

DISSERTATION

EXPANDING THE SOCIAL-COGNITIVE FRAMEWORK:  
UNDERSTANDING THE ROLE OF IMPLICIT PERSON THEORIES IN A  
COMPLEX TASK FEEDBACK ENVIRONMENT

Submitted by

Joshua Liff

Department of Psychology

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WE HEREBY RECOMMEND THAT THE DISSERTATION PREPARED UNDER OUR SUPERVISION BY JOSHUA P. LIFF ENTITLED EXPANDING THE SOCIAL-COGNITIVE FRAMEWORK: UNDERSTANDING THE ROLE OF IMPLICIT PERSON THEORIES IN A COMPLEX TASK FEEDBACK ENVIRONMENT BE ACCEPTED AS FULFILLING IN PART REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY.

Committee on Graduate Work

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Matthew Rhodes

---

Casey Mulqueen

---

Richard Feller

---

Advisor: Kurt Kraiger

---

Department Head: Ernest Chavez

## ABSTRACT OF DISSERTATION

### EXPANDING THE SOCIAL-COGNITIVE FRAMEWORK: UNDERSTANDING THE ROLE OF IMPLICIT PERSON THEORIES IN A COMPLEX TASK FEEDBACK ENVIRONMENT

The current study employed a longitudinal design to examine the effects of implicit person theories (IPTs; Dweck & Leggett, 1988) on task performance over two measurement occasions and a week of temporal separation. This design allowed for a direct inquiry into the pivotal role that one's lay beliefs about the malleability of attributes play in a simulated task feedback environment. In addition to examining the direct effects of IPT on task performance, the study investigated the role of the mediated mechanisms of appraisal effectiveness (i.e., feedback reactions), goal setting, effort, and attributions in the IPT-task performance relationship. Further, the study investigated the conditional indirect effect of feedback sign (i.e., positive vs. negative) on the mediational mechanisms, otherwise known as moderated mediation.

242 psychology students participated in the study for course credit. Limited evidence for the proposed mediational models was provided. Overall, IPTs significantly positively predicted task performance following the receipt of feedback after a one-week lag in measurement. Furthermore, the sign of the feedback was a significant, positive predictor of the full class of feedback reactions.

Notably, the full class of reactions to feedback were all positively related to task 2 performance, providing empirical evidence of the predictive validity of appraisal feedback reactions for subsequent performance. Implications of the results, future research directions, and limitations are discussed.

Joshua P. Liff  
Psychology Department  
Colorado State University  
Fort Collins, CO 80523  
Spring 2010

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## DEDICATION

I dedicate this work to my grandfather, Elias Feldman (1915-2009), whose love and intellect inspired me to be more disciplined. The grammatical lessons that he provided me with as a child to this day guide my syntax.

## TABLE OF CONTENTS

Acknowledgements .....	v
Dedication .....	vi
Introduction .....	11
Background .....	17
Implicit Person Theories .....	17
Implicit Person Theories in an Organizational Context .....	22
The Role of Reactions to Feedback and IPTs Within a Performance Evaluation Context .....	24
The Conflicting Functions of Performance Evaluations .....	24
Reactions to Feedback .....	25
Implicit Person Theories and Reactions to Feedback .....	28
Multidimensional Task Feedback Reactions .....	31
Organizational Justice .....	32
Hypothesis 1 .....	37
Hypothesis 1a .....	37
Hypothesis 2 .....	39
Hypothesis 2a .....	40
Hypothesis 3 .....	41
Hypothesis 3a .....	42
Feedback Satisfaction .....	42
Hypothesis 4 .....	44

Hypothesis 4a .....	44
Perceived Utility .....	44
Hypothesis 5 .....	45
Hypothesis 5a .....	45
Supervisor Credibility .....	46
Hypothesis 6 .....	47
Hypothesis 6a .....	47
Motivation to Use Feedback .....	47
Hypothesis 7 .....	49
Hypothesis 7a .....	49
Perceptions of Feedback Accuracy .....	49
Hypothesis 8 .....	51
Hypothesis 8a .....	51
Task Performance .....	51
Hypothesis 9 .....	61
Hypothesis 9a .....	62
Hypothesis 10 .....	62
Mediators of the IPTs-Performance Relationship .....	62
Hypothesis 11 .....	66
Hypothesis 11a .....	67
Hypothesis 12 .....	69
Hypothesis 12a .....	69
Hypothesis 13 .....	70

Hypothesis 13a .....	70
Hypothesis 14 .....	71
Hypothesis 14a .....	72
Hypothesis 15 .....	72
Hypothesis 15a .....	73
Hypothesis 16 .....	74
Hypothesis 16a .....	74
Method .....	76
Participants .....	76
Measures .....	77
Procedure .....	87
Results .....	95
Data Handling .....	95
Descriptive Statistics and Correlations Among Study Variables .....	97
Manipulation Check .....	98
Evaluation of the Study Hypotheses .....	98
Evaluation of Mediation Models .....	101
Summary of Results .....	115
Discussion .....	117
The Relative and Practical Importance of the Study Findings .....	118
Elaboration on Null Results .....	123
External Validity .....	131
Limitations .....	132

Future Research Directions .....	134
Implications for Research and Practice in Organizations .....	136
References .....	139
Tables .....	156
Figures .....	167
Appendices .....	173
Appendix A: Summary of Study Hypotheses .....	174
Appendix B: Measures .....	180
Appendix C: Sequence of Study Phases and Measures .....	194
Appendix D: Observational Rating Forms for Marketing Tasks .....	195
Appendix E: Sample Performance Evaluation Script .....	201
Appendix F: Travel University Information Sheet .....	206

## Introduction

A substantial body of literature in the fields of human resources (HR) management and industrial-organizational (I-O) psychology (e.g., strategic I-O psychology; Boudreau & Ramstad, 2003) has sought to establish a link between human resources practices and organizational financial performance (Becker & Huselid, 1998, 2006). A number of studies have linked HR practices to organizational-level outcomes such as turnover, productivity, and corporate financial performance (Huselid, 1995; Delaney & Huselid, 1996; Cascio & Young, 2003). While much research remains to be conducted to further explicate the link between specific human resources practices and firm performance, this body of research provides a persuasive argument for the importance of HR practices on organizational performance and profitability.

Of relevance to the theoretical and practical import of the current investigation is evidence linking the adoption and use of performance appraisals tied to compensation levels (Borman, 1991), and the consequent effects of these performance management systems on organizational profitability (Gerhart & Milkovich, 1992). The appraisal process is critical to organizational performance as, in theory, improvements in performance on the individual level may translate to performance improvements at higher levels of analysis (e.g., team and organization), which in turn can yield higher organizational profits and increased market value

(e.g., return on investment). However, examining the effects of aggregate level data can be misleading in our quest to understand a phenomenon at the basic individual level of analysis (Kozlowski & Klein, 2000). Accordingly, while there is evidence that performance appraisals are essential to an organization's competitive advantage, a more proximal examination of individual-level factors is necessary to understand the conditions within which the effectiveness of the performance appraisal process may vary.

Feedback interventions (FIs) are critical to performance appraisals with a developmental component (Kluger & DeNisi, 1996). FIs, one of the most widely used applied psychological interventions, are defined as any action taken by an external agent of a task that provides information or knowledge to a user regarding his/her task performance, with the intent of improving subsequent performance. Considerable research has focused on the effects of FIs on subsequent performance in the appraisal process (see Kluger & DeNisi, 1996, for a meta-analytic review). Meta-analytic evidence on the effectiveness of FIs is mixed, with over a third of FIs (38%) producing negative effects (Kluger & DeNisi, 1996). That is, while the average effect of FIs on performance is moderate ( $d = .41$ ), a substantial proportion of effects are negative, suggesting that FIs may be moderated by task, individual, and environmental characteristics. There is a need to further explicate the focal variables that may influence the effectiveness of FIs. One phenomenon of interest that has been relatively understudied in an FI context is the role of dispositional variables. Accordingly, the current study targets understanding of how dispositional factors may affect participants' reactions to feedback interventions, and consequently, more distal effects on the performance of novel tasks.

While performance appraisal has been one of the most widely studied phenomena in the I-O psychology literature (Cascio & Aguinis, 2008), little research in the appraisal literature has focused on the influence of personality characteristics in an appraisal or feedback context. In response to this gap, organizational researchers have called for a greater focus on dispositional factors in the performance appraisal and task feedback domains (Colquitt & Simmering, 1998; Fedor, 1991).

Liff and Hurd (2009) responded to the call for more research on the effects of personality characteristics on reactions to task feedback. Implicit person theories (IPTs) refer to individuals' lay beliefs regarding whether attributes such as intelligence and other traits are either malleable (i.e., an incremental perspective), or intractable (i.e., an entity perspective). After a search of the I-O psychology literature, they found that while implicit person theories demonstrated robust effects on a number of organizationally-relevant outcomes across a number of contexts, including training performance (Martocchio, 1994), team performance (Tabernerero & Wood, 1999), performance appraisal ratings (Heslin, Latham, & VandeWalle, 2005), and managers' coaching abilities (Heslin, VandeWalle, & Latham, 2006), IPTs had yet to be applied directly to employees who are recipients of feedback, as well as to their reactions to such feedback in a work context. Of particular interest are the results of Heslin et al. (2006) who found that managers who adopted more of an incremental perspective were more likely to invest resources to help others to develop and improve their performance. In contrast, those who adopted more of an entity perspective were less likely to invest resources to help others to develop and improve their performance. This study provided preliminary evidence that the behavioral consequences of adopting implicit person theories in

educational settings were also prevalent in an organizational setting. Notwithstanding, none of the available organizational research focused on the behavioral consequences on performance for subordinates adopting one implicit person theory over another in an appraisal context.

Reactions to feedback or appraisal effectiveness represent an important class of outcome variables that serve as an indication of how well the appraisal system operates as a tool for helping organizations motivate and develop employees (Keeping & Levy, 2000). Drawing on Dweck and Leggett's (1988) social cognitive framework, Liff and Hurd (2009) proposed a model of reactions to feedback that considered the effects of both objective characteristics (i.e., sign of feedback), and dispositional characteristics (i.e., implicit person theories) on task feedback reactions (see Figure 1). They posited that because implicit person theories shape individuals' beliefs about the extent to which their ability is malleable, an opportunity to receive feedback may be differentially perceived by individuals depending upon whether they have an incremental or entity perspective. Specifically, one holding an incremental perspective would perceive the receipt of task feedback as more of an opportunity to improve his/her subsequent performance and achieve mastery on a particular task. In contrast, those subscribing to an entity perspective would view such a situation as potentially threatening in that a negative evaluation would be diagnostic of one's true ability.

Accordingly, their model proposed that across all dimensions of appraisal effectiveness -perceptions of fairness (i.e., distributive justice, procedural justice, and interactional justice), feedback satisfaction, perceived feedback accuracy, and supervisor credibility - one would be more likely to react positively to feedback, regardless of its

sign, if he or she held an incremental perspective. Conversely, they posited that one would be more likely to react negatively across all dimensions of appraisal effectiveness, regardless of the sign of the feedback, if one held an entity perspective. In an empirical test, they obtained partial support for their model with IPTs contributing significant incremental variance beyond the sign of feedback in the prediction of both interactional justice (4%) and supervisor credibility (6%). Both of the significant effects were in the predicted direction with incremental theorists having higher ratings of interactional justice and supervisor credibility than entity theorists. While they did not obtain support for distributive justice, procedural justice, feedback satisfaction, and feedback accuracy, all of the IPTs-outcome relationships were in the predicted direction, and close to the .05 threshold (e.g., for procedural justice,  $\Delta R^2 = .04$ ,  $p = .06$ ). The lack of significant results for the other outcomes could have been due to the small sample size ( $N = 57$ ) and consequent low power to detect significant effects (Cohen, Cohen, West, & Aiken, 2003).

The present study seeks to extend the initial study by addressing some of its limitations, and by expanding the existing nomological network for the social-cognitive IPT framework. First, support for the full class of appraisal effectiveness outcomes is expected by ensuring that an adequate sample size is collected based upon the effect sizes reported by Liff and Hurd (2009) (see the Methods section for details on the sample). Second, in the Liff and Hurd study, another major impetus for examining appraisal effectiveness was that reactions to feedback could affect subsequent performance. However, they assessed performance on only one occasion.

