2020

The Role of Feedback in Leader Identity Development: An Examination of the Impact of the Deficits-Based Versus Strengths-Based Feedback

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by

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A dissertation presented to the faculty of Claremont Graduate University in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Psychology

Claremont Graduate University

2020

APPROVAL OF THE DISSERTATION COMMITTEE

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Abstract

The Role of Feedback in Leader Identity Development: An Examination of the Impact of the Deficits-based versus Strengths-based Feedback

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Claremont Graduate University: 2020

The aim of this dissertation is to investigate the relationship between feedback and leader identity, particularly the impact of deficits-based versus strengths-based feedback. This dissertation consists of two empirical studies: 1) a cross-sectional, online experiment (N = 280) and 2) a cross-sectional, field experiment (N = 177). I examined the impact of feedback on leader identity through the mechanisms of cognitive controlled processing and effort. I found that receiving leadership feedback was important in shaping leader identity. Specifically, feedback that focused on leadership strengths increased new leaders' positive emotions, which positively influenced their leader identity. However, feedback that highlighted leadership weaknesses increased levels of cognitive controlled processing (i.e., time spent processing feedback messages), which positively influenced their effort but not their leader identity. Regardless, both feedback approaches positively influenced leader identity development processes compared to participants who received no feedback. This research contributes to leader development literature by expanding our understanding of how feedback influences leader identity through cognitive and affective pathways. Results from this research signify that new leaders should have access to their leadership feedback, and both feedback approaches should be carefully incorporated and used in leader development processes.

Acknowledgement

I would like to express my gratitude to Chulalongkorn Business School in Thailand that provided me support with a full scholarship for my Ph.D. studies. Additionally, this dissertation was partially supported by funds from Claremont Graduate University's Graduate Student Council Material Award (Spring 2020), Psi Chi Research Award (Spring 2020), and LeAD Labs.

Most importantly, I would like to thank my advisor, Dr. Becky Reichard. Words cannot describe enough of how grateful I am to have you as my advisor, mentor, and friend. I am so fortunate to have you as my mentor. I have grown so much because of you. I am thankful for all the opportunities you have given me. My Ph.D. journey has been as smooth as it can be, as you always went the extra mile to provide me with opportunities and support. You have literally raised me up in this academic career path. Without you, I would not have come this far. Thank you!

I would like to also acknowledge my committee members, Drs. David Day, Michelle Bligh, Jeffrey Yip, and Michelle Hammond, who provided timely and high-quality feedback and support throughout my portfolio and the dissertation writing phrase. All of you are academic role models to me. Thank you!

I want to thank Linda Pillow, Sherry Nissen, Shamini Dias, Sunny Chau, and other CGU staff members that have supported me throughout this long process. Linda and Sherry, both of you always made me feel welcome and were always enthusiastic about helping me. Thank you for dealing with paperwork and other arrangements to make sure my dissertation phase went as smoothly as possible. Shamini and Sunny, both of you were my supervisors at the Digital Learning Lab, where I taught my own class for the very first time and developed my teaching and training skills. Thank you for the opportunities and invaluable experience!

I would like to thank my friends and family, both in the US and in Thailand. Thank you for social and emotional support, that was integral in helping me get through the ups and downs in my PhD journey. I would like to thank friends at LeAD Labs who always provided me with positive energy, encouragement, and thought-provoking ideas and discussions. I also want to thank specific CGU friends including: Jeff Ramdass who graciously helped with data analyses and taught me how to use R, Lisa Teachanarong and Rachel Baumsteiger who continued to provide support and checked in on my progress throughout the last year of our Ph.D., and Katie Cotter, Jessica Diaz, and Sevelyn VanRonk who gave me feedback and helped me with my dissertation presentation and defense practice. A special thanks to my best friends in the program, Caleb Mitchell and Dwight Tse, who were always there for me. Thank you for your time and input regarding my ideas and giving me feedback, reading my drafts, teaching me how to run different statistical analyses, and cheering me up along the way. For this dissertation, I owe it to you all!

Finally, I am grateful for my mom, Thitima, and my dad, Chanchai, who have always been very supportive throughout my life. You two are the best parents I could ever ask for. You two let me walk my own path, and never once judged me on who I am or what I do. You two only provided feedback, guidance, and words of encouragement along the way. Thank you for believing in me. I made it here because of you two. It was a big sacrifice that you only got to see me once a year, so I could pursue my Ph.D. For that, I am thankful. I am excited to begin this new journey after graduate school and to have you back closer in my life again. I love you. Thank you!

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Chapter 1: Introduction

An effective leader development process can occur through developing leadership self-views such as leader identity (Day & Dragoni, 2015). *Leader identity*, the degree to which individuals identify themselves as a leader, can guide leader behavior (Day, Harrison, & Halpin, 2009). For example, having high leader identity (i.e., high identification of oneself as a leader) can motivate leaders to seek more developmental opportunities and engage in ongoing learning processes on their own even when their organization does not provide formal developmental opportunities (Day et al., 2009). Not only is having a high level of strength leader identity associated with leader competence (Hammond, Clapp-Smith, & Palanski, 2017), but it is also a harbinger for future development (i.e., positive identity development spirals; Day et al., 2009).

A focus on leader identity development is likely to be especially beneficial, particularly for emerging or new leaders (i.e., who may have no or limited leadership experiences). Leader identity development is a dynamic process (Day et al., 2009; Miscenko, Guenter, & Day, 2017), especially in the nascent stages of development of new leaders. Enhancing leader identity of new leaders helps to address one issue in leader development that many organizations tend to prioritize and invest in leader development resources and supports (e.g., formal training programs, leadership coaching) for those who are formally appointed organizational leaders or executive-level leaders, not new leaders. More importantly, new leaders, who may not consider themselves as a leader, might not look for leader development opportunities in the first place. But once they begin to recognize themselves as a leader, new leaders can become more agile and proactive in seeking opportunities for their development, which is an effective approach to a life-long leader development journey (see Walker & Reichard, 2020). Therefore, an effective, cost-efficient means for organizations to support the development of new leaders is to find ways to

maximize formal and informal processes and interventions that can positively influence leader identity. A key question is *what interventions or processes would be most effective in enhancing the leader identity of new leaders*.

Prior theory and research have examined the role of interventions in facilitating the development of leaders, including leader identity. Leaders may develop a strong leader identity when they hold a formal leadership position. Alternatively, leaders may internalize what it means to be a leader when going through different leadership experiences, or receiving recognition and endorsement from other people (Atewologun et al., 2017; DeRue & Ashford, 2010). As leaders go through new experiences, situations, or interventions, their leader identity changes, strengthening or weakening, as part of a dynamic process of identity development (Miscenko, Guenter, & Day, 2017; Middleton, Walker, & Reichard, 2018). One approach to enhancing leader identity is through skill development as individuals develop their leader identity when they develop leadership skills and become more of an expert leader (Day et al., 2009; Lord & Hall, 2005).

Aligned with Day and Dragoni (2015), individual experience and certain interventions including feedback can influence the way leaders perceive themselves, and thus change their leader identity. As leader identity development is an ongoing process (Day et al., 2009; Miscenko et al., 2017), leaders continue to process and make sense of the feedback information they frequently receive, especially when the information is relevant to the leader's sense of self. Feedback is arguably the most common form of information that leaders receive which reflects leadership behaviors, strengths, and weaknesses. In an organizational context, leaders receive feedback from various sources, which may include having informal conversations with peers, having formal meetings with supervisors, reading email correspondence, or reading anonymous

comments from yearly performance appraisal reports. For new leaders, any feedback information about their leadership is novel, which makes them pay more attention to these feedback cues, and thus influence their leader identity. For example, a new leader, who has to lead his team for the first time, may see feedback from an annual review highlighting one of his leadership weaknesses in that he is always disorganized when leading team meetings. Then, he begins to reflect and process the information in comparison to how he views himself as a leader, and thus his leader identity may sway.

Although feedback has been used as an intervention in organizations for decades (London, 2003), an explicit link between feedback and its direct relationship with leader identity is still unclear. One particular challenge in examining the impact of feedback on leader identity is that feedback takes many forms (e.g., formal vs. informal, process vs. outcome, focusing on weaknesses vs. strengths) and comes from different sources (e.g., peers, subordinates, supervisors), which can be difficult to tease apart these layers of complexity. Moreover, existing studies on feedback focus primarily on performance outcomes or specific leader behaviors (Atwater & Waldman, 1998; Day et al., 2014; London, 2015), but not enough on leader development processes, such as the process of how leaders internalize feedback itself in relations to the development of their leader identity. Given how feedback can provide critical information that may trigger leader identity development, we need a better understanding of how exactly feedback can engender or limit the development of leader identity of new leaders.

Leadership feedback often follows the two feedback approaches – deficits-based and strengths-based feedback. On the one hand, organizations have long-used the traditional, deficits-based approach to feedback. In this common approach, organizations aim to identify leaders' weaknesses or deficiencies based on how their leadership skills and behaviors compare to some

standards (Aguinis, Gottfredson, & Joo, 2012). The value of deficits-based feedback lies in its power to reveal issues in need of remediation to prevent derailment (Chappelow & McCauley, 2019).

On the other hand, the strengths-based feedback approach, which is endorsed by the positive psychology movement (see Seligman & Csikszentmihalyi, 2000), focuses on what leaders already excel at and maximizes those skills and behaviors instead of identifying weaknesses and correcting them. Proponents of this approach believe that focusing on strengths is more beneficial and impactful than the traditional, deficits-based feedback (Aguinis et al., 2012; Biswas-Diener, Kashdan, & Minhas, 2011) and some even argue for ignoring weaknesses entirely and focusing only on strengths (Buckingham & Goodall, 2019). Feedback, whether focusing on deficits or strengths, is ubiquitous in organizations. Although feedback has been used in leader development practices (London, 2002), it is still unclear which feedback approach is better or more effective for leader identity development, especially of those who are new leaders.

Having access to feedback of any kind, deficits-based or strengths-based is not always beneficial, especially, to new leaders. Research has shown that receiving more feedback does not always result in better outcomes (Lam et al., 2011). One explanation is that people only have limited capacity to process information, and they do not always engage in high level of cognitive controlled processing—they do not pay attention equally to all information. Imagine a comprehensive leadership 360-degree reports which include a lot of information on both strengths and weaknesses. Leaders may pay attention to only certain information, which makes the impact of the actual feedback report less useful because leaders fail to process every detail, cognitively. Receiving and processing feedback has a more complex underlying mechanism that

influences whether or not leaders can utilize and benefit from feedback. This process is even more critical for emerging leaders as they have limited leadership experience, and not yet developed necessary knowledge, skills, and abilities as a leader (McCall, 2010). It is more difficult for new leaders to process and make sense of feedback because they have simple leadership schemas to begin with. With experience and more developed and complex schemas, experience leaders are able to integrate feedback more easily into their mental models. For new leaders, the difference between processing feedback focusing on deficits versus strengths may have important implications such that one approach might be more effective in capturing leaders' attention to internalize feedback and promoting leader identity development.

To understand the feedback process and its effects on leader identity development, I draw from the dual-process models of cognitive thinking, which consists of automatic (e.g., quick responses, intuition) and controlled processing (e.g., deep information processing, rational thinking, reflection; Evans & Stanovich, 2013). When receiving feedback, leaders may first naturally engage in automatic processing when reacting to feedback, which in this case, is categorized by the approach to feedback (i.e., deficits-based vs. strengths-based). Then, they begin to process feedback in a deeper level, which indicate the level of controlled processing they are engaging in.

However, emotional reactions (i.e., the intensity level of their emotional responses) is expected to moderate the relationship between feedback and controlled processing. Consistent with previous theory on feedback (Kluger, 2012; Kluger, Lewinsohn, & Aiello, 1994), perceptions of feedback and standards (i.e., reactions intensity) interact and influence whether people will process feedback information in a meaningful way. Leaders who have a higher

intensity of emotional reactions, whether they are positive or negative, are more likely to engage in higher level of controlled processing of feedback information.

Processing feedback information through controlled processing can promote leaders' effort to engage in the feedback area, which ultimately shapes leader identity. When new leaders receive feedback, it is likely that they will attempt to address it. By engaging in the feedback area (e.g., learning more about the feedback information itself, changing specific behaviors), it is expected that they will begin to internalize feedback further and make sense of who they are as a leader. With accumulated effort over time, leader identity is strengthened (Miscenko et al., 2017).

However, leaders' learning goal orientation (LGO), defined as a tendency to focus on mastering challenges and learning from them, rather than focusing on performing well alone (VandeWalle, Cron, & Slocum, 2001), will influence the relationship between controlled processing and effort. Specifically, leaders who are high on LGO are more likely to expend more effort to engage in the feedback area, rather than dismiss it.

The primary objective of this research is to examine the impact of different feedback approaches, specifically deficits-based versus strengths-based feedback on leader identity through the lens of dual-process theories of cognitive thinking. The contribution of this paper is two-fold. First, it responds to calls for more specific research on leader identity and how it develops and changes (Brown, 2015; Day et al., 2009; Miscenko, Guenter, & Day, 2017, Vogel et al., 2020) by providing a theoretical explanation and empirical examination of how feedback affects leader identity. As leader development is an ongoing process, the more we understand the mechanism of feedback and its impact on leader identity, the better we can help organizations address specific challenges in developing their leaders. Additionally, the present research

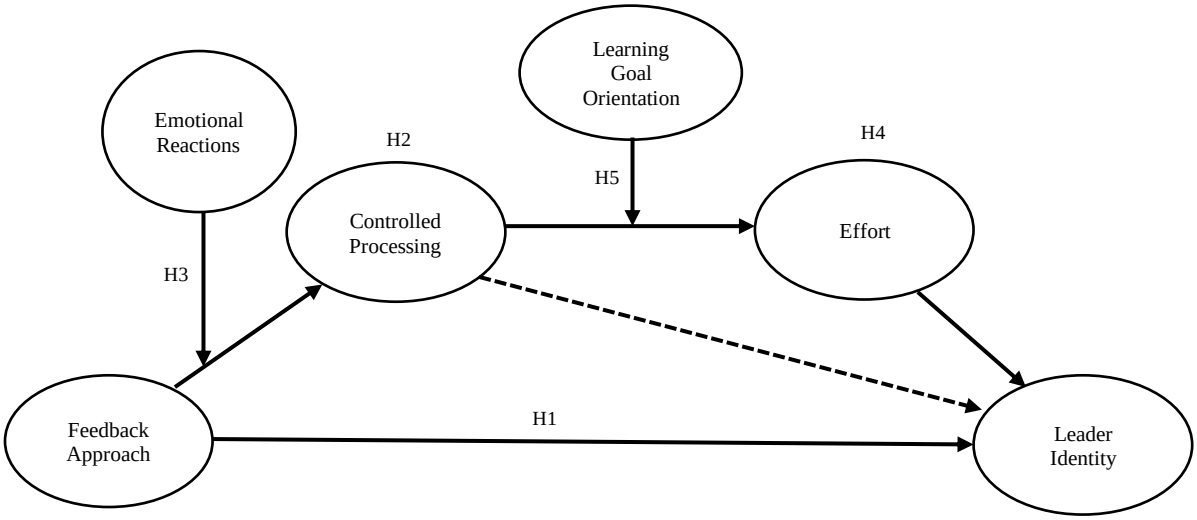
highlights the lens of the dual-process theories of cognitive thinking (Evans & Stanovich, 2013) and effort as competing explanatory mechanisms on how different feedback approaches influence leader identity. Overall, understanding feedback processes and consequences for leader identity can advance leader development research and practice in general, and more specifically, the use of feedback as a tool to support leader identity development.

This research aims to provide a better understanding of this complex feedback process by answering the following research questions: 1. How does the traditional deficits-based versus strengths-based approach affect the leader's level of information processing (i.e., controlled processing) differently? 2. How do these different feedback approaches impact leader identity? and 3. Under what conditions is this feedback process more effective in influencing leader identity?

To proceed, I propose a theoretical model (see Figure 1) along with specific hypotheses to examine this phenomenon. The model highlights a proposed process of the feedback impact on leader identity. I expect the relationship between feedback approaches and leader identity to be mediated by controlled processing (i.e., depth of information processing). However, this mediated relationship is expected to be influenced by emotional reactions. Furthermore, the impact of controlled processing on leader identity is likely explained by effort, as leaders invest time and energy in learning more about and making sense of the feedback, planning strategies to address feedback, or engaging in leader development activities. In this case, effort is expected to mediate the relationship between controlled processing and leader identity. In addition, learning goal orientation is proposed to moderate the controlled processing-effort relationship.

Figure 1

The Theoretical Model Illustrating the Feedback Process in Leader Identity Development with Proposed Hypotheses



Note. For simplicity, the effort variable is presented this way in one model. However, different operationalizations of effort (i.e., 1) in learning about the feedback area 2) in the development plan 3) in leader development activities) will be modeled separately during data analyses and hypotheses testing.

For the next section, I will discuss each part of the model in more detail, starting from the dependent variable, leader identity, and the feedback process involved in leader identity development. Then, I discuss two mediating mechanisms – controlled processing and effort, and two moderating variables – emotional reactions and learning goal orientation. Next, I propose two empirical studies to test the relationships in the proposed model using two different populations and research designs. The first study will test the entire model but also focus specifically on the mediating mechanism of controlled processing in the feedback approach-leader identity relationship, using a cross-sectional online experiment. The second study will also test the model, but will focus specifically on the second mediating mechanism, effort, which is operationalized by 1) effort in brainstorming ideas in the development plan and 2) engaging in

leader development activities, using a field experimental design. Finally, I briefly discuss potential theoretical and practical implications, and limitations of my proposed studies.

Chapter 2: Literature Review and Hypotheses

Leader Identity

In general, identity describes various meanings that individuals assign to self (Gecas, 1982). Identity is dynamic, context-dependent, and is part of a broader self-view construct, self-concept. Generally, one's self-concept refers to "a cognitive schema – an organized knowledge structure that contains traits, values, episodic and semantic memories about the self and controls that processing of self-relevant information" (Campbell et al., 1996, p. 141). This definition suggests that self-concept can evolve and develop over time. An identity is a form of the working self-concept (Brown, 2015; Lord & Brown, 2003), which is fluid and open to change; it varies when going through different experiences or following exposure to certain situational cues. Although the terms *self-concept* and *identity* are often used interchangeably, different identities are part of one's broader self-concept. Hammond and colleagues (2017) also pointed out one distinction between self-concepts and identities is that one's identity tends to change more quickly than one's self-concept, which gradually changes over time because self-concepts encompass different identities that one holds. Thus, the focus of identity in this research embraces the dynamic perspective of identity changes.

Identity can change when facing new situations that challenge one's assumptions and meanings of the self. Kegan (1982) discussed that meaning-making is a key activity of being human – any experiences, feelings, and perceptions will provide information to the meaning-making process. In any specific context, people have varying levels of identity based on how they interpret their experiences or how they make sense of situational cues. For example, identity is salient when people perceive a situational cue that is threatening to self (e.g., negative feedback regarding certain behaviors) and anticipate that it may harm their identity (Petriglieri,

2011). Thus, they begin to evaluate this information, which may weaken their current identity, or they may make sense of this new information and integrate it with their current identity to form a new one. In either case, this situational cue ultimately influences their identity.

Similarly, leader identity, in a broader sense, refers to leaders' self-definition or meaning about whether they are a leader and who they are as a leader (Rus, van Knippenberg, & Wisse, 2010). Leader identity helps leaders make sense of one's self by answering questions such as 'Who am I as a leader?', 'How will I relate to my followers?' and 'Who do other people know me to be?' (Brown, 2015; Ibarra, Wittman, Petriglieri, & Day, 2014). Internally processing this information helps leaders to navigate their expectations for and interactions with others, which ultimately contributes to the formation of leader identity.

Leader identity is a complex construct that can be broken down into different dimensions. Hammond and colleagues (2017) summarized four dimensions of leader identity, which include 1) strength – the level of self-identification as a leader; 2) integration – the level of integration across different domains ranging from domain-specific (i.e., I am a leader only at work) to fully integrated (i.e., being a leader is who I am); 3) the level of inclusiveness ranging from individual, to relational, to collective; and 4) meaning – the understanding the meaning of leadership ranging from leadership as dominance (low) to shared leadership (high). Although these dimensions may have different implications for the research and understanding of leader identity, one common assumption is that having higher levels of any of these dimensions is desirable for leader development (Day et al., 2009).

For the current research, I will focus on the strength dimension of leader identity as it would manifest first when one starts to think about their identity as a leader and begins to

integrate leader identity as part of their self-concept (Lord & Hall, 2005). The strength of leader identity might be most relevant to new leaders as they may or may not self-identify as leaders.

Leader Identity of New Leaders

New leaders refer to people who have limited leadership experiences or few opportunities to demonstrate leadership behaviors, and thus have a more dynamic leader identity. Based on this definition, new leaders may include but are not limited to employees in the organization that may be in a leadership position at one point in the future, or in the process of transitioning into a leadership role. Although leader identity may not be salient for new leaders, other personal or social identities (e.g., a team member in the organization or a family member) may be more salient and can help prioritize and drive behaviors in the organizations. For example, new leaders may only have a strong worker identity (i.e., seeing themselves as an effective worker). Thus, they will focus on their productivity as a worker and try to deliver and complete tasks, rather than focusing on effective leadership behaviors. In this case, these new leaders may not think that leadership behaviors are relevant for them to be an effective worker.

New leaders are considered novices in their leadership skill level. They can be trained to perform desirable leadership behaviors, and over time through feedback, their leader identity can be strengthened (Lord & Hall, 2005). Because new leaders do not yet have a cemented self-view of their leadership, their leader identities are more dynamic and open to change, compared to more seasoned leaders. With more experience, these new leaders will develop more complex relevant leadership knowledge, skills, and abilities (McCall, 2010) and have strengthened levels of leader identity. Consistent with this claim, Kragt and Guenter (2018) found that leader identity mediated the relationship between leadership training and effectiveness. However, the indirect

effect only occurs with inexperienced leaders. This finding suggests that leader identity matters significantly for new leaders.

Focusing on developing leader identity can be beneficial for both leaders and organizations. Leader identity is a proximal outcome of leader development processes (Day & Dragoni, 2015). Leader identity serves as the first step in the process of the ongoing development of leadership skills and capabilities as it directs attention toward engagement in leader development activities. When organizations provide leader development opportunities for new leaders, they often send the leaders to workshops or intensive training, which may enhance engagement in leader development processes temporarily. However, by focusing on leader identity development, organizations can be sure that these new leaders reap the benefits of training and further engage in other developmental opportunities even after the training has ended (Miscenko et al., 2017). Moreover, people who have a stronger leader identity tend to be more developmentally ready than other counterparts (Priest & Middleton, 2016). Therefore, it is important to understand the process of how leader identity develops.

Leader Identity Development

Leader identity changes over time (Miscenko et al., 2017) and develops throughout one's lifespan (Day et al., 2009). In fact, the process of identity development should be viewed as identity work (Brown, 2015), defined as an engagement in "forming, repairing, maintaining, strengthening or revising the constructions that are productive of a sense of coherence and distinctiveness" (Sveningsson & Alvesson, 2003, p. 1165). Similar to other developmental processes, leader identity development is dynamic and involves gains and losses. In other words, an individual's leader identity can be strengthened or weakened depending on the situation and how the leader processes information about the self at a particular moment. This perspective

suggests that leader identity development is an ongoing, intentional work that does not simply occur by performing leadership-related tasks and activities. Instead, reflection on and learning from various leadership experiences shape the development of leader identity. These experiences become impactful to leader identity when leaders successfully integrate what they learn regarding leadership aspects of themselves (Day et al., 2009).

Leader identity can form through leaders deriving meanings from different sources, such as role identities (e.g., manager, head of a community, mother; Stryker & Burke, 2000), group membership or social categories (e.g., gender, nationality, sport team; Hogg, 2001; Tajfel & Turner, 1986), social interactions and processes (e.g., formal evaluation from a supervisor, informal conversation with colleagues, receiving affirmation from subordinates; DeRue & Ashford, 2010), and personal identities (e.g., personality, personal values; McAdams, 2006). These different sources of identity have different underlying theoretical assumptions. For example, identity theory (e.g., the importance of role(s) that leaders take on) suggests that leaders derive their meanings from role identities; whereas, social identity theory (e.g., social categorization and leadership prototypicality) suggests that leaders derive meanings from group membership (Ibarra et al., 2014).

However, both identity theory and social identity theory suggest that leader identity develops through a specific reference (i.e., a formal leadership position or social category), which disregards the importance of social interactions and contextual cues (DeRue, Ashford, & Cotton, 2009). Instead, social construction theory highlights the importance of social interactions in shaping leader identity. As Ibarra and colleagues (2014) explain, social construction theory views leader identity as an ongoing process of acquisition, internalization, and validation of identity, which occurs through the continuous interactions between leaders and other people. The

focus of social construction theory on contextual cues aligns with the focus of this paper on the process of receiving feedback information and the subsequent effects on leader identity. Therefore, this paper primarily uses the lens of social construction theory and focuses on the process of how new leaders construct their self-view as a leader through situational cues, particularly information about their leadership.

