundamental values and assumptions guiding behaviors) to accommodate for the information (Argyris & Schon, 1978). Alternatively, the new information may be dealt with by maintaining the old schemata and only changing behaviors in ways consistent with one's pre-existing schemata (i.e., incremental learning) (Bartunek & Moch, 1987).

The former means of incorporating new information is what I refer to as *high-level learning*, which will be the outcome variable of interest for my dissertation. The reason for this theoretical focus is that high-level learning involves the altering of old schema that gives rise to deeper internalization of knowledge structure that leaves longer-lasting imprints on behavioral change. Such internalization of the new knowledge structure enables the change to generalize across times and situations (Katona, 1940). The effect of high-level learning on behavioral change or skill adoption is therefore longer lasting and more stable (Singley & Anderson, 1989). On the other hand, incremental learning does not incur such stable behavioral change as it involves changes at the behavioral level as opposed to alteration of fundamental values and assumptions.

To illustrate how learning takes place in organizations, take the example of leadership developmental programs conducted by organizations. Leaders likely enter the program with an established set of schemata that have guided them to navigate through their pre-entry leadership experiences. In circumstances where this fundamental guiding framework is sufficient in helping leaders complete daily leadership tasks and solve problems, new information is consistent with and thus will be easily incorporated into this old schema. As a result, high-level learning does not take place (Vollmeyer, Burns, & Holyoak, 1996). Learning occurs when new information such as an error, or feedback stipulates a need to change behaviors, which individuals deal with by either maintaining their old schemata and only changing their behaviors at the superficial level (incremental learning) or modifying their old mental framework to accommodate for the new information (high-level learning). Consider a leader having received negative leadership evaluations from her employees. Incremental learning occurs when she invests greater efforts into developing skills that are consistent with her old schemata, such as “effective leadership is about exerting control over employees”. High-level learning occurs when the negative leadership evaluation nudges her to recognize the limitation in her pre-existing schemata, and thereby deliberately alter her belief from, for example, “good leaders control” to “good leaders empower”.

In corroboration of the distinction between incremental and high-level learning, cognitive learning theories (Kaiger, 1993; Rouse & Morris, 1986) have noted that after going through the initial knowledge acquisition or the retention of new information, learners internalize the new information to develop procedural knowledge, or mental models/cognitive maps. I argue that these concepts are similar to the schemata described by Argyris (1979) because just like schemata development being able to facilitates longer-lasting behavioral change, the building of mental models enables learners to more easily draw on these internalized mental models to quickly solve problems. In line with this argument, experts can solve problems at a faster rate due to their reliance on complex mental models encompassing both problem identification and strategy to tackle the problem relative to novice (Glaser & Chi, 1989). Thus, the development of mental models reflects the internalization of new knowledge and generates longer-lasting behavioral changes and learning outcome than the mere encoding or memorization of new information (Simon, 1995). In a similar vein, a key challenge of learning identified and studied by the training literature is transfer (Goldstein, 1993). Transfer concerns the extent to which the trained knowledge can be transferred from the training context to the performance environment (Baldwin & Ford, 1988). Higher-level learning, relative to incremental learning, or rote learning, should fare better on the retention, maintenance, and generalization of new knowledge learned (Yamnill & McLean, 2001). It should therefore be more effective in helping learners overcome the challenge of transfer (*Principles Theor,* Goldstein, 1986).

In sum, by highlighting that the goal of DFB is *high-level learning,* or skill acquisition stemming from altered schemata which generates stable behavioral/performance change, I provide a basis for my argument for the kind of information that managers should include in their DFB message.[1]

Developmental Feedback Defined

Given that individuals tend to resist changes in their fundamental and long-established beliefs and assumptions (Dent & Goldberg, 1999), high-level learning is difficult to achieve. It is often met with resistance, and negative emotions (Argyris, 2002). It is thus crucial for leaders to adopt ongoing conversations in the form of developmental feedback, where they can prompt such changes in employees while managing their emotions. With the objective of high-level learning in mind, I argue that feedback widely studied by existing literature – i.e., information delivered by a sender to a recipient about the correctness, accuracy, and adequacy of the recipient's behavior or task performance (Ilgen, Fisher & Taylor, 1979; Kluger & DeNisi, 1996) – is insufficient in effectuating the fundamental changes critical to high-level learning. I therefore propose an alternative form of feedback and refer to it as developmental feedback (DFB).

[1] It should be noted that even though high-level learning is an integral part of my theoretical focus for developing the DFB concept, my conceptualization of DFB based on high-level learning should not preclude it from effectively predicting behavioral change. Relative to simple behavioral change, high-level learning has the additional pre-condition of changing one's long-established beliefs, making it harder to achieve. In other words, behavioral change is a more rudimentary form of learning that is a subset of high-level learning. With high-level learning, behavioral change inevitably ensues. Yet behavioral change does not always accompany high-level learning.

DFB should provide information regarding the deficiency of the recipient's *capabilities* and how to improve them on the job. First, given that the goal of developmental feedback is to facilitate high-level learning, which is the expansion or alteration of one's capability via fundamentally changing skills, assumptions, mental frameworks, insights, knowledge, and values that allow one to function effectively in organizations (McCauley, Ruderman, Ohlott & Morrow, 1994), feedback receivers will first need to be made aware of the need to change their long-established beliefs. Such awareness comes from receiving DFB that explicitly or implicitly pointing out their deficiencies in capabilities in the form of assumptions, knowledge structure, mental frameworks, habits, and/or values. Second, to facilitate high-level learning, DFB should also help employees eliminate their capability deficiencies by proving information on ways to grasp new ways of thinking, change behaviors, and improve performance (Zhou, 2003).

With a focus on its goal (i.e., high-level learning) and form (i.e., feedback), I define DFB as *the extent to which supervisors offer employees information about (1) the deficiency in their capabilities (skills, knowledge, values, and ways of thinking) and (2) ways to enhance these capabilities for the purpose of facilitating their learning and development on the job*.

The Two Dimensions of DFB

Prior research on supervisor developmental feedback (SDF) asked employees to rate the extent to which their supervisor provided them with helpful information on how to improve on the job. This rating of supervisor developmental feedback was not found to significantly predict employee creativity (Zhou, 2003), or performance improvement (Li et al., 2011). These findings suggest that the act of providing employees with information on how to improve and develop on the job does not always lead to the intended outcome of employees' actual learning and development. I argue that this is because the effect of developmental feedback on learning may be more complex than what is proposed by studies examining DFB using the existing measure, which does not realistically capture real-life DFB behaviors. In reality, when leaders provide information on how to improve employees' abilities, the underlying message is that their current ability level is insufficient. Such implicit message identifying deficiencies in employees' current ability and skills will likely be more unpleasant than messages emphasizing on future ways to improve. Whereas certain DFB (i.e., those emphasizing more on the possibilities and ways to master new skills) may be perceived as more uplifting, other DFB (i.e., those focusing more on deficiencies) may be perceived as more upsetting. While both elements are crucial for achieving the ultimate goal of cultivating high-level learning, they predict distinct affective and psychological reactions that differentially influence employee learning.

In proposing a DFB construct that captures both the uplifting and unsetting feedback information conducive to learning, I broaden the conceptualization of DFB to encompass two dimensions of DFB: gap identification and gap elimination. ***Gap identification*** involves the provision of useful information about employees' deficiencies in current capabilities (skills, knowledge, values, and ways of thinking) with respect to expected learning goals. On the other hand, ***gap elimination*** refers to the provision of useful information about ways to enhance capabilities or acquire skills for the purpose of facilitating learning and development on the job.

Both proposed dimensions of DFB are considered informational practice that help employees improve job-related capacities, thus both are consistent with my overall definition of DFB. ***Gap identification*** promotes high-level learning because an important indicator of such learning is when individuals accept the challenge to develop new competencies while refrain from relying on old ones (Vygotsky, 1978). Learning occurs when individuals, upon receiving new knowledge in the form of feedback that misaligns with existing knowledge structure, are able to accommodate this new information by eliminating or altering his or her accustomed schema (i.e., values and assumptions guiding behaviors) (Argyris, 1976; Bartunek & Moch, 1987). In line with the objective of high-level learning, the gap identification dimension of DFB should serve to stimulate learning by raising employees' awareness of the need to change pre-existing fundamental values and assumptions (Argyris & Schon, 1978; Rouse & Morris, 1986). By highlighting deficiencies in employees' capabilities, gap identification enables them to understand the discrepancy between current and desired proficiency level (Sadler, 1987; Bangert-Drowns et al., 1991), and consequently recognize the need to change and improve (Ellinger & Bostrom, 1999). It motivates learning by setting a learning goal and enhancing the utility perception of that goal (Deci & Ryan, 1985). Importantly, gap identification is not about revealing discrepancy between current *performance* level and a specific and desirable performance level, which is what feedback intervention does. Rather, it is about implicitly or explicitly communicating deficiencies in *abilities*. Whereas focusing on task/performance inadequacy produces specific task-related feedback that could give rise to "tunnel vision" that stifles the exploration process critical to the mastering of new skills (Seijts & Latham, 2001; Goodman, Wood & Hendrickx, 2004), focusing on ability deficiencies conveys feedback at a more abstract level. This is similar to the assignment of a learning goal (i.e., goal to acquire the requisite skill) that has been shown to facilitate metacognition involving planning, monitoring, and evaluation of progress toward goal attainment, and subsequently enhance learning (Locke & Latham, 2006; Latham & Brown, 2006). Leaders may convey gap identification or highlight employees' capability deficiencies by challenging their assumptions, inquiring about ways in which they reached their beliefs, directly pointing out flaws in the reasoning behind their attributions (Argyris, 2002), or explicitly setting learning goals (Locke & Latham, 2006).

Gap elimination provides employees with the method, information, and resources that can help them more easily achieve the learning goal. It facilitates high-level learning by ensuring that employees receive the guidance and resources needed to achieve the planned learning goal, thereby gain confidence in their likelihood of success. Successfully achieving the learning goal means mastering a new skill that will likely strengthen one's opportunity for career advancement – a desirable outcome that enhances employee perceptions of work meaningfulness (Boeck, Dries & Tierens, 2019.). Given that intrinsic motivation can be generated by informational inputs from one's environment enhancing their perceptions of the likelihood of experiencing a future satisfying state (Deci & Ryan, 1980, 1985), gap elimination allows employees to experience intrinsic motivation to learn and thereby become more likely to dedicate and sustain efforts towards the learning goal.

Before I provide further justifications for why GI and GE are distinct dimensions, I will give a review of the literature on related concepts. First, I will identify several distinctions between feedback intervention (FI) and DFB and make an argument that FI (relative to DFB), is less effective in promoting high-level learning. Furthermore, since DFB has received scarce research attention, I will also explore related concepts in the management literature including constructive feedback, coaching behaviors, and mentoring. We can learn from these related literatures regarding what the content of DFB could be, which even though is not the focus of my theoretical model, has some practical implications for managers interested in learning about how to help employees grow.

Comparison with Related Concepts

I identify two key characteristics that set DFB apart from other forms of feedback: first, its objective (i.e., develop skills and/or cultivate learning), and second, its content (i.e., useful information facilitating learning). Based on these two characteristics, developmental feedback should be distinguished from a widely-studied form of feedback – feedback intervention (FI) (Kluger& DeNisi, 1996). While feedback intervention refers to information delivered by a sender to a recipient on the correctness, accuracy and adequacy of the recipient's behavior/task performance (Ilgen, Fisher & Taylor, 1979; Kluger & DeNisi, 1996), developmental feedback provides information that helps employees learn, develop and improve on the job.

The primary factor distinguishing DFB from FI is that they have fundamentally different objectives. Whereas FI has the objective of promoting performance improvement (Ilgen, Fisher & Taylor, 1979), the goal of DFB is to facilitate the mastering of new skills. Even though the learning of novel skills may inadvertently lead to the outcome of improved performance, improved performance is not necessarily an indicator of successful high-level learning. Instead, performance improvement can be achieved simply through repeated practice (or rote learning) (Goodman, Wood, & Hendrickx, 2004). Yet unlike rote learning, grasping of complex skills (or high-level learning) requires learners to engage in information processing that allows them to systematically generate, and test multiple alternative action-outcome hypotheses. The result of this testing process is that learners form new knowledge structures that incorporate the action-outcome predictions that are proven to be true/effective. These newly formed knowledge structures are novel (i.e., they do not replicate, and sometimes even overwrite, existing ones), and once formed, can become more easily accessed in the future as the learner encounters similar situations. Whereas the traditional feedback intervention motivates feedback recipients to perform better on the task by exerting greater effort, and/or working out ways to better perform the task (Kluger & DeNisi, 1996), it does not necessarily elicit the realization of the need to change one's fundamental assumptions about the task that is critical to high-level learning. Thus, FI (i.e., providing information on task-performance) will likely be insufficient in motivating learners to engage in novel skill building that involves replacing established knowledge structures/mental models with new ones.

Extant research on FI also has not focused on *high-level learning* as its intended outcome. A meta-analysis examining the effectiveness of FI found that prior feedback literature mostly measured outcomes using *performance* measures including "reading errors, memory retention, test performance, puzzles, performance with computer-aided instruction (CAI), motor performance, reaction time, arithmetic computations, maintenance jobs, and adherence to regulations" (Kluger & DeNisi, 1996, p.257), rather than measures reflecting *high-level learning.* Even with improved performance as the dependent variable, FI is effective only one third of the time (Kluger & DeNisi, 1996).

Furthermore, when researchers did examine the relationship between FI and learning, they found that FI has deleterious effects on learning. Specifically, past studies on feedback revealed that FI including only knowledge of results (outcome) has detrimental effects on learning of complex tasks (Hammond & Summers, 1972; Hammond, Summers, & Deane, 1973; Balzer, Doherty & O'Connor, 1989). Goodman, Wood, & Hendrickx (2004) also conducted a study where participants were randomly assigned to receive different levels of feedback specificity as they learned decision rules at a managerial decision-making simulation. They found that higher levels of feedback specificity boosted short-term task performance, but the effect did not last over time, or across different tasks. They also found that feedback specificity decreases long-term learning because it reduces systematic exploration that is beneficial to learning. These findings suggest that higher feedback specificity (e.g., information on the accuracy of every single decision) undermines the long-term, stable acquisition of new skills and knowledge (Christina & Bjork, 1991).

Taken together, these findings point to the distinction between mere performance improvement and the generalizability of performance improvement over time and across situations (i.e., high-level learning). Whereas the former has been the focus of most existing feedback intervention research, the latter reflects a fundamentally different goal (i.e., the learning of complex skills) that would require a different type of feedback to achieve.

Hence, given the difference between FI and DFB in their objectives, their second set of distinction is in their *content*. Whereas FI includes outcome-related or process-related information on how to improve task *performance* (Earley, Northcraft, Lee & Lituchy, 1990), DFB refers to information provided to employees about how to improve *capabilities* that enables them to learn, develop and improve on the job. Instead of fixating on a specific task performance outcome, DFB identifies, at a more abstract level, learning goals (i.e., ability gaps) that prompt employees to plan, explore, and test alternative cognitive/action sequences that enable the acquisition of new skills transferrable to various contexts. Additionally, DFB provides employees with the resources and methods aimed at assisting them to acquire targeted skills, and because learning is about applying learned skills in novel contexts, such information is often future-oriented instead of involving passing blames on employees' past performance that cannot be changed.

Other related constructs also shall be distinguished from DFB. Among them, constructive feedback is particularly noteworthy. Constructive feedback refers to feedback that is specific, considerate, attributing poor performance to situational rather than personal causes, and vice versa for good performance (Baron, 1988). It is considered a type of feedback intervention by Kluger & DeNisi (1996) but has not received much research attention from the management literature by itself. In addition to the afore-mentioned distinctions between FI and DFB, constructive feedback is also distinct from DFB in the sense that it defines both the ideal feedback message (i.e., being specific and having external failure attribution) and the ideal delivery style for negative feedback (i.e., in a considerate manner) whereas DFB focuses only on capability-centered feedback message, not delivery style. Unlike constructive feedback, DFB does not concern performance evaluations or attributions. Instead, the focus is on ability gap and setting learning goals.

Coaching behavior is another construct that shares some similarities with DFB, from which valuable insights can be gained. In its essence, coaching is a form of collaborative, contractual relationship involving a coach and a coachee, who work together to achieve developmental goals valued by the coachee (Jones, Woods & Guillaume, 2016). Coaching usually take place at the executive level when a coach is hired as an external service by the company to help employees develop on the job. Despite differences in the relationship dynamics, coaching and DFB share the common objective of helping employees learn. However, coaching is a broader construct encompassing a wide range of behaviors, of which a subset of behaviors is related to DFB. These behaviors are providing tools, skills, and opportunities to help the choachee achieve their personal development goals (Smither, 2011; Witherspoon & White, 1996). More broadly, key features of the coaching session include goal-setting; encouraging the undertaking of tasks or activities at work to promote experiential learning (Kolb, 1984); personalized coaching focusing on psychological fidelity (i.e., an explicit effort to model underlying psychological constructs and processes relevant to key performance characteristics in the real-world setting)

(Kozlowski & DeShon, 2004, p. 4). Specific coaching behaviors include prescribing, informing, confronting, releasing, exploring and supporting. Prescribing refers to giving directions, advice, or recommendations to the client. Informing refers to providing information and knowledge. Confronting refers to challenging the client's assumptions, stimulating their awareness of their own behavior, attitudes, or beliefs. Releasing refers to helping the learner/client to release tension, and to discharge or come to terms with emotions that are blocking progress. Exploring is about helping the client engage in self-discovery and self-directed learning, and Supporting includes building the client's self-esteem and confidence (De Haan & Nilsson, 2017). As mentioned earlier, unlike coaching that employs a much broader set of toolkits for developing skills than the mere adoption of feedback, DFB is more narrowly focused on feedback behavior. Despite this difference, coaching literature can inform DFB on what kind of information/behavior is useful for learning. For instance, prescribing and confronting behaviors could substantiate the concept of gap identification.