In contrast, the present study examines the effects of implicit person theories on task performance over two measurement occasions (separated by one week). This design

allows for a stronger inquiry into the pivotal role that lay beliefs about the malleability of attributes plays in a task feedback environment that simulates a work context.

Specifically, this study examines the direct effects of IPTs on appraisal effectiveness<sup>1</sup> and task performance, as well as the role of mediation mechanisms of appraisal effectiveness (i.e., feedback reactions), goal setting, effort, and attributions in the IPT-task performance relationship. Further, the study also allows for the investigation of conditional indirect effects of feedback sign on the hypothesized mediational mechanisms, otherwise known as moderated mediation (see Baron & Kenny, 1986). That is, moderated mediation models are constructed to examine the conditional effects that feedback sign (i.e., positive vs. negative) has on the IPTs-to-appraisal effectiveness and IPTs-to-subsequent performance relationships. Alternative structural equation models are constructed and specified to examine the tenability of competing mediational frameworks. Another aim of the current study is to provide evidence of a link between appraisal reactions and performance. A principal goal of a performance appraisal system is the ability to help employees develop and improve their performance. While evidence exists between dimensions of organizational justice and performance, previous research has not examined the relationship between the full class of appraisal reactions and performance outcomes.

In summary, the present examination addresses the following research questions:

- 1) Does the effectiveness of feedback interventions vary as a function of individuals' IPT beliefs?
- 2) To what extent are IPT beliefs related to feedback reactions?
- 3) What

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<sup>1</sup> Given that the proposed study will be conducted in a laboratory with a performance evaluation narrowly focused on two performance occasions, feedback effectiveness is a more accurate descriptor for the phenomenon of interest. However, the terms appraisal effectiveness and feedback effectiveness will be used interchangeably throughout this manuscript.

mechanisms are involved in transmitting the effects of IPT-task performance outcomes?

4) Are these effects conditional upon the sign of feedback received on an initial performance evaluation? and 5) To what extent do appraisal reactions predict performance outcomes?

Accordingly, the overarching purpose of the study is to develop and test a number of competing theoretical models of the social-cognitive IPTs framework (see Figures 2 - 6) to gain greater insight into how implicit person theories operate in a complex task feedback environment to affect reactions to task feedback, self-regulatory processes, and task performance. Several models are advanced and tested within a mediational framework, including a model that contends that the effects of implicit person theory beliefs are transmitted to task performance via multiple mechanisms. The subsequent section of the introduction will provide a review of the substantive literature that serves as a basis for the theoretical framework from which the hypotheses and mediational models were derived.

## Background

### *Implicit Person Theories*

Implicit person theories originally emerged in the educational psychology domain to help explicate differences in behavioral patterns of learning among students in achievement settings (Diener & Dweck, 1978, 1980). Dweck and colleagues (Diener & Dweck, 1978, 1980; Dweck, 1975; Dweck & Reppucci, 1973) observed that students tended to exhibit either a maladaptive “help-less” response or a mastery-oriented response in achievement settings that could not be explained by their underlying ability. Further, they identified underlying goals that individuals displaying the respective

patterns would pursue in achievement settings: a learning goal orientation to master new material and gain competence; or a performance goal orientation to demonstrate their competence while avoiding negative evaluations from others regarding ones' competence.

Underlying the differentiated motivational patterns of goal orientation are individuals' core beliefs about the mutability of traits and abilities. That is, it is core implicit person theory beliefs that are proposed to lead one to pursue learning versus performance goals (Dweck & Leggett, 1988). Such core beliefs are known as implicit person theories of intelligence<sup>2</sup> and are categorized as either malleable (one subscribing to such beliefs is known as an incremental theorist) or fixed (one subscribing to such beliefs is known as an entity theorist). Dweck and Leggett (1988) argued that individuals with an entity perspective (alternately referred to as a *fixed mindset* by Dweck, 2006) tend to orient themselves toward performance goals, whereas individuals with an incremental perspective (alternately referred to as a *growth mindset* by Dweck, 2006) tend to pursue mastery or learning goals. Incremental theorists' beliefs tend to be characterized by an underlying assumption that personal attributes are malleable or able to be developed. In contrast, entity theorists' beliefs tend to be characterized by the underlying assumption that personal attributes are intractable and consequently not amenable to development. Conceiving of one's ability as a fixed entity is associated with the performance goal of demonstrating the respective entity, whereas conceiving of ability as a malleable attribute is associated with the learning goal of developing the respective attribute (Dweck & Leggett, 1988). These core beliefs about the mutability of

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<sup>2</sup> IPTs will be used to refer to all domain-general beliefs regarding the mutability of intelligence, traits, general characteristics, or attributes.

attributes influence the manner in which people derive meaning from various settings. That is, implicit person theories help form a social-cognitive framework that is used to interpret individual experiences (Dweck & Leggett, 1988).

The idea that lay theories play a pivotal role with respect to the manner in which people process information and interpret social interactions has had a long tradition in social psychology research (cf. Levy, Stroessner, & Dweck, 1998; Heider, 1958; Jones & Thibaut, 1958; Kelly, 1955). While the focus of the present study was on implicit theories in general (i.e., a general belief regarding personal attributes), the topic of implicit theories has proliferated, with a wide range of studies conducted across domain-specific measures of implicit theories, including: implicit theories about intelligence (e.g., Dweck & Leggett, 1988; Hong, Chiu, & Dweck, 1995; Rhodewalt, 1994; Sternberg, 1985), creativity (e.g., Runco, Johnson, & Bear, 1993), expertise (e.g., Wright & Murphy, 1984), morality (e.g., Chiu, Dweck, Tong, & Fu, 1997), free will or determinism (e.g., Dweck & Molden, 2008; Stroessner & Green, 1990), people (e.g., Chiu, Hong, & Dweck, 1997; Ross, 1989), and relationships (e.g., Fletcher & Thomas, 1996). Evidence across these domains supports the fundamental role of the construct in shaping cognitions, social judgments, and behavior.

*Prevalence of different response patterns.* A number of studies have found that there is approximately an equal distribution of those subscribing to incremental and entity theories (Dweck & Molden, 2008), with approximately 30% of samples falling unequivocally into each category. Further, throughout a number of validation studies, evidence supports the notion that implicit person theories are distinct from and unrelated to level of education, cognitive ability, self-esteem, and optimism (Dweck, Chiu, &

Hong, 1995). Thus, counter to intuition, implicit person theories do not differ simply as a function of skills, abilities, or one's underlying confidence in his/her abilities and skills (Dweck & Leggett, 1988). In contrast, those of equal ability will show marked differences in performance in response to challenging situations as a function of differences in implicit beliefs and the consequent goals they enact.

*Behavioral manifestations of implicit person theories.* Five streams of research that are relevant to the current investigation have emerged in the educational and social psychology literatures: 1) how do incremental theories affect self-regulation (e.g., Robins & Pals, 2002; Dweck & Leggett, 1988)?, 2) does holding different implicit person theory beliefs affect one's judgments of others (Dweck et al., 1995)?, 3) how is the willingness of people to invest resources in developing others affected by their IPT beliefs (Hong et al., 1999)?, 4) do peoples' willingness to seek feedback or input from others differ as a function of their IPTs (Dweck, 1999; Dweck et al., 1995)?, and 5) what effect do implicit person theories have on the manner in which people form judgments regarding the causes of their own performance (Dweck et al., 1995)?

An incremental theory has been associated with such beneficial self-regulatory activities as adopting learning goals (e.g., Robins & Pals, 2002; Dweck & Leggett, 1988), investing time in remedial development opportunities (Hong et al., 1999), and maintaining self-efficacy and persisting following performance setbacks (Tabernero & Wood, 1999; Wood & Bandura, 1989).

Those subscribing to incremental beliefs tend to hold less rigid initial impressions of other people and are less apt to base predictions of future behavior on such initial impressions, compared to entity counterparts (Erdley & Dweck, 1993). In contrast, entity

theorists use considerably stronger evaluative labels (e.g., “intelligent” or “unqualified”) to describe other people based on a minimal sample of behavior such as a single test score (Hong, Chiu, Dweck, & Sacks, 1997). Similarly, people with an entity perspective tend to view their own performance as rigidly determined by their own intractable abilities, and consequently, they may unduly focus on abilities to evaluate their own performance, and tend to base such evaluations on a limited sample of behavior (Dweck, 2006).

Those who hold an entity belief are also less inclined to provide developmental assistance to others since they are posited to believe that such investments in others will not help others improve their implacable attributes (Dweck et al. 1995). In support of this proposition, those holding an incremental perspective are more likely to provide a fellow classmate with performance improvement suggestions (Heyman & Dweck, 1998). Similarly, those who hold an entity perspective are less likely to seek feedback since they view their performance deficiencies as reflecting their lack of competence, which is not perceived to be easily tractable (Dweck, 1999; 2006).

Taken as a whole, each stream of research has demonstrated behavioral consequences in the form of differential patterns of behavior for those tending to adopt one implicit theory over another. Dweck et al. (1995) summarized:

...when people believe that attributes (such as intelligence or moral character) are fixed, trait-like entities, they tend to understand outcomes and actions in terms of these fixed traits ('I failed the test because I am dumb' or 'He stole the bread because he is dishonest'). In contrast, when people believe that attributes are more dynamic, malleable, and developable (an incremental theory), they tend to focus less on broad traits and, instead, tend to understand outcomes and actions in terms of more specific behavioral or psychological mediators ('I failed the test because of my effort or strategy' or 'He stole the bread because he was desperate'). The two frameworks also appear to foster different reactions: helpless versus mastery-oriented responses to personal setbacks and an emphasis on retribution versus education or rehabilitation for transgressions (p.267).

The studies reviewed above provide the foundation for the examination of implicit person theories in the present study. However, prior to an exposition of IPTs in the context of the present study, it is germane to discuss the relevance of IPTs to the province of I-O psychology.

### Implicit Person Theories in An Organizational Context

Given the widespread applicability of IPTs' effects on multiple phenomena within the educational and social psychology domains, it stands to reason that it will be a relevant personality variable to examine within the I-O psychology domain. Nonetheless, there has been a paucity of I-O research conducted on implicit person theories (Payne, Youngcourt, & Beaubien, 2007).

A recent meta-analysis (Payne et al., 2007) investigating the nomological network of goal orientation revealed modest relationships between dimensions of goal orientation and implicit person theories. Specifically, estimated true (i.e., population) mean correlations indicated a small negative relationship between entity theory IPT and learning goal orientation ( $\rho = -.12$ ), as well as a small positive relationship with performance approach goal orientation ( $\rho = .10$ ), and a small positive relationship with performance avoidance goal orientation ( $\rho = .09$ ). This meta-analytic evidence lends some support to the notion of implicit person theories serving as an antecedent to an individual's goal orientation. However, given the correlational nature of the data, directionality cannot be inferred. Moreover, the magnitude of the relationships between implicit person theories and performance and learning goal orientations, as specified by the theory, have not been as large empirically as delineated in theoretical predictions (Payne et al., 2007). It is important to note that the relatively small number of studies that

have been conducted with implicit person theories as a focal independent variable is considerably smaller than that of goal orientation studies. Thus, some caution is warranted given that only a small number of studies are available that measure implicit person theory beliefs, and resulting population estimates may be influenced by second-order sampling error. That is, not enough studies exist to permit confidence in the ability of current estimates to approximate the true population effects. Clearly, more research is needed to understand both the magnitude and the mechanisms vis-à-vis implicit person theories operate in organizational settings. Accordingly, the present study sought to address the knowledge gap.

A small number of studies in the organizational domain provide preliminary evidence of the robust effects of IPTs across a number of contexts, including training performance (Martocchio, 1994), team performance (Taberner & Wood, 1999), beliefs about older workers' (Wrenn & Maurer, 2004), improvability of career-relevant skills in relation to job analysis and competency modeling (Maurer et al., 2003), managers' attitudes toward 360 degree feedback (Maurer, Mitchell, & Barbeite, 2002), performance appraisal ratings (Heslin et al., 2005), and managers' coaching abilities (Heslin et al., 2006). Thus far, organizational research has tended to support Dweck and Leggett's (1988) social-cognitive framework.