Social construction theory suggests that leader identity can change through leader development interventions, such as feedback. Evidence supports that leader identity of new leaders can change over a relatively short period through interventions. One study found leader identity of business students over time followed a J-shaped pattern (Miscenko et al., 2017). Although several individual difference variables may account for this change, feedback may be a central component and implicit in this is an understanding that individual differences influence the way feedback is received and interpreted, impacting leader identity (Day & Dragoni, 2015).

Model of Feedback and Leader Identity

Leader development can occur through trigger events, or crises and important events in a leader's life that have an impact on the development of the leader (Avolio, 2005). Trigger events can be either positive or negative – both have important implications for developing leaders (Gardner et al., 2005). However, trigger events are not necessarily big events that have a tremendous impact – they can come in small dosages and can be positive (e.g., jolts in organizations; Roberts et al., 2005) as long as they impact how leaders think about their leadership, shaping their developmental processes. In this case, feedback triggers can influence leader identity, which is an important proximal outcome in leader development processes (Day & Dragoni, 2015).

Feedback sheds light on weaknesses and strengths of one's leadership capacities (Day et al., 2014; London, 2002), which then triggers the evaluation of self as it directs leaders' attention toward how they view themselves as a leader. This evaluation is shaped by whether the feedback received confirms or disrupts a leader's existing self-concept, which refers to "an individual's self-definition based on a relatively stable set of meanings, which are primarily constructed through interaction" (Hammond et al., 2017, p. 483). Although meta-analytic evidence suggested that effective feedback should focus on the task, rather than the self-concept (Kluger & DeNisi, 1996), it may be true only for performance improvement. Thus, it is possible that for developmental feedback, particularly ones that target leader identity, directing leaders' attention inward to the self is needed. When leaders process and try to make sense of feedback that triggers their attention on how they view themselves, leader identity may be strengthened or weakened. Leaders are information processors as they use their cognitive resources to process and make sense of feedback, which in turn, can influence their performance and behavior as a leader (Lord & Maher, 1993). Thus, it is important to understand what structure of feedback that strengthens or weakens leader identity and when.

Feedback Triggers and Leader Identity

Feedback refers to available information in the work context indicating how well individuals progress toward and meet their targeted goals (Ashford & Cummings, 1983; Rosen, Levy, & Hall, 2006). Feedback provides information and evaluation of leader behaviors, whether those behaviors are good or bad, right or wrong (London, 2002). In general, effective feedback focuses on task characteristics to target performance improvement (Kluger & DeNisi, 1996). For leader identity development, feedback should target the self-concept, or leadership behaviors, of

the recipient, which then serves as a trigger for self-evaluation and reflection on one's leader identity (Day et al., 2009; Hammond et al., 2017).

Feedback triggers that influence leader identity may come from many sources. One common form of feedback occurs when leaders go through a formal leader development program that provides an assessment of their leadership behaviors, such as a 360-degree assessment (London, 2002). Feedback, which comes from supervisors' and subordinates' ratings and comments on their behaviors, provides critical information that may or may not align with leaders' self-concepts. When leaders are cognitively processing this information and addressing the trigger, their identity begins to change (Hammond et al., 2017).

Both deficits-based and strengths-based approaches can serve as identity triggers. Traditionally, in feedback research, feedback is conceptually divided into two separate triggers separated by feedback signs – positive versus negative feedback. In this research, however, feedback sign can be considered as part of the broader construct, feedback approach, which varies based on the focus of feedback: deficits-based versus strength-based feedback.

The rationale behind framing feedback as deficits-based versus strengths-based feedback is that these two feedback approaches reflect how feedback is often provided in leader developmental contexts, but we do not know which approach is more effective if we only focus on one. For example, formal leader development programs often provide feedback on both areas of weaknesses and strengths. Although previous literature tended to examine the impact of feedback signs (negative versus positive feedback), describing feedback information on specific performance outcomes based on tasks, in reality, the feedback information itself may not necessarily be negative nor positive in tone or in the way it is written. We now know that feedback needs to be constructive to be effective in creating change, and constructive feedback

can include elements of positive and negative feedback (London, 2014). However, having access to feedback information that highlights both weaknesses and strengths in formal leader development programs can overwhelm leaders, making the feedback less effective in creating positive change. Also, new leaders do not have the opportunity to receive comprehensive feedback. Thus, the distinct effects of these two feedback approaches on leader identity are worth examining.

The impact of feedback on leader identity is not straightforward, especially when the recipients of feedback are new leaders. With limited experience and understanding of what it means to be a leader, new leaders often have not yet developed a complex cognitive process that helps facilitate and makes sense of feedback in terms of their leadership. Thus, the purpose of this research is to examine further the underlying process of how feedback impacts leader identity development of new leaders. As leaders need to make use of and internalize feedback, which requires cognitive processing, the dual-process model of cognitive thinking (Evans & Stanovich, 2013) serves as a mechanism explaining the effects of feedback triggers and their impact on leader identity.

The Dual Processing in the Feedback-Leader Identity Relationship

Because one's cognition is central to identity construction (Ashforth & Schinoff, 2016) and cognitive processing is influenced by feedback, I examine the feedback impact on leader identity using a cognitive theory – the dual-process theories: automatic and controlled processing. Automatic processing happens spontaneously, requires no control, and needs only a few cognitive resources in responding to feedback; whereas, controlled processing occurs intentionally and requires effortful control of cognitive activities such as interpreting, evaluating, or internalizing feedback (see Evans & Stanovich, 2013). The dual process is also known as

system 1 for automatic processing, which suggests a rapid cognitive process and links to emotions or intuition, and as system 2 for controlled processing, which emphasizes rational and slow thinking and reflective processing (Kahneman, 2003; Kahneman, 2011; Stanovich, 1999). Automatic processing occurs when leaders initially perceive and react to feedback, whereas, controlled processing is characterized as the depth of processing of feedback information when leaders start to engage deeper with the feedback information. In this research, automatic processing will not be conceptualized as a separate construct, but will be discussed as part of the perception of feedback approach, which can have a direct influence on leader identity.

Perception of Feedback Approach as Automatic Processing

In this context, automatic processing explains a leader's spontaneous cognitive process when receiving feedback. The perception of feedback approach occurs as part of automatic processing – they are habitual, nonconscious, and resource-free (Evans & Stanovich, 2013). In general, when people evaluate and compare feedback information with a certain standard, they perceive feedback as either positive or negative (Kluger & DeNisi, 1996). Whether or not leaders pay close attention to the feedback information, the automatic processing system is activated when receiving feedback triggers. Thus, automatic processing of two different feedback approaches (deficits-based vs strengths-based) has different implications on leader identity.

Deficits-based Feedback

Deficiencies refer to "ways of behaving, thinking, or feeling that do not come natural to an individual" (Meyers et al., 2015, p. 52). Traditionally, deficits-based feedback highlights leaders' weaknesses or deficiencies in leadership skills and behaviors, which are often identified by the discrepancy between certain standards and actual performance (Aguinis, Gottfredson, & Joo, 2012; Kluger & DeNisi, 1996). Deficits-based feedback challenges the recipient's

assumptions about self and provides opportunities for growth and reflection (Hammond et al., 2017), which often makes the perception of feedback negative. As a result, deficits-based feedback can have mixed effects (i.e., feedback is valuable and threatening at the same time), which influence information processing and learning (Zingoni & Byron, 2017). When going through automatic processing, deficits-based feedback, which focuses on negative aspects of the leaders, will weaken leader identity.

Strengths-based Feedback

Strengths are natural or developed capacities that allow people to achieve optimal functioning and pursue outcomes they value (Meyers et al., 2015). Strengths-based feedback refers to information about one's strengths (i.e., skills, behaviors) as a leader. Some suggest that the strengths-based approach to feedback is more beneficial for leaders than deficits-based feedback (Aguinis et al., 2012; Buckingham & Goodall, 2019). However, empirical evidence to support this claim is still lacking. Naturally, leaders tend to have positive emotional reactions when they receive strengths-based feedback, which often makes the perception of feedback positive. Unlike deficits-based feedback, strengths-based feedback focuses on complimenting or affirming leaders' existing strengths, which create positive emotions and thus inspire them to take actions in building relevant capacities as a leader (Fredrickson, 2001). Moreover, Spreitzer (2006) argued that focusing on strengths, or positive jolts in organizations stimulates growth and energize leaders in their developmental processes. These positive jolts, or positive feedback triggers in organizations can help increase self-knowledge and disrupt the current and automatic way of thinking (Roberts et al., 2005). For example, new leaders may receive praise from their supervisor that they are authentic in the way they communicate with other team members, which then strengthens their leader identity.

Receiving feedback focusing on strengths enhances leaders' positive self-views. According to self-enhancement theory (Leary, 2007), people tend to strive for positive, rather than negative self-views. Feedback that highlights one's strengths, or positive aspects of self, can affirm leaders' positive self-view that they are striving for, and thus leader identity is strengthened. Focusing on strengths-based feedback can be beneficial to the leader identity development of new leaders. On the one hand, it can reinforce their leader identity perceptions by highlighting strengths they already perceive. On the other hand, if they have not yet perceived their strengths, learning this information can build their confidence as leaders, and thus bolster leader identity. In both cases, strengths-based feedback is expected to have a positive impact on leader identity.

With automatic processing alone, the feedback approach will thus predict change in leader identity. Whereas deficits-based feedback highlights an undesirable state, strengths-based feedback signals a desirable state. With the initial perception of feedback messages, leaders may start to change how they perceive themselves as a leader. However, the impact of this processing should be low. A leader's automatic processing is spontaneous and temporary, and thus the effect might not be as strong.

Hypothesis 1: *(a) The perception of deficits-based feedback will relate to lower leader identity, and (b) the perception of strengths-based feedback will relate to higher leader identity.*

Both feedback approaches serve as important triggers in leader identity development because they can shed light on what leaders may not be aware of about themselves, which allows for space and opportunity to reflect and grow. As a result, feedback can shape leader identity. A key question here is: what approach is more impactful or more beneficial for leaders who are in

the early stage of their development? On the one hand, identifying deficiencies and understanding leadership gaps can motivate new leaders to take actions and attempt to address this gap. This process, in turn, may help them internalize feedback and further strengthen their leader identity in the long run. However, they may not be motivated and instead be paralyzed by these negative aspects of self (Spreitzer, 2006), especially when they have not yet developed and solidified their sense of self in terms of their leadership in comparison to seasoned leaders. On the other hand, focusing on strengths promotes learning and encourages leaders to take actions to develop these leadership strengths further (see Biswas-Diener et al., 2011), and thus their leader identity is likely bolstered. However, these positive jolts may be less impactful than deficiencies. In other words, small dosages of strengths-based feedback may not be enough to trigger effortful thinking and processing about feedback in a meaningful way, and thus no further actions occur.

Though I expect that automatic processing will have little impact on leader identity, I expect that what explains the impact of feedback on leader identity is the mechanism of controlled processing. Consistent with Lord and Maher's (1993) explanation, people do not just purely use one type of processing - most processing consists of the two types. In this case, the two types of processing are important in understanding how leaders process feedback information. Schneider and Shiffrin (1977) described automatic processing as a system that "is activated automatically without the necessity for active control or attention by the subject" (p. 2). Although all feedback, regardless of the approach, is automatically processed, what is important is the presence or absence of controlled processing. In other words, whether leaders have active control over or pay attention to feedback information matters.

Controlled Processing of Feedback

Controlled processing, which begins after the initial perception of feedback, is key to enhance the process of leader identity development. Controlled processing is effortful and reflective, which can counter the quick perception of feedback in automatic processing (Lord & Maher, 1993; Schneider & Chein, 2003). Leaders engaging in controlled processing are likely to be intentional and use effortful thinking to integrate feedback information with their perception of self, which may be key that shapes leader identity. Anseel and colleagues (2009) suggested that feedback is effective when people allocate enough cognitive resources and attention to process feedback information. This suggestion is why controlled processing is a key mechanism that explains whether or not feedback will impact leader identity in a meaningful way.

Controlled processing requires greater cognitive resources than automatic processing. Controlled processing capacity is strongly correlated with working memory capacity, which is limited and varies across individuals (see Barrett, Tugade, & Engle, 2004). Because of this limitation in leaders' attention and cognitive capacity, not all feedback information will be processed in-depth and, thus, making the feedback impact on leader identity trivial. However, when leaders use more controlled processing, the impact of feedback on leader identity is significant. Anseel and colleagues' (2000) experimental study provided support for this claim. Their results showed that feedback combined with reflection, as operationalized as depth of information processing (i.e., controlled processing) yielded the highest impact on subsequent performance. Aligned with feedback intervention theory (Kluger & DeNisi, 1996), when people receive feedback regarding specific tasks, they are more likely to direct their attention toward improving their performance subsequently. However, this theory only focuses on performance improvement and change but has little explanation to offer for how feedback impacts their

perception of self. In this case, we do not have clear evidence as to what happens to leader identity when leaders engage in higher levels of controlled processing.

According to the process described in the previous section, I expect that the feedback impact on leader identity should follow the perception of feedback approach (i.e., processing deficits-based (strengths-based) feedback weakens (enhances) leader identity). As previously discussed, with the hypothesized direct effect of feedback to leader identity, some leaders may stop at the automatic processing once they quickly evaluate the feedback. However, by going through controlled processing, leaders process feedback information in a more effortful way and think deeper about how the feedback message is relevant to their leadership self. Thus, the magnitude of the impact of feedback (either deficits-based or strengths-based) is higher. Therefore, controlled processing will partially mediate the relationship explaining how feedback affects leader identity.

> Hypothesis 2: *Controlled processing will partially mediate the relationship between feedback approach and leader identity. (a) The indirect effect of the negative perception of deficits-based feedback on leader identity through controlled processing will lead to lower leader identity; whereas, (b) the indirect effect of the positive perception of strengths-based feedback on leader identity through controlled processing will correlate with higher leader identity.*

So far, the proposed mediation model with these two hypotheses explains the feedback process in leader identity development using the cognitive perspective only. However, the cognitive process underlying the impact of feedback is complex and involves a lot of other variables. To get a fuller picture of how new leaders process feedback information, there are other individual differences variables needed to be examined further. In a seminal paper on

feedback, Ilgen, Fisher, and Tayler (1979) outlined the feedback process, starting with a feedback stimulus (in this case, either deficits-based vs. strengths-based feedback information) that triggers how people begin processing feedback, which ultimately influences how people would respond to feedback. They also suggested that several individual difference variables may moderate the effect of feedback. Although there are many possible moderating variables in the feedback-leader identity development process, I focus on two keys moderators that influence the relationship in two different stages. First, *emotional reactions*, as a first stage moderator, will positively moderate the feedback-controlled processing relationship. Second, *learning goal orientation*, as a second stage moderator in this mediation model, will moderate controlled processing-effort relationships (which will be discussed later).

Emotional Reactions as a Moderator

Emotional reactions, defined as the degree to which leaders react to feedback, plays an important role in leader identity development. When receiving feedback, leaders do not just process information cognitively – they also exhibit emotional reactions, especially when feedback contains information about the self (Ashford & Cummings, 1983; Besieux, 2017). Although there are potentially different predictors of emotional reactions, the discrepancy between the feedback and self-concept is likely a key that determines the level of intensity. Kluger (2012) discussed the perception of discrepancies between feedback and certain standards (in this case, a leader's self-concept) as an important mechanism explaining feedback reactions. When feedback is unexpected, or does not fit with how people view themselves, they are more likely to pay attention to feedback (London, 2002; 2003). In this case, when leaders perceive the discrepancy as high, they are likely to experience high intensity in their emotional reactions, regardless of whether the perception of feedback is positive or negative.

Leaders can experience high emotional reactions intensity when they receive and evaluate either negative or positive information. For negative information, consider leaders who perceive themselves as a leader but learn new information about their weaknesses as a leader. These leaders would have high emotional reactions intensity, which can bring their attention to focus on and process feedback more. Moreover, while it is intuitive to think that, when receiving feedback that highlights one's leadership strengths (i.e., positive information), the intensity level may be low. It may not always be the case, especially for new leaders receiving feedback information regarding their leadership. In this case, consider new leaders who have not yet perceived themselves to have certain leadership strengths. When they receive feedback highlighting those strengths and describing the impact of their leadership in the way that they have never thought of before, the discrepancy between feedback and self-concept becomes high, and thus they would experience a high intensity level, which then drives higher level of controlled processing.

In contrast, either information regarding leadership weaknesses or strengths will lead to less engagement in controlled processing when a leader's emotional reactions intensity is low. For example, imagine a leader who does not consider themselves as a leader (i.e., low level of strength in leader identity) and receives feedback on their weaknesses as a leader. In this case, such leaders are less likely to engage in controlled processing because the intensity level is likely to be low. This scenario is similar to leaders who already perceive themselves as a leader and receive feedback focusing on their strengths.

Emotional reactions matter because they can determine how likely it is that leaders will engage in controlled processing. A high, rather than low, intensity should make leaders process feedback more carefully. The feedback intervention theory suggests that people's attention is

limited – they will only pay attention to certain stimuli (Kluger & DeNisi, 1996). In other words, not all feedback information will go through controlled processing. High emotional intensity effectively serves as a condition that directs leaders' attention toward feedback, and thus controlled processing is more warranted.

Hypothesis 3: *Emotional reactions level of feedback will positively moderate the relationship between feedback approach and the level of controlled processing. When the intensity level is high, leaders would engage in higher levels of controlled processing compared to when the intensity level is low.*

Although effortful thinking and processing feedback information can shape the strength level of leader identity, this process only partially explains why leader identity changes. Based on the hypothesized relationships so far, strengths-based feedback triggers positive perception of feedback, which then strengthens leader identity; whereas, deficits-based feedback triggers negative perception of feedback, which then weakens leader identity.

However, deficits-based feedback does not always lead to weakened leader identity. According to control theory, cognitive or behavioral changes occur when people see the gap in their performance or behavior (Carver & Scheier, 1981). Deficits-based feedback highlights development gaps of one's leadership abilities and thus can create change in leader identity when a leader tries to do something about these gaps. More meaningful change in leader identity may come from changes in certain behaviors (i.e., effort invested in leader development behaviors). Next, I discuss the expectation that putting in more effort is a behavioral mechanism that helps explain the relationship between controlled processing and leader identity.

Effort

Effort refers to the extent to which leaders exert effort after processing feedback. Effort is a behavioral and motivational indicator of leaders taking action and doing something about feedback information they have processed. Although there are many ways that leaders exert effort in addressing feedback, three main operationalizations of effort will be considered in this research: 1) effort in learning more about the feedback area, 2) effort in leader development planning, and 3) effort in leader development activities.

First, effort in learning more about the feedback area refers to how leaders seek more information or try to learn more about the meaning of feedback. A meta-analysis showed both positive and negative feedback can positively enhance people's feedback seeking behavior (Anseel et al., 2015). When new leaders process feedback information on a certain leadership strength, say individualized consideration, they may not have complete information or a good understanding of what being high on individualized consideration means. Then, next time they see their colleagues, they might solicit more feedback and ask about specific instances in which demonstrate this leadership quality, or they simply may look up information online and learn about individualized consideration in that manner.

Second, effort in leader development planning refers to when leaders brainstorm ideas, set goals, and plan for specific strategies to address feedback. Goal setting or development planning is the means that transforms feedback information to behavioral changes (London, 2015), which can occur through either self-initiated or guided processes. For example, when new leaders receive feedback about their leadership, they may start thinking about what they can do with this feedback information. They may self-initiate this planning process by writing out these different ideas or talk to their peers about them. When leaders go through a formal assessment or

feedback process, they are often asked to set goals to address the feedback. The development plan then serves as support after the formal programs end (Guthrie & King, 2004). Then, lastly, effort in leader development activities refers to the extent to which leaders engage in leader development activities after processing feedback. Leaders may follow their formal plan (or ideas) by spending time and energy engaging in activities and attempt to address feedback. These processes represent how initial feedback can trigger different behavioral responses.

Feedback, both positive and negative, can guide behaviors (Anseel et al., 2015; London, 2015). Similarly, feedback that highlights negative aspects (deficits-based feedback) or positive aspects (strengths-based feedback) of leadership should influence leadership-related behaviors as well. In this case, the way feedback is processed can guide these different kinds of effort previously mentioned. Overall, although these three operationalizations of effort look slightly different, in terms of specific behaviors leaders engage in, it is expected that effortful processing of feedback information should have similar effects on these three behavioral indicators—controlled processing of feedback is expected to be positively associated with these efforts.

Having a high level of controlled processing (i.e., high depth of processing of feedback information) alone cannot completely explain why one's leader identity would be affected, especially with regards to why deficits-based feedback may positively impact leader identity. Instead, through effort, leaders make use of this information and expand their understanding of leadership after receiving feedback highlighting either their leadership weaknesses or strengths. By exerting more effort to learn about the area of feedback, new leaders can develop deeper cognitive structures that are relevant to leadership, which then positively shape leader identity (Lord & Hall, 2005). Previous experimental research has shown that when people processed and saw feedback information as valuable, they were more likely to exert greater effort (Zingoni &

Byron, 2017). In the same manner, I expect that leaders who try to make sense of feedback through high degrees of controlled processing will be likely to exhibit higher effort.

For deficits-based feedback, putting more effort means that new leaders internalize feedback and try to understand what the feedback means to them. Effort then serves as a mechanism that helps strengthen leader identity. Instead of ruminating and thinking negatively of information about their leadership weaknesses, which undermines their leader identity, they begin to question their leadership capabilities and attempt to understand what they are lacking. London (2015) explains that when people receive unfavorable feedback, in this case deficits-based feedback, over time, their defense mechanism wears down and they start to realize and see that they can do something about this weakness information.

By exerting more effort toward addressing feedback (e.g., making meaning of feedback, planning for and engaging in leader development activities), leaders have a more integrated understanding of what it means to be a leader, and can think about and experiment with different versions of their leadership selves (i.e., provisional selves; Ibarra, 1999). Broadening one's understanding of different leader identities can lead to stronger identification as a leader. Through feedback highlighting weaknesses or leadership gaps, the more leaders explore and internalize what it means to be a leader in different ways including what their ideal leader self would look like, the stronger their leader identity. Further, Ibarra and colleagues (2010) suggested that working through tasks or feedback can help refine one's possible selves (i.e., potential new leader identities), which play an important role in identity change as they can "act as attention screens and motivational devices, shaping one's interpretations of, and response to unfolding opportunities or constraints, and serving as incentives for future behavior" (p. 5). In this case, even when receiving negative feedback, through the mechanism of effort and the

different operationalizations used herein addressing feedback, leaders can still positively develop their leader identity.

For strengths-based feedback, leaders can expand their understanding of self, concerning their leadership and practice their leadership strengths. Engaging in strengths-based feedback—learning more about that feedback area, developing a plan to address feedback, or engaging in various developmental activities to further use their strengths—can build confidence and strengthen their identity. While leaders who receive feedback on their leadership gaps/weaknesses are more motivated to exert more effort in the feedback area to narrow down the gap and strive for the ideal self in this process, leaders who receive feedback on strengths deliberately use that information about their strengths to engender their identity further.

When leaders start to internalize and make sense of the information they acquire and craft their leader narratives, regardless of what type of feedback information they receive, feedback begins to positively shape leader identity (Day et al., 2009). Encouraging people to engage in thoughtful information processing is an effective intervention to learning (Smith & DeCoster, 2000). High levels of controlled processing should be positively associated with a higher level of effort. With different ways that leaders can exert effort toward addressing feedback, it is increasingly likely that leaders internalize feedback information further, which then can impact their leadership self-views. Thus, effort is expected to be a mediating mechanism, explaining how depth of feedback information processing impacts leader identity.

> Hypothesis 4: *Effort in (a) learning more about feedback area, (b) the development plan, and (c) leader development activities will mediate the relationship between controlled processing and leader identity such that controlled processing will be positively associated with effort and effort will be positively associated with leader identity.*

Although it is expected that when leaders engage in controlled processing of feedback, they would also exert effort in addressing feedback (through different ways mentioned previously), there are impactful individual differences that influence the likelihood of individuals putting in more (or less) effort, and one such difference that has been considered in this area is learning goal orientation.

Learning Goal Orientation as a Moderator

Goal orientation refers to a leader's preference and their worldview toward their performance and achievement situations (Dweck & Leggett, 1988). Two types of goal orientations are a learning goal orientation (LGO) and performance goal orientation. Leaders with a learning goal orientation "develop competence through expanding one's abilities by mastering challenging situations;" whereas, those with a performance goal orientation "demonstrate and validate one's competence by seeking favorable judgments and avoiding negative judgments" (VandeWalle et al., 2001, p. 629). Learning goal orientation and performance goal orientation are two distinct constructs (Payne et al., 2007), and I will focus on LGO for this research.