Similarly, mentoring is another relevant concept that should be distinguished from DFB. Mentoring refers to an interpersonal work relationship in which a senior and more experienced individual supports a mentee in his or her career development (Kram & Ragins, 2007). Two types of mentor functions have been identified that promote mentees' career success and satisfaction (Kram, 1985; Thomas & Lankau, 2009). The first is career-related support, such as mentor sponsorship, coaching, protection and providing challenging assignments. The second is psychosocial support, or aspects of the relationship that boosts mentees' perceived self-competence and effectiveness, such as role modeling, acceptance, friendship, and counselling.

Like coaching, mentoring is different from DFB because it includes a broad spectrum of mentorship functions and is defined as a relationship rather than specific feedback behavior.

In summary, existing literature on DFB is scarce. The few prior studies on a similar construct – Supervisor Developmental Feedback, examined organizational outcomes such as task performance (Li et al, 2011) and creativity (Zhou, 2003; Thanh, 2019). Yet they failed to find DFB's posited positive effects on these outcomes. Additionally, despite DFB being theoretically grounded in its benefits on learning, past research has not directly examined how it influences employee learning in the workplace. Extant research also does not shed light on what constitutes information that is helpful for learning and how they influence learning via affective mechanisms. To address these gaps, in the subsequent Chapters, I will integrate Transactional Stress Theory and Emotional Regulation Theory to propose a theoretical model explicating the affective processes underlying the DFB – learning relationship, and the emotional regulation interventions that serve to strengthen this relationship.

Chapter 3: Theory and Hypotheses

Affective Reactions to DFB Dimensions

Transactional Stress Theory (Lazarus & Folkman, 1987; Lazarus, 2006) illuminates ways in which individuals cope with stressful encounters, and how coping affects the adaptational outcomes of such stressful events in which the coping occurs. This theory identifies two processes that determine the effect of stressful encounters on individuals' affective, psychological, and behavioral reactions – cognitive appraisal and coping. Cognitive appraisal refers to a process through which the individual evaluates a stressful encounter in relation to his or her personal well-being in terms of its relevance (whether he or she has a personal stake in the stressful event), valence (whether it will harm or benefit his or her well-being) and potential for coping (whether he or she has enough ability and resources to cope with the stressful encounter). Together, these appraisals allow the focal person to determine whether the encounter is a threat or challenge. Furthermore, coping occurs later in the process when the individual adopts behavioral and cognitive efforts to manage the demand posed by the encounter. Such coping behaviors/thoughts could function to regulate one's affective reactions to the stressful event (emotion-focused coping), or to address the problems causing the event (problem-focused coping). I will draw on this theory to first explain why the proposed two DFB dimensions elicit distinct affective reactions. Then I will explicate how the affective reactions predict employee psychological and cognitive reactions leading to learning. Finally, I propose ways in which the leader can nudge employees to engage in constructive coping through what I refer to as emotional balancing (e.g., facilitating problem-solving and providing social support), that effectively channels employee affective reactions into producing positive learning outcomes.

Based on Transactional Stress Theory, I argue that gap identification and elimination are distinct dimensions because they evoke different affective reactions and thus serve different functions. I theorize that gap identification positively predicts employee negative affect (NA) for the following reasons. Gap identification informs the feedback recipient that their current skill level is still insufficient or that a higher capability level is expected. It represents a stressful situation where external demands exceed the resources of the system for dealing with the demands and thereby has implications on one's personal well-being (Holroyd & Lazarus, 1982). Stressful situations in life present themselves as threat or challenge depending on the appraisals of whether the event is harmful/beneficial to one's well-being and whether one has enough resources to successfully resolve the stressful encounter (Folkman, Lazarus, Dunkel-Schetter, DeLongis & Gruen, 1986). When a harm appraisal is met with low coping potential (i.e., lack of resources to effectively overcome the harm), the stressful event will be appraised as a threat. When a stressful counter is appraised as having the potential for benefit, such as the mastery and gaining of new skills, and that one has the coping ability to improve possibilities for benefit, it will likely be seen as a challenge. The same demand may be appraised as either a challenge or a threat, depending on whether one has sufficient coping potentials to overcome the stressful situation (Folkman & Lazarus, 1985). I argue that when employees receive feedback in the form of gap identification, valued stakes such as self-esteem, impression-management goals, learning goals, and career prospects may be at risk.

Thus, they tend to interpret the DFB revealing capability gap as an encounter that could harm their personal well-being. Furthermore, employees receiving gap identifying DFB will likely infer that inadequate ability reflects limited coping potential to satisfy the learning demand highlighted in the DFB. Given that harm appraisals and lack of coping potentials together will make the employee consider the situation as a threat, greater gap identification tends to elicit greater negative affective reactions (Lazarus and Folkman, 1984, 1987).

By contrast, gap elimination predicts employee positive affect (PA). By pointing out the learning resources and support available to help employees achieve the learning goal, gap elimination signals to the target employee availability of ample resources to cope with the demand of the learning goal. With an enhanced perception of coping potentials, employees will be more likely to interpret the feedback as a challenge that signals beneficial outcomes such as mastery and gain. In corroboration of this argument, it has been found that setting challenging goals elevates intrinsic task interest (Locke & Bryan, 1967) because it enables individuals to find out the pleasurable aspect of an activity (Harackiewicz, Manderlink, & Sansone, 1984), thereby generating feelings of excitement and enjoyment (Hamari et al., 2016). These emotions generated by favorable evaluation of the situation (Barrett, 2006) and characterized by positive valence (hedonic tone) and high arousal are referred to as positive affect (Russell, 2003; Russell & Barrett, 1999; Barsade & Gibson, 2007).[2] Taken together, I predict that,

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[2] The reason for my decision to only propose independent effects of GI and GE on either NA or PA (instead of both NA and PA) is that, first, the challenge appraisal leading to PA and the threat/harm appraisal leading to NA are typically "co-mingled" in an encounter (Lazarus & Folkman, 1987; p.

H1: Gap elimination positively predicts employee PA.

H2: Gap identification positively predicts employee NA.

Trade-offs Between Recognizing the Need to Learn and Learning Self Efficacy

For high-level learning to take place, DFB need to be able to induce error detections and corrections that change old ways of thinking, promote the absorption of new insights and the expansion of capacities and skills (Argyris & Schon, 1978). It not only requires consistent effort, but also feedback receivers' conscious recognition of the need to change their long-established fundamental assumptions and beliefs. Instigating changes at the fundamental level can be challenging as it tends to encounter resistance stemming from face-saving motives (Argyris & Schon, 1974). The situation, therefore, is often fraught with employee negative affect (NA) that undermines learning self-efficacy (Nease et al., 1999; Mueller & Dweck, 1998; Dweck & Leggett, 1988). Yet NA may be helpful as it enhances learning by shocking employees into awareness of the need to change (Huy, 2002). Thus, managers who wish to use DFB to help their employees learn face a particularly difficult emotional regulation dilemma: Whereas PA benefits learning by boosting employees' learning motivation, it harms learning by breeding complacency. While NA promotes learning by raising employees' awareness of the need to change, it has a detrimental effect on learning motivation.

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145). Therefore, although I argue that GI positively predicts NA, it does not immediately follow that GI should negatively predict PA, and vice versa for GE. Second, and in a similar vein, the theory of core affect (Russell & Barrett, 1999) posits that PA and NA are independent dimensions that are not inversely correlated. Thus, although I argue that GI elicits NA, the same argument should not lead to the conclusion that GI undermines PA.

In this chapter, I unpack this dilemma by theorizing that gap elimination (GE) and gap identification (GI) are distinct dimensions because they influence learning through separate mechanisms, and in opposite ways. I will explain how GE benefits learning via employee PA that increases learning self-efficacy, yet it suppresses learning via employee PA that thwarts learning need recognition. By contrast, I argue that GI benefits learning through employee NA that raises awareness of need to learn, yet it harms learning via NA that undermines learning self-efficacy.

The Mediating Role of Learning Need Recognition

DFB serves as critical informational input that prompts feedback recipients to realize that their pre-existing habits, assumptions, or mental framework for knowledge should be abandoned or improved. The learning of complex, high-level job skills is predicated upon such *learning need recognition* because high-level learning involves active processing of information and testing of new action-outcome hypotheses that enable one to grasp new rules and assumptions (Klahr & Dunbar, 1988; Simon & Lea, 1974; Goodman, Wood & Hendrickx, 2004). Awareness of deficiency in existing beliefs and mental frameworks is needed for individuals to venture out and test novel, alternative theories. High-level learning thus cannot be achieved solely by working hard without consciously refraining from relying on old patterns of thinking and behaving.

I argue that employee PA triggered by gap elimination will undermine employee learning need recognition such that it hampers their high-level learning. A particularly relevant theory explaining how affect influences learning and cognition is the adaptive learning framework (Fiedler, Nickel, Asbeck, & Pagel, 2003; Bless &

Fiedler, 1995). It argues that different cognitive processes correspond to different affective states. Positive affective state generates *assimilation*, a knowledge-driven, top-down process that uses internalized knowledge structures to understand external stimuli in the environment. By contrast, negative affective state elicits the learning style of *accommodation*, or a bottom-up process using external stimuli to shape the internal mental framework. Given that assimilation relies on the use of old patterns of thinking to understand new information, higher PA generates greater tendencies to rely on prior knowledge structures to assimilate and understand new information. This allows pre-existing knowledge structure to be maintained, thereby undermines the need to change fundamental assumptions and beliefs. PA also triggers tendencies for free activation, or an aimless readiness to be activated by whatever interaction opportunity available (Frijda, 1986), and illusion of control, or overconfidence in their current ability to successfully deal with future problems, such that they are less likely to intentionally and consciously accommodate the error conveyed in DFB by changing pre-existing beliefs (Bless et al., 1996; Miller & Chen, 1996). Rather, employees with PA will readily engage with the new DFB information by changing their surface level behaviors through short-term feedback adoption, or indicating feedback-adoption intentions (i.e., incremental learning). In other words, PA prompts people to deal with the DFB by operating comfortably within their pre-existing knowledge structure without recognizing the need to alter it (Schwarz & Clore, 1983, 2003). As a result, I predict that PA deters employee learning need recognition.

Proponents of the broaden and built theory may argue that PA should enhance learning need recognition as it broadens repertoire of thought-action tendencies, facilitates idea exploration and associative thinking that allow employees to be open to changes and new ideas (Fredrickson, 1998, 2003). However, I argue that the broaden and built theory can be reconciled with the adaptive learning theory in its application to the context of DFB and high-level learning. Employees with PA and tendencies to make high-level connections (Fredrickson, 2003) will likely device a great number of creative ways in which their pre-existing beliefs can explain the new feedback information. As a result, they have even less motivation to change their fundamental beliefs and assumptions. The conclusion drawn from the broaden and built theory is consistent with that of the adaptive learning theory, in that the broadened thought-action repertoire allows employees to more effectively engage in assimilation as opposed to accommodation.

I further predict that employee NA elicited by gap identification, on the other hand, tends to foster learning via learning need recognition. Precipitating the learning style of *accommodation*, which refers to changing established patterns of thinking to accommodate new information such that the novel information can be retained (Fiedler, 2001), NA prompts employees to revise old mental frameworks and to form new ones in efforts to explain the novel information that disconfirms existing beliefs. It in turn enhances employees' openness to learning (Rudd, Hildebrand & Vohs, 2018). By pushing people to embrace new action-outcome hypotheses that defies their own fundamental beliefs, NA enables them to engage in active information processing that precipitates the formulation and testing of new mental frameworks critical to the learning of complex tasks (Goodman, Wood, & Hendrickx, 2004). As a result, NA helps feedback receivers achieve high-level learning by expanding skills and knowledge structures, which in turn cultivates the adaptability and flexibility needed to survive future obstacles *(*Sitkin, 1992*).* Taken together, I posit that,

H3: Gap Elimination has a negative effect on learning via enhanced employee PA, followed by undermined learning need recogntion.

H4: Gap identification has a positive effect on learning through enhanced employee NA, followed by enhanced learning need recognition.

The Mediating Role of Learning Self-Efficacy

Learning self-efficacy is the other critical underpinning for learning. Drawing upon Bandura's (1997) definition of self-efficacy, I define learning self-efficacy as people's belief in their capabilities to achieve a learning goal. Learning self-efficacy is a necessary precondition to learning because it prompts greater effort expenditure and persistence in practicing new skills and information processing activities necessary for learning (Goodman, Wood & Hendrickx, 2004). Such effort and persistence are also critical for the development of new mental frameworks to incorporate novel information (Schmidt & Bjork, 1992; Kellaghan et al., 1996).

PA increases employee learning self-efficacy for the following reasons. PA colors people's perceptions of the situation so that they perceive successful outcomes as more likely to happen (Forgas, 1995; Clore, Gasper & Garvin, 2001; Schwarz & Clore, 2003). This affect infusion process is particularly likely to happen at the evaluation of novel situations that relies on substantial information processing, such as learning a new skill. When employees do not have prior experience learning a particular skill, they cannot rely on previous experience to judge the likelihood of success. Consequently, they tend to rely more on their affective experiences to make such judgments (Forgas, 1995). I argue that PA will more likely direct employees' attentions to affect-congruent information in their leader's DFB. Specifically, employees who experience PA tend to pay attention to the resources, opportunities, and support mentioned in the DFB and subsequently inflate perceptions of the availability of these resources and the likelihood of learning success. With greater confidence in one's ability to mobilize motivational and cognitive resources and exercise control over actions needed to perform a specific task, people with high self-efficacy perform better on tasks because they tend to be motivated to exert more effort and demonstrate greater persistence in their effort (Bandura & Cervone, 1983; Wood & Bandura, 1989). Consistent with this argument, PA has been found to increase self-efficacy (Ilies, Judge & Wagner, 2010), which positively predicts higher goal setting and striving (George & Brief, 1996; Isen, 2000; Vroom, 1994; Bandura, 1977).

In the same way, employee NA undermines learning self-efficacy. NA precipitates judgments/perceptions of the likelihood of failure by directing the attention of individuals to negative information in the feedback, such as ability deficiency. This negative information directly undermines the belief in one's ability to learn. Individuals tend to refrain from putting in too much effort if they perceived that this effort would not lead to rewarding outcomes (Kanfer and Ackerman, 1989). Taken together, I predict that,

H5: Gap Elimination has a positive effect on learning via enhanced employee PA and heightened learning self-efficacy.

H6: Gap Identification has a negative effect on learning via enhanced employee NA and thwarted learning self-efficacy.

Leader Emotional Balancing

So far, I have explained the PA/NA trade-off in how gap elimination and gap identification affect learning need recognition and self-efficacy. PA and NA both function to facilitate learning, either by boosting learning self-efficacy or by heightening learning need recognition. Yet they both have the unintended side effect of undermining the other factor. Given my previous discussions on gap identification and elimination leading to distinct employee affects, it follows that employees are likely to experience both PA and NA at some point as they receive DFB. Since affective process plays such an important role in shaping learning, the key to facilitating effective high-level learning lies in how effective leaders can regulate employee affects to mitigate their negative effects. What can leaders do to attenuate the negative effect of PA on learning need recognition, and that of NA on learning self-efficacy?

I propose an emotional regulation strategy that includes both affect improving and affect worsening behaviors for leaders to help their employees balance the effects of their affective reactions and achieve optimal learning outcome. I refer to this affective regulation strategy as ***emotional balancing*** and define it as: The dynamic and reactive engagement in both affect improving and affect worsening behaviors during developmental feedback provision intended to promote learning need recognition and sustain learning self-efficacy in employees. Emotional balancing is a reactive strategy in the sense that leaders need to closely monitor their employees' emotions during the communication process, understand their emotions, and adjust regulation strategies accordingly (Elfenbein & MacCann, 2017). When employee PA is observed, affect worsening (Niven, Totterdell, Stride & Holman, 2011) is adopted to tune down the negative effect of PA on learning need recognition. When employee NA is observed, affect improving (Niven, Totterdell & Holman, 2009) is utilized to prevent NA from undermining learning self-efficacy. Examples of emotional balancing strategies include the use of both affect-improving emotional regulation strategies such as empathy (Zaki & Williams, 2013) and affect-worsening tactics such as cognitive change in response to the interaction partner's emotions (Niven, Totterdell, Stride & Holman, 2011).

Using Affect Worsening to Counter PA's Effect on Learning Need Recognition. Affect worsening is the process of worsening the internal feeling state(s) of another person (Niven, Totterdell & Holman, 2009; Niven, Totterdell, Stride & Holman, 2011). Specifically, López-Pérez, Howells & Gummerum (2017) shows in the lab that participants tend to intentionally induce negative emotions in others for the benefit of their well-being. In the context of leader emotional balancing during DFB delivery, leaders can apply affect worsening in reactively to promote employee awareness of the need to learn. When employees experience increasingly higher levels of PA during the feedback process, it usually reflects their higher degrees of satisfaction with the current state. To counter such positive feelings for the purpose of promoting awareness of the need to learn, leaders can apply affect worsening by engaging in behaviors such as, keeping the employee grounded in reality, expressing concerns and anxiety about his or her need to improve. These behaviors influence employees by changing their thoughts about his or her situation (Buss, 1992; Vangelisti, Daly & Rudnick, 1991). With a changed appraisal that now understands the necessity to improve, employees with increasing PA will likely garner more energy and motivation to implement the change. Therefore, affect worsening should moderate the effect of employee PA on learning need recognition such that when affect worsening is high, the negative effect of PA on learning need recognition becomes positive. Gap elimination's negative effect on learning need recognition via PA can thus be weakened and turned into a positive indirect effect by leader affect worsening. Therefore, I predict that,

H7a: Leader affect worsening weakens the negative effect of employee PA on learning need recognition.