Recent studies by Heslin and colleagues (Heslin et al., 2005, 2006) and others (Levine & Ames, 2006) renewed interest in Dweck's social-cognitive framework by couching it in an organizational context. Specifically, through a recent program of research, Heslin et al. (2005, 2006; Heslin & VandeWalle, in press) have demonstrated in several lab studies and longitudinal field experiments that managers' implicit person

theories have consequences on their behaviors toward subordinates. Specifically, Heslin et al. (2005) demonstrated that managers subscribing to an incremental theory were better able to detect fluctuations in subordinates' performance than managers subscribing to an entity theory. Further, they also demonstrated that implicit person theories could be altered via a social persuasion intervention, which has implications for the practical importance for a social-cognitive framework in the world of work.

In a more recent study, Heslin and VandeWalle (in press) found that a manager's implicit person theory predicted employees' perceptions of the procedural justice with which their last performance appraisal was conducted. While their study is conceptually related to the proposed examination, there is a notable difference. Namely, the focus of their study was on how one's IPT affects how he/she is perceived by others, whereas the focus of the current study is on how one's IPT affects how he/she perceives feedback received from another, and consequently decisions he/she makes regarding future performance (e.g., whether to expend effort). Nonetheless, the empirical linkage between IPT and procedural justice in an appraisal context provides fertile ground for the proposed examination. Taken as a whole, the implicit person theory research that has been conducted in the I-O domain thus far has successfully extended previous findings from the educational domain to the organizational arena.

The next section of the manuscript will turn to a focus on a brief overview of the role of IPTs and reactions to feedback within a performance evaluation context.

The Role of Reactions to Feedback and IPTs Within a Performance Evaluation Context  
*The Conflicting Functions of Performance Evaluations*

As a component of the performance appraisal process, feedback interventions can be conducted for both administrative and developmental reasons (Murphy & Cleveland, 1995). The focus of the current examination is on developmental feedback, in which feedback is provided with the primary goal of helping the recipient improve his/her performance. However, in addition to the developmental focus, participants are also provided with an incentive tied to their performance (see the Procedure for more details). When performance feedback is provided to serve an administrative purpose (e.g., compensation or promotion), employees tend to react more negatively to feedback (Meyer, Kay, & French, 1965; Meyer, 1991). While best practice recommendations (Aguinis, 2009) state that one should separate the two appraisal functions (e.g., provide informal feedback to subordinates frequently outside of a formal performance review), combining the purposes of appraisal provided a more generalizable context, and a stronger stimulus for investigating the effects of implicit person theories when such feedback may be perceived as more consequential, and thus more threatening.

### *Reactions to Feedback*

Feedback regarding the effectiveness of an individual's behavior has long been lauded as a critical factor in the maintenance and improvement of performance in organizations (Ilgen, Fisher, & Taylor, 1979). However, as has been documented in the literature, attempts to provide feedback to employees often fail to achieve the desired improvement in performance (Kluger & DeNisi, 1996). A number of factors have been posited to operate in the feedback process affecting whether an FI will be effective, including the level of detail of corrective information that is provided to a recipient (DeNisi & Kluger, 2000), goal setting (Neubert, 1998), and taking action (Smither,

London, & Reilly, 2005). One critical factor that warrants additional attention is the characteristics of a recipient that affect his/her receptivity to feedback. As Smither et al. (2005) concluded in their meta-analytic review on performance improvement following multisource feedback, "...it is unrealistic for practitioners to expect large across-the-board performance improvement after people receive multi-source feedback. Instead, it appears that some feedback recipients will be more likely to improve than others. We therefore think it is time for researchers and practitioners to ask 'Under what conditions and for whom is multisource feedback likely to be beneficial?' (p. 60)."

Ilgen et al.'s (1979) seminal review brought much needed attention to the role of individual difference characteristics in response to feedback. Ilgen et al. (1979) proposed a model in which individual difference characteristics were posited to affect perceived feedback, acceptance of feedback, desire to respond to feedback, intended response (e.g., goals that are set), and the actual behavioral response. This model set the stage for research targeted at the attributes of the recipient and provided a foundation for conceiving of the feedback process in social and motivational terms (Levy & Williams, 2004).

*Empirical research on individuals' reactions to feedback.* There have been a small number of studies addressing the topic of individual differences in reactions to feedback in an organizational context. Korsgaard, Meglino, and Lester (1997) predicated a series of experiments on the fundamental assumption that individuals act in ways that maximize their personal benefits relative to costs. However, people vary in their concern for others (Simon, 1990), whereby those with a high concern for others tend to accept social information without carefully weighing its personal consequences. Korsgaard et al.

(1997) extended this value orientation framework into a performance appraisal context and found that the reactions of persons high in concern for others were less contingent on the personal costs and benefits of accepting and responding to feedback than those of persons low in concern for others. In contrast, persons low in concern for others were likely to reject feedback that did not result in personal outcomes that were perceived to be of value. Building on Kluger and DeNisi's (1996) meta-analysis on FIs, Korsgaard et al. (1997) represents one of the first empirical studies to demonstrate the relevance of individual differences in the feedback process. If individuals act on the basis of personal consequence, then any characteristic that predisposes an individual to perceive an appraisal context as less personally threatening is likely to lead to more positive reactions to feedback in a contentious situation. As outlined previously, while not derived from the same theoretical foundation, implicit person theories are posited to serve a similar function in reactions to feedback.

Additional studies have also provided evidence of the differential perceived utility of feedback to individuals (Brett & Atwater, 2001), and the extent to which people react aggressively following the receipt of negative feedback (Barry, Chaplin, & Grafeman, 2006). Brett and Atwater (2001), in a 360° feedback context, found that goal orientation (i.e., individual differences in the tendency to pursue performance and/or learning goals) was related to perceptions of the utility of performance feedback, with those holding a learning goal orientation likely to perceive feedback as useful, even in the presence of negative feedback. Using a laboratory study with a simulation task in which feedback valence (i.e., positive versus negative) was experimentally manipulated and randomly assigned, Barry et al. (2006) found that those with more of a narcissistic personality

responded aggressively after receiving negative feedback. In general, while there are a small number of studies examining the effects of dispositional factors on reactions to feedback, on the balance, empirical evidence substantiates the need to more thoroughly incorporate dispositional variables into empirical investigations of reactions to feedback.

### *Implicit Person Theories and Reactions to Feedback*

While Smither et al.'s (2005) theoretical model underscores the importance of a belief in the feasibility to change<sup>3</sup>, the authors stated that to their knowledge, no studies examined the role of IPTs in reactions to or use of multisource feedback (or any type of feedback in an organizational setting). Instead, best practice recommendations have relied on the untested assumption that implicit person theories operate in this context (Smither et al., 2005; Ilgen & Davis, 2000). This is not to imply that there has been a complete lack of empirical research in this domain. However, those studies that have been conducted with regard to feedback reactions have examined the more proximal and complex individual difference construct of goal orientation. While goal orientation is part of Dweck and Leggett's (1988) social-cognitive framework, different goal orientations (e.g., learning and performance) are posited to emanate from one's underlying implicit person beliefs. Although the theoretical predictions for the present study partially draw upon the related goal orientation literature, the purpose of the present study was to contribute to the small proportion of studies that have explicitly measured and examined implicit person theories in the context of feedback reactions and subsequent performance.

In the context of feedback reactions, it is posited that individuals with an incremental perspective will view feedback as an opportunity for development, and

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<sup>3</sup> Feasibility to change and implicit person theories are used interchangeably in the Smither et al. (2005) article.

therefore, perceive it as beneficial to their development and unthreatening to their self-efficacy (e.g., Taberero & Wood, 1999; Wood & Bandura, 1989). In contrast, those with an entity perspective would respond more negatively to feedback because it could potentially reveal their deficiencies that cannot be improved (Smither et al., 2005). This is consistent with the social-cognitive framework that provides evidence of a maladaptive, helpless pattern in those adopting an entity perspective (Dweck et al., 1995). An entity theorist tends to overly focus on feedback as being diagnostic of one's underlying traits. Conversely, an incremental theorist views personal attributes as dynamic, malleable qualities, and therefore reduces the emphasis placed on traits for understanding behavior. An incremental theorist focuses broadly on more specific factors (e.g., goals and behavior) that may affect performance. Thus, those who believe feedback to be helpful in developing competence will be more likely to welcome feedback opportunities than those who only view feedback as diagnostic of their intractable trait-like attributes. The difference in responses to feedback should be more pronounced in a situation in which one faces performance setbacks. For entity theorists, the situation is likely to be perceived as more threatening since they must overcome past performance difficulties that may be viewed as insurmountable given the perceived intractability of traits relevant to performance (Dweck et al., 1995).

A large program of research by Dweck and colleagues (e.g., Henderson & Dweck, 1990; Hong & Dweck, 1992; Zhao & Dweck, 1994) revealed that in the face of academic failure, those with an incremental perspective are more likely than entity theorist counterparts to respond positively and generate strategies for task improvement. In contrast, entity theorists tend to respond more negatively to failure, as they view failure

as indicating a lack of ability. Similar to educational settings, the primary purpose for feedback interventions in an organizational context is to generate strategies for recipient performance improvement. Accordingly, there is substantial conceptual overlap between the two domains. In the current study, Dweck's program of research provides empirical support for the notion that implicit person theories are an important personality variable to consider in the face of performance setbacks.

In a series of studies in the educational domain, Hong et al. (1999) found that when given negative feedback, incremental theorists were more likely than entity theorists to attribute poor performance to a lack of effort rather than ability. In addition, across two experiments, Hong et al. (1999) found that incremental theorists were more likely than entity theorists to take remedial action if performance was unsatisfactory. Moreover, when an entity or incremental theory (perspective) was induced via social persuasion techniques<sup>4</sup>, they found that the effect of incremental theorists' remedial actions was transmitted through effort attributions. That is, in the face of negative feedback, incremental theorists were more likely to take remedial action because they perceived their poor performance to be due to a lack of effort, which can be remedied by increasing subsequent effort. While results of studies in the educational domain with regard to remedial actions and subsequent performance are encouraging, the question remains whether these findings will generalize to a work context (i.e., performance on a team marketing task).

Implicit person theories can be integrated into Kluger and DeNisi's (1996)

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<sup>4</sup> Please see Aronson, Fried, and Good (2002) for an example of a social persuasion intervention that successfully mitigated stereotype threats through the manipulation of students' implicit person theories of intelligence beliefs.

Feedback Intervention Theory (FIT) to explain why feedback may be differentially effective. Kluger and DeNisi (1996) advanced and provided preliminary support for FIT through a meta-analytic investigation of the effects of FIs on performance. FIT posits that feedback is more effective when the attention of the recipient is directed toward task-relevant features rather than directed toward irrelevant personal cues (i.e., attention directed toward the self that is not germane to task improvement). Recipients of negative feedback engage in a cognitive appraisal process (Lazarus, 1991) that involves assessing whether a situation is benign or threatening (see Lazarus & Cohen-Charash, 2001, for an overview of the cognitive-motivational-relational approach to emotions in organizational settings). Affect is conceptualized as a byproduct of the appraisal process. When one views a situation as threatening, anxiety is likely to arise. Such an affective reaction has been shown to influence the goals that one sets for a subsequent performance episode, with those having more adverse affective reactions tending to set more variable goals than those with positive reactions (Kluger & DeNisi, 1996). As has been well documented in the educational psychology literature (Dweck, 2006), since an incremental IPT tends to attenuate the negative reactions that people have in the face of performance setbacks (Hong et al., 1999), incremental theorists have a more adaptive response to such situations. In the context of FIT, individuals with an incremental perspective will be better able to allocate cognitive resources to task-relevant strategies than those with more of an entity perspective. Thus, incremental theorists should benefit from less adverse reactions, and consequently perform better in the face of negative feedback.

Drawing upon the collection of studies examining implicit person theories and feedback it is proposed that, in general, there will be benefits for those subscribing to an

incremental theory in terms of more positive reactions to feedback and greater subsequent task performance. Further, given prior empirical evidence (e.g., Hong et al. 1999), it is posited that the effects of implicit person theories on reactions to feedback will be most pronounced for those whose prior performance was low (i.e., those receiving negative feedback). However, given the multidimensional nature of reactions to feedback (i.e., appraisal effectiveness), the rationale for each hypothesis is further developed below.