Goal orientation is related to implicit self-theories of ability. Self-theories of ability provide assumptions about the self that people hold regarding how malleable their ability is. There are two theories: the incremental theory (i.e., believing that one's ability is malleable and can change) and the entity theory (believing that one's ability is fixed and difficult to change; Dweck, 1999; Dweck & Leggett, 1988). Leaders with a learning goal orientation perceive their leadership capabilities as more malleable than leaders with a performance goal orientation (Day et al., 2009). Thus, a leader's perception regarding their achievement and development matters in the process of leader identity development.

In this study, LGO is hypothesized as a second stage moderator, moderating the relationship between controlled processing and effort. High LGO leaders are more likely to make use of feedback and do something about it, which results in more effort in learning more about feedback and spending time and energy developing a plan and implement strategies to develop their leadership capabilities. Goal orientation is linked to one's interpretation and perception of feedback (VandeWalle et al., 2001). LGO is positively associated with feedback utility (Whitaker & Levy, 2012), which suggests that leaders with high LGO tend to make use of feedback more. Even when feedback is unclear or does not provide enough information, these leaders are more likely to seek feedback (VandeWalle & Cummings, 1997; Payne et al., 2007).

It is expected that LGO will positively influence effort across all three operationalizations in a similar manner. LGO plays an important role in self-regulatory process (Day et al., 2009). Leaders with high LGO will strive to learn and expand their leadership capabilities. When processing feedback, they are more likely to focus on and find additional information that can help them learn to become a better leader, come up with plans and ideas to address feedback, and engage in developmental behaviors. As previously mentioned, even with feedback that highlights the gaps or leadership weaknesses, leaders with high LGO are more likely to view it as opportunities to develop as they believe that their leadership skills are malleable (Day et al., 2009), which is likely to motivate effort to act on feedback and improve (Zingoni & Byron, 2017). Thus, leaders who are high on LGO are more likely to exhibit more effort; whereas, leaders low in LGO are too worried about the feedback itself, which make them more defensive toward feedback information, and will end up not putting in effort toward addressing feedback.

Hypothesis 5: *LGO will positively moderate the relationship between controlled processing and effort such that leaders with high LGO are more likely to demonstrate*

high effort in (a) learning more about feedback area, (b) the development plan, (c) leader development activities than those with low LGO.

Chapter 3: Current Studies

The main purpose of this dissertation is to understand the impact of feedback on leader identity of new leaders. I examined this overarching question with two different empirical studies. First, I conducted a cross-sectional, online experimental study (Study 1) focusing primarily on testing the overall model fit and hypotheses. Specifically, I examined the link between feedback and leader identity through the mechanisms of controlled processing and effort in feedback area. Then, to supplement my findings in Study 1, I conducted a field experimental study design (Study 2) using an undergraduate student sample. Like Study 1, I tested the overall model fit and hypotheses, and focused specifically on testing hypotheses 4 and 5 (i.e., through controlled processing of feedback, how effort impacts leader identity). In this chapter, I described the Study 1 method and results, followed by the Study 2 method and results before discussing my findings of the two studies together in the next discussion chapter.

Study 1 Method

Study 1 examined the relationships between all variables in the proposed model. I designed a cross-sectional, experimental study using the Qualtrics online survey platform. I randomly assigned participants to different feedback conditions (i.e., deficits versus strengths feedback) and examined the feedback impact on leader identity, controlling for their baseline leader identity (pre-test).

Participants

I used the convenience sampling approach to recruit online participants from Amazon's Mechanical Turk (MTurk). Participants saw the recruitment information on the MTurk platform. They first responded to a short questionnaire to determine their eligibility. Participants who met the following inclusion criteria were included: 1) 18 years old or older; 2) fluent in English; 3)

currently live in the U.S. Moreover, participants in this study were new leaders, determined by years of leadership experience. I only included participants who did not hold a formal leadership position at the time of the study or had fewer than 6 years of leadership experience. The experiment simulated leadership-related tasks and activities for participants, so they temporarily became a leader. MTurk was an appropriate source of participants for this study because it provided access to younger adults (Paolacci & Chandler, 2014), who are less likely to hold formal leadership positions or have a lot of leadership experience.

Before data collection, I determined the appropriate sample size to have enough statistical power to detect significant effects in my proposed model by conducting a priori power analysis[1] using G*Power (Faul et al., 2009). According to the analysis, I required data collection to include at least 271 participants given the following parameters: multiple regression analysis (R^2 increase) with eight predictors in the model, $\alpha = .05$, small effect size (partial $R^2 = .06$), and $\beta = .85$. However, with the concerns regarding quality of data when using MTurk (see Buhrmester, Kwang, & Gosling, 2011), I collected more than the required sample size, a total of 467 participants, to ensure I could achieve the minimum sample size and required statistical power after cleaning data (e.g., removing bots, inattentive participants, and ineligible participants). I will discuss data cleaning processes in later in the data screening section. The final sample size after data screening was 280, which meets power requirements

Participants Demographics

MTurk participants in the final sample size were adults who live in the U.S. between 18 to 74 years old ($M = 36.99$; $SD = 12.00$). The gender of participants split evenly between male

[1] There are various ways to conduct power analyses for path analyses. I decided to use a power analysis approach based on linear regression analyses (see Hancock & French, 2013) as the statistical tests of paths in SEM and OLS regression are similar.

and female (female = 50.4%, male = 47.9%, non-binary = 0.4%, preferred not to answer = 1.4%). The majority of the sample identified themselves as White or European Americans (67.5%), followed by of Black or African Americans (11.4%). Fifty-seven percent of the sample had at least a bachelor's degree and above. Most participants were employed full-time (63.2%) with 12.6 years of work experience on average (*SD* = 10.57).

Through selection criteria, only participants who have six years or fewer of leadership experience were allowed to participate. Sixty-three percent of the sample did not have any previous leadership experience. The rest of participants had, on average, 1.15 years of leadership experience (*SD* = 1.72). On average, their direct reports ranged from 1 to 60 people (*M* = 8.06, *SD* = 9.87). I conducted an independent samples *t*-test between participants who had some leadership experience (n = 177) and participants who did not have some leadership experience (n = 103), on key variables in the study (e.g., leader identity, controlled processing). Participants who had some leadership experience differed significantly from those who did not have leadership experience. For instance, on average, those with some leadership experience had their baseline leader identity (*M* = 5.31, *SD* = 1.08) higher than those without leadership experience (*M* = 3.43, *SD* = 1.46; *t* = 11.35, *p* < .001, 95% CI [1.55, 2.20]). As a result, I controlled for leadership experience in all subsequent analyses.

I randomly assigned participants to one of the four study conditions. After data screening, the number of participants in each condition was: deficits-based feedback condition = 58; strengths-based feedback condition = 83; mixed feedback condition = 76; control condition with no feedback = 63.

Procedures

Following the procedures flow chart (see Figure 2 for the procedures flow chart of Study 1), participants, who met the inclusion criteria specified above, completed questionnaires measuring their baseline leader identity (pre-test) and LGO before the experiment. Then, they went through an email communication exercise. In this exercise they responded to four emails as a fictitious manager. For each email, they rated how likely they were to use each of the four email replies (see Appendices A, B, C for more details on the exercise used in this study). To ensure experimental realism, I included a statement emphasizing that the exercise they were doing was widely used to test leadership capabilities, and the information in the report they received was valid and supported by research.

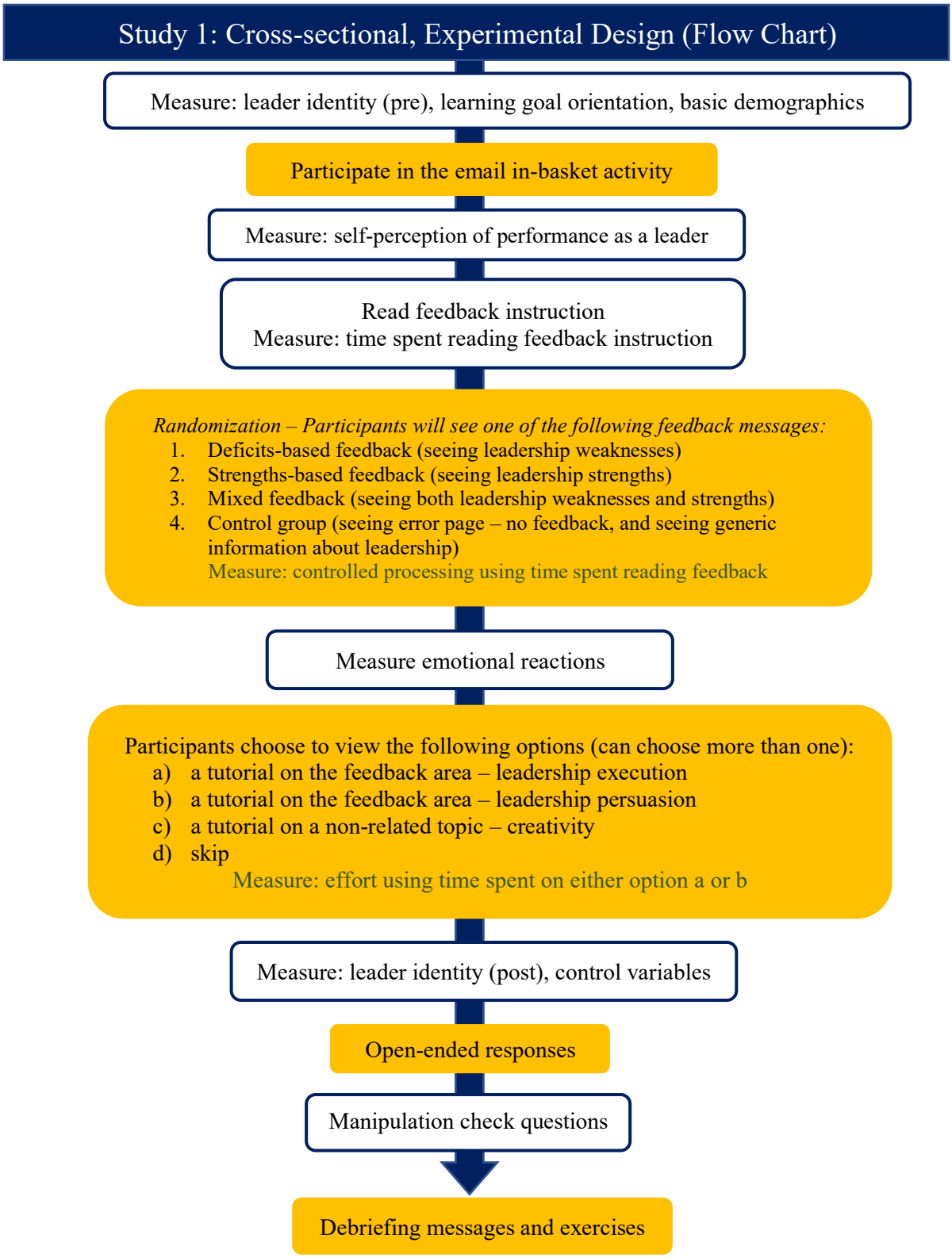
Upon completion of the exercise, I randomly assigned participants to one of four conditions—deficits-based feedback, strengths-based feedback, mixed feedback, and control conditions. Those who received feedback (i.e., the first three conditions) saw one of the leadership feedback messages. Feedback messages presented to participants were fabricated and did not assess their actual leadership abilities but instead highlighted some aspects of leadership weaknesses, strengths, or both, depending on their assigned condition. Participants in the control condition received general information about the leadership areas assessed in the simulation with no specific feedback (see Appendix D for feedback messages for all four conditions).

Participants received and read their respective feedback message, which I used this duration of reading as an indicator of their cognitive controlled processing (i.e., depth of processing). After receiving the feedback, participants reported the intensity of their emotional reaction on different emotions they were experiencing. Then, they had an opportunity to view an additional tutorial on the feedback area (i.e., an area of one's leadership topic mentioned in

feedback) or a non-related topic (i.e., creativity), which I used as an indicator of effort. Next, they reported their leader identity (post-test) and responded to demographic questionnaires and manipulation check questions. At the end of the study, I presented participants with a debriefing message (see Appendix E). The debriefing message explains that the leadership feedback they received was fabricated. This message was followed by short debriefing exercises to reduce potential negative consequences from ego-threatening feedback (see Miketta & Friese, 2019), especially those in the deficits-based feedback condition. The debriefing exercises included the following steps: 1) confirming that participants understood that the feedback message was fabricated, 2) writing a short response on what it would have felt like if they had received other feedback messages, 3) thinking for one minute about a time when they were praised by someone and writing a response about it, and 4) reading a message thanking them for their time. Finally, participants received compensation for their time, including $2.75, additional resources about leadership, and free download PDF files of infographic tutorials they viewed earlier in the study.

Figure 2

Study 1 Procedures Flow Chart



Measures

Leader Identity

I used a 4-item measure of leader self-identity (Hiller, 2005). Past researchers have used this scale to examine leader identity (e.g., Day & Sin, 2011; Miscenko et al., 2017). A sample item included "I see myself as a leader," and there were no reverse-coded items. Participants responded to the items using 7-point Likert scale response options ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). I averaged scores across all four items to create a composite variable of leader identity. Higher scores indicated greater leader identity strength, and this scale showed good internal consistency across two studies (α = .89-.95). I also controlled for pre-test scores as their baseline level of leader identity.

Emotional Reactions

Following previous studies measuring emotional reactions (Belschak & Den Hartog, 2009; Fisher, 2000; Kluger, Lewinsohn, & Aiello, 1994), a list of 12 emotions (both positive and negative emotions) was used to measure the intensity level of these emotions. I asked participants to rate how they experienced these emotions at the moment, right after reading feedback. Sample emotion items included surprised, nervous, sad, pleased, and excited. Participants responded to 7-point Likert scales ranging from 1 (*extremely weakly*) to 7 (*extremely strongly*). I averaged the scores within their respective positive or negative category to create composite variables. Both emotion scales showed acceptable reliability (positive emotions, α = .82; negative emotions, α = .90). High scores represented a high-intensity level of their respective emotion categories.

Controlled Processing

I measured control processing (depth of information processing) using time spent reading the feedback report in seconds (controlling for time spent reading feedback instruction). Adapting from the reaction time methodology (Schneider & Shiffrin, 1977) in cognitive psychology research, longer time spent was indicative of a greater depth of processing, and thus greater engagement in controlled processing.

Effort

Following questionnaire completion after receiving feedback, participants chose to A) view a tutorial on the feedback area; B) view a tutorial on a non-feedback area (i.e., creativity); or C) skip this entirely. Similar to the approach Zingoni and Byron (2017) used, I measured effort using time spent viewing the tutorial on the feedback area (option A). If participants chose options B or C, I coded their effort as 0. Then, I used the mean score (M = 28.92) of time spent viewing the tutorial(s) as a cutoff to divide participants who chose option A into two groups: low effort (below cutoff) coded as 1, and high effort (above cutoff), coded as 2. There were 187 participants in the no effort group, 42 participants in the low effort group, and 51 participants in the high effort group. This measure reflected the first operationalization of effort in learning more information about the feedback area. The other two operationalizations of effort are in Study 2.

Learning Goal Orientation

I used VandeWalle's (1997) 6-item scale to measure learning goal orientation (LGO). An example item is "I truly enjoy learning for the sake of learning." Participants rated each item on a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Then, I computed

the scores by averaging all six items to create composite scores. High scores indicated that participants had high LGO. The scale showed a good internal consistency (α = .81 - .89).

Control Variables

Leadership Experience. Seasoned leaders tend to have a more complex leader identity than new leaders (Lord & Hall, 2005). Although participants in this study should not be in a formal leadership position at the time of the study, they might have years of experience doing leadership-related activities, which can influence leader self-perceptions. Thus, I controlled for leadership experience with the following question: "Of all positions you have had in the past, how many years of leadership experience have you had?"

Need for Cognition. Need for cognition refers to the tendency to engage in effortful cognitive processing and enjoy doing it (Cacioppo & Petty, 1982). People high in need for cognition tend to think more carefully and process information more effortfully (Cacioppo et al., 1996). Thus, I controlled for the need for cognition as an individual difference variable, which could potentially influence the feedback-controlled processing relationship. I used Cacioppo and colleagues' (1984) short scale (18 items) to measure the need for cognition. However, due to practical limitations related to survey length, I used a shortened version of the scale comprised of nine non-reverse coded items. Sample items include: "I would prefer complex to simple problems" and "I find satisfaction in deliberating hard and for long hours." Response options ranged from 1 (*strongly disagree*) to 7 (*strongly agree*). I computed the scores by averaging all nine items. High scores indicate a high need for cognition. The scale demonstrated strong internal consistency (α = .90 - .93)

Personality Traits. Certain personality traits correlate with leadership emergence. Meta-analytic evidence suggested that, for example, extraversion and conscientiousness are associated

with leadership emergence (Ensari et al., 2011; Reichard et al., 2011). Moreover, personality traits like conscientiousness can influence feedback reactions (London, 2015). Thus, I controlled for extraversion and conscientiousness as they may influence behaviors and cognitive processing of information regarding leadership. I used three extraversion items and two conscientiousness items from Hahn and colleagues (2012) and two conscientiousness items from Olaru and colleagues (2015). I tried to limit the number of survey items and my overall survey length to minimize participant burden. I computed extraversion and conscientiousness scores by averaging within the respective subscales, with higher scores denoting higher levels of extraversion and conscientiousness. Both extraversion (α = .75 - .83) and conscientiousness (α = .67 - .76) subscales showed acceptable reliability.

Experimental Instruments

Email Communication Exercise

I adapted the email in-basket exercise from Anseel, Lievens, and Schollaert's (2009) empirical research to create the email communication exercise for Study 1 (see Appendices A-C for details about the exercise). In this exercise, participants were assigned the role of a manager in a fictitious organization. They read task instructions and relevant information (i.e., background information, information about who they are in this exercise, organizational chart). Then, they began the exercise by reading four emails and assessing email replies. For each email, they saw four possible email replies and rated each reply on their likelihood of using it to respond to each email on a 5-point Likert scale ranging from 1 (*very unlikely to use*) to 5 (*very likely to use*). I did not use scores on these responses in the data analysis of this study.

Feedback Messages

After completion of the task, participants received feedback based on their randomized condition. The four conditions included deficits-based feedback, strengths-based feedback, mixed feedback, and no feedback (control condition). To examine the unique effects of different feedback approaches, I separated the feedback content – one focusing on weaknesses, the other focusing on strengths. The mixed feedback condition was also included as a comparison group to get a full understanding of the feedback impact but was not part of the hypothesis testing in this study[2]. This way, the results may inform best practices in how to provide feedback to new leaders. Although I told participants in the instructions that feedback came from the programmed assessment of their performance, the feedback was fabricated and provided based on experimental conditions.

Each feedback message (except the control condition) included two leadership dimensions (leadership execution and leadership persuasion) on which participants were told their leadership skill assessments were based. The feedback message for the deficits and strengths feedback conditions was that both leadership dimensions were weaknesses or strengths, respectively. The feedback message for the mixed feedback condition was that leadership execution was a weakness, and leadership persuasion was a strength (see Appendix D for specific messages used in the study). As the length of feedback could influence participants' time spent reading the message, an important variable in the study, I ensured similar word counts for each feedback message (150-155 words).

[2] Mixed feedback was only included in Study 1.

Manipulation Checks

I used three questions as manipulation checks for the feedback approach. Two questions were for two specific areas of leadership feedback, and one was for overall leadership ability. The questions were as follows: 1) "the feedback I received showed that leadership execution is my strength as a leader;" 2) "the feedback I received showed that leadership persuasion is my strength as a leader;" and 3) "the feedback I received showed that I demonstrated overall strengths as a leader." Participants responded to these items on a five-point Likert scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Participants in the deficits-based feedback condition should demonstrate low scores (toward *strongly disagree*); whereas, participants in the strengths-based feedback condition should demonstrate high scores (toward *strongly agree*). I also read their reflections and open-ended responses to ensure that they received the correct feedback. Participants who failed manipulation checks were removed. I will provide more details on the results of the manipulation check in the next section.

Study 1 Results

Data Cleaning

I cleaned my data following these steps. First, I identified robots by reading through qualitative responses of all participants and removed responses that either did not make sense (e.g., typing random numbers), or copied qualitative texts from somewhere else (*removing 54 cases*; 11.6% of initial sample). Second, I identified low-quality data or inattentive responses by removing participants who had the same quantitative response patterns across all questions (e.g., responded with all strongly disagree or agree across statement), spent less than three seconds reading the instructions, completed the entire study faster than 10 minutes, and/or indicated at the end that researchers should not use their data due to low quality (*removing 55 cases*, 11.8% of

initial sample). Lastly, I *removed a total of 78 cases* (16.7% of initial sample) who failed the manipulation checks (e.g., participants who received strengths feedback responded strongly disagree or disagree on the manipulation check questions above or participants who received deficits-based feedback responded strongly agree or agree to the questions). There was no missing data on key variables in the final sample (N = 280).

I examined the differences between participants who failed and passed manipulation checks. I conducted an independent samples *t*-test between participants who were screened out due to failed manipulation checks (N = 78) and who were included in the final sample (N = 280), on key variables in the study. I found that participants significantly differed on most key study variables (i.e., leader identity, controlled processing, time spent reviewing tutorials). For example, on average, those who were excluded reported significantly higher level of leader identity after receiving feedback (M = 5.28, SD = 1.20) than the final sample (M = 4.25, SD = 1.69; t = 6.16, p < .001, 95% CI [.697, 1.355]). Results suggested that these two groups differed significantly, supporting my reasoning for removing people who failed manipulation checks. Thus, the final sample size with high-quality responses that passed manipulation checks was 280, which was still larger than the determined sample size based on the power analysis, as discussed previously.

I also checked statistical assumptions of relevant variables before proceeding to analyze my data. Most variables' skewness and kurtosis values were acceptable, and between -1 to 1 (Tabachnick & Fidell, 2007). Negative emotions variable had a positive skewness of 1.99 and kurtosis of 4.17, showing that many people tended to have low levels of negative emotions. I used a square root transformation, bringing skewness and kurtosis values down to 1.45 and 1.64, respectively, which was still acceptable (Finney, DiStefano, & Kopp, 2016). As a time variable,

the controlled processing variable differed from other Likert scale variables, resulting in positively skewed distributions with high kurtosis of 51.39. To maintain statistical power, I winsorized three extreme outliers (i.e., three standard deviations above the mean) by replacing them with the highest acceptable value within three standard deviations, which brought down Kurtosis to 4.42. Then, I applied a square root transformation to transform data (Tabachnick & Fidell, 2007), making this variable normally distributed (Skewness = .18, Kurtosis = -.17).

For the effort variable, I converted a continuous, time variable to a categorical variable of effort. About half of participants chose not to view any tutorials (including the irrelevant tutorial topic), making a positive skew in the distribution and violating univariate normality assumptions. So, as mentioned in the measures section, I instead grouped participants into the following three effort categories: a) no effort, 0: participants who chose not to view any relevant tutorials; b) some effort, 1: participants who viewed at least one relevant tutorial and spent viewing tutorial(s) shorter than the mean, and c) high effort, 2: participants who viewed at least one relevant tutorial and spent time viewing tutorial(s) longer than the mean. With data cleaning complete, I proceeded to analyze data and test the hypotheses.

Descriptive Statistics and Correlation Matrix

I present means, standard deviations, Cronbach's alphas, and intercorrelations of all variables in the study in Table 1. As proposed, time spent reading feedback was an indicator of controlled processing.

As expected, leader identity at time 0 (before feedback) was highly correlated with leader identity at time 1 (after feedback; $r = .93$, $p < .001$). Need for cognition, years of leadership experience, extraversion, and conscientiousness positively correlated with leader identity at both

time points, providing support for the decision to control for these variables in my analysis[3]. However, the strong correlation between need for cognition and LGO (r = .71, p < .001) suggested there may be a collinearity issue. Therefore, I removed need for cognition from all subsequent analyses[4]. Surprisingly, controlled processing and effort (as a continuous variable) negatively related with leader identity (r = -.16, p = .008, r = -.28, p = .004, respectively). These correlations suggested that in general, when participants spent more time processing feedback, and more effort toward viewing relevant leadership tutorials, they tended to report lower levels of leader identity.

[3] Significant correlational relationships of control variables with variables of interest were controlled for in subsequent analyses.

[4] I also conducted a sensitivity analysis, comparing the model that included versus excluded need for cognition as a control variable. Results showed little changes in fit statistics (ΔAIC = .670; ΔBIC = 2.030) indicating similar model fit and parameter estimates were similar.