H7b: Leader affect worsening moderates the negative effect of gap elimination on learning need recognition via PA, such that as leader affect worsening increases, the negative indirect effect becomes increasingly positive.

Using Affect Improving to Decrease NA's Effect on Learning Self-Efficacy. Affect improving, or the use of controlled interpersonal affect regulation to improve the internal feeling state(s) of another person (Niven, Totterdell & Holman, 2009), is a much more common regulation strategy than affect worsening. A particularly useful affect improving behavior leaders can adopt during DFB provision upon observing employee NA is empathy. Leader affect improving serves to maintain employees' learning self-efficacy by replenishing the motivational energy needed to keep striving towards the learning goal. Empathy involves demonstrating understanding and sharing of the employee's emotional state (Keysers & Gazzola, 2007; Zaki & Ochsner, 2012), and the motivation to change the trajectory of the employee's emotional state (Zaki & Williams, 2013).

I argue that affect improving strategies, such as empathy, weakens the negative effect of employee NA on learning self-efficacy for the following reasons. First, empathy informs employees about their leader's prosocial intentions, suggesting to them the leader's willingness to support and help the employee overcome the current predicament and improve skills in the future (Bolger, Zuckerman, & Kessler, 2000; Lakey & Orehek, 2011). With greater perceived support, employees will likely increase the appraisal of how much coping potential they have for overcoming the learning demand (Tschannen-Moran & Hoy, 2007). As a result, higher affect improving could directly change employees' cognitive evaluations of their capabilities to achieve the learning goal. Second, empathy also shows that the supervisor understands and sees the employees' feelings (Watson, Steckley, & McMullen, 2014). It subsequently provides validation for their value, makes them feel seen, understood, and respected (Katz, 1963; O'Brien, DeLongis, Pomaki, Puterman, & Zwicker, 2009). As a result, employees will experience higher levels of self-worth and self-esteem (Rogers, 1992), which increases confidence in their own capabilities to succeed (Breines, & Chen, 2012; Lane, Jones, & Stevens, 2002). With the leader as a source of support and validation, employees' learning self-efficacy tends to be sheltered from the negative influence of their own NA (Forgas, 1995; Salahian, Oreizi, Abedi & Soltani, 2012). Leader affect improving thus buffers the negative effect of employee NA on learning self-efficacy

(Pescosolido, 2002). Based on the arguments above, I expect leader affect improving to moderate the effect of employee NA on learning self-efficacy such that when affect improving is high, the negative effect dissipates. In the same vein, I also expect leader affect improving to attenuate the negative indirect effect of gap identification on learning self-efficacy via employee NA.

H8a: Leader affect improving weakens the negative effect of employee NA on learning self-efficacy.

H8b: Leader affect improving moderates the negative effect of gap identification on learning self-efficacy via NA, such that as leader affect improving increases, the negative indirect effect is attenuated.

Chapter 4: Overview of Studies

I first conducted a pilot study to validate the developmental feedback dimensions and scales, then conducted two field studies to examine both the within-person and between-person effects of receiving developmental feedback. In Study 1, I tested the full theoretical model using a multi-wave, between-person field study. Due to employees' variability in abilities and learning needs, the developmental feedback each employee receives should vary in how much it constitutes the gap identification and gap elimination dimension. This variance across individuals was captured by the between-person design. In Study 2, I conducted a four-day daily diary study at a social media and communications firm where employees recorded their experiences after developmental feedback sessions daily for four consecutive days. Given the short delay between each feedback episode and receivers' completion of the experience-sampling survey, this daily dairy design allows for data that more accurately captures employees' affective response after receiving feedback and their leaders' affect regulation behaviors. I focused on the within-person variations in my analyses for Study 2. Given that there was considerable variance at the within-person level for gap identification (68%), employee affect (29%) and leader affect worsening (42%) (see Table 8 for detail), suggesting that developmental feedback receiving is an affective event frequently encountered in one's work life that triggers ups and downs in one's emotional experience, within-person analysis is a relevant and useful method for studying the affective experience of receiving developmental feedback.

Chapter 5: Pilot Study

I created a pool of 7 items measuring gap identification and 7 items for gap elimination based my conceptualization of these two developmental feedback dimensions. Three experts in the field of management helped me evaluate these items according to how closely they captured my conceptualization of these constructs. The resultant measure included 4 items for gap elimination and 7 items for gap identification. I conducted a pilot study to validate these measures in a Chinese firm. A sample of 141 employees (mean age = 29.11; SD = 3.85; 14.9% women) rated these 11 items on a scale of 1 (“not at all agree”) to 7 (“very much agree”) based on their most recent in-person feedback session with their supervisor. Principal components analysis was conducted to determine the dimensionality of the 11 developmental feedback items. Following the Kaiser criterion and the scree plot, initial results suggested that two components should be extracted (Eigenvalue $\lambda > 1$). The final two-component solution obtained using an oblimin rotation included items measuring gap identification (items #1, #2, #6) and gap elimination (items #1, #2, #3, #4). The factor loadings for all original items are displayed in Table 1. The gap elimination factor consisted of three items accounting for 62.12% of the common variance. Sample items included ‘When giving feedback, my supervisor raised helpful suggestions to improve my [Skill A] (Skill A refers to the skill/knowledge/mindset that the feedback aimed to improve)’ and ‘When giving feedback, my supervisor suggested new resources which are beneficial to my [Skill A] development (e.g., learning materials, resources, funding, or network connections).’ The gap identification factor included four items that accounted for

17.39% of the common variance. Sample items included 'My supervisor pointed out deficiencies in my skills, knowledge, or mindset' and 'My supervisor indicated a gap between my current capability and expected capability'.

To demonstrate construct validity, I examined how these two scales correlated with the three-item developmental feedback measure that have been widely used by prior studies (eg. Zhou, 2003; Li, Harris, Boswell & Xie, 2011). I found that the two scales I developed for the two dimensions of developmental feedback – gap identification and gap elimination – both positively correlated with Zhou (2003)'s three item developmental feedback measure. The gap elimination dimension had a higher correlation with Zhou's scale (r = .66**) than did the gap identification dimension (r = .24**). My two subscales also correlated with each other (r = .57**).

To further differentiate the gap elimination dimension from the gap identification dimension, I did a regression analysis to examine the hypothesized differential effects of the two developmental feedback dimensions on employee PA and NA. After answering the developmental feedback measures, employees were asked to reflect on their post-feedback affective experience and rated the extent to which they experienced the following emotions: *enthusiastic, excited, elated, happy, tense, nervous, upset, and irritated*. I computed a composite PA score by averaging participants' ratings on *enthusiastic, excited, elated and happy* (Cronbach' α = 0.96), and a composite NA by averaging their scores on *tense, nervous, upset, and irritated* (Cronbach's α = 0.93). I first regressed PA on both gap identification and gap elimination, results revealed that while gap elimination positively predicted PA ($\beta = .46,\ p < .001$), gap identification did not influence PA ($\beta = -.05,\ n.s.$). I then regressed NA on the two DFB dimensions, and found that as predicted, while gap identification positively predicted NA ($\beta = .20,\ p < .05$), gap elimination thwarted NA ($\beta = -.63,\ p < .001$). This is mostly consistent with my previous argument that greater gap elimination enhances employees' confidence in their abilities to cope with the stressful learning demand, thereby increasing their tendencies to interpret the learning demand as an exciting challenge signaling growth and gain. These potential positive outcomes trigger PA. Gap identification, on the other hand, heightens perceptions of one's deficiency in resources for coping, thereby triggering appraisals of the learning demand as an ill-boding threatening event that tends to elicit NA and reduce PA.

These results serve to provide some preliminary evidence in support of the discriminant and construct validity of my measures. Subsequently, I used these measures in the main study (Study 1) to examine my proposed full theoretical model.

Chapter 6: Study 1

I conducted a multi-rater, three-wave field study based on data collected from employees and their supervisors in an automobile assembly company. I asked all middle managers at this company if they would be interested in participating in a study on employee development. Subsequently, interested managers were asked to provide developmental feedback to their direct reports on a certain day within the following week. Their direct reports were asked to fill out a survey (Survey 2) at the end of the week to report their feedback-receiving experience. Initially, 51 leaders and 381 employees completed leader and employee Survey 1 at time 1. The initial surveys included demographic questions and control variables (see greater detail in the Measures section). In the leader initial survey, I also used questions to guide leaders to plan for the upcoming developmental feedback session. Questions included 'What learning goal do you have for this particular employee?', 'What specific skill/ability/work habit/knowledge do you want to cultivate in this employee?', and 'Whether this learning goal involves changing the established ways of thinking / working of this employee?'. At time 2, 380 employees completed the follow-up survey. At time 3, four to five weeks after the feedback session, 54 leaders responded and filled out the second leader survey (Survey 3) in which leaders were asked to rate the extent to which their employees' abilities improved since the feedback, employees' degrees of feedback adoption and performance.

Sample

I subsequently matched the four surveys (two employee surveys, two leader surveys) based on employee ID. The final fully matched sample consisted of 247 employees who received developmental feedback at time 2 and ratings from their leaders at time 3. The employee sample consisted of 85% men with an average age of 35.76 years (*SD* = 8.61). They held positions ranging from structural design engineer, chassis design engineer, digital control network engineer, test engineer, to sales and marketing manager, and others.

Measures

In employee survey 2, employees were first asked to indicate whether they had received developmental feedback from their immediate supervisor within the past week. Upon answering yes, they were asked to type out the skill/ability/knowledge/mindset that their leader focused on improving during the feedback. They were informed that this skill will be replaced by 'skill A' in subsequent questions. The full measures for employee second survey can be found in the Appendix.

Gap identification. To examine the extent to which the leader pointed out a gap between the employee's current ability level and the expected ability level, I used the 3-item measure validated in my pilot study. Sample items include, to what extent (1 = "not at all", 7 = "very much") do you agree that **"**While giving me feedback, my supervisor pointed out deficiencies in my skills, knowledge, or mindset.", and "While giving me feedback, my supervisor indicated a gap between my current capability and expected capability." The Cronbach's α for this scale was 0.65.

Gap elimination. To examine the extent to which the leader provided resources and means to help the employee close their ability-expectation gap, I used the 4-item measure validated in my pilot study. Sample items include: "During the feedback session, my supervisor made helpful suggestions to improve my [skill A]" and "During the feedback session, my supervisor suggested new resources that are beneficial for my [skill A] development. (E.g., learning materials, course, funding, or network connections)." Cronbach's α = 0.98.

Employee PA and NA. To assess employees' affective reactions to receiving developmental feedback, I adopted the PA and NA scale from the two-dimensional circumplex model of core affect (Barrett, 2006). Participants were asked to rate the extent to which, at some point in the feedback session, they had experienced each of the following affects due to the feedback message on a 7-point Likert scale (1 = "not at all", 7 = "very much"). The affects were *enthusiastic, excited, elated, happy, tense, nervous, upset, and irritated*. PA was calculated by averaging employee scores on *enthusiastic, excited, elated and happy* (Cronbach' α = 0.96). NA was calculated by averaging their scores on *tense, nervous, upset, and irritated* (Cronbach's α = 0.98).

Leader affect improving. Employees then rated their supervisor's affect improving during feedback provision based on a 7-item scale modified based on empathy and emotional regulation scales (Parker & Axtell, 2001; Zaki & Williams, 2013) as well as my conceptualization of emotional balancing. Sample elements include "During the feedback session, if I was under pressure, my leader showed concern for me," and "During the feedback session, my leader showed his compassion for me when I felt stressed and anxious" (Cronbach's α = 0.88).

Leader affect worsening. Similarly, I developed an 8-item scale based on my emotional balancing conceptualization and the affective leadership scales. Sample elements include "My leader kept me grounded when I was complacent about my achievements," and 'When I felt complacent, my leader would challenge me to do better". Cronbach's α = 0.85.

Learning need recognition (LNR). To examine employees' recognition of the need to learn, I developed a 7-item measure based on the conceptualization of learning need recognition. Employees rated on a 7-point Likert scale (1 = "not at all", 7 = "very much") the extent to which they agreed with the items including "This feedback makes me realize that I should change my old ways of working according to the suggestions by my leader," "This feedback makes me realize that I should expand my current skills and capabilities to the next level," and "This feedback makes me think that I'm on the right track and that I should keep going down this direction" [reverse-coded]. Cronbach's α = 0.80.

Learning self-efficacy (LSE). To examine employees' confidence in their ability to achieve learning, I modified the 8-item employee self-efficacy scale developed by Chen, Gully, Whiteman & Kilcullen (2000) such that they are relevant to learning. In Survey 2, employees rated on a 7-point Likert scale (1 = "not at all", 7 = "very much") the extent to which they agreed with the LSE items. Sample items include, "This feedback makes me think that I can successfully overcome obstacles in my learning," "I will have no problem meeting the developmental expectations that my leader has for me," and "I am more capable at meeting my leader's developmental expectations than most other employees". Cronbach's α = 0.99.

Learning. I used two measures to examine employee learning. The first measure captures the learning motivation of employees soon after receiving developmental feedback, and the second measure is the leader's rating of observed improvement of employee ability and feedback adoption one month after feedback. The motivation measure is adapted from Zacarro & McCoy's (1988) scale on task motivation and Lam, DeRue, Karam, & Hollenbeck's (2011) task effort scale. Samples items are "This feedback makes me consider learning [Skill A] a top priority," and "I am determined to become good at [Skill A]" (Cronbach's α = 0.98). The second objective learning measure includes two leader-rated items: "Based on the skill/ability/knowledge/mindset you identified in the last survey, please rate on a scale of 1 (not at all) to 7 (very much) the extent to which this employee had demonstrated improvements on skills and capabilities since the feedback session.", and "Please rate the extent to which the employees incorporated your feedback in their work since the feedback session". Cronbach's α = 0.92.

Control variables. I controlled for the following variables in the analyses. Firstly, I controlled for age and gender, as they can change how one reacts to feedback (Berlin & Dargnies, 2016; Wang, Burlacu, Truxillo, James & Yao, 2015). I also controlled for employee-reported leader-member exchange (Elicker, Levy & Hall, 2006); core self-evaluations (Bono & Colbert, 2005), self-esteem (Brown, 2010); time working with the leader (in years) since the longer an employee works with their leader, the easier it is for them to glean useful information from their leader's feedback and thus react more favorably (van Heerden & Bharuthram, 2021); agreeableness (Van Kleef, Homan, Beersma & van Knippenberg, 2010); and need for achievement (Matsui, Okada & Kakuyama, 1982). At time 1, I asked all leaders to indicate whether their intended feedback aims to facilitate the changing of their employee's established ways of thinking/working. Given that my theorizing focuses on a particular type of learning (high-level learning) that involves fundamental changes of one's established pattern of thinking and behaving, I also controlled for this "need to change" variable in my analyses. Finally, at time 3, I asked leaders to rate their employees' job performance level using the three-item supervisor-rated employee performance scale developed by Van Scotter & Motowidlo, 1996) (Cronbach's α = 0.95). Employees' performance can directly influence their supervisor-rated learning scores as leaders may be susceptible to halo effect that inflates their ratings of high-performers. I therefore controlled for employee performance in all regression models with learning as the dependent variable.

Analytical Strategy

I conducted confirmatory factor analysis using LISREL to first verify the factor structure for the variables in my theoretical model. Results are presented in Table 3. Next, I tested the theoretical model (see Figure 1 for the full model) using Hayes's (2017) "PROCESS" macro (model 6, and 15) in the IBM SPSS Statistic software (version 25) to examine the serial mediation and moderated mediation effects. Table 4 displays these results. Following Edwards & Lambert (2007)'s suggestion on testing indirect and conditional indirect effects using 95% biased corrected boot-strapped confidence intervals, I used "PROCESS" macro to generate bootstrapped confidence intervals to determine the significant levels of my proposed parallel mediation and moderated mediation effects. These results are displayed in Table 5 and 6. Consistent with my theoretical interest, all analyses were conducted at the individual (subordinate) level.

Results

Descriptive statistics, internal reliability coefficients, and correlations among the relevant variables are displayed in Table 2. To examine whether the variables in the theoretical model are empirically distinct, I conducted a confirmatory factory factor analysis using LISREL. The nine-factor model is Model 1 in Table 3 (gap identification, gap elimination, PA, NA, affect worsening, affect improving, learning need recognition, learning self-efficacy, learning motivation). It was compared with a more constrained eight-factor model (Model 2) that combines gap identification and affect worsening into one factor. Further, it was also compared with another alternative six-factor model (Model 3), which combines gap identification and gap elimination into one factor, and Model 4, which sets the correlation between learning self-efficacy and learning need recognition to 1.0, an even more constrained seven-factor model (Model 5) that sets the correlation between gap identification and affect worsening to 1.0, and the correlation between gap elimination and affect improving to 1.0. Further, it was compared with a more constrained six-factor model (Model 6) that combines gap identification and affect worsening combined into one factor, gap elimination and affect improving combined into one factor and learning need recognition and learning self-efficacy combined into one factor. Finally, it was compared with and a more constrained five-factor model (Model 7), which sets the correlation between gap identification and affect worsening to 1.0, and the correlation between gap elimination and affect improving to 1.0, as well as the correlation between learning self-efficacy, learning need recognition, and learning motivation to 1.0. The full nine-factor model displayed acceptable fit, χ^2 = 2317.27 (743), root mean square error of approximation [RMSEA] = .079, standardized root mean square residual [SRMR] = .083, comparative fit index [CFI] = 0.98. Model 2 (χ^2 = 2529.48 (744); RMSEA = .084; SRMR = .090; CFI = 0.98), Model 3 (χ^2 = 2582.27 (744); RMSEA = .085; SRMR = .089; CFI = 0.98), Model 4 (χ^2 = 2964.13 (744); RMSEA = .094; SRMR = . 086; CFI = 0.98), Model 5 (χ^2 = 3070.52 (745); RMSEA = .096; SRMR = .094; CFI = 0.97), Model 6 (χ^2 = 3661.76 (746); RMSEA = .11; SRMR = .097; CFI = 0.97), and Model 7 (χ^2 = 4255.79 (747); RMSEA = 0.12; SRMR = 0.098; CFI = 0.96) all had worse fit than the proposed seven-factor model. The CFA results are displayed in Table 3. Results support the discriminant validity of the learning need recognition and learning self-efficacy measures, as well as that of the gap identification and affect worsening measures, and that of the gap elimination and affect improving measures.