### Multidimensional Task Feedback Reactions

Expanding on the work of Liff and Hurd (2009), the present study examined the effects of IPTs on appraisal effectiveness in the context of a longitudinal marketing task. Appraisal effectiveness is a multidimensional construct that serves as the primary indicator of how well the appraisal system operates as a tool for helping organizations assess, motivate and develop employee performance (Keeping & Levy, 2000; Cardy & Dobbins, 1994). Based on research investigating alternative measurement models of appraisal effectiveness (Keeping & Levy, 2000), support has been garnered for conceptualizing appraisal effectiveness as a higher order factor consisting of lower order constructs such as procedural justice, distributive justice, perceived accuracy, perceived utility, session satisfaction and system satisfaction. Thus, appraisal effectiveness is a higher order construct that serves as an overall indicator of the functioning of an appraisal system. While the lower order factors of appraisal effectiveness are indicated by a higher order general factor, each lower order construct is distinct, albeit related.

Multidimensional constructs or ultimate criteria (Thorndike, 1949) cannot be measured directly, but rather are assessed through the measurement of other criteria that serve as indicators of the former. For example, appraisal reactions such as fairness

judgments and appraisal satisfaction serve as lower order construct indicators for the higher order general factor of appraisal effectiveness (Cawley et al., 1998; Keeping & Levy, 2000; Taylor, 1987). The extant study focuses on perceptions of the lower order constructs of fairness (i.e., distributive justice, procedural justice, and interactional justice), feedback satisfaction, perceived feedback accuracy, perceived utility, motivation to improve, and supervisor credibility in response to receiving task feedback.

### *Organizational Justice*

Organizational justice is the area of psychological inquiry that centers on understanding individuals' perceptions of the fairness of people, outcomes, or processes that occur in the workplace (Byrne & Cropanzano, 2001). Justice is considered to be a socially-constructed phenomenon that is deeply embedded in organizational decisions (Erdogan, 2002). That is, with every organizational activity involving a decision over the allocation of a resource (e.g., providing compensation based on performance), employees form perceptions regarding the fairness of the outcome and process underlying a decision or outcomes.

Performance appraisal interviews are one such human resource tool critical to organizational functioning in which fairness is particularly salient. Consequently, employees develop or adjust their perceptions of organizational fairness accordingly (Holbrook, 2002). While early appraisal research focused more on improving the rating process (cf. Landy & Farr, 1980), more recently, organizational researchers have acknowledged the importance of examining organizational justice in appraisal contexts (Erdogan, 2002). Moreover, in a survey conducted on Fortune 100 companies, practitioners cited perceived fairness of performance appraisal systems as an important

factor in understanding appraisal effectiveness (Thomas & Bretz, 1994). Thus, organizational justice perceptions have been identified among researchers and practitioners alike as important criteria in judging the effectiveness of a performance appraisal (Erdogan, 2002).

When compared with low fairness perceptions, high fairness perceptions are related to more positive attitudes (Korsgaard & Roberson, 1995) such as organizational commitment (Heslin & VandeWalle, in press; Konovsky & Cropanzano, 1991; Folger & Konovsky, 1989), acceptance of performance evaluations (Gilliland & Langdon, 1998) and satisfaction with the appraisal process (Cawley et al. 1998), improved motivation and performance (Taylor, Tracy, Renard, Harrison, & Carroll, 1995), and increased organizational citizenship behaviors (Skarlicki & Latham, 1997). In short, organizational justice is a critically important outcome of the appraisal process that has been empirically linked to employees' subsequent actions. Those who perceive feedback to have been provided in a fair manner are more likely to engage in behaviors that are beneficial to an organization (e.g., both meta-analyses conducted on organizational justice research have provided comparable evidence regarding the magnitude of the relationship between justice dimensions and organizational citizenship behaviors; Cohen-Charash & Spector, 2001; Colquitt et al., 2001).

*Research trends.* While earlier research on organizational justice centered around identifying the determinants of people's justice judgments (cf., Greenberg, 1986), and established robust effects for justice across a wide spectrum of outcomes, researchers have noted that meta-analytic evidence (Cohen-Charash & Spector, 2001; Colquitt et al., 2001) on the effects of organizational justice on such outcomes as task performance

(Konovsky & Cropanzano, 1991) and counterproductive work behaviors (Skarlicki, Folger, & Tesluk, 1999) suggests the presence of moderators. Consequently, more recent research has focused on personality-based moderators of the relationship between justice perceptions and outcomes (e.g., Colquitt, Scott, Judge, & Shaw, 2006; Skarlicki et al., 1999). Support has been provided for such personality-based moderators as equity sensitivity (Huseman, Hatfield, & Miles, 1987), trust propensity, risk aversion, and morality (Colquitt et al., 2006), and negative affectivity and agreeableness (Skarlicki et al., 1999), among others. In short, evidence supports the general role of individual differences in affecting reactions to inequity.

*Integrating implicit person theories and justice.* By drawing on fairness theory, a linkage between implicit person theories and justice can be made (Folger & Cropanzano, 1998, 2001). Fairness theory contends that perceptions of social inequity arise when one is able to hold another accountable for a situation in which their well-being has been threatened (Folger & Cropanzano, 1998, 2001). In an appraisal context, an unfavorable outcome (i.e., a negative appraisal) is likely to lead one to feel that his/her well-being has been threatened. Implicit person theories, on the other hand, should moderate the degree of inequity one perceives in that those with more of an incremental perspective will be less threatened by negative evaluations as they are more likely to attribute their performance deficiencies to effort, which can be adjusted in future performance opportunities.

*Dimensionality.* Research in the organizational justice domain has focused on various forms or dimensions of fairness including distributive justice (fairness of outcomes), procedural justice (fairness of process), and interactional justice (fairness of

interpersonal treatment during the process; for a review see Byrne & Cropanzano, 2001; Colquitt, Greenberg, & Zapata-Phelan, 2005; Greenberg, 1990). Although there is not consensus regarding the specific dimensions of justice (cf. Cohen-Charash & Spector, 2001; Colquitt, 2001; Colquitt et al., 2001), researchers have at least distinguished among distributive, procedural, and interactional justice. Accordingly, the current investigation focuses on these three dimensions of justice.

*Distributive justice.* Distributive justice pertains to judgments regarding the fairness of outcomes one receives. The foundation of this justice dimension can be traced to relative deprivation theory (Byrne & Cropanzano, 2001), which is concerned with the negative feelings that may arise when an individual compares his/her circumstances to those of a more desirable counterfactual. Distributive justice is substantively based on the principles of equity theory (Adams, 1965) and social comparison (Festinger, 1954). Equity theory postulates that individuals compare their ratio of inputs to outputs to those of others in arriving at a judgment of fairness.

In the context of a performance appraisal event, distributive justice perceptions are formed from evaluations of performance ratings received and the benefits (e.g., promotion or pay increase) and consequences (e.g., demotion or termination) attached to those ratings (Folger, Konovsky, & Cropanzano, 1992). In the current study, each participant will be informed that a favorable evaluation will increase his/her chances of obtaining a prize (i.e., a chance to be entered into a raffle to receive a prize). Therefore, favorable performance ratings are likely to be a strong determinant of one's distributive justice evaluations since participants' performance evaluations will be explicitly tied to the incentive.

Prior research has demonstrated that those with an incremental perspective are more likely than those with an entity perspective to respond positively to feedback (e.g., Zhao & Dweck, 1994; Hong et al., 1999) and tend to perceive such situations as less threatening (Aronson, Fried, & Good, 2002). Further, given that those with an incremental perspective tend to perceive poor performance evaluations as surmountable by applying more effort (Hong et al. 1999), it is conceivable that when evaluating the fairness of the appraisal, those who believe their performance can be improved given an opportunity to address any performance deficiencies will be less likely to perceive the outcomes of an appraisal (i.e., performance ratings) as unfavorable. Accordingly, it is hypothesized that those with more of an incremental IPT will perceive outcomes to be more equitable.

Hypothesis 1: Implicit person theories will be positively related to perceptions of distributive justice after the initial performance evaluation, with those subscribing to more of an incremental theory exhibiting more positive distributive justice perceptions.

In addition, it is posited that the relationship between distributive justice and implicit person theories will be more pronounced when performance feedback is negative. In such a situation, the threat to one's self-efficacy should be much greater for someone who believes he/she will be unable to overcome a performance setback.

Research in the educational domain points to the greater propensity of incremental theorists to set learning goals, which buffer against the potentially detrimental effects accompanied by a negative evaluation (Dweck, 1989; Elliot & Dweck, 1988; Nicholls, 1984). The general consensus from the goal orientation literature is that negative

feedback may lead to desirable positive effects provided that the goals that individuals set are focused on improving their strategies related to mastering a task (i.e., adopting learning goals). Thus, in the face of negative feedback, subscribing to an incremental theory should be even more important for the full spectrum of feedback reactions (Ilgen & Davis, 2000), with the relationship between IPT and reactions being stronger for those experiencing performance deficiencies.

Hypothesis 1a: The relationship between implicit person theories and distributive justice after the initial performance evaluation will be stronger for those receiving negative feedback after the initial task compared with those receiving positive performance evaluations.

*Procedural justice.* Procedural justice refers to the fairness of the procedures, or the process, used to determine outcomes (Leventhal, 1980; Thibaut & Walker, 1975). The extent to which something is judged to be procedurally fair is based upon whether procedures are accurate, consistent, unbiased, and correctable (Leventhal, 1980), and open to employee participation (Thibaut & Walker, 1975). When applied to a performance appraisal event, researchers have found that procedural justice perceptions arise from evaluations of the appropriateness and consistency with which the appraisal process is conducted (Gilliland & Langdon, 1998; Landy, Barnes, & Murphy, 1978), the provision of solicitation of input prior to the evaluation, communication during the appraisal process, ability to challenge the evaluation, rater's familiarity with the ratee's work, and consistency of standards applied (Greenberg, 1986).

A recent study by VandeWalle and Heslin (in press) found that managers' implicit person theories predicted employees' perceptions of the procedural justice with which

their performance appraisals were conducted. Presumably managers' IPTs have an effect on critical behaviors (e.g., applying consistent standards) that contribute to a more procedurally fair performance appraisal. What remains to be examined empirically, is whether on the employee side, his/her own implicit person theories will affect procedural justice judgments. In the current study, the appraisal process will be standardized. All participants will receive a written report of their feedback that will apply the same standards across participants (i.e., maintain consistency), and allow for user input/comments at the end of the report (i.e., allow for the opportunity to correct and voice). Thus, the use of a standardized process with objective elements designed to promote procedural justice should reduce the variance in perceptions of procedural justice. Therefore, individual differences should be a more salient factor in shaping procedural justice judgments.

Prior research has demonstrated that those with an incremental perspective are more likely than an entity theorists to respond to feedback positively (e.g., Zhao & Dweck, 1994; Hong et al., 1999) and tend to perceive such situations as less threatening (Aronson et al., 2002). Further, given that those with an incremental perspective tend to perceive poor performance evaluations as surmountable by applying more effort (Hong et al. 1999), it is conceivable that when evaluating the fairness of the appraisal, those who believe their performance can be improved given an opportunity to address any performance deficiencies will be less likely to perceive the process of an appraisal as unfavorable. Accordingly, it is hypothesized that those with more of an incremental IPT will perceive the appraisal process to be more equitable.

Hypothesis 2: Implicit person theories will be positively related to perceptions of procedural justice after the initial performance evaluation, with those subscribing to more of an incremental theory exhibiting more positive perceptions.

In addition, it is posited that the relationship between procedural justice and implicit person theories will be more pronounced when performance feedback is negative. In such a situation, the threat to one's self-efficacy should be much greater for someone who believes he/she will be unable to overcome a performance setback.

Research in the educational domain points to the greater propensity of incremental theorists to set learning goals, which buffer against the potentially detrimental effects accompanied by a negative evaluation (Dweck, 1989; Elliot & Dweck, 1988; Nicholls, 1984). The general consensus from the goal orientation literature is that negative feedback may lead to desirable positive effects provided that the goals individuals set are focused on improving their strategies related to mastering a task (i.e., adopting learning goals). Thus, in the face of negative feedback, subscribing to an incremental theory should exert a stronger effect on procedural justice reactions (Ilgen & Davis, 2000).