Table 1

Study 1: Means, Standard Deviations, Cronbach's Alphas, and Correlations among Variables

Variables	1	2	3	4	5	6	7	8	9	10	11
1. Leader Identity (T_0)	**.95**										
2. Leader Identity (T_1)	.93***	**.95**									
3. Controlled Processing [a]	-.19***	-.17**	-								
4. Effort	-.13*	-.13*	.20**	-							
5. Negative Affect [a]	.04	.01	-.15*	.12*	**.90**						
6. Positive Affect	.36***	.48***	-.01	-.07	-.15*	**.82**					
7. LGO	.39***	.40***	.09	.08	-.18**	.35***	**.89**				
8. Need for Cognition	.27***	.28***	.08	.12	-.19**	.32***	.71***	**.93**			
9. Leadership Exp	.50***	.48***	-.17**	-.02	.01	.20***	.19**	.22***	-		
10. Extraversion	.49***	.52***	-.02	-.05	-.09	.32***	.37***	.25***	.26***	**.83**	
11. Conscientiousness	.32***	.36***	.05	-.07	-.12*	.32***	.35***	.19**	.13*	.36***	**.76**
Means	4.12	4.25	6.51	.51	1.27	3.65	5.55	5.12	1.15	3.99	5.59
SDs	1.61	1.69	2.18	.79	.34	1.39	.91	1.13	1.72	1.50	1.05
n	280	280	280	280	280	280	280	279	280	277	277

Note. *** $p < .001$, ** $p < .01$, * $p < .05$. The bolded values along the diagonal represent Cronbach's alpha.

T_0 = Before feedback; T_1 = After feedback; LGO = Learning Goal Orientation; Leadership Exp = Leadership experience. [a] Square root transformed variables.

Hypotheses Testing

To test my model and hypotheses, I conducted bootstrapped (5000) path analyses, using the Lavaan package in R (Rosseel, 2012) with the Maximum likelihood estimator to determine effect sizes, *p*-values, and confidence intervals of each path. Path analyses are appropriate because they can examine all relationships together in one comprehensive model. Additionally, bootstrapping is beneficial because it increases statistical power and reduces Type I error rates (Preacher & Hayes, 2008).

Before testing hypotheses 1-5[5], I first examined the model fit by assessing fit statistics, including chi-square, chi-square/df ratio, comparative fit index (CFI), Tucker-Lewis coefficient (TLI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR). Kline (2016) provided recommendations for these fit indices as followed: CFI ≥ .95 (and TLI), SRMR ≤ .08, RMSEA ≤ .10 (but also consider the value of 90% confidence interval). If these fit statistics are at a satisfactory level, then the proposed theoretical model (see Figure 3) was adequately representative of data. Then, I proceeded to test hypotheses 1-5 by examining the path coefficients and the bootstrapped indirect effects for the hypothesized relationships.

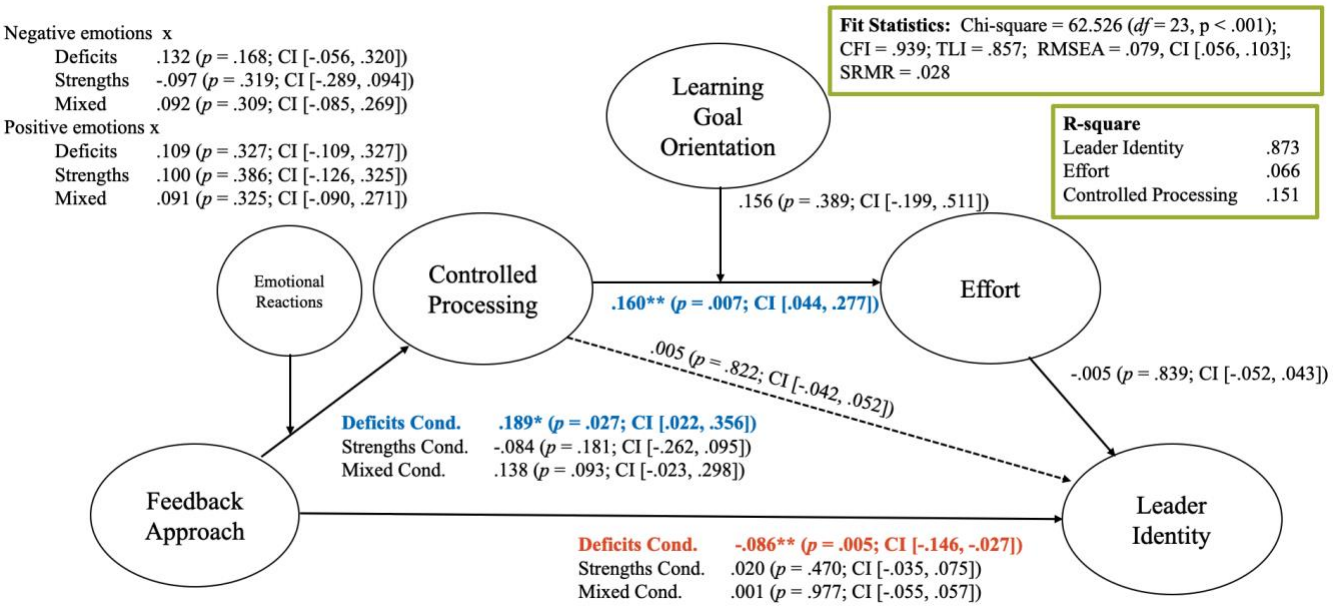
Figure 3 shows the path model with standardized *beta* coefficients, *p*-values, and 95% confidence intervals. The model explained about 87.3% variance in leader identity, 6.6% variance in effort, and 15.1% in controlled processing[6].

[5] For hypotheses 4 and 5, Study 1 examine hypotheses 4a and 5a; whereas, Study 2 will examine hypotheses 4b, 4c, 5b, and 5c as there are multiple operationalizations of effort used between the two studies.

[6] As expected, variances explained are much lower when removing control variables, especially when removing leader identity at the baseline level. It is important to note that leader identity at the baseline level also influenced leader identity and controlled processing of feedback, which was controlled for.

Figure 3

Study 1: Full Hypothesized Model with Path Coefficients and Relevant Statistics



Note. Blue font: Significant positive path; Orange font: Significant negative path. None of the indirect paths were significant.

Model Specification and Fit

I specified paths in the full model as in Figure 3 with mediators, moderators, and control variables included. The results suggested that overall model fit was acceptable (Kline, 2015; Schreiber et al., 2006) based on the following fit statistics: χ_2 (23) = 62.526, $p < .001$; χ_2/df = 2.72; CFI = .939, TLI = .857, SRMR = .028, RMSEA = .079, 90% CI [.056, .103]. Most of the fit statistics were at the acceptable level (or came close to it). For example, the ratio of χ_2 to *df* was lower than 3, SRMR is lower than .08, and RMSEA is lower than .08, which indicated acceptable fit. CFI was close to the acceptable level of .95. However, TLI is also lower than the acceptable fit index of .95, which was mainly due to how I specified positive and negative emotion variables as moderators. Later, when I changed and specified these variables as mediators instead, TLI increased (this will be explained further). Taken together with other fit

statistics (with the exception of TLI), it is reasonable to conclude that overall the data fits the model well.

Feedback and Leader Identity

I first sought to examine the impact of the feedback approach on leader identity (hypothesis 1). Results showed that compared to the control condition[7], the deficits-based feedback condition significantly negatively influenced leader identity (β = -.09, *SE* = .03, *p* = .005, 95% CI [-.146, -.027]). This finding means that participants who received deficits-based feedback were more likely to have lower leader identity than those who did not receive feedback at all. However, the strengths-based feedback condition (β = .02, *SE* = .03, *p* = .470, CI [-.035, .075]) and the mixed feedback condition (β = .00, *SE* = .03, *p* = .977, CI [-.055, .057]) did not significantly predict leader identity after feedback. Thus, hypothesis 1a, *the perception of deficits-based feedback will relate to lower leader identity, was supported.* However, hypothesis 1b, *the perception of strengths-based feedback will relate to higher leader identity*, was not supported.

Controlled Processing

I then examined controlled processing as a mediating mechanism between feedback approaches and leader identity through indirect effects. Results showed that although some total effects were significant, none of the indirect paths were significant. Then, I proceeded to examine paths between feedback approaches and controlled processing. As expected, I found that deficit-based feedback significantly positively predicted controlled processing (deficits: β = .19, *SE* = .09, *p* = .027, 95% CI [.022, .356]). Additionally, although the mixed feedback path was not significant in the full model (mixed: β = .14, *SE* = .08, *p* = .093, CI [-.023, .298]), when

[7] Each condition is dummy-coded using the control condition as a referent group.

excluding moderating variables from the model, I found that mixed feedback also positively predicted controlled processing (mixed: β = .16, *SE* = .07, *p* = .023, CI [.022, .298])[8].

These results suggest that receiving leadership feedback that highlighted either one's weaknesses or weaknesses and strengths influenced people to spend more time processing feedback information. However, this was not the case for strengths-based feedback—participants who received leadership feedback focusing on their strengths were less likely to spend time processing feedback (β = -.08, *SE* = .09, *p* = .359, CI [-.262, .095]). Although the path from feedback approach to controlled processing was significant for at least one condition, the direct path from controlled processing to leader identity was not significant (β = .01, *SE* = .02, *p* = .822, CI [-.042, .052]), suggesting that processing information by spending more time reading feedback alone did not necessarily influence participants' leader identity. Thus, hypothesis 2, *controlled processing will partially mediate the relationship between feedback approach and leader identity,* was not supported as indirect effects were not significant. Therefore, hypothesis 2a, and 2b were not supported as well.

Interestingly, when examining control variables, I found that controlled processing was negatively influenced by leader identity at the baseline level (before reading feedback; β = -.23, *SE* = .08, *p* = .006, CI [-.393, -.066]), suggesting that participants who initially perceived themselves as a leader tended to spend less time processing their leadership feedback..

Effort

Next, I examined effort as a mediating mechanism between controlled processing and leader identity through indirect effects. Results showed that none of the indirect paths were

[8] The mixed feedback condition in this study was a comparison condition that was added to give more information about the differences between the deficits- and strengths-feedback. I did not hypothesize this condition and this result was exploratory.

significant. However, results showed that controlled processing significantly positively related to effort (β = .16, *SE* = .06, *p* = .007, 95% CI [.044, .277]), but effort did not significantly relate to leader identity (β = -.01, *SE* = .02, *p* = .839, CI [-.052, .043]). Thus, Hypothesis 4a, *effort in learning more about feedback area will mediate the relationship between controlled processing and leader identity such that controlled processing will be positively associated with effort and effort will be positively associated with leader identity,* was not supported.

Moderation

Next, I tested hypotheses 3 and 5 by examining the interaction effects specified in the model. The results indicated that the interaction effects from moderating variables were not significant (see Figure 3 for effect sizes). Thus, hypothesis 3 (*emotional reactions level of feedback will positively moderate the relationship between feedback approach and the level of controlled processing)* and hypothesis 5 (*LGO will positively moderate the relationship between controlled processing and effort such that leaders with high LGO are more likely to demonstrate high effort*) for this study were not supported.

Exploratory Analysis

Although emotional reactions to feedback did not moderate the relationship between feedback approaches and controlled processing as proposed, correlations between emotions and other relevant variables (e.g., leader identity, controlled processing; see Table 1) showed that there might be a possibility of emotions mediating rather than moderating these relationships. I conducted an exploratory analysis with positive and negative emotions as mediators of the relationship between the feedback approach and controlled processing. However, I found that data fit better when positive and negative emotions mediated the relationships between feedback approach and effort, instead of controlled processing. Thus, I present path analysis coefficients in

the revised model (see Figure 4). Examining different fit statistics, this revised model's goodness-of-fit had a better fit than the proposed model with the following improved fit statistics: χ_2 (5) = 8.681, p = .122; χ_2/df = 1.74; CFI = .995; TLI = .953; SRMR = .016; RMSEA = .052, 90% CI [.000, .108]. For example, both CFI and TLI value increased and was higher than the .95 cutoff. The ratio of χ_2 and *df,* SRMR, and RMSEA were lower than the previous model, indicating a better fit. These fit statistics suggested that this model provided a more accurate representation of the data and the relationships between variables than the proposed model.

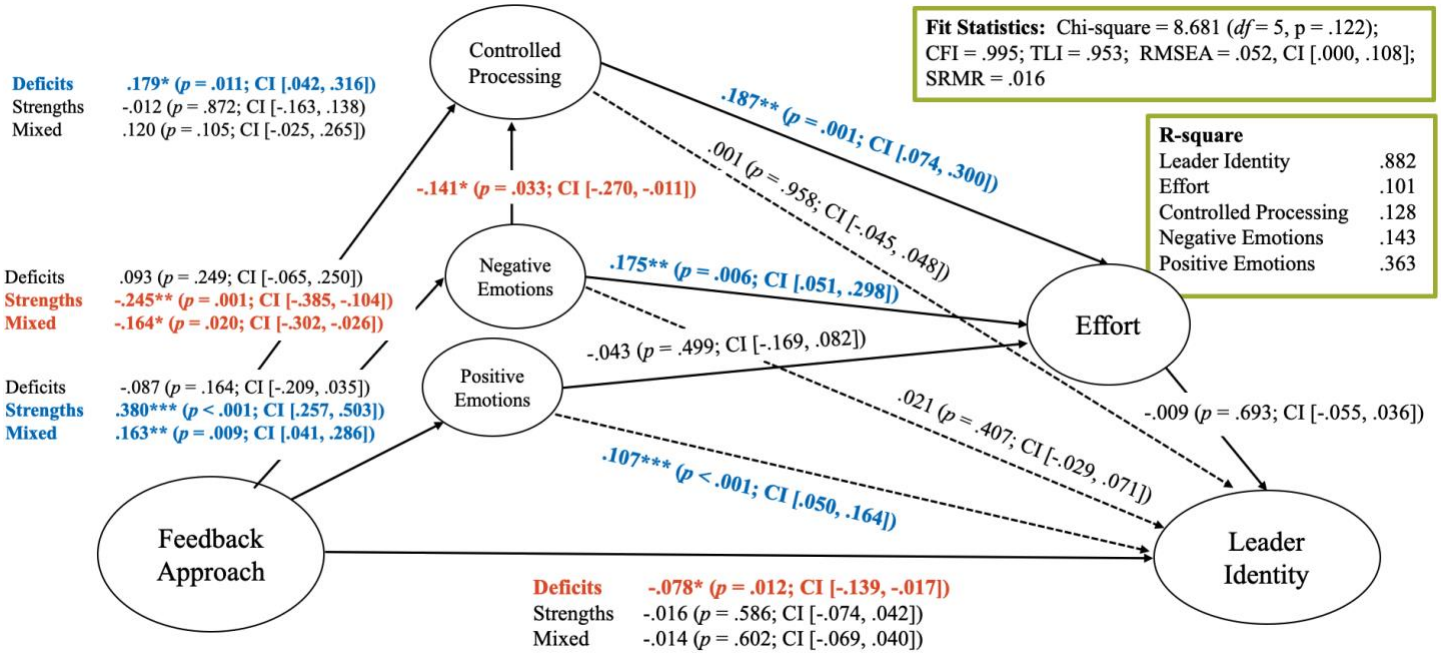
Results from this exploratory model showed similar patterns from the proposed model, with a few noteworthy exceptions (see Figure 4). First, as expected, participants who received strengths-based feedback or mixed feedback tended to report higher level of positive emotions (β = .38, *SE* = .06, p < .001, 95% CI [.257, .503]; β = .16, *SE* = .06, p = .009, CI [.041, .286], respectively) and report lower level of negative emotions after reading the feedback (β = -.25, *SE* = .07, p = .001, CI [-.385, -.104]; β = -.16, *SE* = .07, p = .018, 95% CI [-.302, -.026], respectively) than participants in the control conditions. In contrast, participants who received deficits-based feedback tended to report lower levels of positive emotions and higher levels of negative emotions, though effect sizes were small and not significant. Interestingly, negative emotions had a significant positive impact on effort (β = .18, *SE* = .06, p = .006, CI [.051, .298]), but positive emotions did not. Negative emotions also had a significant negative impact on controlled processing (β = -.14, *SE* = .07, p = .033, CI [-.270, -.011]) [9], but positive emotions did not (this path was excluded from the analysis to improve fit). Controlled processing also remained a significant predictor of effort, though the effect size was smaller (β = .19, *SE* = .06, p

[9] When removing this negative emotions-controlled processing path and instead controlling for negative emotions in the feedback approach-controlled processing-effort path, results remain consistent, except mixed feedback became significant in predicting controlled processing (b = .60, *SE* = .30, p = .044, CI [.118, 1.432]).

= .001, CI [.074, .300]). Taken together, these results suggest that participants who reported higher levels of negative emotions after receiving feedback were more likely to put in more effort but spend less time processing feedback.

Figure 4

Study 1: Alternative Model Specifying Negative and Positive Emotions as Mediators



Note. Blue font: Significant positive path; Orange font: Significant negative path.

Second, as in the hypothesized model, the negative, direct path from the deficits-based feedback approach to leader identity was significant (β = -.08, *SE* = .03, *p* = .012, CI [-.139, -.017]). However, there was also a significant positive, direct path from positive emotions to leader identity controlling for other variables in the model (β = .11, *SE* = .03, *p* < .001, CI [.050, .164]). Unlike negative emotions, positive emotions did not significantly influence effort. Taken together, these results suggest that participants who reported higher levels of positive emotions

after receiving feedback were more likely to identify as a leader, but less likely to put in more effort toward leader development.

Lastly, there was evidence for potential mediations – positive emotions mediated the relationships between 1) strengths-based feedback and leader identity (β = .04, *SE* = .01, *p* = .002, CI [.015, .066]) and 2) mixed feedback and leader identity (β = .02, *SE* = .01, *p* = .039, CI [.001, .034]). Taken together, these results suggest that strengths-based (and mixed) feedback can enhance leaders' positive emotions, which in turn, increase leader identity. In other words, strengths-based feedback makes leaders feel good, which then makes them feel more positive toward their leadership self-view. In contrast, deficits-based feedback can increase the time leaders spent processing feedback, which, in turn, makes them put in more effort toward leader development.

Study 2 Method

To supplement results from Study 1, I conducted a field experiment to examine the impact of feedback on leader identity after processing feedback information and exerting effort over 7 days of leader development activities. Specifically, Study 2 was a 7-day pretest-posttest experiment in which participants were randomly assigned to three feedback conditions (i.e., deficits, strengths, control).

The aims of Study 2 were to examine the relationships in the proposed model using a different sample with more realistic feedback (i.e., feedback based on participants' self-assessment) and to focus specifically on testing hypotheses 4b, 4c, 5b, and 5c. I designed Study 1 designed to test the one-time, immediate effects of fabricated feedback on leader identity through controlled processing and one-time effort (hypotheses 4a and 5a). In contrast, I designed Study 2 to examine the impact of leadership self-assessment feedback on leader identity after processing feedback information and the *extended* effort in leader development activities. In particular, I examined effort as a second stage mediator in the controlled processing-leader identity relationship. Whereas in Study 1, I measured effort (short-term, one-time effort) through time spent reading tutorial(s) covering relevant feedback areas, in Study 2, I measured two other operationalizations of effort. For the first operationalization, I assessed the number of unique leadership-related ideas generated by each participant in their development plan using a content-coding approach. For the second operationalization, I assessed cumulative, self-reported time spent thinking about leadership-related activities across seven days. Results from Study 2 supplement Study 1 and provide a further understanding of the impact of feedback on leader identity.

Participants

Participants in this study were junior or senior undergraduate students from different universities in Southern California. Although undergraduate students may not yet be considered leaders, they may have already engaged in various informal leadership-related activities (e.g., running student organizations, organizing volunteer activities, leading group projects). Although I originally wanted to include only business students[10], I did not have a large enough sample to proceed with the analysis after data screening, as some students enrolled and did not start the study or dropped out at the beginning after the first survey. Thus, I decided to include both business and non-business students to maintain statistical power in my analysis. I conducted independent-sample t-tests and found that these two samples did not differ significantly in any variables of interest, providing support for my decision to combine the two samples and analyze them together. I recruited 309 junior and senior students in total, but the final sample after data cleaning and screening was 198. I will discuss data screening processes later in the results section.

The power analysis was similar to Study 1 as I attempted to examine the same model (i.e., eight predictors, $\alpha = .05$, $\beta = .85$). However, I expected that the student sample would be more engaged in the activity than the online sample, and thus, that the feedback impact would produce a larger effect size than Study 1, so I estimated partial $R^2 = .10$, resulting in a recommended sample size of 160 participants (Faul et al., 2009). Thus, my final sample size was appropriate and had enough statistical power.

[10] Business students are more familiar with leadership concepts and may want to be a leader at some point in their career.

Participants Demographics

Participants in this study were college students who lived and went to school in the U.S. Their age ranged from 19 to 38 years old (M = 24.07; SD = 4.18). The majority of participants was female (71.7%). The majority of the sample identified themselves as Hispanic or Latinx (47.5%), followed by Asian or Pacific Islander (21.2%), and White or European American (19.7%). Fifty percent of the sample were undergraduate students in their senior year. Most participants were full-time students (82.3%). Many participants were employed part-time (48%) with 5.11 years of work experience on average (SD = 3.75). Sixty-one percent of the sample did not have any prior formal leadership experience, and on average, participants in the sample had 2.24 years of leadership experience (SD = 2.26).

Procedures

Participants received a link to the first survey, which introduced them to the overall study and instructions. The first survey included measures of leader identity (T_0), LGO, demographics, and control variables. Then, they completed a leadership assessment (i.e., a self-assessment of various leadership skills on a 7-point Likert scale), which was a compilation of validated leadership constructs (see Appendix G for leadership constructs used and sources). After participants completed the first survey, they were told that it would take some time to process the results and that they would receive instructions explaining what is expected of them next.

About three days later, participants received the second survey, which included a summary feedback report of their leadership self-assessment. The rationale behind splitting this process across two surveys was to create a temporal and psychological separation of the leader identity variable – baseline (T_0) and after receiving feedback (T_1) – and to reduce participant survey fatigue (Podsakoff, MacKenzie, & Podsakoff, 2012).

For the feedback report, I randomly assigned participants to one of three conditions: 1) deficits-based feedback (n = 59); 2) strengths-based feedback (n = 74); and 3) control condition with no specific feedback (n = 65)[11]. Participants in all conditions first received descriptions of all leadership constructs assessed in the first survey. The descriptions were standardized in terms of formatting and language used. Participants in the two experimental conditions received an additional piece of information showing their weaknesses or strengths, depending on their randomly assigned condition. Their self-assessment scores influenced on which leadership dimensions they would receive feedback. For instance, participants in the deficits-based feedback condition only received information about their lowest self-rated leadership dimension. Similarly, participants in the strengths-based feedback condition only received information about their highest self-rated leadership dimensions. Participants received this customized feedback at the beginning of the second survey and could come back to review it again any time after. Control condition participants, however, received no specific feedback on their leadership self-ratings. Similar to Study 1, immediately after reviewing the feedback, they rated their emotional reactions and then completed the leader identity scale (T_1).

Toward the end of the second survey, participants in each condition were asked to create a leader development plan to work toward for the following seven days by brainstorming ideas to develop their leadership skills. They were asked to list out ideas describing specific activities that they could do and wanted to do across the next seven days. Across those seven days, they received daily notifications via email with instructions asking them to report back on what they did and how long they spent doing those activities. Only quantitative information of the reported time spent doing activities was used to measure effort, but not the qualitative information.