Test of the Effect of Gap Identification and Gap Elimination on Employee Affect

Table 4 contains the results of the regression analysis. To test the first hypothesis that gap elimination increases employee PA, I conducted a regression analysis. Results revealed that gap elimination positively predicted employee PA ($\beta = .43,\ p < .001,$ Table 4, Model 1). Hypothesis 1 was supported.

Hypothesis 2 predicts a positive effect of gap identification on employee NA. Consistent with my prediction, gap identification positively predicted employee NA ($\beta = .31,\ p < .001,$ Table 4, Model 2). Thus, Hypothesis 2 was supported.

Test of Serial Mediation Hypotheses

Next, Hypotheses 3 and 4 predict serial mediation effects of gap elimination on learning via PA and learning need recognition vs. gap identification on learning via NA and learning need recognition. To test the proposed serial mediation effects, I used Hayes's (2017) "PROCESS" macro (model 6). For Hypotheses 3, results indicated that gap elimination had a positive effect on employee PA ($\beta = .43,\ p < .001,$ Table 4, Model 1), which, contrary to my prediction, had a positive effect on learning need recognition ($\beta = .20,\ p < .05,$ Table 4, Model 3). Therefore Hypotheses 3 was not supported.

For Hypotheses 4, results indicated that gap identification had a positive effect on employee NA ($\beta = .31,\ p < .001,$ Table 4, Model 2), which did not have an effect on learning need recognition ($\beta = -.06,\ n.s.$, Table 4, Model 3). Learning need recognition had a positive effect on learning (motivation) ($\beta = .13,\ p < .05,$ Table 2, Model 12). The 95% bias-corrected confidence interval generated by bootstrapped indirect effect analysis (5000 replications) of the serial mediation (M1: employee NA, M2: learning need recognition) included zero ($\beta = -.01,$ $95\%\ CI\ [-.04,\ .01]$), indicating a non-significant serial mediation effect. Therefore, Hypotheses 4 was not supported. However, the effect of gap identification ($\beta = .16,$ $p < .001,$ Table 4, Model 11) on learning was significantly attenuated ($\beta = .10,$ $p < .001,$ Table 4, Model 12) when learning need recognition was added to the model. Bootstrapped indirect effect analysis (5000 replications) did not include zero ($\beta = .09$, 95% CI $[.004, .18]$), thereby demonstrating that gap identification had a positive effect on learning that was mediated by employee learning need recognition.

Hypotheses 5 predicts a positive serial mediation effect of gap elimination on learning via PA and enhanced learning self-efficacy. I again used Hayes's (2017) "PROCESS" macro (model 6) to test this prediction. Results indicated that gap elimination had a positive effect on employee PA ($\beta = .43,\ p < .001,$ Table 4, Model 1), which significantly increased employee learning self-efficacy ($\beta = .38,$ $p < .001,$ Table 4, Model 5). Learning self-efficacy, in turn, significantly increased learning in terms of motivation ($\beta = .74,\ p < .001,$ Table 4, Model 12), and marginally significantly increased learning as rated by leaders ($\beta = .11,\ p <$ $.06,$ Table 4, Model 9). The 95% bias-corrected confidence interval generated by bootstrapped indirect effect analysis (5000 replications) of the serial mediation (M1: employee NA, M2: learning self-efficacy) did not include zero ($\beta = .14,$ $95\%\ CI\ [.05,\ .22]$), indicating a significant positive serial mediation effect. Therefore, Hypotheses 5 was supported.

Hypotheses 6 predicts a negative serial mediation effect of gap identification on learning via NA and reduced learning self-efficacy. I used Hayes's (2017) "PROCESS" macro (model 6) to test this prediction. Specifically, results indicate that gap identification had a positive effect on employee NA ($\beta = .31,\ p < .001,$ Table 2, Model 2), which significantly undermined employee learning self-efficacy ($\beta =$ $-.13,\ p < .05,$ Table 4, Model 5). Learning self-efficacy, in turn, significantly increased learning in terms of motivation ($\beta = .74,\ p < .001,$ Table 4, Model 12), and marginally significantly increased learning as rated by leaders ($\beta = .11,\ p <$ $.06,$ Table 2, Model 9). The 95% bias-corrected confidence interval generated by bootstrapped indirect effect analysis (5000 replications) of the serial mediation (M1:

employee NA, M2: learning self-efficacy) barely included zero ($\beta = -.03$, $95\%\ CI\ [-.07,\ .00]$), indicating a marginally significant negative serial mediation effect. Together, these results provided partial support for Hypothesis 6.

Test of Moderation Hypotheses

Hypotheses 7a predicts that leader affect worsening moderates the effect of employee PA on learning need recognition. Consistent with Hypothesis 7a, leader affect worsening significantly interacted with employee PA to predict employee learning need recognition ($\beta = .11,\ p < .05$, Table 4, Model 4). Simple slopes test (Aiken and west, 1991) revealed that leader affect worsening moderated the effect of employee PA on learning need recognition such that the positive effect of PA on learning need recognition was marginally significant at high levels of leader affect worsening ($\beta = 0.22, p < .10,\ +1\ SD$), but dissipated when leader affect worsening was low ($\beta = -.012,\ n.s., -1\ SD$) (see Figure 2). Therefore, Hypothesis 7a was supported.

Furthermore, to test the second stage moderated mediation effect of leader affect worsening as predicted by Hypothesis 7b, I used Hayes' (2017) “PROCESS” macro model 15. Bootstrapped indirect effect analysis (5000 replications) of the moderated mediation effect revealed that leader affect worsening moderated the indirect effect of gap elimination on learning need recognition via employee PA, such that when affect worsening was high, the indirect effect via PA was significantly positive ($\beta = .11,\ 95\%\ CI\ [.01,\ .19]$) but when affect worsening was low, the indirect effect disappeared ($\beta = .03,\ 95\%\ CI\ [-.06,\ .14]$) (see Table 5). The moderated mediation effect was not significant (index of moderated mediation = .05,

$95\%\ CI\ [-.04, .19]$). Therefore, these results provided partial support for Hypothesis 7b.

Hypotheses 8a predicts that leader affect improving moderates the effect of employee NA on learning self-efficacy. Consistent with Hypothesis 8a, leader affect improving significantly interacted with employee NA to predict learning self-efficacy ($\beta = .09,\ p < .05$, Table 4, Model 6). Simple slopes test (Aiken and West, 1991) revealed that the negative effect of NA on learning self-efficacy was significant at low levels of leader affect improving ($\beta = -0.26, p < .001, -1\ SD$), yet leader affect improving was able to effectively attenuate this negative effect such that NA no longer reduced learning self-efficacy when leader affect improving was high ($\beta = -.09, n.s., +1\ SD$) (see Figure 3). Therefore, Hypothesis 8a was supported.

To test the second stage moderated mediation effect of leader affect improving as predicted by Hypothesis 8b, I used Hayes's (2017) "PROCESS" macro model 15. Bootstrapped indirect effect analysis (5000 replications) of the moderated mediation effect revealed that leader affect improving moderated the indirect effect of gap identification on learning self-efficacy via employee PA, such that when affect improving was low, the indirect effect via NA was significantly negative ($\beta = -.07$, $95\%\ CI\ [-.16, -.02]$) but when affect improving was high, the negative indirect effect dissipated ($\beta = -.01,\ 95\%\ CI\ [-.05,\ .03]$) (see Table 6). The moderated mediation effect was also significant (index of moderated mediation = .04, $95\%\ CI\ [.01, .10]$). Therefore, these results provided support for Hypothesis 8b.

Additional Analyses

As some employees may have received feedback from the same leader, their results' standard error estimates may be susceptible to non-independence bias. To account for these biases caused by interdependence of the data within each leader cluster, I rerun all regression analyses using the MTurk software package (Muthén & Muthén, 1998-2017) using cluster-robust standard errors (McNeish, Stapleton & Silverman, 2016).

Furthermore, I also streamlined the affect worsening scale by eliminating items failing to indicate the reactiveness of leader behaviors (i.e., behaviors adopted in response to observed employee affect), so that it can be more distinct from the GI scale. The remaining AW items are items #1, #2, #5, #8 of the original scale. In a similar vein, to keep the affect improving scale consistent my conceptualization of the construct, only items reflecting the reactive nature of AI are retained (items #1, #2, #5 of the original scale). I used these updated AI and AW scales and cluster-robust standard errors to run the additional analyses.

Results are mostly consistent with that of the original analyses for Study 1, except that the moderation effect of AI becomes insignificant. These updated results are displayed in Tables 10-12.

Study 1 Discussion

Study 1 results provided support for most of the proposed model. Firstly, these results demonstrate that gap elimination and gap identification predict higher employee PA and NA, respectively, supporting my prediction that the two dimensions of DFB have a unique and distinct impact on employee affect.

Furthermore, results for the mediating role of learning self-efficacy are consistent with predictions. Specifically, gap identification has a significant negative effect on learning via employee NA, followed by impaired learning self-efficacy, while gap elimination significantly positively affects learning via PA and improved learning self-efficacy.

On the other hand, the results for the affective antecedents of learning need recognition are less consistent with predictions. Even though NA (PA) is proposed to enhance (reduce) learning need recognition because it supposedly heightens vigilance and the conservation of new information (i.e., the learning style of accommodation) (Fiedler, 2001), I did not find support from the data that NA has a positive effect on learning need recognition, nor did I find support for the proposed negative effect of PA on learning need recognition (the effect was positive instead). However, consistent with my theorizing, gap identification directly gives rise to learning need recognition, which mediates the positive effect of gap identification on learning. In other words, although gap identification serves to raise feedback receivers' attention to the pressing need to learn, this effect does not take place through the NA (affective) mechanism.

Study 1 does provide support for the hypothesized functional effects of emotional balancing. Specifically, affect improving is found to significantly attenuate the negative effect of NA on learning self-efficacy, as well as the negative indirect effect of gap identification on learning self-efficacy via NA. Affect worsening significantly moderates the effect of PA on learning need recognition such that the effect is more positive when affect worsening is greater. Affect worsening also significantly improved the indirect effect of gap elimination on learning need recognition via PA.

However, despite having the advantage of using a between-person design to capture variances among employees in the types of and reactions to DFB, and the unique ways in which supervisors regulate their employees' emotions as they deliver DFB, Study 1 has two limitations. First, the between-person design does not capture how individuals receive changing DFB messages over time (e.g., an uplifting message on Day 1, followed by an upsetting message on Day 2), how their affective experiences vary as a function of these daily events, or how a leader-member dyad may engage in different affective exchanges/interactions on different days. These within-person level changes in events and affective processes could shape employee daily learning motivations in ways that cannot be captured by a between-person design. Second, in Study 1, I was only able to survey employees once at the end of the week in which the DFB event took place. Given that there was considerable delay (ranging from 1 to 6 days) between the time at which the DFB event took place and that of the survey, accuracy of survey results was more likely compromised due to participants' memory fading or tendencies to recall mood-congruent information (Fiedler, Nickel, Muehlfriedel, & Unkelbach, 2000). To address these limitations, I conducted a within-person dairy study using the same measures as Study 1 in attempts to replicate its findings.

Chapter 7: Study 2

I conducted a daily dairy study at a Chinese social media and communications company to examine my theoretical model at the within-person level. The company invited its level 1 (lowest ranked) employees and their direct managers to participate in this study. At time 1, participants were briefed on the purpose and implementation plan of the study. At the end of the briefing session, they were asked to fill out a consent form and answer an initial questionnaire containing demographic questions. A total of 232 employees agreed to participate in this daily dairy study. In the following week, the employees were sent a survey link each day for four consecutive days at 11 am requesting that they provide information on whether they had received developmental feedback within the past 24 hours, and their feedback-receiving experience if their answer to the first question was affirmative. Non-responsive participants subsequently received an email reminder 1 hour later at 12 pm each day. I received a sample consisted of a total of 178 employees ranged in age from 21 to 55, with a mean age of 33.37 (SD. = 5.78; 60.1% men) who received developmental feedback and recorded their experience on at least one day during the four-day period. Among these participants, 110 employees received feedback on one of the four days, 43 employees received feedback on two of the four days, 19 received feedback on three days and 6 received feedback on all four days. I subsequently conducted a within-person level analysis using the subset of this sample consisting of participants that had recorded at least two feedback episodes. The final sample included 68 employees and a total of 167 observations.

Measures

In the daily survey, employees were first asked to indicate whether they had received developmental feedback from their immediate supervisor within the past 24 hours. Upon answering yes, they were asked to type out the skill/ability/knowledge/mindset that their leader focused on improving during the feedback. They were informed that this skill will be replaced by 'skill A' in subsequent questions. I included in the daily survey the same measures as Study 1 for gap identification (Cronbach's α = 0.81), gal elimination (Cronbach's α = 0.98), employee PA (Cronbach's α = 0.99), NA (Cronbach's α = 0.99), leader affect improving (Cronbach's α = 0.90) and worsening (Cronbach's α = 0.91), as well as learning self-efficacy (Cronbach's α = 0.99), learning need recognition (α = 0.80), and learning motivation (Cronbach's α = 0.99).

Analytical Strategy

For the within-person level analysis, I specified a multi-level analysis path model using Mplus (Muthén & Muthén, 1998-2017) to examine the full theoretical model. Given my analytical interest that focuses on the within-person level (Level 1) fluctuations in these variables, I group mean centered all exogenous variables and employee affect. Simple slope tests of the moderation effects of affect improving and affect worsening were also conducted at the within-person level using Mplus. Unlike for Study 1, Study 2 did not include any trait characteristics as control variables since the within-person level analysis already eliminated these between-person differences.

Results

Descriptive statistics, internal reliability coefficients, and correlations among the relevant variables are displayed in Table 7. Table 8 summarizes the within-person variability of all variables in the model. There was considerable variance for daily developmental feedback receiving (especially for the gap identification dimension (68%)), daily employee affect (29%), leader affect worsening (42%) and learning motivation (24%). The substantial variability provides justification for using multi-level modeling to analyze this set of data at the within-person level.

The results of the regression analyses are displayed in Table 9. Hypothesis 1 predicts that gap elimination will positively relate to employee PA. Results partially supported this prediction ($\beta = .31,\ p < .10,$ Table 9, Model 1), suggesting that on days when employees received developmental feedback containing greater gap elimination component, they were marginally more likely to experience positive affect. Hypothesis 2 did not receive support, with gap identification not found to positively predict employee NA ($\beta =\ 02,\ \ n.s.,$ Table 9, Model 2). Hypothesis 3 was also not supported, results indicated that employee PA did not negatively predict learning need recognition ($\beta = .27,\ n.s.,$ Table 9, Model 3). Similarly, Hypothesis 4 also failed to receive support because employee NA did not have a positive effect on learning need recognition, instead, the effect was negative ($\beta = -.19,\ p < .001,$ Table 9, Model 3).

Consistent with Hypotheses 5, which predicts that there is a positive serial mediation effect of gap elimination on learning via PA and enhanced learning self-efficacy, results indicated that gap elimination had a marginally positive effect on employee PA ($\beta = .31,\ p < .10,$ Table 9, Model 1), which significantly increased employee learning self-efficacy ($\beta = .45,\ p < .05,$ Table 9, Model 4). Learning self-efficacy, in turn, significantly increased learning in terms of motivation ($\beta = .90,\ p < .001,$ Table 9, Model 6). The serial indirect effect generated by bootstrapped indirect effect analysis (M1: employee NA, M2: learning self-efficacy) was marginally significant ($\beta = .13$, p = .07, $95\%\ CI\ [-.01,\ .27]$). Therefore Hypotheses 5 was partially supported.

Hypotheses 6 predicts a negative serial mediation effect of gap identification on learning via NA and reduced learning self-efficacy. Results indicate that employee NA significantly undermined employee learning self-efficacy ($\beta = -.22,\ p < .01,$ Table 9, Model 4). Learning self-efficacy, in turn, significantly increased learning motivation ($\beta = .90\ \ p < .001,$ Table 9, Model 6). Even though results did not reveal a positive effect of daily gap identification on employee NA, I did find support for the prediction that employee learning self-efficacy significantly mediated the negative effect of employee NA on learning motivation ($\beta = -.22$, p < .001, $95\%\ CI\ [-.32, -.13]$). Together, these results provided partial support for Hypothesis 6.