Hypothesis 2a: The relationship between implicit person theories and procedural justice after the initial performance evaluation will be stronger for those receiving negative feedback after the initial task compared with those receiving positive performance evaluations.

*Interactional justice.* Interactional justice refers to the fairness of the treatment received during the enactment or implementation of a procedure (Bies & Moag, 1986). Interactional justice is comprised of both interpersonal (i.e., the extent to which one is treated with sincerity and respect) and informational (i.e., the extent to which one is given

an honest and adequate explanation regarding the decision-making process) dimensions. Interactional justice considers the way procedures are implemented beyond simply the manner in which they are constructed. Bies and Moag (1986) established four interpersonal treatment rules - truthfulness, justification, respect, and moral propriety (i.e., there does not appear to be any intentional malice in the actions of a decision-maker) – that affect individual perceptions of interactional justice.

When applied to a performance appraisal event, interactional justice perceptions arise from judgments regarding the adequacy of the explanations of feedback, truthfulness of feedback, justification, and respect shown during the communication of performance ratings (Gilliland & Langdon, 1998). Previous empirical research has found that supervisors' behaviors are a substantial factor in shaping perceptions of interactional justice (Erdogan, 2002). However, several studies have provided evidence for the role of individual differences in moderating the effects of interactional justice (Colquitt et al., 2006; Heuer, Blumenthal, Douglas, & Weinblatt, 1999; Skarlicki et al., 1999). Accordingly, preliminary empirical research supports the role of individual differences in shaping interactional justice reactions.

Given prior empirical research (Liff & Hurd, 2009) establishing a positive relationship between the adoption of more of an incremental implicit person theory and positive perceptions of interactional justice, I expected a similar relationship in the present study. My rationale is that an incremental perspective allows one to form more accurate perceptions of interactional justice by reducing the inherent threat of a feedback situation. Thus, in the context of the present study where participants are treated fairly

regardless of their level of performance, interactional justice perceptions should vary as a function of the type of implicit theory one tends to adopt.

Hypothesis 3: Those with more of an incremental IPT will perceive their treatment during the appraisal process following the initial performance evaluation to be more equitable than entity counterparts.

In addition, it is posited that the relationship between interactional justice and implicit person theories will be more pronounced when performance feedback is negative. As previously stated, in such a situation, the threat to one's self-efficacy should be much greater for someone who believes he/she will be unable to overcome a performance setback. Research in the educational domain points to the greater propensity of incremental theorists to set learning goals, which buffer against the potentially detrimental effects accompanied by a negative evaluation (Dweck, 1989; Elliot & Dweck, 1988; Nicholls, 1984). The general consensus from the goal orientation literature is that negative feedback may lead to desirable positive effects provided that the goals that individuals set are focused on improving their strategies related to mastering a task (i.e., adopting learning goals). Thus, in the face of negative feedback, subscribing to an incremental theory should be even more important for interactional justice reactions following task feedback (Ilgen & Davis, 2000).

Hypothesis 3a: The relationship between implicit person theories and interactional justice after the initial performance evaluation will be stronger for those receiving negative feedback after the initial task compared with those receiving positive performance evaluations.

### *Feedback Satisfaction*

Satisfaction with the performance appraisal process has been the most frequently measured appraisal reaction (Giles & Mossholder, 1994; Keeping & Levy, 2000). Appraisal effectiveness has been conceptualized in three ways: (a) satisfaction with the appraisal interview or session, (b) satisfaction with the appraisal system, and (c) satisfaction with performance ratings. In the proposed study, satisfaction is conceptualized as both satisfaction with the appraisal system and the appraisal session (Giles & Mossholder, 1990). Researchers have emphasized the importance of examining feedback satisfaction for understanding appraisal effectiveness (Levy & Williams, 2004). There is a substantial body of research investigating the antecedents (Cawley et al., 1998) and intervening processes (Roberson, Moye, & Locke, 1999) that shape appraisal satisfaction reactions. In general, those that have more voice (i.e., the perception that they have input in the appraisal process), are more satisfied with the performance appraisal process (Cawley et al., 1998), with the strongest relationship existing for those with value-expressive participation (i.e., participation for the purpose of having one's voice heard). Moreover, the relationship between perceived opportunity for voice and satisfaction is mediated by procedural justice (Roberson et al., 1999). Thus, while both are important, this line of research suggests that interactional and procedural components of justice are important antecedent and intermediary factors, respectively, that influence satisfaction with the feedback process.

It has been argued that in order for a performance appraisal to influence employee behavior and subsequent development, employees need to experience positive appraisal reactions (Cardy & Dobbins, 1994; Murphy & Cleveland, 1995). However, there has been little research linking appraisal satisfaction to behavioral outcomes such as

performance, organizational commitment, and turnover (see Kuvaas, 2006, for a notable exception of a study in which the effects of appraisal satisfaction on work performance were examined). Nonetheless, preliminary research has provided evidence of a linkage among appraisal satisfaction and the outcomes of work performance, affective commitment, and turnover intentions.

Research findings indicate that satisfaction with the appraisal process has far-ranging implications for organizations including effects on productivity, motivation, and organizational commitment (Levy & Williams, 2004; Cawley et al., 1998). Alternatively, similar to reactions of unfairness, low satisfaction with an appraisal leads employees to reject the feedback and could lead to lower motivation and higher turnover (Bernardin & Beatty, 1984). Accordingly, it is posited that those with more of an incremental IPT will be more satisfied with feedback since they view it as an opportunity for growth.

Hypothesis 4: Implicit person theories will be positively related to perceptions of feedback satisfaction after the first performance evaluation, with those subscribing to more of an incremental theory exhibiting more positive perceptions.

In addition, a large body of evidence points to the propensity for recipients to react more negatively to unfavorable performance feedback (Ilgen & Davis, 2000). Accordingly, it is expected that participants' implicit person theories will be even more of a salient factor in shaping reactions to negative feedback.

Hypothesis 4a: The relationship between implicit person theories and perceptions of feedback satisfaction following the first performance evaluation will be

stronger for those receiving negative feedback after the initial task compared with those receiving positive performance evaluations.

### *Perceived Utility*

Perceived utility refers to participants' perceptions regarding how useful a performance appraisal is for improving job-relevant behavior and knowledge and skills relevant to the job. Subordinates' perceived utility reactions have been linked to their participation in the appraisal process (Cawley et al., 1998; Greller, 1978).

In the training literature, there is substantial evidence that links post-training reactions to subsequent job performance, with the greatest correspondence exhibited for the relationship between trainees' utility reactions and transfer performance (see Alliger et al.'s 1997 meta-analysis on training criteria outcomes). Further, Ruona, Leimbach, Holton, and Bates (2002) found that perceptions of training utility strongly predicted one's motivation to transfer. Accordingly, applying the findings from the training domain to an appraisal context, perceived utility is an important construct that should serve as one antecedent to employees' attempts to incorporate information from the feedback that they receive into adjusting subsequent performance.

Given that incremental theorists tend to attribute their own poor performance to a lack of effort rather than a lack of ability (Hong et al., 1999), it stands to reason that one will only find feedback to be useful to the extent that it is believed to facilitate performance improvement. From an entity perspective, because traits are seen as the underlying determinant of performance, and they are relatively intractable, then feedback suggestions will likely not be perceived as relevant. Accordingly, it is expected that

incremental theorists will be more likely to perceive a performance evaluation as more useful for their future performance.

Hypothesis 5: Implicit person theories will be positively related to perceived utility, with those subscribing to more of an incremental theory exhibiting more positive perceptions after the first performance evaluation.

In addition, a large body of evidence points to the propensity for recipients to react more negatively to unfavorable performance feedback (Ilgen & Davis, 2000). Accordingly, it is expected that participants' implicit person theories will be even more of a salient factor in shaping reactions to the perceived utility of negative feedback.

Hypothesis 5a: The relationship between implicit person theories and perceived utility following the first performance evaluation will be stronger for those receiving negative feedback after the initial task compared with those receiving positive performance evaluations.

### *Supervisor Credibility*

Supervisor credibility refers to perceptions regarding the competence or expertise of a supervisor (Albright & Levy, 1995; Ilgen et al., 1979), as well as perceptions of the supervisor's trustworthiness (Ilgen et al., 1979). Early research provided evidence that source credibility substantially influences the acquisition of information and attitudes (Hovland & Weiss, 1951). Perceptions of supervisor credibility have been found to affect how employees react (i.e., either positively or negatively) to the feedback itself (Neher, 1997). Steelman and Rutkowski (2004) found that source credibility moderates the relationship between negative feedback and reactions, such that when perceptions of supervisor credibility were high, subordinates were more motivated to improve job

performance. Source credibility has been shown to be a substantial determinant of overall feedback reactions (Albright & Levy, 1995). Thus, given that supervisor credibility may affect receptivity to feedback (Ilgen & Davis, 2000; Ilgen et al., 1979), it is an important criterion to consider in the context of appraisal effectiveness.

Evidence for the relationship between implicit person theories and supervisor credibility comes from Liff and Hurd (2009). Specifically, they found that after controlling for the feedback sign, those with an incremental perspective viewed supervisors as more credible than entity theorist counterparts. While past research (Snyder & Shenkel, 1976; Stone & Stone, 1982; Taylor et al., 1984) has found that source credibility is largely determined by the sign of feedback (i.e., positive versus negative), the Liff and Hurd (2009) study demonstrated the powerful role that implicit person theories can play in shaping perceptions of supervisor credibility. That is, they found that above and beyond a substantial proportion of the variance in supervisory credibility that was accounted for by sign of feedback, implicit person theories still explain additional variance in feedback recipients' perceptions. Thus, it is important to consider individual differences in IPTs, since they provide unique explanatory power in perceptions of supervisor credibility beyond the favorability of the feedback alone. The rationale for this relationship was based upon the notion that incremental theorists tend to view a feedback intervention as an opportunity to receive valuable insight and will therefore rate the individual providing the feedback as more credible than would entity theorists, as this individual is seen as instrumental in helping him/her learn strategies to improve future performance. The same rationale was adopted for the current study.

Hypothesis 6: Implicit person theories will be positively related to perceptions of supervisor credibility, with those subscribing to more of an incremental theory exhibiting more positive perceptions after the first performance evaluation.

In addition, a large body of evidence points to the propensity of feedback recipients to react more negatively to an unfavorable performance evaluation (Ilgen & Davis, 2000; Ilgen et al., 1979). Accordingly, it is expected that a participants' implicit person theories will be even more of a salient factor in shaping perceptions of supervisor credibility in the face of negative feedback.

Hypothesis 6a: The relationship between implicit person theories and perceptions of supervisor credibility following the first performance evaluation will be stronger for those receiving negative feedback after the initial task compared with those receiving positive performance evaluations.

#### *Motivation to Use Feedback*

Motivation to use feedback or motivation to improve refers to the perceptions of recipients of feedback regarding whether they intend to use the feedback to improve subsequent performance. There is limited theoretical development of the construct in an appraisal context. However, it has been included as a reaction measure in a considerable number of studies (Cawley et al., 1998; Nemeroff & Consentino, 1979; Burke, Weitzel, & Weir, 1978), and has been identified as an important reaction outcome of the appraisal process (Levy & Williams, 2004). Cawley et al.'s (1998) meta-analytic review provides evidence of a moderate relationship between subordinates' participation in the appraisal process (i.e., instrumental and value-expressive voice) and motivation to improve following a performance appraisal interview.

Indirect evidence for the link between motivation to improve and performance can be obtained by drawing on a related motivational construct from the training literature, motivation to learn, defined as the desire for trainees to learn training material (Colquitt, LePine, & Noe, 2000). Meta-analytic evidence points to the robust effects of motivation to learn on learning outcomes and transfer performance (Colquitt et al., 2000).