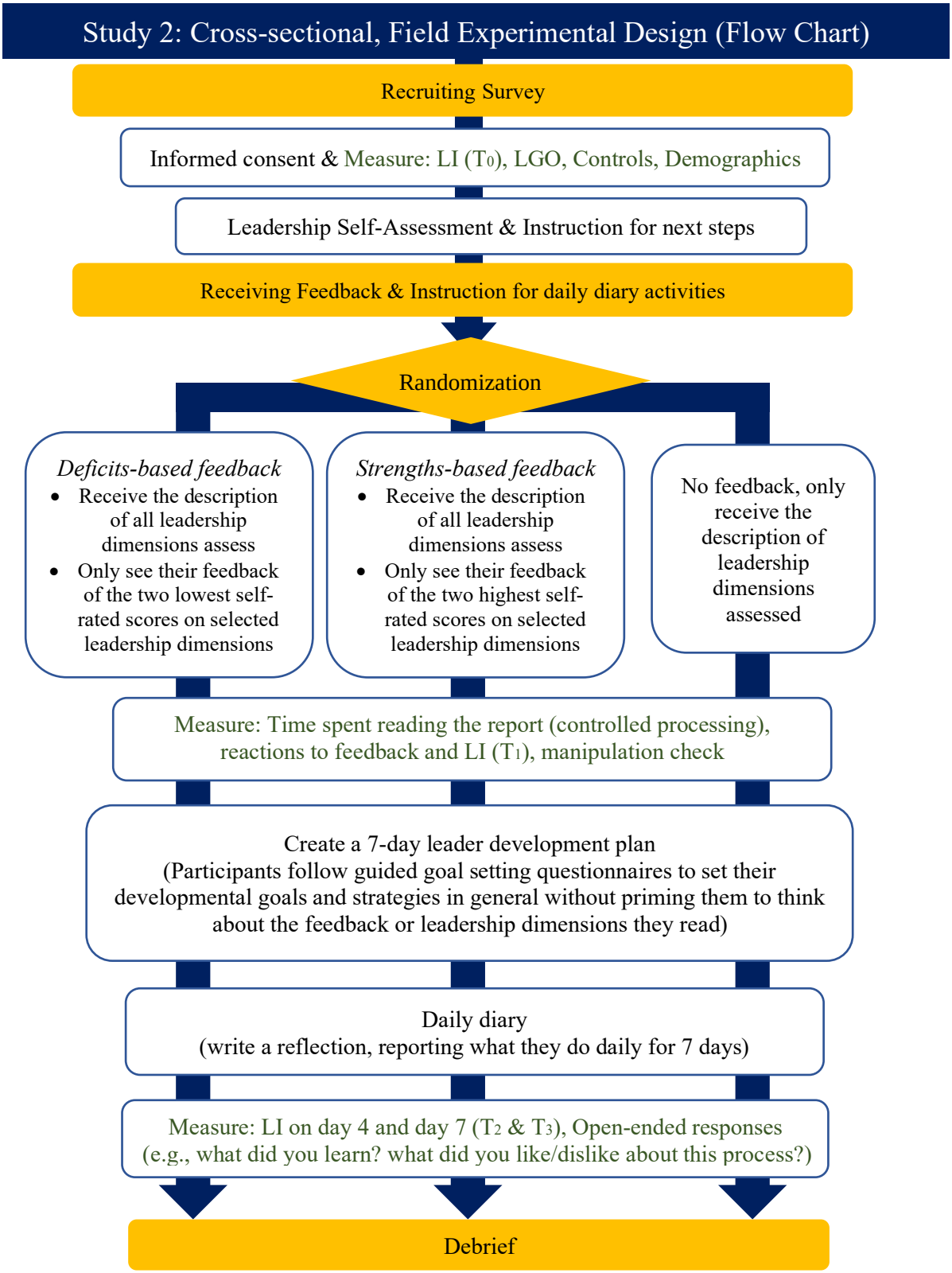
[11] There was no mixed feedback condition in this study

Participants also completed measures of leader identity at two more time points: midway (4 days) through the study (T_2) and again at the end (7 days) of the study (T_3). At the end, they received a debriefing letter explaining the full purpose of the study and how feedback was presented differently depending on the condition they were randomly assigned to. As part of compensation, all participants received a full leadership feedback report and were entered into a raffle for randomly drawn prizes (see Figure 4 for the procedures flow chart of Study 2).

It is important to note that although I collected leader identity data at four different time points, for this dissertation, I am only interested in assessing the impact of feedback approach on leader identity at the end of the study (T_3). As a supplemental analysis, I used data from these different time points to examine leader identity trajectories (explained more later).

Figure 5

Study 2 Procedures Flow Chart



Measures

The leader identity, LGO, emotions, and controlled processing measures were identical to those used in Study 1. All scales had adequate internal consistency, as reported in Table 2.

Effort

I measured effort using two different indicators. To capture the first indicator, effort in development planning, I asked participants to brainstorm ideas and describe specific leader development strategies/activities that they planned to engage in across the next seven days. On the survey, they were asked to write out details explaining each idea. I determined the number of ideas generated using a content-coding scheme. I was the only coder in this process. I began with counting all ideas participants generated (in the survey, I instructed participants to put one idea per response box). Then, I started removing ideas that were not directly relevant to leadership (e.g., "meditation once wake up," "drink more water," "meal preparation") or simple words or descriptions that did not have specific details about activities they planned to do (e.g., "caring," "kindness," "in class," "strong," "believe"). Only unique ideas that were relevant to leadership dimensions in feedback or leadership development were counted (M = 3.12; SD = 1.91). The number of ideas served as the first indicator of effort.

For the second operationalization of effort in this study, I collected data on time spent engaging in effort in leader development activities through the daily diary entries. Each day, participants reported the activities they engaged in and estimated time spent in minutes. Measuring time spent on activities through daily reports can reduce recall bias around time estimates (Sudman, Bradburn, & Schwarz, 1996). The followings were means and standard deviations of the reported time spent each day in minutes: day 1 (M = 30.15, SD = 42.60); day 2 (M = 37.34, SD = 53.07); day 3 (M = 35.20, SD = 45.95); day 4 (M = 40.17, SD = 58.85); day 5

(*M* = 40.95, *SD* = 67.79); day 6 (*M* = 32.59, *SD* = 42.80); day 7 (*M* = 41.05, *SD* = 60.81). I averaged reported time spent across all seven days (*M* = 37.64, *SD* = 33.47). The longer time spent was indicative of greater effort.

Control Variables

Same as Study 1, participants completed measures of leadership experience, need for cognition, regulatory focus, and personality traits, which were controlled for in subsequent analyses. In addition, I controlled for feedback orientation as it can influence whether or not individuals make use of feedback received.

Feedback Orientation. Feedback orientation refers to the leaders' receptivity level to feedback (Braddy et al., 2013; Linderbaum & Levy, 2010). It highlights how leaders process and make use of feedback (London & Smither, 2002). People who are high on feedback orientation tend to have a favorable view toward feedback. They believe that feedback is valuable, tend to process feedback mindfully, and have a strong motivation to change behaviors after receiving feedback (Dahling, Chau, & O'Malley, 2012). In this case, leaders with high feedback orientation are expected to engage in greater controlled processing, which should influence their leader identity. Thus, I controlled for feedback orientation. I measured feedback orientation using Linderbaum and Levy's (2010) Feedback Orientation Scale, which consists of four subscales: feedback utility, accountability, social awareness, self-efficacy. Each subscale contains five items (see Appendix F). Response options ranged from 1 (*strongly disagree*) to 7 (*strongly agree*). I averaged the scores across all four subscales, and the scale showed strong internal consistency (α = .86). High scores indicated a high feedback orientation.

Experimental Instruments

Leadership Assessment

Participants completed a leadership self-assessment, which was a compilation of six validated leadership constructs (e.g., individualized consideration, inspirational persuasion; see Appendix G). Before completing the survey, I asked participants to think about how other people who worked with them in the past would rate them on each item.

Feedback Messages

Although participants saw descriptions of all leadership constructs used to assess them, the feedback they received depended on the condition to which they were randomly assigned. As previously mentioned, participants in the deficits-based feedback condition were told that the leadership dimension in which they scored lowest was their weaknesses, and they did not see any information about their leadership strengths. By contrast, participants in strengths-based feedback condition were told that the leadership dimension in which they scored highest were their strengths, and they did not see any information about their leadership weaknesses (see Appendix H for full feedback messages). For the control condition, participants did not see their specific leadership feedback and instead only received a general description of leadership constructs and more detail on one random leadership dimension. Participants in the other two conditions received this general description before their specific feedback.

Daily Reflection Activities

At the end of each day, participants received a short survey, which included a series of short, open-ended questions about their daily activities. They described specific activities they did, how long they spent doing them, and brief lessons learned from engaging in those activities. On average, participants spent between 8 to 20 minutes on the daily surveys (SD = 8.36 – 19.84).

Study 2 Results

Data Cleaning

I only included participants (N = 309) who completed at least the first two surveys: 1) leadership self-assessment and 2) feedback and leader development (see Figure 5). I then cleaned the data through the following steps. Similar to Study 1, I removed 39 participants (12.6 % of initial sample) who failed the manipulation check. I also screened out 68 participants (22% of initial sample) who met the following criteria: 1) spent little time (faster than five seconds) reading the instruction and the feedback section (about 5% of the sample); 2) clicked through the surveys very quickly without reading instructions or survey questions; 3) had the same quantitative response patterns in a certain section of a survey (e.g., responded to questions with all 1 or all 7; 4) indicated their data should not be used due to the poor quality of their data[12]; or 5) indicated that they had 10 or more years of leadership experience.

I then checked data to ensure that statistical assumptions were met. Most Likert-type scale variables had acceptable skewness and kurtosis values between -2 to 2 (Tabachnick & Fidell, 2013). Similar to Study 1, time variables such as controlled processing (time spent reading feedback) and effort (time spent on leader development activities) had positively skewed distributions with high kurtosis values. I transformed these time variables using a square root transformation and winsorized eight univariate outliers (i.e., 3 SD above the mean) by replacing with the highest acceptable value, rather than removing cases to maintain statistical power and meet statistical assumptions. With this, the skewness and kurtosis values were now at the acceptable level between -2 and 2. Lastly, I used Mahalanobis distance to identify and remove

[12] Based on a single question asking "It is very important for the scientific community that we only analyze the data from participants who paid careful attention during the study. Please let us know whether or not you took this study seriously and responded to the survey questions carefully. In your honest opinion, should we use your data?"

four multivariate outliers (Tabachnick & Fidell, 2013). Overall, after screening out cases, my final sample size was 198, which was still larger than the determined sample size discussed previously.

Additionally, I conducted an independent samples t-test to assess whether there were differences on key variables between those who were included and excluded in the study. Results showed that for the Likert scale variables such as leader identity, learning goal orientation, the two groups did not differ significantly. However, screened-out participants spent significantly less time processing feedback (M = 5.18, SD = 3.51) than those who were included in the final sample (M = 7.13, SD = 3.12; t = -5.05, p < .001, 95% CI [-2.715, -1.192]), confirming the decision to remove these participants. They also reported significantly more time spent on the leader development activities (M = 6.50, SD = 3.93) compared to the final sample (M = 5.56, SD = 2.59; t = 2.22, p = .028, CI [.104, 1.768]). It was possible that the excluded participants had biased responses as they might not pay close attention to the study to begin with, resulting in a higher average score on their self-reported time spent on leader development activities, though there was no way to confirm this assumption.

Then, though the sample included data from 198, I used listwise deletion to deal with missing data. Ten percent of this sample was removed, resulting in the final sample of 177 who had no missing data across all variables. I used this final sample in all subsequent analyses.

Descriptive Statistics and Correlation Matrix

I present means, standard deviations, Cronbach's alphas, and intercorrelations of all variables of Study 2 in Table 2. All scales demonstrated high reliability. The leader identity scale presented high internal consistency across different time points: α (T_0) = .89, α (T_1) = .89, α (T_2) = .89, and α (T_3) = .92. As expected, leader identity at time 0 (before feedback) positively

correlated with leader identity at the end of the study (r = .68, p < .001). Similar to Study 1, need for cognition, years of leadership experience, extraversion, and conscientiousness positively correlated with leader identity at both time points, providing further justification for the decision to control for these variables in my subsequent analysis. However, the strong correlation between need for cognition and LGO (r = .62, p < .001) suggested there may be a collinearity issue. Therefore, I removed need for cognition from all subsequent analyses[13]. Feedback orientation, additional control variable, was also positively correlated with leader identity and was controlled for. Contrary to my predictions, controlled processing only weakly correlated with leader identity at the end of the study (r = .15, p = .044). Unexpectedly, neither operationalization of effort demonstrated a significant correlation with leader identity.

[13] A sensitivity analysis, comparing the model that included versus excluded need for cognition as a control variable, showed little changes in fit statistics (ΔAIC = 3.610; ΔBIC = 3.638) indicating similar model fit and parameter estimates were similar.

Table 2

Study 2: Means, Standard Deviations, Cronbach's Alphas, and Correlations among Variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Leader Identity (T_0)	**.89**												
2. Leader Identity (T_3)	.68***	**.92**											
3. Controlled Processing [a]	.03	.15*	-										
4. Effort 1	.07	.14	-.04	-									
5. Effort 2 [a]	.01	.02	.21**	-.13	-								
6. Negative Affect	-.22**	-.17*	-.25***	.07	-.04	**.87**							
7. Positive Affect	.25***	.28***	-.06	-.01	.03	-.11	**.78**						
8. LGO	.51***	.42***	.00	.00	-.06	.00	.34***	**.81**					
9. Need for Cognition	.49***	.43***	.04	.01	-.05	-.11	.19***	.62***	**.90**				
10. Leadership Exp	.34***	.30***	-.03	.13	.04	-.18**	.10	.24**	.22**	-			
11. Extraversion	.35***	.29***	.02	-.06	.00	-.11	.23**	.27***	.27***	.21**	**.75**		
12. Conscientiousness	.35***	.42***	.11	-.04	.07	-.07	.27***	.49***	.35**	.14	.27***	**.67**	
13. Feedback Orientation	.16*	.28***	.04	-.11	.05	-.02	.22**	.36***	.325***	.12	.23**	.33***	**.86**
Means	4.82	5.14	7.13	5.56	3.12	3.10	3.98	5.60	4.76	2.24	4.63	5.23	5.63
SDs	1.25	1.21	3.12	2.59	1.91	1.36	1.12	.81	1.07	2.26	1.25	.96	.70
n	198	177	198	188	198	198	198	198	198	198	198	198	198

Note. *** $p < .001$, ** $p < .01$, * $p < .05$. The bolded values along the diagonal represent Cronbach's alpha.

T_0 = Before feedback; T_3 = At the end of the study; Effort 1 = Average time spent in leader development activities across 7 days (self-report), Effort 2 = Number of leadership-related ideas, LGO = Learning Goal Orientation; FO = Feedback Orientation; Leadership Exp = Year of leadership experience.

[a] Square root transformed variables.

Hypothesis Testing

As in Study 1, I examined the model fit assessing model-fit chi-square, chi-square/df ratio, CFI, RMSEA, and SRMR, based on recommendations from Kline (2016), using Lavaan package in R (Rosseel, 2012) with the maximum likelihood estimator and 5000 bootstrapping. Then, to test hypotheses 1 to 5, I conducted path analyses to assess the relationship between feedback approach and leader identity including the proposed mediators and moderators in the model. I examined the impact of feedback approach on leader identity at the end of the study (T_3), controlling for their baseline leader identity (T_0). I dummy coded the feedback approach variable to see the effects of the two feedback conditions compared to the control condition. I proceeded to test hypotheses 4b, 4c, 5b, and 5c by creating two different path models to test the operationalizations of effort.

Model Specification and Fit

Similar to Study 1, I specified the full, hypothesized model including control variables. Table 3 presented fit statistics for the different models I examined. First, the proposed models (model 1 and 2; each with a different operationalization of effort) showed a good fit with the following fit statistics; for effort 1: χ_2 (18) = 25.01, p = .125; χ_2/df = 1.389; CFI = .960, TLI= .893, SRMR = .021, RMSEA = .047, 90% CI [.000, .087; for effort 2: χ_2 (18) = 18.14, p = .447; χ_2/df = 1.008; CFI = .999, TLI= .998, SRMR = .018, RMSEA = .007, CI [.000, .067]. Model 2 (Effort 2) had a better fit than model 1 according to different fit statistics in the Table. For example, the CFI value in model 2 was higher than model 1 and SRMR and RMSEA values in model were lower in than model 1. Moreover, similar to Study 1, I conducted the exploratory analyses using positive and negative emotions variables as mediators instead of moderators. However, these alternative models (model 3 and 4) did not have a good fit and had worse fit than the proposed models (model 1 and 2). I will discuss these alternative models further later.

Table 3

Fit Statistics for Study 2 Models (N = 177)

Model[a]	χ_2	*df*	*p*-value	χ_2/df	CFI	TLI	SRMR	RMSEA [90% CI]	AIC	BIC	Baseline Model χ_2 (df)
1	**25.008**	**18**	**.125**	**1.389**	**.960**	**.893**	**.021**	**.047 [.000, .087]**	**2167.03**	**2271.85**	**222.612 (48)**
2	**18.137**	**18**	**.447**	**1.008**	**.999**	**.998**	**.018**	**.007 [.000, .067]**	**2089.24**	**2194.05**	**207.243 (48)**
3	38.684	15	< .001	2.570	.888	.589	.032	.094 [.058, .132]	3304.35	3447.28	266.194 (55)
4	32.497	15	.006	2.166	.911	.674	.031	.081 [.042, .120]	3226.21	3369.13	251.861 (55)

Note. Hypothesized Models are in Bold. CFI = comparative fit index; IFI = incremental fit index; TLI = Tucker-Lewis coefficient; SRMR = standardized root mean square residual; RMSEA = root mean square error of approximation; AIC = Akaike; BIC = Bayesian

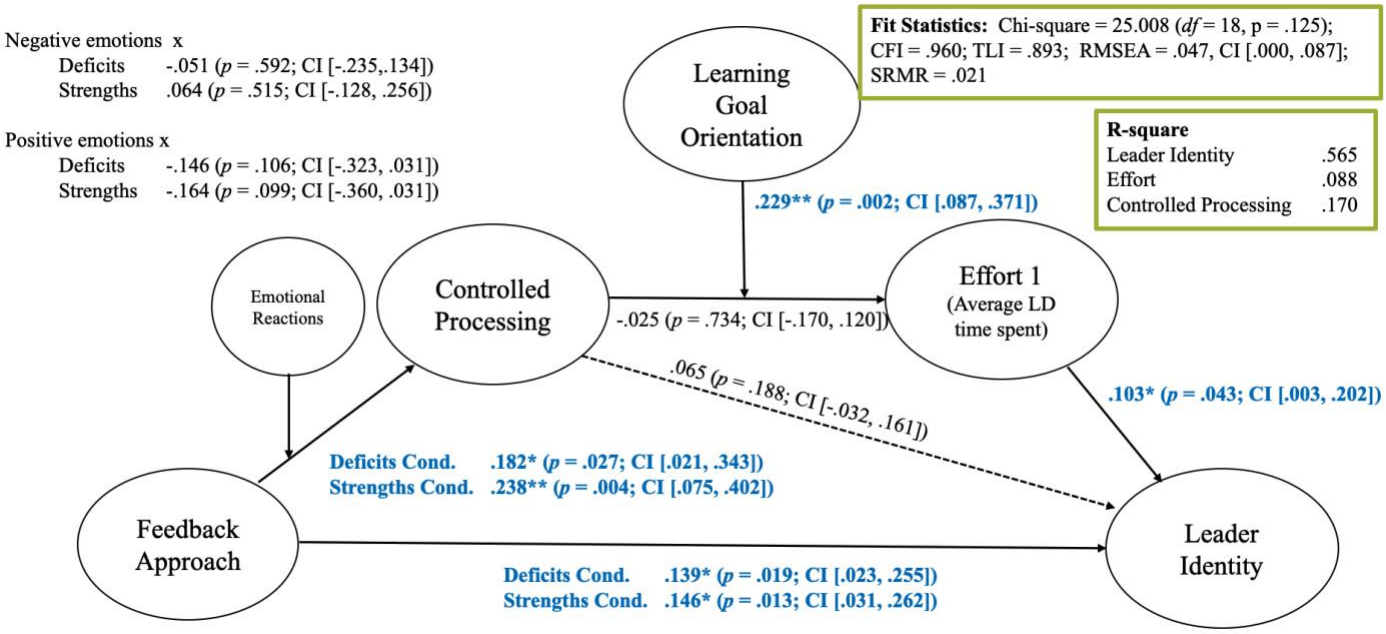
[a]**Model 1 = Full, hypothesized model with Effort 1;**
Model 2 = Full, hypothesized model with Effort 2;
Model 3 = Alternative model with PA and NA as mediators with controlled processing predicting Effort 1
Model 4 = Alternative model with PA and NA as mediators with controlled processing predicting Effort 2.

Figures 6 and 7 presented two path models with *b* coefficients, along with *p*-value, and confidence interval at 95% level for effort 1 (average time spent in leader development activities across 7 days) and effort 2 (number of leadership-related ideas), respectively. The models

explain approximately 56.5% and 55.8% variance in leader identity, 8.8% and 6.5% variance in effort, and 17.0% and 17.0% in controlled processing, for effort 1 and effort 2, respectively. Next, I explain the results for each hypothesized relationship path.

Figure 6

Study 2: Full Hypothesized Model with Path Coefficients and Relevant Statistics (Effort 1)



Note. Blue font: Significant positive path

Feedback and Leader Identity

First, I examined the relationships between feedback approaches and leader identity (hypothesis 1) across the two model (see Figure 6 & 7). Surprisingly and contrary to Study 1, the results showed that compared to the control condition[14] both the deficits-based feedback condition (β = .14, *SE* = .06, *p* = .019, 95% CI [.023, .255])[15] and strength-based feedback

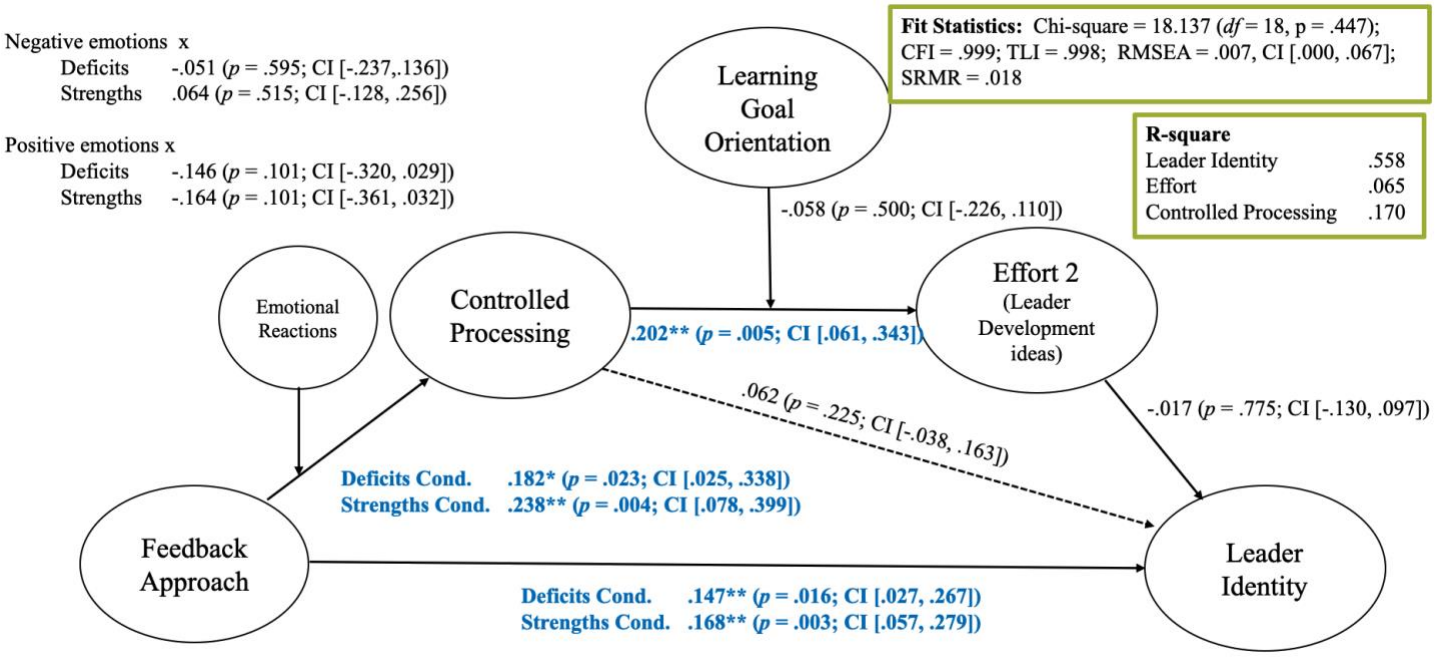
[14] Same as Study 1, control condition is a referent group.

[15] As results from the two effort models showed similar patterns and results, the effect sizes described for this model were from effort 1.

condition (β = .15, *SE* = .06, *p* = .013, CI [.031, .262]) *positively* influenced leader identity at the end of the study. Thus, hypothesis 1a, *the perception of deficits-based feedback will relate to lower leader identity*, was not supported, because of the opposite direction of the effect. However, hypothesis 1b, *the perception of strengths-based feedback will relate to higher leader identity*, was supported. These results suggest that leadership feedback, regardless of feedback approach, directly and positively influenced leader identity.