The moderation effect of leader affect worsening received support. Consistent with Hypothesis 7a, leader affect worsening significantly interacted with employee PA to predict employee learning need recognition ($\beta = .53\ \ p < .001$, Table 9, Model 3). Simple slopes test (Aiken and west,

1991) revealed that leader affect worsening moderated the effect of employee PA on learning need recognition such that PA negatively predicted learning need recognition at low levels of leader affect worsening ($\beta = -.43,\ p < .05, 95\%$ CI $[-.08, -.12], -1\ SD$), yet positively predicted learning need recognition when leader affect worsening was high ($\beta = .96,\ \ P < .01$, 95% CI [.41, 1.42], $+1\ SD$). Therefore, Hypothesis 7a was supported.

Consistent with Hypothesis 8a, leader affect improving significantly interacted with employee NA to predict learning self-efficacy ($\beta = .98,\ p < .001$, Table 9, Model 4). Simple slopes test (Aiken and west, 1991) revealed that the effect of NA on learning self-efficacy was significantly negative at low levels of leader affect improving ($\beta = -1.12, p < .001, 95\%\mathrm{CI}[-1.43, -.86], -1\ SD$), yet employee NA increased learning self-efficacy when leader affect improving was high ($\beta = .68, p < .01, 95\%$ CI $[.27, 1.03], +1\ SD$). Therefore, Hypothesis 8a was supported.

Study 2 Discussion

The Study 2 results replicated most of the results of Study 1, except for the relationship between gap identification, gap elimination and employee affect. On days when employees received DFB containing greater levels of gap elimination, they experienced only marginally greater PA than on days when they received less such feedback. Receiving greater extent of gap identification also did not affect employee NA on that day. A potential explanation for this lack of support is that most of the variance in employee affect happens at the between-person level (71% per sample 2). In other words, different individuals tend to experience stronger vs. weaker PA or NA upon receiving either gap elimination or gap-identification, and that this variation across individuals occurs to a greater extent than does the daily fluctuations within a specific individual. It is thus no surprise that the two between-person samples (the pilot study and Study 1) demonstrated the hypothesized relationships between DFB dimensions and employee affect. Furthermore, contrary to my initial prediction but consistent with the results of Study 1, Study 2 revealed a negative relationship between employee NA and LNR, which in turn predicted employees' same-day learning motivation.

Consistent with my prior predictions and Study 1, the results of my second study suggested that on days when employees experienced PA, their learning self-efficacy was boosted and had greater learning motivation, and that NA had the opposite effect. Last but not least, the moderation effects of leader emotional balancing were supported and replicated such that as predicted, in feedback sessions where the leader employed affect improving, the negative effect of NA on LSE was attenuated (and in this case, turned into a positive effect), and leader affect worsening strengthened the positive effect of employee PA on their same-day LNR.

Chapter 8: General Discussion

As the labor force today faces an increasing demand to adapt to technological upgrades and social-economic uncertainties such as the global pandemic, they have an ever-growing need to learn (i.e., expand skills). Learning often involves the painful process of disrupting established knowledge structures and replacing them with new ones – it therefore is not easily achieved. Managers can help employees learn by providing developmental feedback, but what should managers convey in their feedback message, and how could they address the complicated emotions involved in this difficult process? In this research, I shed light on these questions by extending the construct of DFB to include two distinct dimensions that are both conducive to learning. I revealed the different affective processes elicited in employees by each dimension, and how they influence key precursors to the learning of complex skills (i.e., high-level learning). Furthermore, I uncovered leader emotion regulation behaviors that channeled employee affects to facilitate (as opposed to impair) learning.

Overall, most predictions in my proposed theoretical model received support across studies. The proposed positive effects of gap identification and gap elimination on NA and PA were supported by both the pilot study and Study 1 at the between-person level. Additionally, I found in Study 1 that gap identification promotes learning via enhancing employees' recognition of the need to learn, and that gap elimination promotes learning via eliciting in employees positive affect that in turn strengthens their learning self-efficacy.

Across both Study 1 and Study 2, I did not find the proposed negative effect of PA on learning need recognition (LNR), nor did I find the proposed positive effect of NA on learning need recognition. In fact, my findings consistently revealed the opposite trends. These unexpected effects of NA and PA on LNR may be largely due to the poor operationalization precision of my LNR measure (i.e., the current LNR measure is too broad such that it captures multiple constructs including “feedback acceptance”, “feedback credibility” and “realizing the need to change”). Despite NA’s proposed positive effect on the need-to-change component of LNR, prior research found that it directly harms feedback receivers’ willingness to accept the feedback: Brett and Atwater (2001) found that receiving negative feedback triggers negative reactions such as anger and discouragement, and lower perceptions of feedback accuracy. In a similar vein, whereas PA should reduce one’s tendencies to realize the need to change, it enhances willingness to accept and adopt the feedback (Leung, Su & Morris, 2001; Ilgen, Fisher & Talyor, 1979), and to grant credibility to the feedback giver (Steelman & Rutkowski, 2004). Indirectly supporting this argument, evidence from my Study 1 and Study 2 revealed that PA’s positive effect on LNR is more pronounced, and in both cases significant only at *high* (1 SD above average) but not low levels of leader affect worsening, thus some kind of nudging on the leader’s side that prompts employees to take learning seriously is necessary to reveal the positive effect of PA on LNR.

I also found consistent support for the predicted effect of affect on learning self-efficacy (LSE) such that when employees experience PA, they tend to have greater confidence in their abilities to learn, and that they will subsequently demonstrate greater learning motivation (Study 1 & 2), and marginally enhanced levels of learning (Study 1). Yet when they experience NA, their learning self-efficacy is lower, resulting in poorer learning motivation and learning.

Importantly, leader emotional balancing appears to effectively facilitate the relationship between employee affect and learning. It strengthens the positive effect of PA on learning need recognition and weakens the negative effect of NA on learning self-efficacy. Using affect worsening techniques to regulate employees' palpable positive emotions once they arise seem to serve the purpose of keeping employees grounded in the reality of their unfulfilled learning goals, thereby driving their motivation to meet those goals (Study 1&2). Similarly, findings from both studies show that leaders' use of affect improving regulation behaviors, such as empathy, upon perceiving employee NA nullifies its deleterious effect on LSE (Study 1), and in the repeated feedback-receiving context, even turns the negative effect of NA on LSE into positive (Study 2). The surprising positive effect of NA on LSE at high levels of leader affect improving in the within-person context may be explained by the possibility that leader affect improving on a certain day directly changes (increases) employees' likelihood-of-learning-success appraisals on that day. With a changed appraisal that realizes the availability of the attention and support one's leader will potentially provide, employee will likely channel their increased NA to target at the frustrated goal/problem instead of the self. NA therefore gives rise to greater approach motivation to overcome the learning gap on days when leader affect improving is high (Harmon-Jones, Peterson, Gable & Harmon-Jones, 2008), rather than a general lack of confidence in one's ability to learn on days when leader affect improving is low.

Theoretical Implications

Taken together, this work has several theoretical implications. First, I identified two distinct dimensions of DFB and provided empirical support for their construct and discriminant validity. By highlighting the differential effects of these two DFB dimensions on employee affect, and subsequently on mechanisms leading to learning, my findings revealed that depending on the way DFB is crafted (whether it predominantly relies on gap identification or gap elimination), it has different implications for employee learning. This conclusion advances understanding of how DFB content affects high-level learning, and thereby informs managers on how to craft their DFB to achieve intended learning goals.

Second, given that affect plays a significant role in facilitating learning (Fiedler, Nickel, Asbeck & Pagel, 2003; Bless & Fiedler, 1995), employee affective reactions triggered by developmental feedback is a critical mechanism underlying the relationship between DFB and learning. Despite its potential importance, affective mechanism for developmental feedback has not received prior research attention. My findings address this gap by demonstrating that affect does play a critical role in how DFB affects employee learning. Having shown that affective processes and leader affect regulation interplay to predict how DFB influences learning, this research brings affect regulation to the forefront of the research on effective feedback-giving and communication. This work opens avenue for future research that could examine affective processes underlying other communication -

behavioral/attitudinal/performance change relationships, and how to channel employee affect into positive outcomes.

A third contribution of this paper is that I conceptualize and examine a novel concept (i.e., emotional balancing) and define as a dynamic and reactive regulation strategy. By adopting both a between-person and a within-person daily dairy study to examine and found support for the proposed effects for emotional balancing, I extend existing research on emotional regulation that has not seen a paper examining this phenomenon. In so doing, this research also provides insights into a key boundary condition that determines when a DFB session will be more successful.

Practical Implications

In line with my findings demonstrating that the two proposed DFB dimensions (gap elimination and gap identification) serve to elicit distinct employee affect at the between-person level (but not the within-person level), managers could strategically craft their DFB depending on the learning needs of different employees. If the primary goal is to enhance employees' recognition of the necessity to improve, managers may rely more on gap identification; and if the goal is on lifting employee spirits to foster confidence in their abilities to learn, managers could use more of gap elimination. Meanwhile, to strike a balance between lifting employees up and keeping them grounded in reality, managers could make flexible use of emotional balancing to regulate employee affects as they arise. My findings on how employee affect relates to learning need recognition should be interpreted with caution because of the operationalization precision issues surrounding LNR in both studies. However, results consistently illustrate the beneficial effects of leader emotional balancing. These findings may be counter-intuitive to managers who view DFB provision as an emotion-free, standardized exchange and are used to designing their feedback using standardized templates. Contrary to this belief, to better achieved DFB's intended effects, managers not only need to deliver what they had ***planned*** to say during a feedback session, but also pay attention to their employees' emotional reactions to the delivered message and adjust emotional regulation strategies accordingly.

Limitations and Future Research

My findings should be qualified given several limitations of my study. First, my measure for learning need recognition (LNR) should be further refined to capture my proposed construct more accurately. The current measure confounds with constructs such as feedback adoption intention and feedback credibility perception that are differentially impacted by employee affect than is LNR. NA increases learning need recognition because high-level learning requires the individual to break away from old mental frameworks in order to establish new ones. Yet, NA undermines employees' willingness to adopt the feedback and their perception of the leader's credibility as feedback-giver. My current LNR measure muddles these theoretically distinct constructs by integrating all of them in its items, thus it lacks the operationalization precision needed to generate clear interpretations for the empirical findings. To address this limitation, future measures should make sure that the intention and determination to abandon old habits is the sole focus of the LNR measure in future studies.

Second, my two proposed DFB dimensions are conceptualized to be especially effective for high-level learning, yet the two field studies did not limit to assessing high-level learning, but rather measured a variety of different forms of learning distributed on a spectrum ranging from simple behavioral change to high-level learning. This mismatch between theory and empirical design could limit the theoretical and practical implications discussed in this dissertation. It could also account for the relatively weak effects of LNR and LSE on leader-rated learning, as revealed by the two current studies. Future studies should target only high-level learning by, for example, filtering out non-high-level learning cases based on leader ratings of whether a DFB session was intended to promote learning at the surface or fundamental level. Alternatively, future studies could also measure how much employees' performance improvement sustain over a long period of time (e.g., 1 year) and across different situational contexts as indicators of high-level learning. . Stronger effects of LNR and LSE on learning may be observed after several months, and across multiple situations.

Conclusions

Developing employees on the job has a plethora of benefits for leaders and organizations. I refine the DFB construct and identify two dimensions that could help guide managers to give DFB more effectively. The feedback receiving and learning processes are highly affect-laden. By providing a nuanced understanding of how different dimensions of DFB affects learning via affective processes, I highlight the importance for leaders delivering DFB to be vigilant about employees' affective reactions and actively react to their emotions with appropriate emotional balancing behaviors.

List of Figures

FIGURE 1

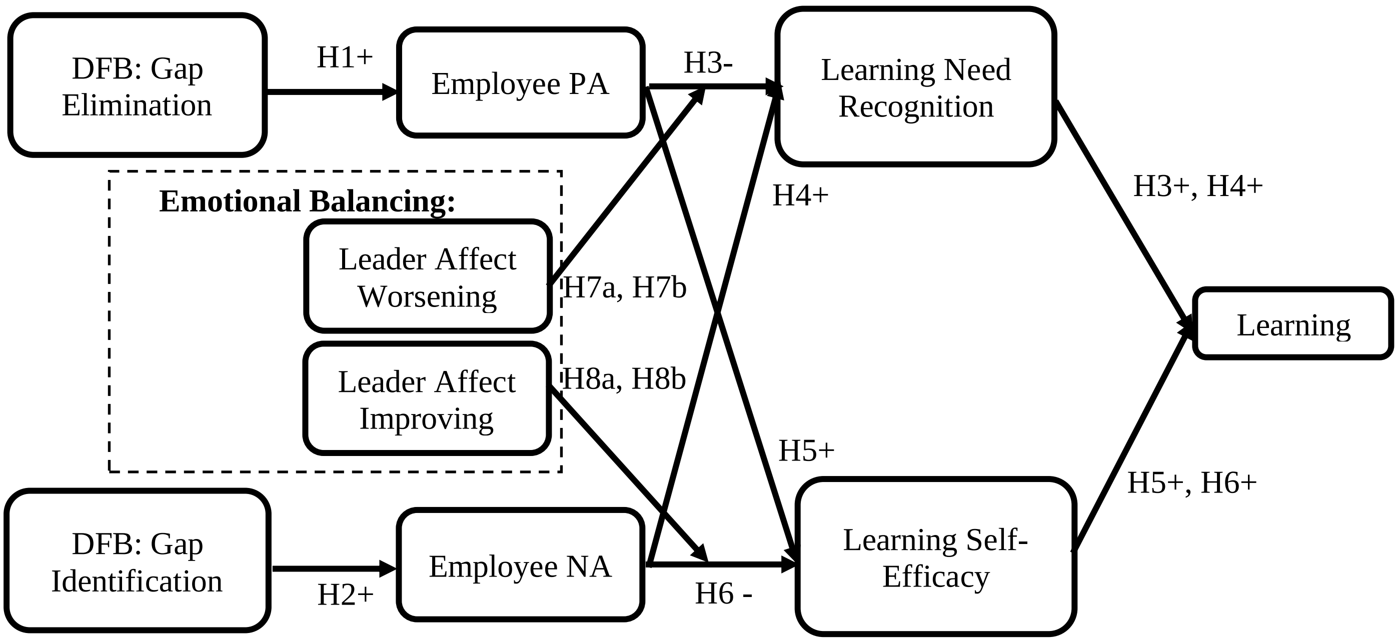
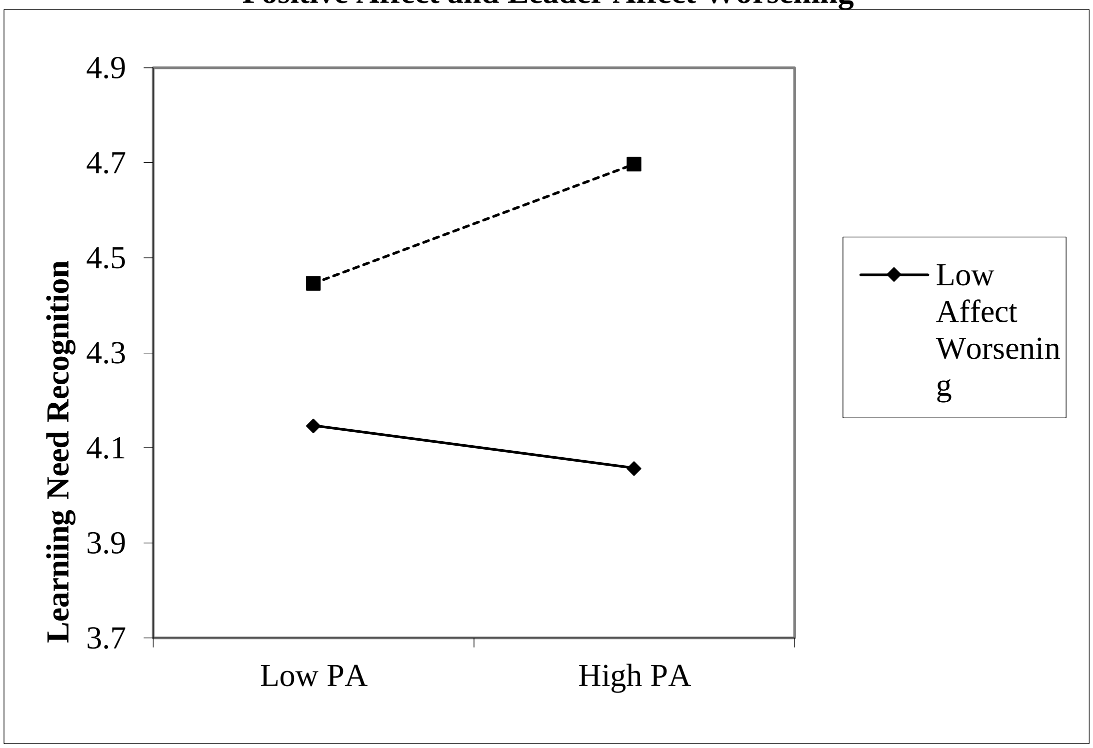


FIGURE 2

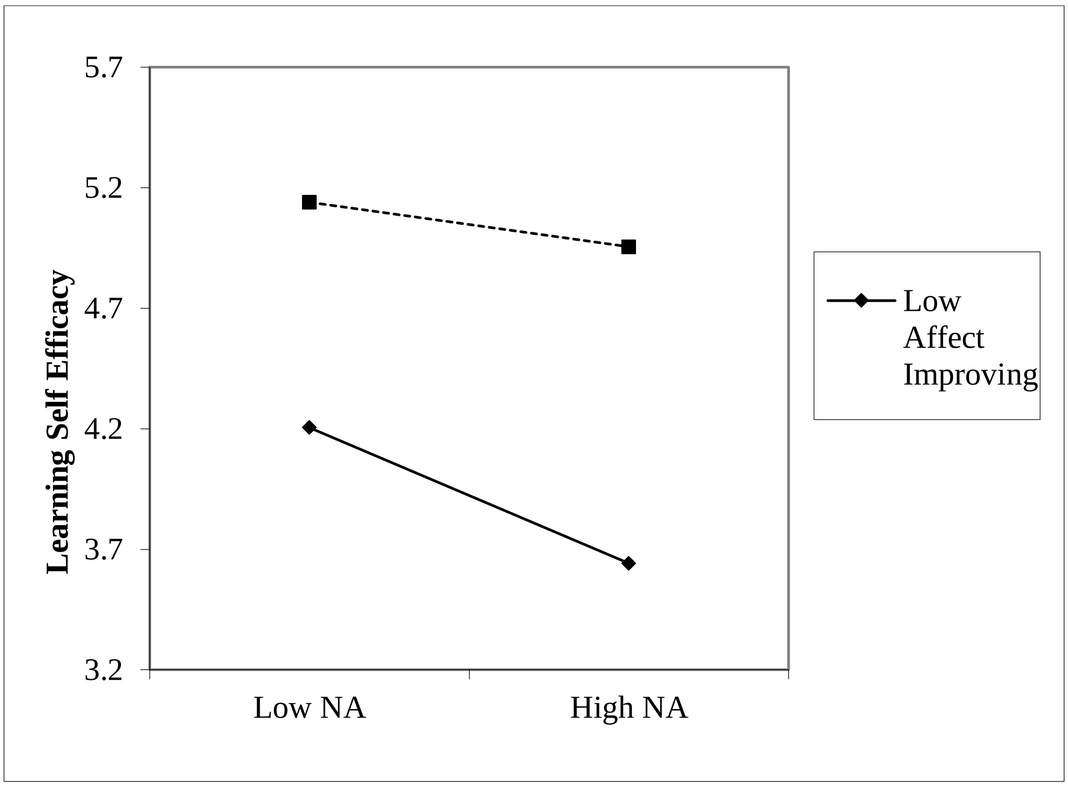
Study 1: Employee Learning Need Recognition as a Function of Employee Positive Affect and Leader Affect Worsening



Note. High PA = 1 SD above the mean; Low PA = 1 SD below the mean. High Affect Worsening = 1SD above the mean; Low Affect Worsening = 1 SD below the mean.