Drawing on the social-cognitive framework (Dweck & Leggett, 1988) and the overall rationale for the link between implicit person theories and reactions to feedback (Hong et al., 1999), it is expected that those with an incremental implicit person theory will have a greater motivation to use feedback following their evaluation. Namely, those with an incremental IPT will view their performance as a function of the level of effort including the various strategies that they apply to a task. Accordingly, to the extent that feedback contains task-relevant information, incremental theorists will perceive it as instrumental to mastering a task, and consequently, they will be more likely to be motivated to use the feedback in efforts directed toward performance improvement. In contrast, entity theorists will be more likely to make ability attributions and consequently be less motivated to improve following feedback because of the perceived futility in trying to change intractable qualities that underlie performance.

Hypothesis 7: Implicit person theories will be positively related to motivation to use feedback, with those subscribing to more of an incremental theory exhibiting more positive perceptions after the first performance evaluation.

In addition, evidence from the performance appraisal literature points to the propensity of recipients of feedback to react more negatively to an unfavorable performance evaluation (Ilgen & Davis, 2000; Ilgen et al., 1979). Accordingly, it is

expected that a participants' implicit person theories will be even more of a salient factor in shaping motivation to use feedback in the face of negative feedback.

Hypothesis 7a: The relationship between implicit person theories and motivation to use feedback following the first performance evaluation will be stronger for those receiving negative feedback after the initial task compared with those receiving positive performance evaluations.

### *Perceptions of Feedback Accuracy*

Perceptions of feedback accuracy refer to whether those receiving feedback perceive the feedback itself as correct and representative of their performance. Prior research has confounded accuracy with other reactions (Keeping & Levy, 2000; Cawley et al., 1998), such as fairness (e.g., Landy et al., 1978). Accuracy is a critical reaction to explore in the context of a performance evaluation because task or developmental feedback is intended to provide employees with information on how to better perform their jobs. Moreover, research has shown that employees reject feedback that they perceive to be inaccurate (Brett & Atwater, 2001; Ilgen et al., 1979). Most notably, perceived accuracy of feedback is an important determinant of employees' desire to respond to feedback, as well as intended and actual responses (Ilgen et al., 1979; Katz & Kahn, 1978). Feedback that is more favorable to recipients (i.e., positive) tends to affect the perceived accuracy of subsequent feedback (Stone & Stone, 1985).

The social-cognitive framework (Dweck & Leggett, 1988) and empirical research support the notion that an incremental IPT is associated with a more adaptive response pattern (e.g., positive affect, pride, and intrinsic motivation) in the face of a challenge. Relative to entity theorists, incremental theorists are better able to reframe feedback in a

positive light (failure versus challenge). Such reframing serves as a buffer against threats to one's self-efficacy and self-concept. Thus, given that an incremental theorist is less personally threatened by negative feedback, he or she should be less inclined to rate negative feedback as inaccurate. In contrast, entity theorists are likely to perceive the feedback as more threatening, and consequently, they may rate such feedback as less accurate in order to maintain self-preservation. Alternatively, when individuals receive a favorable performance evaluation, those with an entity perspective are more likely to rate such an evaluation as accurate, regardless of its veridicality<sup>5</sup>. Incremental theorists should be less inclined to inflate their accuracy ratings as a function of the favorability of feedback<sup>6</sup>. Accordingly, it is predicted that regardless of the favorability of feedback, those adopting more of an incremental perspective will rate feedback as more accurate.

Hypothesis 8: Implicit person theories will be positively related to perceived accuracy of feedback, with those subscribing to more of an incremental theory exhibiting more positive perceptions after the first performance evaluation.

In addition, the relationship between IPT and perceived accuracy of feedback should become more salient under less favorable performance evaluations since those with an entity perspective are more inclined to adjust their reactions to maintain self-preservation while incremental theorists do not suffer from the same tendencies.

Hypothesis 8a: The relationship between implicit person theories and perceived accuracy of feedback will be stronger for those receiving negative feedback after the initial task compared with those receiving positive performance evaluations.

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<sup>5</sup> Predicated upon the assumption that feedback is accurate, entity theorists' ratings of feedback accuracy vary depending upon the favorability of a performance evaluation, with the least accurate ratings being furnished under less favorable evaluations.

<sup>6</sup> Predicated upon the assumption that feedback is accurate, incremental theorists' ratings of feedback accuracy should be invariant across different levels of the favorability of performance evaluations.

## Task Performance

The topic of job performance and its measurement has been (Austin & Villanova, 1992) and continues to be (Cascio & Aguinis, 2008; Austin & Crespino, 2006) one of the most popular and important topics in I-O Psychology. Validation efforts around psychological assessments in an organizational context rely upon the correct specification and measurement of job performance to provide support for the inferences made from resulting test or assessment information (Binning & Barrett, 1989).

Job performance can be most broadly defined as the “total expected value to the organization of the discrete behavioral episodes that an individual carries out over a standard period of time” (Motowidlo, 2003, p. 39). Early views of job performance tended to constrain the construct space (Binning & Barrett, 1989) to task performance, with meta-analytic evidence providing support for the notion that cognitive ability was the only consistent predictor of job performance (Ree, Earle, & Teachout, 1994; Schmidt & Hunter, 2004).

However, more extensive research in the military (Project A; McHenry, Hough, Toquam, Hanson, & Ashworth, 1990) demonstrated that differential prediction of job performance is obtained when job performance is more broadly defined to include other factors such as giving extra effort, supporting peers, and exhibiting personal discipline. Such factors that were contextual or supported job performance were more strongly predicted by personality or temperament than cognitive ability (McHenry et al., 1990). This study highlighted the importance of broadening the construct domain of job performance to include other behaviors that were valuable to organizational effectiveness, but were not explicitly part of one’s formal job role.

In response to the deficiency of the construct of job performance, Borman and Motowidlo (1993) distinguished between task and contextual dimensions of performance. Task performance is defined in two ways: (1) activities that directly transform raw materials into the goods and services that represent an organization's products, and (2) activities that service and maintain the technical core by replenishing its supply of raw materials, distributing products, or providing supervisory or management functions that enable an organization to function more effectively and efficiently. In contrast, contextual performance is defined as behavior that contributes to organizational effectiveness via its effects on the psychological, social, and organizational context of work. Activities such as volunteering to perform a task that is not formally part of one's job role and supporting others' ideas in meetings represent examples of contextual behaviors that contribute to an organization's effectiveness by supporting its technical core.

Bartram (2005) and others (e.g., McHenry et al., 1990) have demonstrated the value of taking a broader, criterion centric approach - making finer, conceptually-driven distinctions among different task and contextual components of job performance to more clearly specify the relationship of the former with different predictors constructs - to the measurement and prediction of job performance. The most widely supported taxonomic multidimensional conceptualizations of job performance (e.g., Murphy, 1994; Campbell, McCloy, Oppler, & Sager, 1993; Campbell, 1990), while consisting of numerous descriptors (e.g., job-specific task proficiency, non-job specific task proficiency, written and oral communication, demonstrating effort, maintaining personal discipline, facilitating peer and team performance, supervision, and management and administration), can be broadly categorized into the task and contextual performance

distinctions advanced by Borman and Motowidlo (1993).

In addition to recognizing the multidimensional nature of job performance (e.g., Murphy, 1994; Campbell, McCloy, Oppler, & Sager, 1993; Campbell, 1990), researchers have also recognized that the components of job performance are dynamic, and substantially driven by the needs and values of a particular organization (Murphy & Shiarella, 1997). That is, the manner in which an organization defines job performance determines the relative importance of different components of job performance. Research highlights the variable nature of job performance. That is, the nature of job performance differs as a function of the setting in which it exists.

*Conceptualizing and measuring performance for the proposed study.* In the current study, the principal investigator reviewed comprehensive treatments of the literature on job performance (see for example Campbell et al., 1993; Kurz & Bartram, 2002), and analyzed the nature of the task to identify relevant dimensions of performance to measure. Specifically, to mirror the type of performance evaluations that are most frequently conducted in organizations, I am using a competency-based approach to rating and reviewing performance. Competencies are defined as clusters of behavior that are considered to be instrumental for effective performance, or behavior that leads to an outcome that is desired by the organization (Brannick & Levine, 2002).

After analyzing the requirements of the study's two tasks (see the Procedure for a description of the tasks), the following competencies were identified as relevant to effective performance: (1) leading and initiating, (2) creating and conceptualizing, (3) supporting and cooperating, (4) interacting and presenting, and (5) organizing and executing. The original competency categories were derived from SHL's Universal

Competency Framework (see Kurz & Bartram, 2002). However, the competency definitions were generated based upon an analysis of the performance requirements for the task. Table 1 lists each competency and its corresponding definition. Consistent with a broad conception of job performance, the competencies upon which participants will be assessed during the tasks tap both task and contextual components of job performance. Further, since the tasks are highly interdependent and require more coordination among team members, it is posited that the task will more heavily tap contextual performance components. Thus, an inspection of Table 1 reveals that the competencies tend to tap more contextual (i.e., behaviors that facilitate the performance of the team, but which do not directly contribute to individual task performance) than task performance dimensions. Research has demonstrated that contextual behaviors tend to be more strongly predicted by personality variables while task performance is more strongly predicted by cognitive abilities (Motowidlo, Borman, & Schmit, 1997; McHenry et al., 1990; Bartram, 2005).

#### *Implicit Person Theories and Task Performance*

Of relevance to the current study is research in the educational domain that has found a relationship between the implicit person theories to which people subscribe and their academic achievement. Specifically, Blackwell, Trzesniewski, and Dweck (2007), in a longitudinal field investigation using latent growth curve modeling, found that the belief that intelligence is malleable in seventh graders predicted an upward trajectory in mathematics grades over two years of junior high school, while a belief that intelligence is fixed predicted a flat trajectory. Moreover, implicit theory of intelligence beliefs at the beginning of seventh grade were not related to prior mathematics test score, refuting the competing hypothesis that implicit person theories are simply artifacts of high prior

ability or achievement (cf. Pomerantz & Saxon, 2001). Thus, this study provides evidence of a relationship between implicit theory beliefs and academic performance beyond that of past academic performance.

While there has been a paucity of research examining the relationship between IPT and performance in a work context, there are several streams of research that can be examined that can shed light on the relationship. First, several studies have been conducted in a work context (e.g., Martocchio, 1994; Wood & Bandura, 1989; Taberero & Wood, 1999) demonstrating the influence of implicit theory conceptions on performance. Second, research on goal orientation provides indirect evidence for the relationship (see Payne et al., 2007 for a review). Accordingly, both streams of research will be reviewed with regard to their relevance for the IPT-performance hypotheses that will be advanced in the forthcoming section.

*Goal orientation.* Because a comprehensive review of individual studies of goal orientation is beyond the scope of the proposed investigation, I will focus on general support that has been found in the literature (for an excellent conceptual and narrative overview of this literature, see Button, Mathieu, & Zajac, 1996). Goal orientation has been conceptualized as both a dispositional and situational variable, with research evidence supporting both perspectives (DeShon & Gillespie, 2005). Differential goal orientations are posited to emerge based on an individual's underlying implicit person theory beliefs. The most commonly supported conceptualization of goal orientation is as a three-factor structure (e.g., VandeWalle, 1997) consisting of a learning (i.e., building one's competence), a proving (demonstrating one's competence and gaining favorable evaluations from others), or an avoiding goal orientation (avoiding demonstrating lack of

competence and negative evaluations from others). While the majority of research has not explicitly examined the simultaneous pursuit of multiple goals, researchers have discussed (Button et al., 1996) the inherently flawed logic and limited framework of only examining goals in isolation. One cannot assume that a particular dimension of goal orientation is unequivocally better than another or that dimensions are orthogonal to one another. In contrast, an explicit focus on a profile or the unique configuration of one's level on each goal orientation dimension is necessary to understand how motivational patterns operate in a particular context. Given that Dweck and Leggett's (1988) social-cognitive framework posits a pattern of responding, it is important to consider more of a dynamic approach (e.g., interactive effects instead of just main effects). For example, in a training context, it may be more adaptive for an individual with an underlying incremental perspective to simultaneously adopt a learning orientation, a performance-approach orientation, and to refrain from the adoption of a performance-avoidance orientation. Namely, the pursuit of both a learning goal and a performance-approach goal are not incompatible. This multiple goals perspective has received some attention in the goal orientation literature (see for example, Barron & Harackiewicz, 2001; Harackiewicz, Barron, Tauer, Carter, & Elliot, 2000). Recently, in a study employing cluster analysis, Fortunato and Goldblatt (2006) found that distinct profiles emerged that were related to other dispositional personality variables for those who completed Vandewalle's (1997) goal orientation measure. This line of research garners support for the differential response patterns posited by the social cognitive framework (Dweck & Leggett, 1988).