Figure 7

Study 2: Full Hypothesized Model with Path Coefficients and Relevant Statistics (Effort 2)



Note. Blue font: Significant positive path

Controlled Processing

Related to hypothesis 2, I examined controlled processing as a mediator between feedback approaches and effort. Similar to Study 1, results showed that none of the indirect effects of the feedback approach conditions on leader identity through controlled processing

were significant. However, the paths from both deficits-based (β = .18, *SE* = .08, *p* = .027, 95% CI [.021, .343]) and strengths-based feedback (β = .24, *SE* = .08, *p* = .004, CI [.075, .402]) to controlled processing were significantly positive. These results suggest that leadership feedback, regardless of feedback approach, influenced people to spend more time processing feedback information. This finding differed from Study 1 in that in addition to deficits-based feedback, as in Study 1, strengths-based feedback also positively influenced participants to spend more time engaging in controlled processing.

Same as Study 1, although the paths from feedback approach conditions to controlled processing were significant, the path from controlled processing to leader identity was not significant (β = .07, *SE* = .05, *p* = .188, 95% CI [-.032, .161])[16]. Results from both studies suggest that controlled processing of feedback alone is not enough to influence leader identity. Thus, hypothesis 2, *controlled processing will partially mediate the relationship between feedback approach and leader identity*, was not supported.

It is important to note that, contrary to Study 1, leader identity at the baseline level did not significantly predict controlled processing.

Effort

To test hypothesis 4b and 4c, I examined two operationalizations of effort as mediating mechanisms between controlled processing and leader identity through indirect effects. Results demonstrated that none of the indirect effects were significant for either of the effort operationalizations. Furthermore, effort was not a significant predictor of leader identity (see effect sizes in Figure 6 & 7). However, the path between controlled processing and effort was

[16] Results remain similar when analyzing with controlled processing as the only mediator in the model (simple mediation model of Feedback -> Controlled Processing -> Leader Identity)

significantly positive for effort 2, in which effort is operationalized as the number of leadership-related ideas after receiving leadership feedback (β = .20, *SE* = .07, *p* = .005, CI [.061, .343]). However, this is not the case for effort 1 (average time spent working on leadership-related activities (β = -.03, *SE* = .07, *p* = .734, CI [-.170, .120]).

Similar to Study 1, there was little evidence that effort predicts leader identity. Although effort 2, leader development ideas did not significantly predict leader identity (β = -.02, *SE* = .06, *p* = .775, CI [-.130, .097]), effort 1, or average time spent on leader development activities, positively predict leader identity. It is important to note this effort 1 is the only operationalization that captured effort in a longer time span.

Thus, Hypothesis 4, *effort in b) leader development planning and c) leader development activities will mediate the relationship between controlled processing and leader identity,* was not supported, except the significant, direct path from controlled processing and effort 2 (leader development planning). These results, along with results from Study 1, suggest that more controlled processing of feedback positively influences one's leader development effort/activities at the moment (after receiving feedback). However, it does not necessarily predict long-term leader development effort (in this case, across 7 days). Nonetheless, long-term leader development effort predicted leader identity, which highlighted the importance of this operationalization of effort.

Moderation

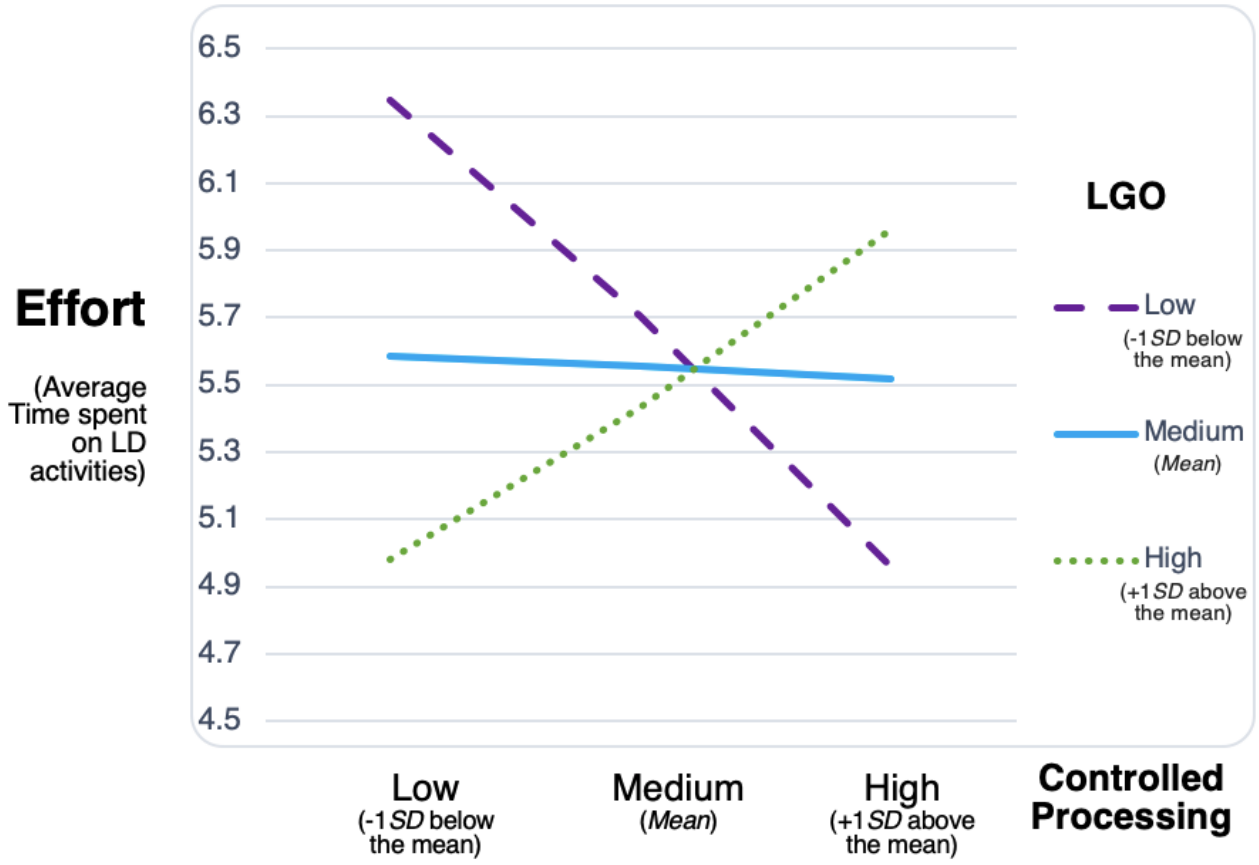
Next, I tested the moderating relationships predicted in hypotheses 3 and 5. For hypothesis 3 (*emotional reactions level of feedback will positively moderate the relationship between feedback approach and the level of controlled processing)*, the results indicated that none of the predicted interactions were significant (see Figure 6 & 7 for specific statistics). Thus,

hypothesis 3 was not supported as emotions did not moderate this relationship. However, there was a significant, negative, direct relationship between negative emotions and controlled processing (β = -.28, *SE* = .10, *p* = .007, CI [-.481, -.075]), suggesting that high negative emotions were associated with low controlled processing of feedback, which is similar to Study 1.

For hypothesis 5 (*LGO will positively moderate the relationship between controlled processing and effort such that leaders with high LGO are more likely to demonstrate high effort*), there was a positive, significant interaction between controlled processing and LGO predicting effort 1 (average time spent on leader development activities across 7 days; β = .23, *SE* = .07, *p* = .002, CI [.087, .371], see Figure 8 for the interaction graph). Interestingly, although neither controlled processing nor learning goal orientation alone significantly influenced this operationalization of effort, the interaction of the two was positively significant. Results suggested that, on the one hand, for participants who have low learning goal orientation (approximately one *SD* below the mean), there is a negative relationship between controlled processing and effort, meaning that more controlled processing will lead to less effort. On the other hand, for those who have high learning goal orientation (approximately one *SD* above the mean), there is a positive relationship between controlled processing and effort, meaning that more controlled processing will lead to more effort, as predicted. However, the interaction effect was not significant for the second operationalization of effort (i.e., number of leadership-related ideas). Thus, hypothesis 5 was partially supported, specifically hypothesis 5c, because only one operationalization of effort shows a significant result.

Figure 8

Interactional Effect of Controlled Processing and Learning Goal Orientation Predicting Effort



Note. Interactional effect: β = .23, *SE* = .07, *p* = .002, CI [.087, .371].

Exploratory Analysis

Emotions as Mediators

Similar to Study 1, I explored alternative models with positive and negative emotions as mediators instead of moderators. However, data did not fit these models well (see model 3 and 4 in Table 3 for specific fit statistics), and results showed little evidence to support emotions as important predictors in the models for Study 2. The differences between Study 1 and 2 results of the emotions variables were not surprising because all variables, including leader identity, were collected at the same time point in Study 1, compared to Study 2, in which variables were

collected at different time points. Furthermore, the study procedures and feedback used were also different between studies.

For this reason, I decided to specify another model using only variables that were collected at the same time point to examine the effect of state emotions and compare and contrast results with Study 1's exploratory analysis. These variables included controlled processing, negative, and positive emotions as mediators between feedback approaches and leader identity (right after feedback). However, unlike the proposed models, neither effort 1 nor effort 2 was included as these two variables were collected after the leader identity measure of this time point. This model did not have a good fit with the following fit statistics: χ_2 (3) = 15.41, p = .001; χ_2/df = 5.13; CFI = .957, TLI= .515, SRMR = .030, RMSEA = .145, 90% CI [.079, .220]. Although CFI and SRMR values were acceptable, other fit statistics were not, suggesting that the model had a poor fit overall. Therefore, I did not report results of this exploratory analysis.

Leader Identity across Different Time Points

Previous empirical studies on leader identity changes examined changes over an extended period of time (i.e., five months in Middleton et al., 2018; seven weeks in Miscenko et al., 2017), and found little evidence to support significant leader identity changes over a seven-day period. Although the present study design was cross-sectional, I measured leader identity at four different time points, making it possible to explore the leader identity trajectories of participants in different experimental conditions. This analysis has the potential to provide insight regarding whether feedback influences leader identity changes across a relatively short time span, and how, if at all, the feedback approach impacts the nature of this influence.

As a supplemental analysis, I used a mixed model ANOVA to examine differences in leader identity across time (i.e., before feedback T_0, after feedback T_1, half-way through the

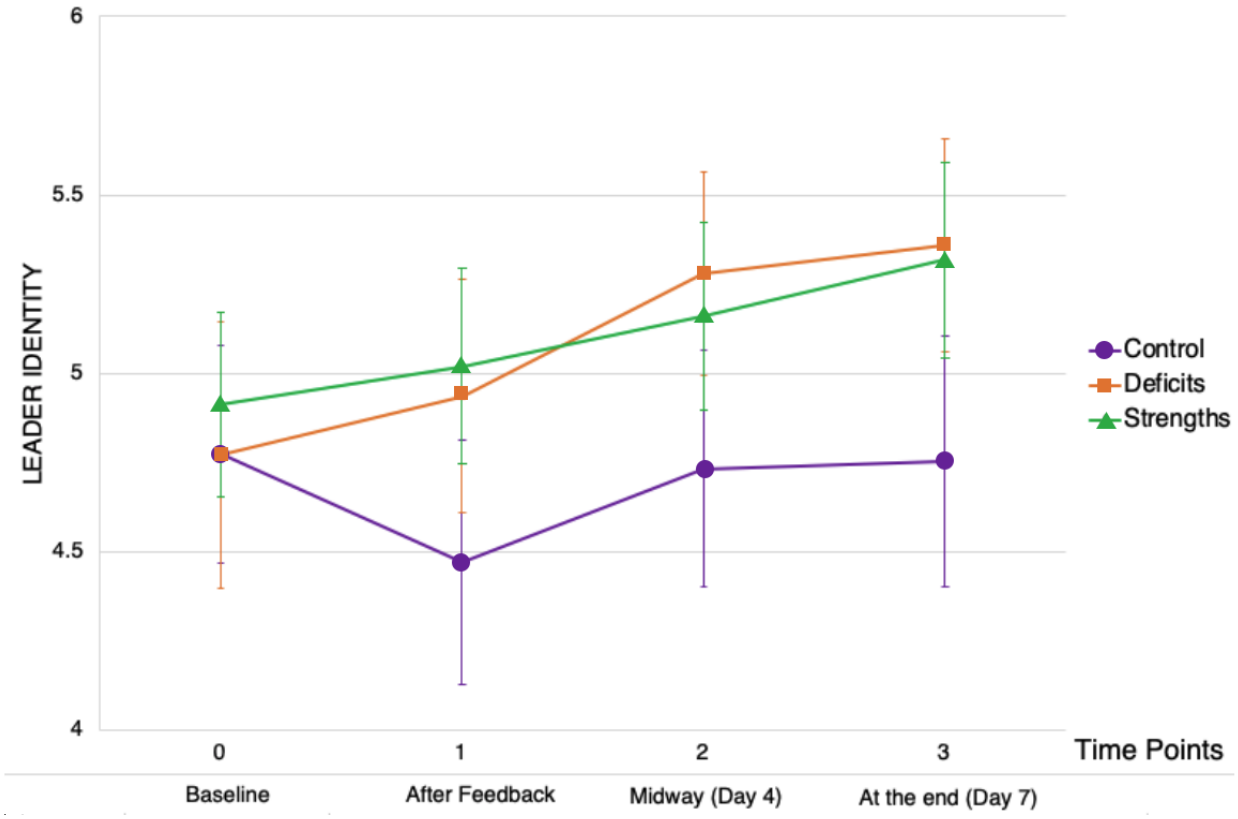
study T_2, at the end of the study T_3) and conditions. First, Mauchly's test indicated that the sphericity assumption was violated ($\chi^2(5) = 52.99$, $p < .001$), so I reported the Huynh-Feldt (F) estimates to correct for degrees of freedom (Field, 2018). Results showed that there were significant effects of time on leader identity, F (2.47, 418.78) = 16.62, $p < .001$, indicating an increase in leader identity over time. There was also a significant interaction between feedback conditions and time, F (5.08, 418.78) = 3.71, $p = .003$, suggesting that leader identity varied across time, depending on feedback conditions. For example, there were positive linear relationships between time and leader identity for both deficits-based and strengths-based conditions, but not for the control condition (see Figure 9).

As a follow-up, I analyzed differences between conditions at each time point using one-way ANOVA. Results showed that before receiving feedback (T_0), participants' leader identity did not differ significantly, F (2, 195) = .29, $p = .75$. However, there was a significant difference between at least two feedback conditions across each other point in time: at T_1, F (2, 195) = 3.64, $p = .03$; at T_2 , F (2, 195) = 3.68, $p = .03$; and at T_3, F (2, 195) = 4.76, $p = .01$. At T_1, Tukey post hoc analyses showed that the strengths-based condition ($M = 5.02$, $SD = 1.19$) had significantly higher leader identity compared to the control condition ($M = 4.47$, $SD = 1.38$; $M_{diff} = .55$, $p = .031$, 95% CI [.04, 1.06]), but the deficits-based condition did not differ from either. However, at T_2, post hoc analyses showed that the deficits-based condition ($M = 5.16$, $SD = .99$) had significantly higher leader identity than the control condition ($M = 4.73$, $SD = 1.25$; $M_{diff} = .55$, $p = .033$, CI [.04, 1.06]), but the strengths-based condition did not differ from either. At T_3, post hoc analyses showed that both the deficits-based condition ($M = 5.36$, $SD = 1.07$) and the strengths-based condition ($M = 5.31$, $SD = 1.12$) had significantly higher leader identity than the

control condition (M = 4.75, SD = 1.35; M_{diff} = .61, p = .022, CI [.07, 1.14] and M_{diff} = .56, p = .024, CI [.06, 1.07], respectively).

Figure 9

Leader Identity across Different Time Points



Chapter 4: Discussion

Leader identity is a proximal outcome of leader development processes (Day & Dragoni, 2015). Having greater leader identity strength is beneficial to leaders and organizations. When people identify themselves as a leader, they are more likely to seek future leader developmental opportunities even when those opportunities are not readily available from organizations (Day et al., 2009). Developing new leaders can be viewed as a process of identity work (Yip et al., in press), which requires the meaning-making process in understanding who they are as a leader (Brown, 2015; Kegan, 1982). Through experiences and interventions, leaders will form leader identity, which in turn, impacts long-term outcomes that are beneficial to both leaders and organizations (e.g., dynamic skills, abstract-level principles; Day & Dragoni, 2015). As a micro-level intervention, feedback serves as a trigger or force for change that impacts leader identity.

The purpose of this dissertation was to examine the impact of different feedback approaches on the leader identity of new leaders. This research is one of the few empirical studies using an experimental design to examine leadership feedback and its relationship with leader developmental efforts and leader identity. This investigation aligns with the current state of the field of leader development field calls for more research on leader identity specifically (Vogel et al., 2020). Moreover, using an experimental design is beneficial in leadership research as it allows exploration of causal relationships, minimizes the effects of endogeneity biases, and reduces the chance of preexisting characteristics of participants influencing the observed variables (Podsakoff & Podsakoff, 2019).

Results shed some light on how feedback may work to shape leader identity and leader development processes. Overall, some results were consistent between both studies. For instance, deficits-based feedback worked best in promoting controlled processing of feedback information,

but strengths-based feedback worked best in increasing positive emotions and leader identity. However, there were also some unexpected, surprising results. For example, effort in leader development activities did not influence leader identity and there was a potential negative consequence of leader identity.

More specifically, three main themes highlight the theoretical contributions that emerged in this research. First, I begin discussing the key construct of interest, leader identity and the influence of feedback approaches. Then, I discuss the two pathways: cognitive and emotional pathways that help explain the impact of feedback approaches on leader identity, followed by the role of effort and learning goal orientation.

Influence of Feedback on Leader Identity

Feedback is an essential factor that influences leader identity. Day and colleagues (2009) suggest that both individual differences and environmental factors, such as assessment, challenge, and support, can interact and impact leader identity development. Insights from social construction theory (DeRue et al., 2009; Ibarra, 2014) suggest feedback serves as a contextual cue that spurs engagement in identity development processes. Leaders often receive feedback triggers from various sources, which may occur daily (e.g., information conversation, random encounters) or once in a while (e.g., formal leadership assessments, yearly evaluations). Aligned with DeRue and Ashford (2010)'s notion of claiming and granting in leader identity development, feedback grants an opportunity for leaders to assess and reflect on their leadership behavior and performance. Feedback allows leaders to try out different provisional identities (Ibarra, 1999), which ultimately shape leader identity, other leadership attitudes, and future leader behaviors. For new leaders, feedback may pose a challenge when ruminating on weaknesses but may serve as a support in leader identity development when emphasizing

strengths. Although both of these feedback approaches are important, it is unclear which is more influential in shaping the leader identity of new leaders.

This research provides greater clarity in the current debate regarding whether focusing on strengths or weaknesses is more beneficial to leader development outcomes, particularly leader identity and leader development effort. If the goal is to increase leader identity of new leaders, overall, strengths-based feedback tends to work better as results shown positive relationships between strengths feedback and leader identity (though not significant in Study 1). However, the use of deficits-based feedback can also possibly increase leader identity of new leaders, especially in a specific context and over a longer period.

First, receiving strengths-based leadership feedback is associated with higher levels of leader identity, both right after receiving feedback and one week later. In Study 1, compared to no feedback, strengths-based feedback increases leader identity of new leaders. Mixed feedback also works similarly to strengths-based feedback. In Study 2, strengths-based feedback increases leader identity even after one week. For new leaders, receiving feedback on their leadership strengths can help build confidence and confirm that they are a leader even when they may not previously perceive themselves as one. By building upon their strengths, new leaders may start to recognize their leadership abilities, which then create positive spirals toward other developmental outcomes in the future (Day et al., 2009). This positive impact is the value of the strengths-based approach to leadership and leadership development (DeRue & Workman, 2012), which is a compelling approach to many scholars and practitioners.

In contrast, receiving deficits-based feedback can have varying effects on the leader identity of new leaders. Deficits feedback is associated with increased leader identity after one week, compared to their baseline before receiving feedback (in Study 2). However, the

immediate impact of deficits-based feedback is less clear because results between Study 1 and 2 are contradicting each other (i.e., receiving deficits feedback negatively impacted leader identity right after feedback in Study 1, but had the opposite effect in Study 2). Still, one clear difference from the strengths-based feedback is that deficits-based feedback can decrease leader identity of new leaders, especially immediately after receiving the feedback as evidence in Study 1. For new leaders, learning information about their shortcomings can be damaging to their sense of self. That is why one must be mindful of the impact of providing deficits feedback. Regardless, deficits-based feedback can be beneficial in leader development (particularly as a driver of effort, discussed below), and scholars offer some recommendations on how to design and deliver this type of feedback when used (e.g., London, 2015).

The differences in study samples and how feedback was delivered may have played a role in the contradicting results of the deficits-based feedback approach. First, undergraduate students (in Study 2) may interpret deficits-based feedback more positively than participants in Study 1—both in the short-term and longer-term. Undergraduate students (the Study 2) are generally in a developmental and learning context (e.g., classrooms), where they often receive feedback and are aware or expect that negative feedback may occur (e.g., feedback from assignments, projects, and tests from professors). Moreover, when critical feedback is perceived as beneficial or supportive of their goals, people tend to intepret the event positively (Christensen-Salem et al., 2018). In this case, they may view deficits feedback information as something beneficial to their personal development. Therefore, they may be more likely to accept this feedback and interpret it more positively (see Ryan et al., 2000), which may help explain the observed positive relationship between deficits-based feedback and leader identity, right after they receive feedback.

Also, the differences in how feedback was delivered may have influenced participants' responses to feedback. Aligned with previous research, how feedback was delivered influenced feedback reactions and other cognitive and behavioral responses of participants (Atwater & Brett, 2006; Moore & Klein, 2008; Zingoni & Byron, 2017). For example, in Study 1, the feedback presented information about leadership abilities explaining how leaders performed in the simulation. The feedback made participants think that they only had weaknesses or strengths as a leader (i.e., "after the leadership simulation, you showed weaknesses in leadership"), or they had a mixture of both. This information was the only feedback to learn about their leadership. However, in Study 2, the feedback information implied that leaders may have both leadership strengths and weaknesses, but they should focus on either strengths or weaknesses (i.e., "instead of focusing on what you do well, feedback here will focus on your leadership weaknesses first"). In other words, participants in Study 2 may think that there are more to this leadership feedback than what they currently see. This presentation of feedback may make leaders more likely to accept deficits-based feedback, or at least interpret it as more positive.

The supplementary analysis of leader identity across different time points in Study 2 suggests that receiving either deficits or strengths feedback can increase participants' leader identity in the long term. However, the results of this current study contradict previous research as it suggests that the trajectories of leader identity development are not linear (Day & Sin, 2011; Miscenko et al., 2017), particularly when involving feedback (Middleton et al., 2018). Specifically, a longitudinal study tracking leader identity over five months found that the overall leader identity of executive leaders dropped around the time when they receive feedback (i.e., 360-degree assessment). Still, it then went back up higher than their starting point (Middleton et al., 2018). Originally, I expected a similar trend in the current study as feedback could disrupt a

leader's sense of self, resulting in a lower level of leader identity. I further expected that leader identity would then be strengthened after participants started to internalize and make sense of feedback. Instead, there was no drop in the level of leader identity for deficits feedback condition right after they received feedback, as explained previously. Instead, their leader identity gradually increases and ends up higher than their baseline. One possible explanation of why this is the case may have to do with the sample or the non-threatening framing of feedback, as discussed previously. Such findings provide a brief snapshot of how processing specific feedback approaches can influence leader identity. This exploration of leader identity development over time, particularly in relation to feedback, is much needed in leader development research (Day & Sin, 2011; Vogel et al., 2020).

Feedback Influence on Controlled Processing and Emotions

To further understand how feedback affects leader identity, this research set out to investigate the influence of deficits and strengths feedback on new leaders' cognitive (i.e., controlled processing) and emotional responses (i.e., negative and positive emotions) and how those responses influence leader identity. This framework provides a preliminary insight to explain a leader's cognitive processing and emotions, which helps us understand how leaders internalize and process feedback. This feedback process, especially for developmental outcomes, is surprisingly not well-researched. Although a meta-analysis showed that the impact of feedback interventions is mixed (Kluger & DeNisi, 1996), previous organizational research has mainly focused on the relationships between feedback and performance-related outcomes and on feedback-seeking behavior (according to a meta-analysis, there are over 100 articles that examine feedback-seeking behavior; Anseel et al., 2015). Although these studies are important in

helping us understand how feedback operates, they may not fully explain how leaders internalize feedback and the subsequent impact on leader identity.

Contrary to my predictions, the results suggest that cognitive and emotional responses may have unique, independent influences on the leader identity development process. Instead, I observed two pathways depending on feedback approaches—a cognitive pathway and an emotional pathway.

Feedback and the Cognitive Pathway

Beginning with the cognitive pathway, I examined the role of controlled processing to understand how leaders internalize feedback information. Leaders interpret and make sense of the information they receive from their environments, particularly information regarding self and their leadership. This process aligns with the cognitive approach to leader development (see Day et al., 2009). The present research specifically focuses on the process of how leaders internalize feedback through controlled processing, which influences efforts in leader development activities. The findings contribute to leader development research by providing insight into how different feedback approaches influence leader identity, as well as the underlying processes.