FIGURE 3

Study 1: Employee Learning Self Efficacy as a Function of Employee NA and Leader Affect Improving



Note. High NA = 1 SD above the mean; Low NA = 1 SD below the mean. High Affect Improving = 1SD above the mean; Low Affect Improving = 1 SD below the mean.

TABLE 1

EFA Factor Loadings for Gap Identification and Gap Elimination

Measured Items	Component 1 Loadings	Component 2 Loadings
Gap Identification		
1. My supervisor indicated a gap between my current capability and expected capability	.03	**.83**
2. My supervisor pointed out deficiencies in my skills, knowledge, or mindset.	.28	**.70**
3. My supervisor indicated that there is room for improvement/change in my skills, knowledge, or mindset.	.69	.25
4. My supervisor advised me against undesirable behaviors that would hamper my [Skill A].	.80	.06
5. My supervisor communicated honestly about problems in my [Skill A] that might seriously hinder my performance.	.47	.45
6. My supervisor communicated opinions on things that might negatively affect my [Skill A], even if that would embarrass me.	-.11	**.74**
7. My supervisor proactively communicated problems in how I use [Skill A] to handle my work.	.87	05
Gap Elimination		
1. My supervisor raised helpful suggestions to improve my [Skill A].	**.92**	-.00
2. My supervisor proactively provided constructive suggestions that would help improve my [Skill A]	**.97**	-.06
3. My supervisor provided me with knowledge and information needed to improve my [Skill A].	**.97**	-.08
4. My supervisor suggested new resources which are beneficial to my [Skill A] development. (E.g., learning materials, courses, funding, or network connections).	**.96**	-.09

TABLE 2

Study 1 Means, Standard Deviations, and Correlations

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. Age	35.76	8.61	—																			
2. [a]Gender	.15	3.58	-.04	—																		
3. LMX	4.00	.67	-.16**	.01	—																	
4. [b]Need to Change	.63	.48	.02	-.07	-.09	—																
5. Time with leader	5.17	3.90	.43**	-.07	.06	.02	—															
6. Agreeableness	5.09	.51	-.05	-.02	.25**	-.12	-.01	—														
7. CSE	4.75	.58	-.01	-.05	.47**	-.11	.04	.45**	—													
8. Need for Achievement	4.62	.57	.06	-.08	.40**	-.08	.06	.43**	.74**	—												
9. Self Esteem	4.87	.55	.04	-.05	.35**	-.08	.02	.46**	.81**	.72**	—											
10. GI	3.92	1.29	-.06	-.07	.09	.06	.03	-.09	-.08	-.07	-.12*	—										
11. GE	5.37	1.19	.02	-.01	.42**	-.15*	.11*	.20**	.34**	.35**	.26**	.21**	—									
12. PA	3.62	.82	-.10	-.06	.47**	-.08	-.03	.13*	.34**	.31**	.24**	.23**	.70**	—								
13. NA	2.19	1.06	-.04	-.07	-.21**	.27**	-.07	-.32**	-.34**	-.38**	-.41**	.37**	-.32**	-.17**	—							
14. AW	4.27	.97	.03	-.22**	.20**	.08	.09	-.10	-.00	.04	-.06	.19**	.29**	.27**	.28**	—						
15. AI	4.98	1.05	-.03	-.00	.48**	-.18**	.07	.25**	.44**	.46**	.38**	.41**	.70**	.64**	-.32**	.34**	—					
16. LNR	4.84	.89	.06	-.07	.38**	-.09	.11*	.19**	.37**	.40**	.32**	.18**	.62**	.51**	-.27**	.42**	.69**	—				
17. LSE	5.29	1.17	.06	-.05	.42**	-.13*	.09	.23**	.45**	.47**	.39**	.07	.66**	.55**	-.37**	.36**	.76**	.84**	—			
18. Performance	5.43	.93	.02	-.03	.07	-.22**	.03	.10	.11	.11	.12	-.16*	.20**	.09	-.20**	-.03	.14*	.14(*)	.10	—		
19. Motivation	5.14	1.20	.56	-.05	.43**	-.12	.11*	.23**	.43**	.43**	.36**	.19**	.69**	.56**	-.31**	.42**	.79**	.83**	.88**	.12	—	
20. Behavioral Change	5.39	.93	-.05	-.02	.04	-.15*	-.04	.11	.08	.06	.09	-.11	.18*	.07	-.17*	-.02	.14	.15*	.13	.88*	.15*	—

N = 247. [a]Dummy coded: 0 = male, 1 = female. [b]Dummy coded: 0 = Does not involve fundamental change, 1 = Involves fundamental change.
*$p<.05$. **$p<.01$.

TABLE 3

Study 1 CFA Model Comparison

Models	Factors	χ^2	*df*	RMSEA	SRMR	CFI
1	Nine factors: Gap identification, gap elimination, PA, NA, affect worsening, affect improving, learning need recognition, learning self-efficacy, learning motivation.	2317.27	743	.079	.083	.98
2	Eight factors: Gap identification and affect worsening combined into one factor.	2529.48	744	.084	.090	.98
3	Eight factors: Gap identification and gap elimination combined into one factor.	2582.27	744	.085	.089	.98
4	Eight factors: Learning need recognition and learning self-efficacy combined into one factor.	2964.13	744	.094	.086	.98
5	Seven factors: Gap identification and affect worsening combined into one factor; gap elimination and affect improving combined into one factor.	3070.52	745	.096	.094	.97
6	Six factors: Gap identification and affect worsening combined into one factor; gap elimination and affect improving combined into one factor; learning need recognition and learning self-efficacy combined into one factor.	3661.76	746	.11	.097	.97
7	Five factors: Gap identification and affect worsening combined into one factor; gap elimination and affect improving combined into one factor; learning need recognition, learning self-efficacy, and learning motivation combined into one factor.	4255.79	747	.12	.098	.96

TABLE 4

Study 1 Multiple Regressions Table

	Employee PA (Model 1)		Employee NA (Model 2)		Learning Need Recognition (Model 3)		Learning Need Recognition (Model 4)		Learning Self-Efficacy (Model 5)		Learning Self-Efficacy (Model 6)	
Variable	$\boldsymbol{\beta}$	*t*	$\boldsymbol{\beta}$	*t*	$\boldsymbol{\beta}$	*t*	$\boldsymbol{\beta}$	*t*	$\boldsymbol{\beta}$	*t*	$\boldsymbol{\beta}$	*t*
Intercept	.87	1.94(*)	6.23	8.68***	3.52	6.21***	4.33	8.35***	2.76	3.97***	4.49	7.87***
Control Variables												
Age	-.00	-.95	.00	.57	.00	.77	.00	.23	.01	1.01	.00	.34
[a]Gender	-.07	-.69	-.22	-1.46	-.15	-1.29	-.01	-.05	-.12	-.88	.07	.58
LMX	.19	3.05**	.07	.65	.02	.19	-.10	-1.49	-.01	-.11	-.17	-2.25*
[b]Need to Change	.06	.88	.41	3.61***	.02	.19	.03	.38	-.02	-.22	.04	.41
CSE	.19	1.58	.14	.73	-.00	-.02	.05	.36	.18	1.06	.18	1.30
Time with Leader	-.04	-3.53**	-.02	-1.46	.01	1.00	.01	1.25	.02	1.05	.02	1.46
Agreeableness	-.12	-1.64	-.11	-.97	-.01	-.13	-.00	-.02	.05	.46	.03	.40
Need for Achievement	.08	.83	-.33	-2.14*	.31	2.69**	.19	1.89(*)	.43	3.00**	.27	2.41*
Self Esteem	-.12	-1.08	-.37	-2.02*	-.06	-.45	-.07	-.55	-.16	-.97	-.20	-1.50
Independent Variables												
Gap Identification (GI)	.01	.33	.31	5.63***	.12	2.66**	.07	1.82	.06	1.03	-.05	-1.19
Gap Elimination (GE)	.43	12.14***	-.34	-5.96***	.28	4.84***	.14	2.75**	.33	4.67***	.15	2.64**
Mediators												
PA					.20	2.57*	.05	.75	.38	4.00***	.12	1.58
NA					-.06	-1.14	-.12	-2.57*	-.13	-2.16*	-.18	-3.43**
LNR												
LSE												
Interactions												
Affect Worsening							.30	5.22***			.24	4.47***
Affect Improving							.24	4.88***			.58	9.23***
PA × Affect Worsening							.11	2.07*				
NA × Affect Improving											.09	2.31*
GE× Affect Worsening							-.09	-2.04*				
GI × Affect Improving											.04	.97
R^2	.56		.39		.49		.63		.56		.72	
ΔR^2							.14***				.16***	

Note. *N* = 247; Standardized coefficients provided; All variables (except dependent variables) were mean centered. [a] Dummy coded: 0 = male, 1 = female. [b] Dummy coded: 0 = Does not involve fundamental change, 1 = Involves fundamental change. (*) *p*<.10. * *p*<.05. ***p*<.01. ****p*<.001.

TABLE 4 CONTINUED

Variable	Learning (Ability Improvement) (Model 7)		Learning (Ability Improvement) (Model 7)		Learning (Ability Improvement) (Model 9)		Learning (Motivation) (Model 10)		Learning (Motivation) (Model 11)		Learning (Motivation) (Model 12)	
	β	*t*	***β***	*t*	***β***	*t*	***β***	*t*	***β***	*t*	***β***	*t*
Intercept	.51	1.05	.75	1.41	.81	1.53	-1.37	-1.99*	-1.04	-1.39	-.91	-2.02
Control Variables												
Age	-.01	-1.20	-.01	-1.29	-.01	-1.46	.01	1.43	.01	1.73	.01	1.54
[a]Gender	-.02	.21	.01	.14	.02	.25	-.18	-1.27	-.18	-1.31	-.07	-.88
LMX	-.04	-.65	-.04	-.56	-.03	-.55	.12	1.22	.06	.65	.07	1.20
[b]Need to Change	.10	1.38	.11	1.59	.12	1.67(*)	-.03	-.29	-.01	-.08	.01	.11
CSE	.04	.33	.05	.43	.04	.33	.14	.76	.09	.52	-.04	-.42
Time with Leader	-.01	-1.01**	-.01	-1.13	-.01	-1.27	.00	.07	.01	.65	-.00	-.39
Agreeableness	.10	1.32	.09	1.26	.09	1.22	-.01	-.10	.02	.14	-.02	-.30
Need for Achievement	-.06	-.70	-.07	-.80	-.13	-1.39	.38	2.61*	.32	2.22*	-.04	-.44
Self Esteem	-.04	-.33	-.05	-.50	-.05	-.44	-.01	-.08	-.01	-.07	.12	1.15
Performance	.90	24.33***	.90	24.14***	.90	24.44***						
Independent Variables												
Gap Identification (GI)	.01	.35	.02	.65	.01	.13	.13	2.49*	.16	2.93***	.10	3.15**
Gap Elimination (GE)	.02	.50	.03	.54	-.01	-.16	.55	10.22***	.38	5.30***	.10	2.20*
Mediators												
PA			-.04	-.63	-.08	-1.29			.32	3.28**	.01	.14
NA			-.04	-.95	-.02	-.49			-.11	-1.73	-.00	-.06
LNR					.01	.12					.13	1.99*
LSE					.11	1.93(*)					.74	13.60***
R^2	.78		.78		.78		.55		.58		.85	
ΔR^2			.00		.01*				.02**		.28***	

Note. *N* = 247; Standardized coefficients provided; All variables (except dependent variables) were mean centered. [a] Dummy coded: 0 = male, 1 = female. [b] Dummy coded: 0 = Does not involve fundamental change, 1 = Involves fundamental change. (*) *p*<.10. * *p*<.05. ***p*<.01. ****p*<.001.

TABLE 5

Study 1 Indirect and Conditional Indirect Effects of Gap Elimination on Learning Need Recognition Via PA

Gap Elimination	Indirect effects via PA		
	Estimate	Bootstrapped 95% CI	Statistical significance
Unconditional	.07	[-.01, .14]	*insignificant*
Low Affect Worsening (1 s.d. below mean)	.03	[-.06, .14]	*insignificant*
High Affect Worsening (1 s.d. above mean)	.11	[.01, .19]	*significant*

Note. Table entries were computed in SPSS PROCESS macro using linear regression with maximum likelihood estimator. The bootstrapping confidence intervals were derived using 5,000 data draws.

TABLE 6

Study 1 Indirect and Conditional Indirect Effects of Gap Identification on Learning Self Efficacy Via NA

Gap Identification	Indirect effects via NA		
	Estimate	Bootstrapped 95% CI	Statistical significance
Unconditional	-.05	[-.10, -.01]	*significant*
Low Affect Improving (1 s.d. below mean)	-.09	[-.10, -.01]	*significant*
High Affect Improving (1 s.d. above mean)	-.00	[-.04, .04]	*insignificant*

Note. Table entries were computed in SPSS PROCESS macro using linear regression with maximum likelihood estimator. The bootstrapping confidence intervals were derived using 5,000 data draws.

TABLE 7

Study 2 Means, Standard Deviations, and Correlations

Variable	M	SD	1	2	3	4	5	6	7	8	9
1. Gap Identification	4.59	1.14	(.81)	.10*	.03	.01	-.01	.02	.01	.01	.07
2. Gap Elimination	5.58	1.10	.35**	(.98)	.06	.00	.00	.04	.03	.04	.10
3. Positive Affect	4.99	.80	.35**	.76**	(.99)	.05	.01	.04	.02	.05*	.01
4. Negative Affect	2.43	1.34	.03	-.51**	-.23**	(.99)	.03	-.02	-.05**	-.06*	-.04
5. Affect Worsening	4.60	1.03	.38**	.43**	.45**	-.03	(.91)	.05	-.01	-.02	-.02
6. Affect Improving	5.29	.97	.26**	.84**	.69**	-.54*	.34**	(.90)	.01	.01	.02
7. Learning Need Recognition	5.48	1.09	.32**	.83**	.73**	-.46**	.45**	.85**	(.80)	.79***	.77***
8. Learning Self Efficacy	5.54	1.09	.33**	.85**	.73**	-.49**	.42**	.88**	.97**	(.99)	1.08***
9. Learning Motivation	5.52	1.12	.33**	.83**	.73**	-.47**	.41**	.86**	.93**	.96**	(.99)

Note. N = 167. All variables are within-individual (Level 1) variables. Their means and *SD*s are based on between-person scores. Intercorrelations below the diagonal are based on between-individual scores (i.e., I aggregated the variables at the individual-level).; intercorrelations above the diagonal are based on within-individual scores. Coefficient αs are presented on the diagonal. * p<.05. ** p<.01.

TABLE 8

Percentage of Within-Individual Variance Among Daily Variables

Variable	Within-individual variance (ω^2)	Between-individual variance (τ^2)	% Within-individual variance
Gap Identification	1.04	.48	68
Gap Elimination	.32	.94	25
Positive Affect	.20	.49	29
Negative Affect	.55	1.35	29
Affect Improving	.15	.82	15
Affect Worsening	.55	.75	42
Learning Self Efficacy	.22	1.00	18
Learning Need Recognition	.16	.58	22
Learning Motivation	.32	.99	24

Note. The percentage of variance within-individual was calculated as $\omega^2/(\omega^2 + \tau^2)$.