Overall, meta-analytic evidence on the relationship between goal orientation and performance is largely compatible with theoretical propositions (Payne et al., 2007).

Specifically, state learning goal orientation is more strongly related to distal outcomes such as job performance than trait learning goal orientation. Trait goal orientation positively predicted job performance above and beyond cognitive ability and the Big Five Factors of personality. Notably, learning goal orientation was the only significant predictor of job performance.

Several studies on goal orientation provide indirect support for the role of IPT in an appraisal context. First, in a study of classroom learning consisting of repeated trials, Colquitt and Simmering (1998) found that conscientiousness and learning orientation were positively related to motivation to learn both initially and after performance feedback was given, whereas performance orientation was negatively related to motivation to learn at the same two time periods. This evidence suggests that in training situations where trainees face difficulty mastering training content early on, those with a learning orientation and a low performance orientation are more likely to maintain their motivation to train. Taken together, individuals who are highly conscientious, highly learning oriented, and less performance oriented are more likely to perform well in training, especially after facing performance setbacks. Given the positive association and conceptual linkage between an incremental perspective and a learning goal orientation, it stands to reason that an incremental IPT will also be positively related to motivation to learn (in the case of the proposed study, motivation to use feedback) and performance.

Extending Colquitt and Simmering's (1998) study, VandeWalle et al. (2001) found over two repeated performance sessions involving performance feedback that learning goal orientation was related to performance. In contrast, the positive relationship between a proving goal orientation and performance diminished from a significant to a

nonsignificant level, while the relationship between an avoiding goal orientation and performance remained negative. Further, VandeWalle, Brown, Cron, and Slocum (1999) examined several mediating mechanisms to find that similar to research on implicit person theories (e.g., Hong et al., 1997), relationships between goal orientation and performance were mediated by effort, self-efficacy, and goal setting. Building on the rationale for the relationship between goal setting and performance, there are several justifications for why implicit person theories should relate positively to performance. First, those with an incremental perspective tend to set more learning goals than entity counterparts (Dweck & Leggett, 1988). Subsequently, one's goal orientation influences the manner in which feedback is interpreted (VandeWalle et al., 2001; Bobko & Colella, 1994). Accordingly, a learning goal orientation is posited to lead to the interpretation of feedback as being useful and diagnostic information to help one improve his or her competence. Given that feedback is seen as more useful, it is more likely that an individual will attempt to adjust his or her subsequent behavior based upon the feedback that is received. Such effort will lead to performance improvements to the extent that it helps one form accurate hypotheses regarding what behaviors will lead to desired changes (Kluger & DeNisi, 1996).

Secondly, those with a learning goal orientation tend to be more task-focused, while those with a performance goal orientation tend to be more ego-involved (Nicholls, 1984). Consistent with Kluger and DeNisi's (1996) feedback intervention theory, learning goal orientation would lead to a greater likelihood of performance improvement following feedback since individuals will be focused on the task-level, and will consequently be better able to allocate resources to the task. In contrast, those who are more ego-involved

will be less likely to improve because they will allocate more cognitive resources to the meta-task level (i.e., a self-attention focus). In summary, those with incremental IPT beliefs are more likely to improve their performance following feedback because such individuals tend to set more learning goals. In turn, learning goals lead to an interpretation of feedback as being more useful, and instrumental for performance improvement. Moreover, learning goals help individuals more effectively allocate resources to a task.

*Studies of implicit person theories and performance.* More direct evidence for the relationship between implicit person theories and performance in a task feedback environment comes from studies in which the IPT-performance link has been directly examined. In general, those studies that have been conducted in a work context have replicated the results of those obtained in educational settings. Early studies conducted in an organizational context tended to conceive of IPTs as a state-like property, and consequently used experimental manipulations to induce either an incremental or an entity perspective. As with the goal orientation literature, evidence supports both trait and state conceptualizations of IPTs (e.g., Heslin et al., 2005).

Wood and Bandura (1989) were the first to apply conceptions of ability to an organizational context, albeit in a laboratory experiment. In a complex managerial decision-making simulation task, conceptions of ability were induced as a stable entity or as an acquirable skill to examine the effect on self-regulatory mechanisms governing performance. Participants assumed the role of managerial decision makers in a manufacturing organization in which they had to match employees to different functional roles and to discover and apply managerial rules to achieve a difficult level of

organizational performance (e.g., achieve a greater level of production than in previous trials). Those who performed the challenging managerial task under an entity conception of ability suffered a loss in perceived self-efficacy, lowered their organizational goals, and became less efficient in their analytic strategies. Participants who managed the organization under an acquirable skill conception of ability were able to maintain their perceived self-efficacy, set more challenging organizational goals, and used analytic strategies effectively. Furthermore, differences in self-regulatory factors (i.e., self-efficacy and goal setting) were accompanied by significant differences in organizational performance. As predicted, those who were in the acquirable skill condition achieved greater organizational performance.

In a related study, Taberero and Wood (1999) extended the findings of Wood and Bandura (1989) to a team setting. Rather than experimentally manipulating conceptions of ability, Taberero and Wood (1999) measured individuals' implicit theory beliefs regarding the malleability of group-management ability. Participants who had an implicit theory that group-management ability is an incremental skill that can be acquired with experience developed stronger self-efficacy, maintained more positive affect, and set themselves more challenging goals across multiple trials. Such incremental theorists also outperformed participants with a fixed-entity theory of group-management ability. Thus, the relationship between IPT, self-regulatory mechanisms and performance found in a team setting is consistent with that of an individual task performance environment.

Taken together, research evidence investigating the relationship among implicit person theories, goal orientation, and performance supports a linkage between IPT and performance. In general, consistent results have pointed to the positive effects on

subsequent performance of an incremental perspective and a consequent learning goal orientation. In contrast, an entity perspective has evidenced primarily negative relationships with performance (Wood & Bandura, 1989; Taberero & Wood, 1999). Mixed results have been found for approach and avoid performance goals, with a majority of studies finding a negative relationship between avoid goals and performance and no relationship between approach goals and performance (Payne et al., 2007). Based upon these two streams of research evidence, the following hypotheses are advanced.

Hypothesis 9: Implicit person theories will be positively related to each competency performance dimension on the second task.

Given that the social-cognitive framework posits implicit person theories to be most important in response to challenging situations (Dweck & Leggett, 1988), coupled with research on the heightened reactions of those receiving unfavorable performance evaluations (see Ilgen & Davis, 2000), the IPT-performance relationship is expected to be amplified in the face of such unfavorable evaluations. Accordingly, the following two hypotheses are advanced:

Hypothesis 9a: There will be an interaction between implicit person theories and the sign of the feedback, such that the relationship with each competency performance dimension will be stronger on the second task for those receiving negative feedback on the initial task compared to those with positive performance evaluations.

Hypothesis 10: The relationship between implicit person theories and performance will be stronger on the second task than it will be after the initial task.

### *Mediators of the IPT-Performance Relationship*

The following sections will review literature relevant to developing process models to understand the mechanisms through which the effects of IPTs are transmitted to performance. Prior to an explication of probable mediators that have been identified from past theoretical and empirical studies on IPTs, an examination of a mediated model that extends the social-cognitive framework examined by Liff and Hurd (2009) will be proposed (see Figure 2). This model is subsequently referred to as the *Basic Mediation Model*. Each primary model that is proposed in the forthcoming sections is visually depicted in Figures 2 through 6.

*Implicit person theories, reactions to feedback, and task performance.* The central thesis of the *Basic Mediation Model* is that the effects of individuals' implicit person theories are transmitted to task performance via their effects on reactions to task feedback. That is, implicit person theories shape individuals' broad spectrum of appraisal reactions (e.g., perceived utility and motivation to improve), which then affect subsequent task performance. As delineated in the justification for prior hypotheses, the fundamental mindset to which individuals subscribe regarding the malleability of traits frames their expectations regarding the usefulness of feedback and the perceived threat inherent in such a situation. Consequently, implicit person theories shape the manner in which people react to feedback, with more positive reactions posited to be associated with an incremental perspective (e.g., Liff & Hurd, 2009; Hong et al., 1999). Alternately stated, these malleability beliefs affect the cognitive appraisal of feedback that evokes an intended response (e.g., what goals to set, and how much resources to expend) and actions (i.e., objective behaviors). Accordingly, the final path in the model, in turn,

specifies that reactions to feedback affect task performance. The justifications for the hypotheses proposed above form the basis for the relationship between implicit person theories and the endogenous<sup>7</sup> factors of reactions to feedback and subsequent performance posited in the model. However, a more focused treatment of the relationship between reactions to feedback and performance will be presented first by drawing on relevant literature.

Recent research in an organizational context (Heslin & VandeWalle, in press) found that employees' procedural justice reactions following a performance appraisal interview had both direct and indirect effects on their subsequent organizational citizenship behavior (i.e., the extent to which employees contributed to the organization beyond behaviors explicitly prescribed by a formal role). Further, employees' procedural justice was partially mediated by organizational commitment. In addition, meta-analyses have found support for dimensions of justice (i.e., interactional, distributive, and procedural) for predicting task and contextual performance (Cohen-Charash & Spector, 2001; Colquitt et al., 2001). Taken together, this evidence substantiates the path in the proposed model from justice reactions to performance.

In contrast to a robust literature on organizational justice and performance, evidence for the link between other types of feedback reactions and performance is more indirect. For instance, evidence for the link between motivation to use feedback and performance can be found by synthesizing results from related research areas. For example, motivation to learn during the training process predicts later transfer

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<sup>7</sup> Borrowing from the parlance of causal modeling, the distinction between endogenous and exogenous constructs is that endogenous constructs have their causal antecedents specified within the model under consideration, whereas the causes of exogenous constructs are not specified in the model and not of present interest (Anderson & Gerbing, 1988).

performance (Colquitt et al., 2000). In addition, motivation has been frequently identified as an important factor affecting performance in leadership development and multisource feedback contexts (Smither et al., 2003, 2005). Moreover, research on attitudes points to intentions as a powerful predictor of behavior (Ajzen, 2001). Thus, motivation to use feedback to improve is likely to lead to improvements in performance because individuals will be more likely to adjust future behavior based upon the feedback that they receive, provided that the feedback that they receive helps them to generate effective strategies that lead to desired changes in behavior.

Similarly, the evidence for a link between utility reactions to appraisal feedback and performance is also derived indirectly from the training domain. Once again, meta-analytic research demonstrates that one's reaction regarding how useful a particular training initiative is to one's work role predicts transfer performance (Alliger et al., 1997). In the context of appraisal feedback reactions, it is posited that higher perceptions of utility will lead to improvements in performance because of their effects on such self-regulatory processes as effort and motivation (e.g., for evidence from the training literature, see Ruona et al., 2002).

In addition to the positive effects that motivation to use feedback and perceived utility will have on performance, the justification for perceived accuracy and supervisor credibility with performance is similarly derived. That is, when one perceives feedback to be more accurate and come from a more credible source, he or she is more likely to invest additional resources toward interpreting and responding to feedback.

Finally, a number of articles on recipients' reactions to feedback (e.g., Ilgen et al., 1979) point to the overall satisfaction with the feedback process as occupying a

formidable role in shaping receptivity to feedback, which in turn affects whether or not individuals are likely to adjust their behavior based upon the feedback that they receive. In turn, satisfaction with the feedback process is likely to lead to greater improvements in performance to the extent that those who are more satisfied with the process devote more resources to generating task strategies that are effective for changing behaviors that lead to the desired performance level. In contrast to other feedback reactions such as motivation to use feedback to improve or perceived utility that have more of a proximal relationship with task-relevant behavior, satisfaction with the feedback process is posited as more of a distal antecedent.