What makes leaders process leadership information meaningfully? Through a cognitive approach, deficits and strengths feedback seem to influence cognitive controlled processing differently. The dual-process theories suggest that in general, people tend to use a default mode of thinking (i.e., automatic processing; Evan & Stanovich, 2013). However, people begin to process information more carefully (i.e., engage in controlled processing) when the information is difficult or novel because it demands more attention and resources from people's working memory (Evan & Stanovich, 2013). Feedback information that is difficult to process (e.g., feedback that does not align with how leaders view themselves) or includes novel information

(e.g., surprising feedback that highlights certain behaviors that leaders have never thoughts of before) can activate and heighten leaders' attention toward the feedback. In this case, deficits feedback, which may activate feelings of difficulty and novelty, influences leaders to engage in more controlled processing. Results of deficits feedback positively influencing new leaders' controlled processing were consistent for both studies and confirm that deficits-based feedback makes new leaders pay more attention to feedback. Such a finding is important as focusing on leadership weaknesses may serve as a sensebreaking tool for new leaders and enhance the sensemaking and identity construction process (see Ashforth & Schinoff, 2016). This process can help motivate leaders to do more and seek for more developmental opportunities, which can potentially increase their leadership skills in the long term (Day & Dragoni, 2015).

However, for strengths feedback, results were inconsistent between the two studies. In Study 1, strengths (as well as mixed) feedback did not influence controlled processing, as these types of feedback may not have posed enough difficulty or novelty to trigger more meaningful processing. Instead, focusing only on the positive aspects of leadership feedback may have fed new leaders self-confirmation and self-enhancement bias (Leary, 2007) resulting in little doubt as to its accuracy (London, 2015). In contrast, in Study 2, strengths feedback resulted in more controlled processing. Although in this research, the results were mixed, it is possible that focusing on leadership strengths may not be enough to increase leaders' attention to feedback. Such a finding provides a counterargument to current trends, which encourages focusing more on strengths-based feedback (see Buckingham & Goodall, 2019). However, if we want new leaders to cognitively process feedback in a meaningful way, using strengths feedback might not be the most effective tool.

Moreover, the sample differences may explain the discrepancy between Study 1 and 2. As previously mentioned, participants in Study 2, who were undergraduate students, were more likely to spend time processing and reflecting upon feedback. For them, going through a leadership assessment and receiving leadership feedback may have created a sense of novelty in relation to other schoolwork, and thus, increased their time spent controlled processing, regardless of the feedback approach.

However, online participants in Study 1 may already have cognitive scripts that help guide their behaviors when reading and responding to online surveys. Cognitive scripts guide leaders' behaviors in a context with which they are already familiar, making these behaviors more automatic (Day et al., 2009). In this case, participants may view strengths feedback as something similar to reading any other survey instructions that they are already familiar with, so they do not pay full attention to the information or read it very quickly. Additionally, online participants on this platform are motivated to complete this study quickly so they can acquire more compensation from completing other studies. They do not want to spend too long reading information from the survey about strengths that may already be known to them. In some ways, this may better depict the real-world nature of busy leaders. Deficits feedback seems to make new leaders stop and pay more attention to the leadership information more so than strengths and mixed feedback. This deficits-based approach appears to be a powerful tool in capturing leaders' attention even when they are not motivated to engage with feedback.

In sum, when focusing on the cognitive path, it seems that deficits-based feedback may be more effective than strengths-based feedback in making leaders focus their attention on feedback. Inaccurate or superficially processed feedback is less likely to have a lasting effect, which may explain why feedback does not always help to improve performance (Anseel et al.,

2015) or, in this case, may not necessarily increase leadership skills and abilities. In contrast, it may be more helpful to view strengths-based feedback through the emotional pathway as receiving strengths feedback can increase positive emotions and leader identity at the moment.

Feedback and the Emotions Pathway

Beyond the cognitive approach, the emotional pathway is critical to fully understanding the impact of feedback type on leader identity. Feedback tends to trigger feelings and emotions because it makes the recipients evaluate this information against how they see themselves (London, 2015). Emotions matter in the feedback process as they can influence and render the usefulness and impact of feedback (Cannon & Witherspoon, 2005). For instance, feedback impacts moods such as pleasantness/unpleasantness, which then can influence motivation and subsequent performance (Kluger et al., 1994). In this case, through the emotional pathway, I seek to understand how feedback affects leader identity and efforts.

How do different feedback approaches impact leaders emotionally? There is evidence from Study 1 that strengths-based feedback can make leaders experience greater positive emotions, and thus making them more likely to perceive themselves as a leader (i.e., claim a leader identity). However, this is not the case for Study 2, as feedback approaches influence neither positive nor negative emotions. Nonetheless, this evidence highlights the importance of strengths-based feedback that can make leaders 'feel good' about themselves, but not necessarily having deeper cognitive processing of feedback. Thus, the increase in leader identity after receiving strengths-based feedback comes from their positive emotions but not from learning and deepening their understanding of their leadership abilities.

In contrast, results from both studies indicate that deficits feedback influences neither positive or negative emotions, which is contrary to previous research that suggests negative

feedback increases negative emotions (Kluger & DeNisi, 1996). Although the results seem unexpected, one explanation is that feedback messages used in current studies were not threatening. As evidenced in this research, it is possible to use the deficits-based feedback approach to enhance cognitive controlled processing without creating negative emotions. In fact, according to the result from Study 1, leaders who experienced higher negative emotions tended to spend less time processing feedback. Thus, feedback providers can design feedback messages to reduce the effect of negative emotions after reading the feedback, but that is beyond the scope of current studies.

Lastly, what subsequent impact do emotions have on leader identity? Leaders who experience more negative emotions tend to engage in more leader development efforts. Negative emotions can motivate people to take actions to reduce any discrepancies they have when they evaluate themselves against a certain standard (Burke, 2006). In this case, leaders see their leadership weaknesses in the deficits-based feedback as the standard that they compare themselves to and are motivated to reduce this discrepancy. Although, this result pattern does not hold in Study 2, it is worth noting that negative emotions can be beneficial to increase developmental efforts, which may increase effective leadership skills in the long run. Taken together, preliminary results of this research suggest the experience of negative versus positive emotions may take leaders to different paths—negative emotions may lead to greater effort in developmental activities; whereas, positive emotions may lead to a higher level of leader identity.

In sum, examining both cognitive and emotional pathways is crucial in seeing a fuller picture of how new leaders process and internalize feedback. These two pathways have unique influences on leader identity development of new leaders. Strengths-based feedback leads to

emotional responses, particularly positive emotions, which have a positive influence on leader identity. In contrast, deficits-based feedback leads to cognitive responses, which further influence future behavioral responses of leaders. The cognitive pathway is especially important in promoting effort in leader development, and this relationship is potentially influenced by learning goal orientation.

The Role of Effort and Learning Goal Orientation

The third and final theoretical contribution theme relates to the role of effort and LGO. Although this research does not directly focus on behavioral responses that occur after receiving feedback, it considers behavioral indicators that may explain how leaders come to change their leadership self-view (i.e., leader identity). In this case, this research focuses on the behavioral outcome of effort in leader development. Using experience or lessons learned from feedback alone is not sufficient in developing as a leader. Instead, practicing specific leadership behaviors over time is vital to form long-term leadership skills and expertise (Day, 2010). With leader identity specifically, effort in leader development helps new leaders experiment with different versions of their leadership selves and strive toward their ideal leadership self (Ibarra, 1999). Unexpectedly, there was no evidence to support that leader development effort links to leader identity. However, the results do suggest that more controlled processing of feedback information leads to greater effort in developing as a leader.

The results offer some insight into how effort impacts the leader identity development process. Leader development effort likely requires a longer time to unfold and start to influence leader identity, which would explain the absence of significant relationships between different operationalizations of effort and leader identity. Effort may serve as a proximal outcome or

behavioral indicator of effective leadership skills and behavior, which slowly shapes leader identity overtime as leaders become more of an expert (Lord & Hall, 2005).

Lastly, there is some evidence indicating the importance of learning goal orientation for the increased level of effort in leader development activities. Research shows that people with high LGO tend to have high self-efficacy, confidence, and positive beliefs about themselves, as well as a belief that people's abilities can change (Payne, Youngcourt, & Beaubien, 2007). Leader development theories and research evidence suggest that leaders with high LGO tend to see challenges as opportunities to grow and develop (Day et al., 2009; Johnson et al., 2018). Similarly, the current research demonstrates that for leaders who have high learning goal orientation, more processing of leadership feedback is associated with higher overall time spent engaging in leader development activities. Although LGO amplified the effects of only one of the three operationalizations of effort, it was the only operationalization that was collected over an extended period (i.e., average time spent on leader developmental activities). This operationalization of leader development effort may be the most important and most accurate in capturing the construct. Perhaps, with a better way to measure cognitive controlled processing and effort, results may be more consistent. Nonetheless, aligned with previous research, LGO seems to work in certain situations to help support leader development processes (Johnson et al., 2018).

In sum, the present research highlights three theoretical contribution themes. First, strengths (as well as mixed) feedback enhances leader identity, whereas deficits feedback can either decrease or increase leader identity of new leaders. Second, the impact of leadership feedback can result in two different pathways—cognitive and emotional pathways. On the one hand, strengths-based feedback can take new leaders to the emotional pathway, where they have

increased positive emotions and increased leader identity. On the other hand, deficits-based feedback can take new leaders to the cognitive pathway, where they spend more time processing feedback. Finally, with more time processing feedback, new leaders are more likely expend more effort in leader development activities, especially when they have high LGO. These three themes contribute to the leader development and leader identity development literature (Day, 2000; Day & Dragoni, 2015; Day, Harrison, & Halpin; 2009; Miscenko et al., 2017). This research expands our understanding of the impact of feedback (Kluger & DeNisi, 1996) on leader identity, specifically, how different feedback approaches trigger different leader identity development processes.

Practical Implications

Beyond theoretical contributions to leader identity and leader development literature, there are ways research can help improve organizational practices. The current research points to some practical implications, particularly for human resources/development departments in organizations and leader development coaches and consultants. First, the current research clearly shows that having access to feedback is better than not having feedback at all. Providing leadership feedback to new leaders is an essential step in facilitating and supporting their leader development journey. New leaders often desire to receive feedback, even if the feedback is not positive (Gentry & Young, 2017).

Once feedback is available, it is important to be mindful and purposeful about what feedback approach is used to provide new leaders with information that can foster the development of their identity and greater effort in leader development. So, how do we decide which feedback approach is more effective? It depends on the goal and targeted outcome of the feedback intervention or leader development program. The present research suggests that for

new leaders, specific feedback approaches can be tailored to provide greater benefits in producing specific outcomes.

First, strengths-based feedback is preferable for increasing positive emotions and strengthening positive leadership self-views, like leader identity. Focusing on leadership strengths is particularly beneficial for new leaders, as they need positive affirmations about their leadership abilities to build positive emotions, which in turn, help leaders open up to new experiences and provide confidence to experiment with their leadership self (see Broaden-and-Build theory; Fredrickson, 2001). Moreover, if the feedback program is short-term in nature (e.g., one-day training, one-time feedback session), then strengths-based feedback may be more beneficial, as it can trigger positive identity development spirals (Day et al., 2009) and motivate new leaders to seek out more future developmental opportunities.

On the other hand, deficits-based feedback is preferable for catching leaders' attention, promoting cognitive processing, reflecting on leadership behaviors, and, eventually, increasing leader development efforts. Focusing on leadership weaknesses is particularly helpful if the goal of the feedback program is to get new leaders to think more deeply and spend more time processing feedback information. Furthermore, if the feedback program is long-term in nature, then deficits-based feedback may be preferred to encourage long-term reflection on leadership behaviors that can promote effort in leader development. This long-term process works better when leaders need time to return to baseline levels after receiving challenging feedback (see Middleton et al., 2018). When deficits-based feedback is the focus of the program, new leaders also need support, like mentoring and coaching that can help in processing challenging information and facilitate identity development growth (Yip et al., in press).

Finally, mixed feedback can also be provided but with conditions. In certain feedback processes (e.g., 360-degree assessment reports), both leadership strength and weakness information may be presented together as part of a feedback report. However, sometimes using mixed feedback might not be as effective compared to focusing on either deficits or strengths feedback. According to the present research, new leaders respond to mixed feedback in similar ways to how they react to strengths-based feedback. This result may indicate that new leaders may only focus on certain parts of comprehensive reports and not gain the full benefits from feedback. In this case, new leaders received the benefits of strengths-based feedback (i.e., enhancing positive emotions and leader identity), but not the benefit of deficits-based feedback (i.e., increasing their controlled processing). When designing any feedback program to promote leader development, it is vital to keep in mind the goal of the program and leverage the feedback approach that best aligns with that goal.

Given that mixed feedback is a common practice, the order of feedback presentation may be one valuable consideration. One way to design an effective feedback program for new leaders is to focus on strengths-based feedback with short-term programs first. Then, deficits-based feedback can follow with long-term coaching and mentoring support. Finally, ongoing feedback programs with a mixture of both strengths and deficits feedback could be implemented. Both strengths and deficits-based feedback approaches can be valuable in promoting leader identity over time. Once new leaders have gone through different feedback programs and are more familiar with both techniques, then possibly mixed types of feedback could be provided simultaneously; however, we need more research on the impact of the mixed feedback approach on new leader identity development to be certain.

Limitations and Future Research

Several limitations are notable. First, the current research only focused on new leaders; thus, findings may or may not extend to seasoned leaders. Future research should examine further on what components in feedback processes are more or less impactful for new leaders versus seasoned leaders, so we know how to craft leadership feedback to influence leader development processes effectively.

Second, the current research did not consider the ongoing, dynamic nature of feedback. Participants only received feedback one time and did not get more feedback after that, which may not be realistic, given feedback receivers and givers often interact, and, thus, create more feedback. Similarly, different sources of feedback can influence how leaders perceive and process feedback (Brett & Atwater, 2001). Feedback becomes more impactful when leaders trust the source and believe that feedback is accurate. This is particularly important for Study 1 as feedback was fabricated. Although this research still provides a glimpse of how feedback approaches might play a role in leader development processes, to be more realistic, future research should find ways to incorporate the ongoing nature of feedback and consider interactions between feedback approaches and the source of feedback. As suggested by Anseel et al. (2015), feedback can be viewed through a dynamic reciprocal model, which means that research can benefit from incorporating and examining the iterative nature of feedback. In this case, future research can test the role feedback in an ongoing leader identity development. One way to examine this is to conduct a field, mixed-method study, in which researchers examine feedback processes and leader development outcomes over time in specific organizations. They can triangulate data with qualitative research questions designed to explore the underlying process of how the dynamic and iterative nature of feedback impact leaders.

Third, using the cognitive approach is beneficial as it focuses on the critical processes of how leaders interpret and make sense of feedback information, rather than focusing on behaviors. Still, one main limitation of this approach is that it is difficult to measure the cognitive components (Day et al., 2009). In this study, I attempted to measure controlled processing through measures of time spent on tasks. Although this helps avoid self-rating biases, using time as an indicator might not be the best way to capture cognitive controlled processing. Future research should find better ways to measure controlled processing. For instance, researchers could implement the same simulation in a lab experiment where they can control and direct the attention of participants on the feedback and remove other extraneous stimuli that might influence participants' information processing. Further, future research should incorporate different aspects of controlled processing. For example, researchers can examine dichotomous (either/or thinking; oversimplifying information when processing feedback with two absolute ideas such as good/bad, all-or-nothing) versus dialectical controlled processing (both/and thinking; processing and accepting different ideas; Hammond et al., 2017)

Fourth, despite the attempts to examine effort in leader development using multiple operationalizations, these operationalizations were not tested with validated measures. Instead, I was only able to base measures on a single indicator of time spent reading tutorials, the numbers of leader development initiatives, and self-reported time spent on leader development activities. Although these indicators may provide more objective responses than self-rated Likert-type scales, future research can explore different effort operationalizations with validated scales or attempt to validate a new scale to capture effort operationalizations.

Fifth, many measures of this research, especially in Study 2, relied on self-rated responses. Although it is better to use feedback from both self-rated and other-rated feedback

(i.e., 360-degree assessment), I opted to use only self-assessment to avoid logistical complications and maintain statistical power. Moreover, a recent leadership training meta-analysis found that "there were no significant differences between programs using 360-degree feedback compared to programs using single-source feedback for learning" (Lacerenza et al., 2017, p. 1699). This finding suggests any form of feedback (i.e., from self or other) may impact leader identity in appreciable ways. Given this, it is appropriate to use self-only assessment data in this study, as it focuses on internal processes related to leader identity, feedback processing, and developmental efforts. Although any feedback information is beneficial in leader identity development processes, it is still unclear how such processes might be differentially influenced by feedback source. There are likely nuances between different feedback sources. For example, some results from Study 1, which used task-based feedback, differ from those of Study 2, which focused on self-based feedback (i.e., self-assessment). Future research can further examine these different feedback sources to better understand the nuances and how they interact with different feedback approaches using multiple sources of feedback. For example, researchers can partner with organizations that are willing to provide 360-degree assessment feedback to their leaders, and randomly assign leaders to focus on either leadership weaknesses or strengths, and see the impact of feedback on relevant leader development outcomes.

Moreover, despite the strengths of the experimental study design of the current studies, there are limitations regarding the broader study design. Given Podsakoff and Podsakoff's (2019) discussion of best practices regarding experimental designs in management and leadership research, both studies have methodological limitations worth noting. For Study 1, the cross-sectional, online, experimental design had two key limitations. First, the experiment may have low ecological validity due to the use of simulation and the lack of representativeness of

feedback messages in terms of applicability to actual leadership behaviors. Although the simulation and feedback messages might not accurately represent participants' experiences in real-world situations, I adapted the in-basket simulation from previous research and tried to include problems and conflicts in the in-basket material that made it realistic to what one might find in organizational settings. Second, the motivation and attention of participants in online samples (i.e., MTurkers) may be limited. MTurkers' compensation is indirectly tied to their time spent on each survey, which means that they might be motivated to pay less attention to the survey and try to complete it as quickly as possible, as evidenced by the removed cases. However, this experiment required participants to engage in the simulation and survey (e.g., reading through the information, making decisions, assessing their emotions and perception of self). Having less engaged participants may lower data quality or bias results. I addressed this limitation by following recommendations of Podsakoff, MacKenzie, and Podsakoff (2012) to avoid common method bias. I also followed specific recommendations from Cheung and colleagues (2017) to collect quality data from MTurkers (i.e., attention check, bot check, clear step-by-step instructions). Although I attempted to minimize issues in my study design, future research should attempt to replicate the study's findings with a more control experimental setting, where participants either engage in the simulation in-person, or are less distracted in an online simulation.

For Study 2, the field experimental design had two key limitations. First, the duration of the study (7 days) was relatively short in terms of capturing important processes that influence leader identity development. A rationale for designing the study this way was to examine effort across an extended period and to examine the effect of feedback at more than just one time point, as in Study 1. Second, testing effects were a threat to internal validity in this study. Participants

completed the same leader identity scale several times, which could influence their subsequent responses on the scale, rather than the influence of the manipulation (Podsakoff & Podsakoff, 2019). Responding to daily surveys can help mitigate this issue by making participants focus on reporting their daily leader development activities and distract participants from the testing effects. Although this Study 2, as a field experiment, was designed to increase ecological validity that Study 1 is lacking, it was still not situated in actual organizations. Future research can attempt to replicate this study with new leaders in organizations and track their feedback processes and leader identity over time. Such organizational field research will provide a higher ecological validity.

Finally, although previous research has focused on the benefits of leader identity, the present study results may highlight the potential dark side of leader identity. According to Study 1, baseline leader identity negatively influences controlled processing, which means that people who have high leader identity at the beginning tend to spend less time engaging with feedback information. Having a higher level of leader identity can mean that they are overconfident or arrogant when it comes to leadership, and thus making them dismissive of feedback. Although the results are preliminary and do not hold the same pattern in Study 2, it is worth considering that leader identity may not always be beneficial for leader development as suggested by Vogel and colleagues (2020) on the importance of examining detrimental aspects of leader development.

Conclusion

How do different feedback approaches impact leader identity of new leaders? This is the overarching question for this dissertation research. There is a strong need to understand leader identity (as part of important leader development outcomes) and how it develops (Day &

Dragoni, 2015). Although leader identity can be developed through various means, leadership feedback is a common source of information that new leaders can use to interpret, make sense of, and integrate with their leader identity. However, not all forms of feedback are necessarily effective in developing leaders (Kluger & DeNisi, 1996), especially new leaders who may have difficulties navigating through leadership feedback. This research provides evidence that traditional, deficits-based and strengths-based approaches work differently in influencing leader identity, level of cognitive controlled processing, and effort in leader development. For example, deficits-based feedback tends to make leaders engage in more effortful feedback information processing, which then makes leaders more likely to put in more effort in leader development activities. It can also either increase or decrease leader identity, depending on feedback messages and how they are delivered. However, strengths-based feedback can make leaders feel good and increase their leader identity but only make them more engaged in a more effortful feedback information processing in a specific context. Ultimately, this research provides a better understanding of the feedback process and how it impacts the development of leader identity.

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Appendices

Appendix A

Email In-basket Exercise Instruction (Adapted from Anseel et al., 2009)

Welcome!

In this study, we want to assess your leadership abilities based on an email communication exercise.

In the exercise you will answer a series of email as if you were a new manager at an organization: Morning Paints. You have received several email messages from your new colleagues. It is now your task to answer these messages.

Your Task

1. Read company background, your current role, and organizational chart (*Note:* The information is for you to understand the context of the organization and people you are working with. You do not need to memorize this information).
2. Read each email and four email replies. For each email reply, please rate how likely you would be to choose to respond to the email in that way. You will rate each of the four replies from 1 (very unlikely to use) to 5 (very likely to use).
3. You can always look at the organizational chart while you are responding to your emails by clicking the link on the sender name.

Important note
There are different ways to react to each of the emails. More than one solution may be correct; try to answer in the way that you find to be most appropriate. **It is important that you imagine yourself as the plant manager of Morning Paints.**

Your responses will be automatically assessed. Then, you will receive feedback about your leadership potential based on your responses. **This type of exercise provides a way to identify of your leadership potential, as it simulates "real-world" work situations.** This particular exercise is a common tool that has been used in different organizations to assess leadership abilities.

Best of luck!

Appendix B

Background Information (Adapted from Anseel et al., 2009)

Background for Morning Paints

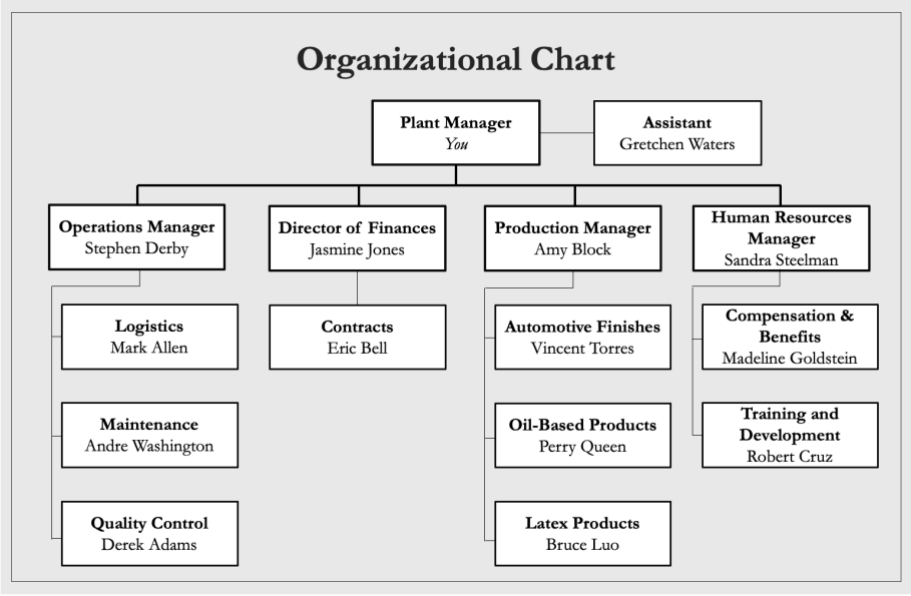
Morning Paints is a producer of paint and coating products (approx. 5,000 employees, about $1.2 billion gross income). Morning Paints is headquartered in Los Angeles, CA but there are seven other corporate offices in other cities of the United States, including Portland, OR, Salt Lake City, UT, Detroit, MI, Denver, CO, Jacksonville, FL, Oklahoma City, OK, and Atlanta, GA.