TABLE 9

Study 2 Multiple Regressions Table for Relations Between Developmental Feedback Dimensions, Affect, and Learning

Variable	Employee PA (Model 1)		Employee NA (Model 2)		Learning Need Recognition (Model 3)		Learning Self-Efficacy (Model 4)		Learning Motivation (Model 5)		Learning Motivation (Model 6)	
	β	*t*	***β***	*t*	***β***	*t*	***β***	*t*	***β***	*t*	***β***	*t*
Independent Variables												
Gap Identification	-.00	-.08	.02	.36	-.02	-.50	-.02	-.55	.04	1.00	.05	1.43
Gap Elimination	.31	1.67(*)	.00	.02	.09	.49	.15	.68	.44	1.92(*)	.47	1.98*
Mediators												
PA					.27	1.54	.45	2.37*	-.38	-1.12	-.55	-1.87(*)
NA					-.19	-4.48***	-.22	-3.45**	.08	1.33	.09	1.75(*)
LNR									1.16	14.18**		
LSE											.90	4.02***
Interactions												
Affect Worsening					-.02	-.28						
Affect Improving							-.22	-1.56				
PA × Affect Worsening					.53	4.23***						
NA × Affect Improving							.98	5.15***				

Note. N = 167; N of Clusters = 68; Standardized coefficients provided; All variables (except dependent variables) were mean centered. $^{(*)}$ p<.10. * p<.05. **p<.01. ***p<.001.

TABLE 10

Study 1 Additional Regression Analyses

Variable	Employee PA (Model 1) β	t	Employee NA (Model 2) β	t	Learning Need Recognition (Model 3) β	t	Learning Need Recognition (Model 4) β	t	Learning Self-Efficacy (Model 5) β	t	Learning Self-Efficacy (Model 6) β	t
Control Variables												
Age	-.00	-.87	.01	.77	.00	.87	.00	.32	.01	1.14	.00	.35
[a]Gender	-.05	-.60	-.23	-1.67	-.14	-1.14	.00	.04	-.11	-.90	.08	.76
LMX	.19	3.05**	.06	.53	.01	.13	-.10	-1.28	-.01	-.13	-.18	-2.11*
[b]Need to Change	.05	.87	.40	3.87***	.00	.03	.01	.18	-.04	-.36	.01	.10
CSE	.19	1.65	.17	.86	.01	.05	.03	.27	.19	.90	.19	1.41
Time with Leader	-.04	-3.39**	-.03	-2.16*	.01	1.15	.02	1.44	.02	1.19	.02	1.75
Agreeableness	-.11	-1.58	-.11	-.83	-.01	-.11	.03	.43	.06	.49	.08	1.06
Need for Achievement	.10	1.27	-.28	-1.56	.34	3.33**	.23	2.45*	.45	3.45**	.30	2.95**
Self Esteem	-.14	-1.35	-.38	-1.82	-.08	-.55	-.08	-.75	-.18	-1.11	-.23	-2.17*
Independent Variables												
Gap Identification (GI)	.02	.95	.27	4.49***	.11	2.77**	.09	2.79**	.06	1.29	.00	.00
Gap Elimination (GE)	.42	10.59***	-.28	-5.31***	.29	4.63***	.14	2.53*	.32	3.93***	.13	1.89(*)
Mediators												
PA					.20	2.20*	.04	.51	.39	3.07**	.12	1.19
NA					-.06	-1.38	-.14	-3.08**	-.14	-2.17*	-.22	-4.21***
LNR												
LSE												
Interactions												
Affect Worsening							.23	3.97***			.23	3.40**
Affect Improving							.22	3.88***			.45	4.88***
PA × Affect Worsening							.14	2.46*				
NA × Affect Improving											.06	1.47
GE× Affect Worsening							-.10	-2.56*				
GI × Affect Improving											.03	.91

Note. N = 247; *No. of Clusters* = 48; Standardized coefficients provided; All variables (except dependent variables) were mean centered. [a] Dummy coded: 0 = male, 1 = female. [b] Dummy coded: 0 = Does not involve fundamental change, 1 = Involves fundamental change. (*) $p<.10$. * $p<.05$. ** $p<.01$. *** $p<.001$.

TABLE 10 CONTINUED

Variable	Learning Need Recognition (Model 7)		Learning Self-Efficacy (Model 8)	
	β	*t*	***β***	*t*
Control Variables				
Age	.00	.24	.00	.20
[a]Gender	.03	.23	.07	.71
LMX	.01	.13	-.18	-1.96
[b]Need to Change	.02	.30	.01	.14
CSE	.03	.29	.16	1.13
Time with Leader	.02	1.35	.02	1.90
Agreeableness	.02	.23	.07	.96
Need for Achievement	.25	2.60**	.27	2.76**
Self Esteem	-.10	-.96	-.17	-1.53
Independent Variables				
Gap Identification (GI)	.08	2.45*	-.02	.49
Gap Elimination (GE)	.16	2.65**	.14	1.98*
Mediators				
PA	.03	.39	.12	1.18
NA	-.13	-3.01**	-.19	-3.35**
LNR				
LSE				
Interactions				
Affect Worsening	.21	3.84***	.22	3.08**
Affect Improving	.24	3.66***	.46	5.41***
PA × Affect Worsening			.05	1.01
NA × Affect Improving	.04	1.51		

Note. N = 247; *No. of Clusters* = 48; Standardized coefficients provided; All variables (except dependent variables) were mean centered. [a] Dummy coded: 0 = male, 1 = female. [b] Dummy coded: 0 = Does not involve fundamental change, 1 = Involves fundamental change. $^{(*)}$ p<.10. * p<.05. **p<.01. ***p<.001.

TABLE 10 CONTINUED

Variable	Learning (Ability Improvement) (Model 9) β	t	Learning (Ability Improvement) (Model 10) β	t	Learning (Ability Improvement) (Model 11) β	t	Learning (Motivation) (Model 12) β	t	Learning (Motivation) (Model 13) β	t	Learning (Motivation) (Model 14) β	t
Control Variables												
Age	-.00	-1.60	-.01	-1.69	-.01	-1.84(*)	.01	1.47	.01	1.93	.01	2.10*
[a]Gender	.07	1.09	.07	1.04	.07	1.11	-.16	-1.45	-.17	-1.55	-.07	-1.02
LMX	.01	.32	.02	.40	.02	.44	.11	.99	.06	.56	.07	1.06
[b]Need to Change	.03	.48	.04	.61	.05	.71	-.06	-.61	-.03	-.29	-.00	-.01
CSE	-.04	-.31	-.03	-.04	-.04	-.34	.15	.77	.11	.55	-.04	-.54
Time with Leader	-.01	-.79	-.01	-.95	-.01	-1.09	.00	.08	.01	.72	-.00	-.47
Agreeableness	.12	2.21	.12	2.07*	.12	2.12*	-.00	-.03	.02	.17	-.02	-.30
Need for Achievement	-.04	-.52	-.04	-.57	-.08	-1.07	.42	3.57	.35	2.93**	-.02	-.38
Self Esteem	-.01	-.04	-.02	-.13	-.01	-.06	-.04	-.26	-.04	-.23	.11	1.50
Performance	.89	32.19***	.89	31.50***	.89	32.75***						
Independent Variables												
Gap Identification (GI)	.01	.08	.02	1.08	.01	.65	.12	2.49*	.15	3.01**	.08	3.04**
Gap Elimination (GE)	.02	.56	.03	.67	.01	.24	.55	8.87***	.38	4.73***	.11	2.50*
Mediators												
PA			-.03	-.56	-.06	-1.21			.32	2.33*	.01	.18
NA			-.02	-.56	-.01	-.20			-.12	-1.97*	-.01	-.16
LNR					-.02	-.59					.14	1.25
LSE					.09	1.79(*)					.73	8.67***

Note. N = 247; *No. of Clusters* = 48; Standardized coefficients provided; All variables (except dependent variables) were mean centered. [a] Dummy coded: 0 = male, 1 = female. [b] Dummy coded: 0 = Does not involve fundamental change, 1 = Involves fundamental change. (*) p<.10. * p<.05. ** p<.01. *** p<.001.

TABLE 11

Study 1 Additional Analyses: Indirect and Conditional Indirect Effects of Gap Elimination on Learning Need Recognition Via PA

	Indirect effects via PA		
Gap Elimination	Estimate	Bootstrapped 95% CI	Statistical significance
Unconditional	.12	[.02, .21]	*significant*
Low Affect Worsening (1 s.d. below mean)	-.04	[-.14, .06]	*significant*
High Affect Worsening (1 s.d. above mean)	.08	[.01, .15]	*significant*

Note. Table entries were computed in Mplus using linear regression with maximum likelihood estimator. The bootstrapping confidence intervals were derived using 5,000 data draws.

TABLE 12

Study 1 Additional Analyses: Indirect and Conditional Indirect Effects of Gap Identification on Learning Self Efficacy Via NA

	Indirect effects via NA		
Gap Identification	Estimate	Bootstrapped 95% CI	Statistical significance
Unconditional	.04	[-.10, .09]	*insignificant*
Low Affect Improving (1 s.d. below mean)	-.08	[-.12, -.04]	*significant*
High Affect Improving (1 s.d. above mean)	-.04	[-.08, .00]	*insignificant*

Note. Table entries were computed in Mplus using linear regression with maximum likelihood estimator. The bootstrapping confidence intervals were derived using 5,000 data draws

Appendix 1

Study 1 and Study 2 Measures

Gap Identification:

To what extent do you agree that, during the feedback session [1= Very much disagree; 7 = Very much agree]:

1. My supervisor indicated a gap between my current capability and expected capability.
2. My supervisor pointed out deficiencies in my skills, knowledge, or mindset.
3. My supervisor communicated opinions on things that might negatively affect my [Skill A], even if that would embarrass me.

Gap Elimination:

To what extent do you agree that, during the feedback session [1= Very much disagree; 7 = Very much agree]:

1. My supervisor raised helpful suggestions to improve my [Skill A].
2. My supervisor proactively provided constructive suggestions that would help improve my [Skill A].
3. My supervisor provided me with knowledge and information needed to improve my [Skill A].
4. My supervisor suggested new resources which are beneficial to my [Skill A] development. (E.g., learning materials, courses, funding, or network connections).

Leader Affect Improving

To what extent do you agree that, during the feedback session [1= Very much disagree; 7 = Very much agree]:

1. **When I was under pressure, my leader showed concerns for me.**
2. **My leader showed his/her compassion for me when I felt stressed and anxious.**
3. My leader understood my struggles and difficulties.
4. My leader supported me and showed care and compassion to help me feel better.
5. **My leader made me feel at ease when I was feeling depressed or insecure.**
6. My leader proactively anticipated and addressed my negative emotions.
7. My leader carefully chose words and expressions in delivering feedback in case that the feedback would cause too much negative emotions.
8. **When I was stressed or frustrated, my leader tried to help me change my experience into positive ones.**

Leader Affect Worsening:

To what extent do you agree that, during the feedback session [1= Very much disagree; 7 = Very much agree]:

1. **My leader kept me grounded when I was complacent about my achievements.**
2. **When I felt complacent, my leader would challenge me to do better.**
3. My leader was dissatisfied and worried about my current capabilities.
4. My leader would push me to expand my abilities to the point that I felt uncomfortable.

5. **My leader explained to me the urgency and necessity to expand my abilities when I felt contented.**
6. My leader seemed to be anxious about the need for me to improve.
7. My leader proactively anticipated and downregulated my positive feelings.
8. My leader carefully chose words and expressions in delivering feedback in case that the feedback would cause too much positive emotions.

Learning Self-Efficacy:

To what extent do you agree that this feedback session made you think that [1= Very much disagree; 7 = Very much agree]:

1. I can successfully overcome obstacles in my learning.
2. I can effectively handle challenges during my learning process.
3. I will have no problem meeting the developmental expectations that my leader has for me.
4. I can successfully improve my [Skill A] in the near future.
5. I will be able to give my full attention to improving my [Skill A] .
6. I am confident in my ability to meet most of my leader's learning expectations for me.
7. I am able to learn the materials required to improve my [Skill A] in a relatively short period of time.
8. I am more capable at meeting my leader's developmental expectations than most other employees.

Learning Need Recognition:

To what extent do you agree that this feedback session made you think that [1= Very much disagree; 7 = Very much agree]:

1. The feedback made me realize that I need to alter how I see or understand my work according to my supervisor's feedback.
2. The feedback made me realize the need to acquire new knowledge and skills.
3. The feedback made me realize the need to improve the how I complete my tasks.
4. The feedback made me recognize the importance of considering new ways of completing my tasks.
5. The feedback made me realize that I should change my old ways of working according to the suggestions by my leader.
6. The feedback made me realize that I should expand my current skills and capabilities to the next level.
7. The feedback made me think that I'm on the right track and that I should keep going down this direction." [R]

Bibliography

Argyris, C. (1976). Errata: Single-Loop and Double-Loop Models in Research on Decision Making. *Administrative Science Quarterly*, *21*(4), 716. https://doi.org/10.2307/2391727

Argyris, C., & Schön, D. A. (1997). Organizational Learning: A Theory of Action Perspective. *Reis*, *77/78*, 345. https://doi.org/10.2307/40183951

Baldwin, T. T., & Ford, J. K. (1988). Transfer of training: A review and directions for future research. Personnel Psychology, 41, 63-105.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.

Bandura, A., & Cervone, D. (1983). Self-evaluative and self-efficacy mechanisms governing the motivational effects of goal systems. *Journal of personality and social psychology*, *45*(5), 1017.

Bangert-Drowns, R. L., Kulik, J. A., & Morgan, M. T. (1991). The instructional effect of feedback in test- like events. Review of Educational Research, 61, 213–238.

Baron, R. A. (1988). Negative effects of destructive criticism: Impact on conflict, self-efficacy, and task performance. *Journal of applied psychology*, *73*(2), 199.

Barrett, L. F. (2006). Solving the Emotion Paradox: Categorization and the Experience of Emotion. *Personality and Social Psychology Review*, *10*(1), 20–46. https://doi.org/10.1207/s15327957pspr1001_2

Barrett, L. F., & Russell, J. A. (1999). The Structure of Current Affect. *Current Directions in Psychological Science*, *8*(1), 10–14. https://doi.org/10.1111/1467-8721.00003

Barsade, S. G., & Gibson, D. E. (2007). Why Does Affect Matter in Organizations? *Academy of Management Perspectives*, *21*(1), 36–59. https://doi.org/10.5465/amp.2007.24286163

Bartunek, J. M., & Moch, M. K. (1987). First-order, second-order, and third-order change and organization development interventions: A cognitive approach. *The Journal of applied behavioral science*, *23*(4), 483-500.

Bless, H., & Fiedler, K. (1995). Affective States and the Influence of Activated General Knowledge. *Personality and Social Psychology Bulletin*, *21*(7), 766–778. https://doi.org/10.1177/0146167295217010

Bless, H., Clore, G. L., Schwarz, N., Golisano, V., Rabe, C., & Wölk, M. (1996). Mood and the use of scripts: Does a happy mood really lead to mindlessness? *Journal of Personality and Social Psychology*, *71*(4), 665–679. https://doi.org/10.1037/0022-3514.71.4.665181–194.

Boeck, G., Dries, N., & Tierens, H. (2018). The Experience of Untapped Potential: Towards a Subjective Temporal Understanding of Work Meaningfulness. *Journal of Management Studies*, *56*(3), 529–557. https://doi.org/10.1111/joms.12417

Bolger, N., Zuckerman, A., & Kessler, R. C. (2000). Invisible support and adjustment to stress. *Journal of personality and social psychology*, *79*(6), 953.

Bono, J. E., & Colbert, A. E. (2005). Understanding responses to multi-source feedback: The role of core self-evaluations. *Personnel Psychology*, *58*(1), 171-203.

Brown, J. D. (2010). High self-esteem buffers negative feedback: Once more with feeling. *Cognition and Emotion*, *24*(8), 1389-1404.

Buss, D. M. (1992). Manipulation in close relationships: Five personality factors in interactional context. *Journal of Personality, 60*, 477–499.

Christina, R. W., & Bjork, R. A. (1991). Optimizing long-term retention and transfer. In D. Druckman & R. A. Bjork (Eds.), *In the mind's eye: Enhancing human performance* (pp. 23-55). Washington, DC: National Academy Press,

Clore, G. L., Gasper, K., & Garvin, E. (2001). Affect as information. *Handbook of affect and social cognition*, 121-144.

de Haan, E., & Nilsson, V. O. (2017). Evaluating coaching behavior in managers, consultants, and coaches: A model, questionnaire, and initial findings. *Consulting Psychology Journal: Practice and Research*, *69*(4), 315.

Deci, E. L., & Ryan, R. M. (1980). Self-determination theory- When mind mediates behavior. The Journal of mind and Behavior, 33-43.

Deci, E. L., & Ryan, R. M. (1985). Cognitive evaluation theory. In *Intrinsic motivation and self-determination in human behavior* (pp. 43-85). Springer, Boston, MA.

Deci, E. L., & Ryan, R. M. (2008). Self-determination theory: A macrotheory of human motivation, development, and health. *Canadian psychology/Psychologie Canadienne*, *49*(3), 182.

Dent, E. B., & Goldberg, S. G. (1999). Challenging “resistance to change”. *The Journal of applied behavioral science*, *35*(1), 25-41.

Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychological review*, *95*(2), 256.

Earley, P. C., Northcraft, G. B., Lee, C., & Lituchy, T. R. (1990). Impact of process and outcome feedback on the relation of goal setting to task performance. *Academy of management journal*, *33*(1), 87-105.