Morning Paints sells a variety of house and car paints and related products. The company advertises mainly to construction companies and car manufacturers. These successful ads focus on the quality of the products and excellent customer service. This approach enables Morning Paints to achieve very realistic sales goals in a slow market.

Key information to know

- Today is Sunday, September 8th
- You were recently appointed Plant Manager of the Portland branch of Morning Paints, which required you to relocate to Portland on Tuesday, September 3rd
- You took a week off to get settled in Portland, but are flying to LA tonight for an important meeting with your boss (Mr. Boyd).
- Your assistant (Gretchen Waters) has scheduled your flights. Your flight will depart tonight and you will be back in your Portland office on Tuesday, September 10th.
- After taking this past week to settle into Portland, your new city, you decide it is time to check your emails. You decide to spend time responding to emails that concern you before heading to the airport.

Organizational Chart



Appendix C

Email In-basket in the Exercise Example (Adapted from Anseel et al., 2009)

<table>
<tr><td colspan="2">Email #1
Date: Tuesday, September 3rd, 2019
From: Sandra Steelman
Subject: Andre Washington

Stephen Derby told me yesterday that Andre Washington, Head of Maintenance, has problems keeping to his agreements. He has missed two monthly meetings since his divorce in June. Then on Monday, he forgot to inform his people about some scheduling changes, which caused everyone quite a few problems.

Stephen and I have already talked with Andre on Monday. He said that he would get a hold of himself, but he didn't look particularly convinced. Maintenance is very important, and we can't afford to have problems with one of the team leaders. What should I do about this?

Sandra

Human Resources Manager
Morning Paints</td></tr>
<tr><td>Response A

Maybe you can be patient for a while longer, Sandra. There is a good chance that over time, Andre will find a way to solve his problems on his own. Maybe you can try talking with him again.</td><td>Response B

I will speak with him personally in the course of the week about his family-related difficulties. Make an appointment for him on Thursday morning. It is not acceptable that one person disrupts the production process by neglecting the employees' scheduling.</td></tr>
<tr><td>Response C

Maybe it would be better if we excused Andre from the monthly meetings for the next few months. I think that you can best decide how to solve this. If you would like, I can also speak with him myself later this week.</td><td>Response D

OK, I will speak with him in the course of the week about his problems. That will send a clear signal. If there is no improvement after our meeting, then I will take disciplinary action.</td></tr>
</table>

Appendix D

Feedback Messages

Feedback Instruction (word counts: 153)

Well done!

Next, we will give you personalized feedback. We will use the email in-basket activity you have just completed as a tool to assess your leadership abilities. As technology becomes more integrated with daily work, leaders often communicate with and influence other people through electronic means, like email communication. Your responses in the simulation provided a snapshot of what you would likely do as a leader.

On the following page, you will receive feedback on your leadership abilities based on how you responded to emails in the previous activity. We use computer software to assess and analyze your responses automatically, so you can see the feedback promptly. The feedback covers two dimensions of leadership abilities: **leadership execution and leadership persuasion.** We developed the scoring system using data from empirical research and expert leaders. Therefore, the feedback message that you will receive will provide you with an accurate assessment of your leadership abilities.

Condition 1 (Experimental Manipulation)

Deficits-based Feedback (word counts: 150)

Compared to expert leaders, it appears that leadership execution and leadership persuasion are your **weaknesses** as a leader.

Leadership Execution

- This describes how leaders make things happen—how they can help remove obstacles and provide support and resources to help people on their team attain their goals. Leaders who have strong execution skills can turn ideas into results.
- *To improve, consider clarifying objectives, identifying obstacles, and finding ways to support team members to reach their goals.*

Leadership Persuasion

- A leader's success depends on the actions of their team members. Leadership positive persuasion refers to leaders' effectiveness in influencing other people to move in a direction that the leader views as important. Leaders who are persuasive can motivate other people to agree with their views or ideas.
- *To improve, consider providing clear rationale behind your decisions and trying to make other people feel comfortable and connected to the issue at hand*

Condition 2 (Experimental Manipulation)

Strengths-based Feedback (word counts: 152)

Congratulations! Compared to expert leaders, it appears that leadership execution and leadership persuasion are your **strengths** as a leader.

Leadership Execution

- This describes how leaders make things happen – how they can help remove obstacles and provide support and resources to help people on their team attain their goals. Leaders who have strong execution skills can turn ideas into results.
- *You are good at clarifying objectives, identifying obstacles, and finding ways to support team members to reach their goals.*

Leadership Persuasion

- A leader's success depends on the actions of their team members. Leadership positive persuasion refers to effectiveness in influencing other people to move in a direction that the leader views as important. Leaders who are persuasive can motivate other people to agree with their views or ideas.
- *You are good at providing clear rationale behind your decisions and trying to make other people feel comfortable and connected to the issue at hand.*

Condition 3 (Experimental Manipulation)

Mixed (word counts: 155)

Compared to expert leaders, it appears that leadership persuasion is your **strength** and leadership execution is your **weakness** as a leader.

Strength: Leadership Persuasion

- A leader's success depends on the actions of their team members. Leadership positive persuasion refers to effectiveness in influencing other people to move in a direction that the leader views as important. Leaders who are persuasive can motivate other people to agree with their views or ideas.
- *You are good at providing clear rationale behind your decisions and trying to make other people feel comfortable and connected to the issue at hand.*

Weakness: Leadership Execution

- This describes how leaders make things happen – how they can help remove obstacles and provide support and resources to help people on their team attain their goals. Leaders who have strong execution skills can turn ideas into results.
- *To improve, consider clarifying objectives, identifying obstacles, and finding ways to support team members to reach their goals.*

Condition 4 (Control Group)

No Feedback (word counts: 150)

Unfortunately, something went wrong. We are sorry that you don't see your personalized feedback at the moment.

Here is some information about the two leadership areas on which you were assessed.

Leadership Execution

- This describes how leaders make things happen—how they can help remove obstacles and provide support and resources to help people on their team attain their goals. Leaders who have strong execution skills can turn ideas into results. They clarify objectives, identify obstacles, and support team members to reach their goals.

Leadership Persuasion

- A leader's success depends on the actions of their team members. Leadership positive persuasion refers to effectiveness in influencing other people to move in a direction that the leader views as important. Leaders who are persuasive can motivate other people to agree with their views or ideas. They provide clear rationale behind their decisions and make people feel comfortable and connected to the issue at hand.

Appendix E

Study 1 Debriefing Message

Thank you for your participation in our study! Your participation is greatly appreciated.

Purpose of the Study: Earlier we informed you that the purpose of the study was to assess and provide you with accurate feedback of your leadership abilities based on the simulation. In actuality, the true purpose of our study is to *examine the impact of deficits-based feedback versus strengths-based feedback on leader identity*.

We, specifically, are seeking to understand which feedback approach would lead to more or less engagement in the feedback itself, and more or less effort in learning more about the feedback area. We want to see which feedback approach is more beneficial for the development of leader identity of new leaders (i.e., the degree to which you see yourself as a leader).

You were provided with fabricated feedback, which has already been pre-programmed and randomly displayed. In other words, **the feedback you received does not reflect your actual leadership abilities.**

Previously, you saw one of the following feedback messages:

1. deficits-based feedback (showing leadership weaknesses)
2. strengths-based feedback (showing leadership strengths)
3. mixed feedback (showing both leadership weakness and strength)
4. control group (showing error on your screen)

Unfortunately, in order to properly test our hypothesis, we could not provide you with all of these details prior to your participation. This ensures that your reactions in this study were spontaneous and not influenced by prior knowledge about the purpose of the study. **Again, the feedback you received was fabricated and does not reflect your actual leadership abilities.** Although the feedback was fabricated, the email in-basket simulation we used is a common assessment tool to evaluate leader behaviors and sometimes used in organizations for selection or developmental purposes.

As much as we would like to, we could not give you your real leadership feedback for two reasons: 1. the exercise you did was a short version and won't give us enough information about your leadership behaviors 2. normally, instead of choosing from existing responses, you would type out your own responses, and we would use two assessors to evaluate your responses. We regret the deception, but we hope you understand the reason for it.

Confidentiality: Please note that although the purpose of this study has changed from the originally stated purpose, everything else on the consent form is correct. This includes the ways in which we will keep your data confidential.

Now that you know the true purpose of our study and are fully informed, should you decide that you do not want your data used in this research, please contact the principal investigator directly via contact information below.

Whether you agree or do not agree to have your data used for this study, you will still receive the compensation for your participation. **We kindly ask that you do not disclose research procedures and/or hypotheses to anyone who might participate in this study in the future as this could affect the results of the study.**

Appendix F

Measures: Key Variables

Leader Identity (Hiller, 2005): 4 items

Instruction: Please rate the extent to which the following statements describe you, using a scale from 1 (does not describe me at all) to 7 (describes me very well).

Learning Goal Orientation (VandeWalle, 1997): 6 items

Instruction: Please rate the extent to which you disagree or agree with the following statements using a scale from 1 (strongly disagree) to 7 (strongly agree)

Measures: Control Variables

Need for Cognition (Cacioppo et al., 1984): 9 items
Response options: 1 (strongly disagree) to 7 (strongly agree)

Personality traits
Response options: 1 (strongly disagree) to 7 (strongly agree)

Extraversion (Hahn, Gottschling, & Spinath, 2012): 3 items

Conscientiousness (Hahn, Gottschling, & Spinath, 2012; Olaru, Witthoft, & Wilhelm, 2015): 4 items

Feedback orientation (Linderbaum & Levy, 2010)

- *Utility*: "An individual's tendency to believe that feedback is instrumental in achieving goals or obtaining desired outcomes at work" (5 items).
- *Accountability*: "An individual's tendency to feel a sense of obligation to act on feedback" (5 items).
- *Social Awareness*: "An individual's tendency to use feedback to be aware of other's views of oneself and to be sensitive to these views" (5 items).
- *Feedback Self-Efficacy*: "An individual's tendency to have confidence in dealing with feedback situations and feedback" (5 items).

Appendix G

Leadership Self-assessment Scales

Instruction

For this section, please think of the time when you worked in a group context. This can be, for example, working with other students on a team project, working with your co-workers on a part-time job.

Individualized consideration (7 items)

Definition: Considerate leaders display personal concern and regard for others as people, not just as workers.

Scale: Ethical Leadership at Work Questionnaire (ELW) – People orientation (Adapted from: Kalshoven, Den Hartog, & De Hoogh, 2011)

Source: Kalshoven, K., Den Hartog, D., & De Hoogh, A. (2011). Ethical Leadership at Work questionnaire (ELW): Development and validation of a multidimensional measure. *The Leadership Quarterly, 22*(1), 51-69. doi: https://dx.doi.org/10.1016/j.leaqua.2010.12.007

Relational transparency (3 items)

Definition: Leaders who excel at relational transparency present their authentic self to others. They share information in an open and honest manner and encourage others to do so as well.

Scale: Authentic leadership inventory (Adapted from: Neider & Schriesheim, 2011)

Source: Neider, L. L., & Schriesheim, C. A. (2011). The authentic leadership inventory (ALI): Development and empirical tests. *The Leadership Quarterly*, *22*(6), 1146-1164.

Initiation of structure (10 items)

Definition: A leader high on initiation of structure understands the value of structure and organization to achieve goals.

Scale: Leader behavior description Questionnaire - Initiating structure (Stogdill, Goode, & Day, 1962)

Source: Stogdill, R. M., Goode, O. S., & Day, D. R. (1962). New leader behavior description subscales. *The Journal of Psychology*, *54*(2), 259-269.

Clarifying Roles & Objectives (4 items)

Definition: Clarifying roles refers to setting clear expectations and responsibilities of team members.

Scale: Ethical Leadership at Work Questionnaire (ELW) – Role Clarification (Kalshoven, Den Hartog, & De Hoogh, 2011)

Source: Kalshoven, K., Den Hartog, D. N., & De Hoogh, A. H. (2011). Ethical leadership at work questionnaire (ELW): Development and validation of a multidimensional measure. *The Leadership Quarterly*, *22*(1), 51-69.

Balanced processing (8 items)

Definition: A leader high on balanced processing is thoughtful, seeks out opposing views, and isn't afraid to challenge unquestioned assumptions.

Scale 1: Authentic leadership inventory (Neider & Schriesheim, 2011)

Source: Neider, L. L., & Schriesheim, C. A. (2011). The authentic leadership inventory (ALI): Development and empirical tests. *The Leadership Quarterly*, *22*(6), 1146-1164.

Scale 2: Deliberative decision making (Adapted from: Wolff & Crockett, 2011)

Source: Wolff, J. M., & Crockett, L. J. (2011). The role of deliberative decision making, parenting, and friends in adolescent risk behaviors. *Journal of Youth and Adolescence*, *40*(12), 1607-1622.

Rational approach (4 items)

Definition: Leaders with a rational approach to persuasion prefer using facts and logic to support their views.

Scale: Influence behavior questionnaire (IBQ) (Yukl & Falbe, 1990)

Source: Yukl, G., & Falbe, C. M. (1990). Influence tactics and objectives in upward, downward, and lateral influence attempts. *Journal of Applied Psychology*, *75*(2), 132-140.

Appendix H

Study 2: Leadership Feedback Messages

Study 2 Feedback Messages

Feedback Instructions

Everyone – Intro & Brief definition of all four dimensions (Count: 173)

On the following page, you will receive your leadership feedback summary, based on the leadership assessment. You were assessed based on several, select leadership dimensions that have been identified as important in organizational research and are related to leadership effectiveness. In other words, the assessment you completed measures effective leadership based on metrics that are evidence-based and useful in leadership settings.

First, please review these brief definitions of the four dimensions you were assessed on.

1. **Relationship building:** creating a nurturing environment for their team by forming open and supportive relationships with other people and by fostering a cohesive group identity marked by trust, commitment, and pride.

2. **Leadership execution:** creating structure and pathways of success for other people.

3. **Problem-solving:** effective decision-making, thinking critically, fostering creativity and innovation, and viewing issues from a balanced perspective.

4. **Leadership persuasion:** influencing other people to move in a direction that you view as important and connecting with them in meaningful and motivating ways.

Next, we will provide you with a summary of your leadership feedback.

[Deficit-based feedback (counts: 74)]

Although there are several leadership dimensions in this assessment, for your feedback, it is important to focus on the gap in your leadership effectiveness first. This way you can **recognize and address your weaknesses** as a leader and further develop your leadership skills.

According to our assessment, on the next page, we provide you with one leadership dimension that you scored *lowest* on and can be considered as one of your **areas of improvement.**

-------Participants will see only the leadership dimension they scored lowest on ----------

[Strengths-based feedback (counts: 73)]

Although there are several leadership dimensions in this assessment, for your feedback, it is important to focus on what you are already good at. This way you can **recognize and address your strengths** as a leader and further develop your leadership skills.

According to our assessment, on the next page, we provide you with one leadership dimension that you scored *highest* on and can be considered as one of your **areas of strength.**

------Participants will see only the leadership dimension they scored highest on--------

[Control Condition (counts: 84)]

Unfortunately, something went wrong when we tried to generate feedback for you. We are sorry that you won't see your personalized feedback at the moment. Although it will take some time for us to resolve the issue with your feedback summary, we hope to provide you the summary in the near future.

In the meantime, it is still useful to learn more about the leadership dimensions described earlier. On the next page, you will receive more details about one of the four leadership dimensions.

-------Participants will see brief explanations of one random leadership dimension ----------

Experimental Conditions

Relationship Building

[Description for all three conditions (count: 148)]

Relationship-oriented leaders tend to create a nurturing environment for their team, through forming open and supportive relationships with individuals and by fostering a cohesive group identity marked by trust, commitment, and pride.

Leaders do their work with and through other people. More specifically, leaders work at creating a context where members of the group can flourish. Leaders who excel in this area are like the “glue” that holds the team together. They turn a group of individuals into a team that is greater than the sum of its parts. For example, ***relationship-building*** leaders involve all team members in a project, while minimizing distractions around social conflict. They also display personal concern and regard for others as ‘people’, not just as workers.

More than 50 years of research suggests that leaders who are considerate and supportive develop high-quality, trusting, working relationships with subordinates, which results in positive work outcomes.

[Deficits condition (counts: 90)**]**

The relationship building dimension may be considered as one of your **leadership weaknesses**.

Recognizing relationship building as an area that can be improved upon is an important step in developing greater skills as a leader.

To develop and fill this leadership gap, think about ways to demonstrate your personal concern and regard for others and how to create supportive relationships in your group. For example, you can try to learn about goals, major life events, and values of other people. Also, consider expressing yourself and openly sharing information with your team members.

[Strengths condition (counts: 89)**]**

The relationship-building dimension may be considered as one of your **leadership strengths**.

Recognizing relationship building as a strength is an important step in developing greater skills as a leader.

You tend to succeed by building and maintaining healthy and productive relationships, treating other team members as unique individuals, and being authentic and transparent in your actions. To further bolster your strengths, think about what you do well in demonstrating your personal concern and regard for others and in creating supportive relationships. Continue practicing those behaviors in the future.

[Control condition (counts: 90)**]**

The relationship building dimension is an important leadership dimension that is key to leadership effectiveness.

Recognizing relationship building as a central leadership skill is an important step in developing greater skills as a leader.

To develop skills associated with relationship building, researchers recommend thinking about ways to demonstrate personal concern and regard for others and about creating supportive relationships in group settings. For example, leaders may learn about goals, major life events, and values of team members. They may also consider expressing themselves and openly sharing information with team members.

Leadership Execution

Description for both conditions (count: 147)]

Leadership execution is about creating structure and pathways of success for other people. A key here is setting clear performance expectations for and responsibilities of team members, clarifying goals and roles, creating work structure, allocating resources, identifying obstacles, and tracking progress.

Leaders strive to produce results and reach certain goals. The ***leadership execution*** dimension concerns how leaders make things happen. Leaders who are skilled in this dimension enjoy the process of execution and turn vague ideas into tangible realities. For example, they may excel at establishing a quality process, working tirelessly toward a goal, or ensuring they put together the ideal team for completing the task at hand.

Evidence supporting the importance of ***leadership execution*** for effective leadership is strong. A large review of the research found that creating clear work structure and process was strongly related to leader job performance and both group and organizational performance.

[Deficits condition (counts: 90)**]**

The leadership execution dimension may be considered as one of your **leadership weaknesses**.

Recognizing leadership execution as an area that can be improved upon is an important step in developing greater skills as a leader.

To develop and fill this leadership gap, consider the following: communicate clear expectations and responsibilities to each team member, encourage the use of clear procedures, assign particular tasks to each member, schedule timing of work, maintain clear performance standards, and improve team processes, like suggesting that all meetings will follow a prepared agenda.

[Strengths condition (counts: 90)**]**

The leadership execution dimension may be considered as one of your **leadership strengths**.

Recognizing leadership execution as a strength is an important step in developing greater skills as a leader.

You may excel at making sense out of complex tasks and providing clear direction for reaching goals. To further bolster your strengths, continue to practice involving people in defining and clarifying expectations. Strive to help everyone should have a clear understanding what their goals are, what constitutes success, what's expected of group members, and what each team member's responsibilities are.

[Control condition (counts: 86)**]**

The leadership execution dimension is an important leadership dimension that is key to leadership effectiveness.

Recognizing leadership execution as a central leadership skill is an important step in developing greater skill as a leader.

To develop skills associated with leadership execution, researchers recommend communicating clear expectations and responsibilities to each team member, encouraging the use of clear procedures, assigning particular tasks to each member, scheduling timing of work, maintaining clear performance standards, and improving team processes, like suggesting that all meetings will follow a prepared agenda.

Problem-solving

[Description for both conditions (count: 140)]

Problem-solving is about strategizing and decision-making and includes leaders' skill in thinking critically, fostering creativity and innovation, and viewing issues from a balanced perspective.

Leaders need to be able to make difficult decisions and solve complex problems that move the team in a strategically sound direction. The ***problem-solving*** dimension covers effective leader behaviors like gathering and using information in making effective decisions as situations change and unfold.

Leaders who are skilled in this dimension consistently analyze and absorb new information and seek to help their teams make better decisions, while also keeping in mind what the team can realistically accomplish. For example, leaders using problem-solving skills might explain how past events have influenced present circumstances or communicate how to navigate the best route to promote future opportunities. They may help the team examine the specific details of cause and effect.

[Deficits condition (counts:97)**]**

The problem-solving dimension may be considered as one of your **leadership weaknesses**.

Recognizing problem-solving as an area that can be improved upon is an important step in developing greater skills as a leader.

To develop and fill this leadership gap, think about ways to demonstrate your thoughtfulness and seek out views that sometimes go against your own. For example, you may want to practice asking the hard questions that challenge your core beliefs, listening to alternative points of view, seeking out facts underlying a problem, and actively evaluating what went right and what went wrong in your decision making.

[Strengths condition (counts: 95)**]**

The problem-solving dimension may be considered as one of your **leadership strengths**.

Recognizing problem-solving as a strength is an important step in developing greater skills as a leader.

It seems that you excel at carefully considering different perspectives of the issue at hand and brainstorming creative ideas to help achieve your goals and objectives. To further engender your strengths, consider asking the hard questions that challenge your core beliefs, listening to alternative points of view, seeking out facts underlying a problem, and actively evaluating what went right and what went wrong in your decision making.

[Control condition (counts: 94)**]**

The problem-solving dimension is an important leadership dimension that is key to leadership effectiveness.

Recognizing problem-solving as a central leadership skill is an important step in developing greater skill as a leader.

To develop skills associated with problem-solving, researchers recommend considering different perspectives of the issue at hand, brainstorming creative ideas to help achieve your goals and objectives, practicing asking the hard questions that challenge your core beliefs, listening to alternative points of view, seeking out facts underlying a problem, and actively evaluating what went right and what went wrong in your decision making.

Leadership Persuasion

[Description for both conditions (count: 149)]

Leadership persuasion is about connecting with people in meaningful and motivating ways. This dimension covers behaviors such as communicating clearly and convincingly, emphasizing ideals and values, using facts and logic to support one's views, and gaining buy-in and support from others when pursuing their initiatives.

Part of the leaders' success is dependent on the actions of followers. Leadership persuasion describes leaders' effectiveness in influencing both individuals and groups to move in a direction that the leader views as important.

Research indicates that effective leaders are someone who takes charge, speaks up, and makes sure their team is heard. They promote the team's ideas inside and outside of the organization, without resorting to manipulation or coercion. For example, leaders who speak and write effectively make followers feel comfortable and engaged, which can drive them to take action. These positive persuasion techniques are likely to strengthen others' commitment to the leaders' direction.

[Deficits condition (counts: 94)**]**

The leadership persuasion dimension may be considered as one of your **leadership weaknesses**.

Recognizing leadership persuasion as an area that can be improved upon is an important step in developing greater skill as a leader.

To develop and fill this leadership gap, try to support your arguments with clear and precise facts, determine what you know and do not know before stating your case. Also, try to demonstrate your values to your team, and express your excitement about the vision you have for the project and how it aligns with shared values and goals.

[Strengths condition (counts: 95)**]**

The leadership persuasion dimension may be considered as one of your **leadership strengths**.

Recognizing leadership persuasion as a strength is an important step in developing greater skill as a leader.

You are good at influencing and motivating others to follow your visions and goals. You effectively use facts and logic to support your ideas. To further engender your strengths, try to demonstrate your values to your team. The next time you work on a project, express your excitement about the vision you have for the project and how it aligns with shared values and goals.

[Control condition (counts: 94)**]**

The leadership persuasion dimension is an important leadership dimension that is key to leadership effectiveness.

Recognizing leadership persuasion as a central leadership skill is an important step in developing greater skill as a leader.

To develop skills associated with leadership persuasion, researchers recommend trying to support your arguments with clear and precise facts, determining what you know and do not know before stating your case, trying to demonstrate your values to your team, and expressing your excitement about the vision you have for the project and how it aligns with shared values and goals.

Next Steps

Now that you have learned more about important leadership dimensions, the next activity you will complete is a leader development planning activity.

Leader Development Planning

Instructions: Take some time to think about what your daily activities look like and try to come up with useful, practical changes you could make that would help you develop your leadership skills and abilities. In the space below, please brainstorm and describe ideas about specific activities that you can try to integrate into your normal daily activities. You can come up with as many ideas as you want, but please type in one idea per box below.

Leader Development Challenge!

For the next 7 days, we want to challenge you to engage in different leader development activities of your choice. You can choose to follow the activity ideas that you have just come up with or you can come up with new ideas. It is up to you on how you want to develop your leadership skills and abilities further, but please keep in mind that the four dimensions you read about earlier are likely to be highly impactful in developing your leadership skills.

Instructions: We ask that you please complete each report on what you did during the day using the survey that we will send out at 8 pm, each day, for the next 7 days. Think of it as keeping a 7-day diary of your leadership-related activities.