Egan, T. M., Yang, B., & Bartlett, K. R. (2004). The effects of organizational learning culture and job satisfaction on motivation to transfer learning and turnover intention. *Human Resource Development Quarterly*, *15*(3), 279–301. https://doi.org/10.1002/hrdq.1104

Elfenbein, H. A., & MacCann, C. (2017). A closer look at ability emotional intelligence (EI): What are its component parts, and how do they relate to each other?. *Social and Personality Psychology Compass*, *11*(7), e12324.

Ellinger, A. D., & Bostrom, R. P. (1999). Managerial coaching behaviors in learning organizations. *Journal of Management Development*.

Fiedler, K., Nickel, S., Asbeck, J., & Pagel, U. (2003). Mood and the generation effect. *Cognition and Emotion*, *17*(4), 585–608. https://doi.org/10.1080/02699930302301

Folkman, S., & Lazarus, R. S. (1985). If it changes it must be a process: Study of emotion and coping during three stages of a college examination. *Journal of Personality and Social Psychology*, *48*(1), 150–170. https://doi.org/10.1037/0022-3514.48.1.150

Folkman, S., Lazarus, R. S., Dunkel-Schetter, C., DeLongis, A., & Gruen, R. J. (1986). Dynamics of a stressful encounter: cognitive appraisal, coping, and encounter outcomes. *Journal of personality and social psychology*, *50*(5), 992.

Forgas, J. P. (1995). Mood and judgment: The affect infusion model (AIM). *Psychological Bulletin*, *117*(1), 39–66. https://doi.org/10.1037/0033-2909.117.1.3

Frijda, N. H. (1986). *The emotions.* Cambridge, England: Cambridge University Press.

Gallup. (2016). *How millennials want to work and live*. Washington, DC: Gallup Press. Retrieved from https://news.gallup.com/reports/189830/millennials-work-live.aspx

George, J. M. (2000). Emotions and leadership: The role of emotional intelligence. Human Relations, 53, 10271055.

George, J. M., & Brief, A. P. (1996). *Motivational agendas in the workplace: The effects of feelings on focus of attention and work motivation*. Elsevier Science/JAI Press.

Goldstein, I. L. (1986). *Training in organizations: Needs assessment, development, and evaluation.* Pacific Grove, CA: Brooks/Cole.

Goldstein, I. L. (1993). Training in organizations: Needs assessment, development, and evaluation. Pacific Grove, CA: Brooks/Cole.

Goodman, J. S., Wood, R. E., & Hendrickx, M. (2004). Feedback Specificity, Exploration, and Learning. *Journal of Applied Psychology, 89*(2), 248–262. https://doi.org/10.1037/0021-9010.89.2.248

Gross, J. J. (1998). Antecedent- and response-focused emotion regulation: Divergent consequences for experience, expression, and physiology. *Journal of Personality and Social Psychology*, *74*, 224–237.

Gross, J. J. (1999). Emotion regulation: Past, present, future. *Cognition & Emotion*, *13*, 551–573.

Gross, J. J. (2002). Emotion regulation: Affective, cognitive, and social consequences. *Psychophysiology*, *39*, 281–291.

Gross, J. J., & Thompson, R. A. (2007). Emotion regulation: Conceptual foundations. In J. J. Gross (Ed.), *Handbook of emotion regulation* (pp. 3–24). New York, NY: Guilford Press.

Gross, J. J., Sheppes, G., & Urry, H. L. (2011b). Emotion generation and emotion regulation: A distinction we should make (carefully). *Cognition & Emotion*, *25*, 765–781. Retrieved from http://cat.inist.fr/?aModele=afficheN&cps idt=24496672

Guo, Y., Xiong, G., Zhang, Z., Tao, J., & Deng, C. (2020). Effects of supervisor's developmental feedback on employee loyalty: A moderated mediation model. *Social Behavior and Personality: An International Journal*, *48*(1), 1–14. https://doi.org/10.2224/sbp.8269

Hamari, J., Shernoff, D. J., RoI, E., Coller, B., Asbell-Clarke, J., & Edwards, T. (2016). Challenging games help students learn: An empirical study on engagement, flow and immersion in game-based learning. *Computers in Human Behavior*, *54*, 170–179. https://doi.org/10.1016/j.chb.2015.07.045

Harackiewicz, J. M., Manderlink, G., & Sansone, C. (1984). Rewarding pinball wizardry: Effects of evaluation and cue value on intrinsic interest. *Journal of Personality and Social Psychology*, *47*(2), 287–300. https://doi.org/10.1037/0022-3514.47.2.287

Harmon-Jones, E., Peterson, C., Gable, P. A., & Harmon-Jones, C. (2008). Anger and approach-avoidance motivation. In A. J. Elliot (Ed.), *Handbook of approach and avoidance motivation* (pp. 399–413). Psychology Press.

Holroyd, K. A., & Lazarus, R. S. (1982). Stress, coping and somatic adaptation. *Handbook of stress: Theoretical and clinical aspects*, 21-35.

Ilgen, D. R., Fisher, C. D., & Talyor, M. S. (1979). Consequences of individual feedback on behavior in organizations. Journal of Applied Psychology, 64, 349–371.

Ilies, R., & Judge, T. A. (2005). Goal Regulation Across Time: The Effects of Feedback and Affect. *Journal of Applied Psychology*, *90*(3), 453–467. https://doi.org/10.1037/0021-9010.90.3.453

Ilies, R., De Pater, I. E., & Judge, T. (2007). Differential affective reactions to negative and positive feedback, and the role of self-esteem. *Journal of Managerial Psychology*.

Ilies, R., Judge, T. A., & Wagner, D. T. (2010). The influence of cognitive and affective reactions to feedback on subsequent goals. *European Psychologist*.

Isen, A. M. (2000). Some perspectives on positive affect and self-regulation. *Psychological inquiry*, *11*(3), 184-187.

Kanfer, R., & Ackerman, P. L. (1989). Motivation and cognitive abilities: An integrative/aptitude-treatment interaction approach to skill acquisition. *Journal of applied psychology*, *74*(4), 657.

Katona, G. (1940). *Organizing and memorizing: studies in the psychology of learning and teaching.* Columbia Univ. Press.

Katz, R. L. (1963). Empathy: Its nature and uses. London: Free Press of Glencoe.

Kellaghan, T. (1996). IEA Studies and Educational Policy. *Assessment in Education: Principles, Policy & Practice*, *3*(2), 143–160. https://doi.org/10.1080/0969594960030203

Keysers, C., & Gazzola, V. (2007). Integrating simulation and theory of mind: from self to social cognition. *Trends in cognitive sciences*, *11*(5), 194-196.

Klahr, D., & Dunbar, K. (1988). Dual Space Search During Scientific Reasoning. *Cognitive Science*, *12*(1), 1–48. https://doi.org/10.1207/s15516709cog1201_1

Kluger, A. N., & DeNisi, A. (1996). The effects of feedback interventions on performance: A historical review, a meta-analysis, and a preliminary feedback intervention theory. *Psychological Bulletin*, *119*(2), 254–284. https://doi.org/10.1037/0033-2909.119.2.254

Kluger, A. N., Lewinsohn, S., & Aiello, J. R. (1994). The Influence of Feedback on Mood: Linear Effects on Pleasantness and Curvilinear Effects on Arousal. *Organizational Behavior and Human Decision Processes*, *60*(2), 276–299. https://doi.org/10.1006/obhd.1994.1084

Kozlowski, S. W., & DeShon, R. P. (2004). A psychological fidelity approach to simulation-based training: Theory, research and principles. *Scaled worlds: Development, validation, and applications*, 75-99.

Kram, K. E. (1985). Improving the mentoring process. *Training & Development Journal*, 39, 40-43.

Lakey, B., & Orehek, E. (2011). Relational regulation theory: a new approach to explain the link betIen perceived social support and mental health. *Psychological review*, *118*(3), 482.

Lama, D., & Ekman, P. (2008). *Emotional awareness: Overcoming the obstacles to psychological balance and compassion*. Macmillan.

Lankau, M. J., & Scandura, T. A. (2002). An Investigation of Personal Learning in Mentoring Relationships: Content, Antecedents, and Consequences. *Academy of Management Journal*, *45*(4), 779–790. https://doi.org/10.5465/3069311

Lazarus, R. S. (2006). Emotions and interpersonal relationships: Toward a person-centered conceptualization of emotions and coping. *Journal of personality*, *74*(1), 9-46.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer publishing company.

Lazarus, R. S., & Folkman, S. (1987). Transactional theory and research on emotions and coping. *European Journal of Personality*, *1*(3), 141–169. https://doi.org/10.1002/per.2410010304

Lazarus, R. S., & Folkman, S. (1987). Transactional theory and research on emotions and coping. *European Journal of personality*, *1*(3), 141-169.

Leung, K., Su, S., & Morris, M. W. (2001). When is criticism not constructive? The roles of fairness perceptions and dispositional attributions in employee acceptance of critical supervisory feedback. *Human Relations*, *54*(9), 1155-1187.

Li, N., Harris, T. B., Boswell, W. R., & Xie, Z. (2011). The role of organizational insiders' developmental feedback and proactive personality on newcomers' performance: An interactionist perspective. *Journal of Applied Psychology*, *96*(6), 1317–1327. https://doi.org/10.1037/a0024029

Liu, D., & Fu, P. P. (2011). Motivating protégés' personal learning in teams: A multilevel investigation of autonomy support and autonomy orientation. *Journal of Applied Psychology*, *96*(6), 1195–1208. https://doi.org/10.1037/a0024716

Locke, E. A., & Bryan, J. F. (1967). Performance goals as determinants of level of performance and boredom. *Journal of Applied Psychology*, *51*(2), 120–130. https://doi.org/10.1037/h0024471

Locke, E. A., & Latham, G. P. (2006). New directions in goal-setting theory. Current directions in psychological science, 15(5), 265-268.

London, M. (1995). Giving feedback: Source-centered antecedents and consequences of constructive and destructive feedback. *Human Resource Management Review*, *5*(3), 159-188.

London, M. (2003). *Job feedback: Giving, seeking, and using feedback for performance improvement*. Psychology Press.

López-Pérez, B., Howells, L., & Gummerum, M. (2017). (2017). Cruel to be kind: Factors underlying altruistic efforts to worsen another person's mood. *Psychological Science*, *28*(7), 862-871.

Matsui, T., Okada, A., & Kakuyama, T. (1982). Influence of achievement need on goal setting, performance, and feedback effectiveness. *Journal of Applied Psychology*, *67*(5), 645.

McNeish, D., Stapleton, L. M., & Silverman, R. D. 2016. On the unnecessary ubiquity of hierarchical linear modeling. Psychological Methods, 22: 114–140.

Miller, D., & Chen, M. J. (1996). Nonconformity in Competitive Repertoires: A Sociological View of Markets. *Social Forces*, *74*(4), 1209. https://doi.org/10.2307/2580349

Mueller, C. M., & Dweck, C. S. (1998). Praise for intelligence can undermine children's motivation and performance. *Journal of personality and social psychology*, *75*(1), 33.

Muthén, L.K. and Muthén, B.O. (1998-2017). Mplus User's Guide. Eighth Edition. Los Angeles, CA: Muthén & Muthén

Niven, K., Totterdell, P., & Holman, D. (2009). A classification of controlled interpersonal affect regulation strategies. *Emotion*, *9*(4), 498.

Niven, K., Totterdell, P., Stride, C. B., & Holman, D. (2011). Emotion Regulation of Others and Self (EROS): The development and validation of a new individual difference measure. *Current Psychology*, *30*(1), 53-73.

O'Brien, T. B., DeLongis, A., Pomaki, G., Puterman, E., & Zwicker, A. (2009). Couples coping with stress: The role of empathic responding. *European Psychologist*, *14*(1), 18-28.

O'Malley, A. L., & Gregory, J. B. (2011). Don't be such a downer: Using positive psychology to enhance the value of negative feedback. *The Psychologist-Manager Journal*, *14*(4), 247-264.

Pescosolido, A. T. (2002). Emergent leaders as managers of group emotion. *The Leadership Quarterly*, *13*(5), 583-599.

Ragins, B. R., & Kram, K. E. (2007). The roots and meaning of mentoring. *The handbook of mentoring at work: Theory, research, and practice*, 3-15.

Rowden, R. W., & Conine, C. T. (2005). The impact of workplace learning on job satisfaction in small US commercial banks. *Journal of Workplace Learning*, *17*(4), 215–230. https://doi.org/10.1108/13665620510597176

Rudd, M., Hildebrand, C., & Vohs, K. D. (2018). Inspired to Create: AI Enhances Openness to Learning and the Desire for Experiential Creation. *Journal of Marketing Research*, *55*(5), 766–781. https://doi.org/10.1177/0022243718802853

Russell, J. A. (2003). Core affect and the psychological construction of emotion. *Psychological Review*, *110*(1), 145–172. https://doi.org/10.1037/0033-295x.110.1.145

Sadler, D. R. (1987). Specifying and promulgating achievement standards. Oxford Review of Education, 13, 191–209.

Salahian, A., Oreizi, H. R., Abedi, M. R., & Soltani, I. (2012). Co-workers/supervisor support and burnout. Interdisciplinary Journal of Contemporary Research in Business, 4, 141148.

Schmidt, R. A., & Bjork R. A. (1992). New conceptualizations of practice: Common principles in three paradigms suggest new concepts for training. *Psychological Science, 3*, 207-217.

Schwarz, N., & Clore, G. L. (1983). Mood, misattribution, and judgments of well-being: informative and directive functions of affective states. *Journal of personality and social psychology*, *45*(3), 513.

Schwarz, N., & Clore, G. L. (2003). Mood as Information: 20 Years Later. *Psychological Inquiry*, *14*(3–4), 296–303. https://doi.org/10.1080/1047840x.2003.9682896

Seijts, G.H., & Latham, G.P. (2001). The effect of learning, outcome, and proximal goals on a moderately complex task. Journal of Organizational Behavior, 22, 291–307.

Seo, M. G., Bartunek, J. M., & Barrett, L. F. (2009). The role of affective experience in work motivation: Test of a conceptual model. *Journal of Organizational Behavior*, *31*(7), 951–968. https://doi.org/10.1002/job.655

Simon, H. A., & Lea, G. (1974). Problem solving and rule induction: A unified view.

Singley, M. K., & Anderson, J. R. (1989). *The transfer of cognitive skill* (No. 9). Harvard University Press.

Sitkin, S. B. (1992). Learning through failure: The strategy of small losses. *Research in organizational behavior*, *14*, 231-266.

Steelman, L. A., & Rutkowski, K. A. (2004). Moderators of employee reactions to negative feedback. *Journal of Managerial Psychology*.

Thomas, C. H., & Lankau, M. J. (2009). Preventing burnout: the effects of LMX and mentoring on socialization, role stress, and burnout. *Human Resource Management*, *48*(3), 417–432.

Thuan, L. C., & Thanh, B. T. (2019). Mediating mechanisms linking developmental feedback with employee creativity. *Journal of Workplace Learning*, *32*(2), 108–121. https://doi.org/10.1108/jwl-06-2019-0070

Tschannen-Moran, M., & Hoy, A. W. (2007). The differential antecedents of self-efficacy beliefs of novice and experienced teachers. *Teaching and teacher Education*, *23*(6), 944-956.

Tversky, A., & Kahneman, D. (1986). Rational Choice and the Framing of Decisions. *The Journal of Business*, *59*(S4), S251. https://doi.org/10.1086/296365

van Heerden, M., & Bharuthram, S. (2021). Knowing me, knowing you: the effects of peer familiarity on receiving peer feedback for undergraduate student writers. *Assessment & Evaluation in Higher Education*, *46*(8), 1191-1201.

Van Kleef, G. A., Homan, A. C., Beersma, B., & van Knippenberg, D. (2010). On angry leaders and agreeable followers: How leaders' emotions and followers' personalities shape motivation and team performance. *Psychological Science*, *21*(12), 1827-1834.

Van Scotter, J. R., & Motowidlo, S. J. (1996). Interpersonal facilitation and job dedication as separate facets of contextual performance. *Journal of applied psychology*, *81*(5), 525.

Vangelisti, A. L., Daly, J. A., & Rudnick, J. R. (1991). Making people feel guilty in conversations: Techniques and correlates. *Human Communication Research, 18*, 3–39.

Vroom, V. H. (1994). *Work and Motivation* (1st ed.). Jossey-Bass.

Vygotsky, L. (1978). Interaction betIen learning and development. *Readings on the development of children*, *23*(3), 34-41.

Wood, R., & Bandura, A. (1989). Social cognitive theory of organizational management. *Academy of management Review*, *14*(3), 361-384.

Yamnill, S., & McLean, G. N. (2001). Theories supporting transfer of training. Human resource development quarterly, 12(2), 195-208.

Young, S. F., Richard, E. M., Moukarzel, R. G., Steelman, L. A., & Gentry, W. A. (2017). How empathic concern helps leaders in providing negative feedback: A two-study examination. *Journal of occupational and organizational psychology*, *90*(4), 535-558.

Zaki, J., & Ochsner, K. N. (2012). The neuroscience of empathy: progress, pitfalls and promise. *Nature neuroscience*, *15*(5), 675-680.

Zaki, J., & Williams, W. C. (2013). Interpersonal emotion regulation. *Emotion*, *13*(5), 803.

Zheng, X., Diaz, I., Jing, Y., & Chiaburu, D. S. (2015). Positive and negative supervisor developmental feedback and task-performance. *Leadership & Organization Development Journal*, *36*(2), 212–232. https://doi.org/10.1108/lodj-04-2013-0039

Zhou, J. (2003). When the presence of creative coworkers is related to creativity: Role of supervisor close monitoring, developmental feedback, and creative personality. *Journal of Applied Psychology*, *88*(3), 413–422. https://doi.org/10.1037/0021-9010.88.3.413