Drawing on the job performance and job satisfaction literatures can inform the nature of satisfaction and performance in an appraisal context. A number of theoretical models have been proposed to account for the effects of job satisfaction on job performance, and vice versa (e.g., see Judge, Thoresen, Bono, & Patton, 2001). In a study combining meta-analysis with path analysis, Judge et al. (2001) were able to examine a number of competing models. They concluded that there were several competing models (e.g., job performance-to-job satisfaction versus job satisfaction-to-job performance) that were plausible and mutually compatible. Specifically, they contend that job satisfaction is likely to lead to performance through the effects of behavioral intentions, and positive mood. Further support for the relationship between positive moods and performance comes from a longitudinal study by Amabile, Barsade, Mueller, and Staw (2005) that found a positive association between positive moods and subsequent creativity in organizational settings. In the context of the proposed study, where the marketing tasks

require creative performance, it is probable that the effects of satisfaction with feedback on performance could be transmitted through positive mood states.

In summary, the *Basic Mediation Model* posits that the effects of implicit person theories on performance are mediated by reactions to feedback. Rather than examining each dimension of feedback reactions separately, a structural equation model will be tested to assess the overall plausibility of a model specifying that the effects of implicit person theories on performance will be transmitted through the effect of reactions to feedback as a set. Accordingly, two basic models will be constructed and tested to assess whether a full mediation or a partial mediation model provides a better fit to the data.

Hypothesis 11: The effects of implicit person theories on task performance on the second task will be mediated by reactions to feedback.

In addition, given the posited moderating role of the sign of feedback in affecting the relationship between implicit person theories and reactions to feedback, an additional model will be proposed (see Figure 2) that will be subsequently referred to as the *Basic Conditional Mediation Model (Model 2b)*. This model posits that the relationships between all exogenous and endogenous factors may be moderated by one's sign of feedback on their initial performance evaluation. That is, *Model 2b* specifies that the indirect effects in *Model 2* (i.e., the *Basic Mediation Model*) are conditional upon the favorability of feedback. In short, this model is investigating whether moderated mediation is tenable (Preacher, Rucker, & Hayes, 2007; Baron & Kenny, 1986).

Accordingly, the following model is proposed:

Hypothesis 11a: The effects of implicit person theories on task performance on the second task will be mediated by reactions to feedback. Further, the effects will

be conditional upon the sign of feedback on the initial task performance evaluation (negative vs. positive) such that the indirect mediation effects will be stronger for those receiving negative feedback.

*Alternative mediation model.* Based upon a review of the implicit person theories, goal orientation, and appraisal and feedback literatures (e.g., Smither et al., 2005; DeNisi & Kluger, 2000), several mediated relationships between IPT and performance will be examined. First, it is informative to turn to general models of the feedback process.

After a meta-analytic review of the multisource feedback literature, Smither et al. (2005) proposed a theoretical model that instantiates the role of implicit person theories in shaping goal-setting and actual behavior following receipt of feedback. Similarly, goal-setting and other self-regulatory variables have been examined in a substantial number of empirical investigations by researchers in both the implicit person theories and the goal orientation research domains. In general, support has been found for the role of goal-setting, self-efficacy, effort, effort attributions, and task strategies in mediating the relationships between implicit person theories (Blackwell et al., 2007; Robins & Pals, 2002; Hong et al., 1999) and/or goal orientation (VandeWalle et al., 2001) on performance.

For the current study, the following inclusion criteria were developed to assess the adequacy of potential mediators: (1) extant research supports the role of the variable as a mediator in the relationship between IPT (and/or goal orientation) and performance, (2) the mediator variable is not conceptually<sup>8</sup> redundant with implicit person theories<sup>8</sup>, and (3)

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<sup>8</sup> For example, as Tabernero and Wood (1999) noted, measures of goal orientation would be considered conceptually redundant with IPTs because extant measures of goal orientation tend to confound the underlying disposition (i.e., fundamental beliefs regarding the malleability of traits) with the mediating

the mediator variable is not conceptually redundant with other mediator variables to be included in the model. On the basis of the above criteria, several mediators were selected. The mediating role of goal-setting, effort, and attributions in the IPT-performance relationship will be investigated. First a brief discussion of the role of each mediator is presented, followed by an explication of the models to be examined.

After more than thirty-five years of research, goal setting theory has been one of the most robust theories in the history of I-O psychology (Locke & Latham, 2002). The fundamental premise underlying goal-setting theory is that an individual's personal goals are the most direct regulator of his or her actions (Locke & Latham, 1990). Goal-setting has four mechanisms that account for its effects on performance. Specifically, goal-setting regulates the choice/direction, effort, persistence, and strategies employed by an individual. In general, numerous studies (see Locke & Latham, 2002 for a review) have demonstrated a positive relationship between difficult, specific goals and performance compared to easy, vague, or no goals. Performance tends to increase as a monotonic function of goal difficulty. In addition, Locke and Latham (2002) have found a number of boundary conditions that qualify the positive effects of goal-setting, including: task complexity (with high complexity, a "do your best goal" is more effective), providing feedback, getting commitment, conveying task knowledge, setting the correct type of goal (mastery vs. performance), selecting a useful strategy, and the goal source (i.e., self-set, assigned, or participative).

Of relevance to the present examination, is the issue of setting the correct type of goal. It is posited that those with an incremental perspective are oriented to set more

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process (i.e., the type of goals that are set). Accordingly, goal orientation was excluded as a potential mediator.

difficult and mastery oriented goals than those with an entity perspective (Dweck & Leggett, 1988). Empirical research in the organizational domain supports this contention. As discussed earlier with respect to the relationship between IPTs and performance, Taberero and Wood (1999) found that participants who had an implicit theory that group-management ability is an incremental skill that can be acquired with experience set themselves more challenging goals across multiple trials. Thus, the relationship between IPTs and performance will be mediated by goal-setting, with an incremental perspective leading to more difficult and mastery-oriented goals that will consequently result in greater improvements in performance.

Hypothesis 12: The effects of implicit person theories on task performance on the second task will be mediated by goal-setting after the receipt of initial feedback.

Hypothesis 12a: The effects of implicit person theories on task performance on the second task will be mediated by goal-setting after the receipt of initial feedback. Further, the effects will be conditional upon the sign of feedback on the initial task performance evaluation (negative vs. positive) such that the indirect mediation effects will be stronger for those receiving negative feedback.

A number of studies investigating self-regulatory processes between goal orientation and performance have identified the role of effort (e.g., VandeWalle et al., 1999; VandeWalle et al., 2001). Specifically, the relationship between learning goal orientation and performance is mediated through the positive effects of learning goal orientation on effort (VandeWalle et al., 1999; VandeWalle et al., 2001). The conceptual similarities between the goal orientation and IPTs constructs prompted the inclusion of effort in the proposed model. Effort is instrumental in developing the requisite skills and

abilities needed for mastery. However, when such abilities and skills are seen as fixed attributes, one is less likely to invest the effort that is necessary to achieve mastery. In contrast, incremental theorists are more likely to invest effort in a task. Accordingly, the effects of IPTs on performance are posited to occur through effort, with incremental theorists putting forth greater effort than entity theorist counterparts.

Hypothesis 13: The effects of implicit person theories on task performance on the second task will be mediated by self-reported effort after the receipt of initial feedback.

Hypothesis 13a: The effects of implicit person theories on task performance on the second task will be mediated by self-reported effort after the receipt of initial feedback. Further, the effects will be conditional upon the sign of feedback on the initial task performance evaluation (negative vs. positive) such that the indirect mediation effects will be stronger for those receiving negative feedback.

Finally, a number of studies examining the relationship between IPTs and performance have identified the critical role of attributions regarding performance as a mediator of that relationship (e.g., Blackwell et al., 2007; Robins & Pals, 2002; Hong et al., 1999). Effort attributions are the underlying beliefs that people form regarding the extent to which effort leads to positive outcomes. As discussed previously with respect to the relationships between IPTs and reactions to feedback and IPTs and performance, those with an incremental perspective tend to form effort attributions regarding explanations for their performance deficiencies, while entity theorists tend to form ability attributions (Hong et al., 1999). Furthermore, Hong et al. (1999) found that the relationship between IPTs and performance was mediated by effort attributions. It

remains to be examined whether the mediating role of attributions will be borne out in a work context. Thus, in the current study, it is posited that attributions regarding performance will mediate the relationship between IPTs and performance. Specifically, it is expected that the positive effects of IPTs on time 2 performance will be transmitted via the tendency to attribute performance deficiencies to effort instead of ability. Since entity theorists are more likely than incremental theorists to view ability as intractable, they will be less likely to form effort attributions, and consequently, put forth the effort needed to overcome performance deficiencies.

Hypothesis 14: The effects of implicit person theories on task performance on the second task will be mediated by effort attributions after the receipt of initial feedback, with more of an incremental perspective being associated with greater effort attributions.

Hypothesis 14a: The effects of implicit person theories on task performance on the second task will be mediated by effort attributions after the receipt of initial feedback, with more of an incremental perspective being associated with greater effort attributions. Further, the effects will be conditional upon the sign of feedback on the initial task performance evaluation (negative vs. positive) such that the indirect mediation effects will be stronger for those receiving negative feedback.

An additional model referred to as the *Simultaneous Multiple Mediation Model (Model 3)* is advanced. Building on *Model 2b* by including the additional self-regulatory process and attribution variables proposed in Hypotheses 13-15, the *Simultaneous Multiple Mediation Model* will assess the tenability of a social-cognitive framework in

which the effects of implicit person theories on performance are mediated through multiple pathways (please see Figure 3 for a graphical depiction of the model). It is important to include all of the effects of posited mediators in one model because it provides a test of a model that more closely resembles the effects of multiple factors in a complex environment. Thus, a model is proposed in which the IPTs-performance relationship is mediated by reactions to feedback, goal-setting, effort, and attributions.

Hypothesis 15: The effects of implicit person theories on task performance on the second task will be mediated by the combined set of reactions to task feedback, goal-setting, effort, and attributions after the receipt of initial feedback.

A number of theoretical models of the feedback process have been conducted that specify a causal order. For example, Smither et al.'s (2005) feedback model contends that reactions to feedback occur prior to taking remedial action. Similarly, Ilgen et al.'s (1979) model posits that individuals' perceptions of feedback occur prior to deciding whether to accept and respond to a feedback stimulus. In both models, reactions to feedback or perceptions of feedback are viewed as temporally prior to self-regulatory action. Thus, given prior theoretical models, it seems logical that a competing model may provide a better explanation of the feedback process. Accordingly, a model that could be directly compared with Model 3 will be constructed and examined. Specifically, the alternative model, referred to as the *Multiple Stage Mediation Model (Model 3b)*, contends that reactions to feedback initiates a cognitive appraisal process which subsequently leads to self-regulatory processes and actions that jointly affect subsequent performance (please see Figure 4 for a graphical depiction of the model). That is, the effects of IPTs on performance are transmitted through reactions to feedback and each of the self-regulatory

constructs proposed. In addition, part of the indirect effect is transmitted from reactions to feedback through the self-regulatory process, which then lead to desired changes in performance (i.e., a multiple stage mediation process). Accordingly, *Model 3b* contains additional paths to model the effects of reactions to feedback on goal-setting, effort, and attributions.

Hypothesis 15a: The addition of structural paths from reactions to feedback to goal-setting, effort, and attributions will provide a better account of the data than the more parsimonious model that specifies that the effects of implicit person theories on task performance on the second task will be mediated directly through reactions to task feedback, goal-setting, effort, and attributions after the receipt of initial feedback.

*Conditional multiple mediation models.* Finally, given the posited moderating role of feedback sign in affecting the relationship between implicit person theories and reactions to feedback, additional models are proposed that will investigate the tenability of the indirect mediation effects for *Models 3* and *3b* being conditional upon the sign of feedback received on one's initial performance evaluation. The models will be respectively referred to as (1) *Conditional multiple mediation models*, and (2) *Conditional Multiple Stage Mediation (Model 4b)*. Please refer to Figure 4 for a pictorial depiction of the models. Broadly, these models posit that the relationships between all exogenous and endogenous factors may be moderated by feedback sign. Accordingly, the following hypotheses are proposed to examine Models 4 and 4b, respectively:

Hypothesis 16: The effects of implicit person theories on task performance on the second task will be mediated by the combined set of reactions to task feedback,

goal-setting, effort, and attributions after the receipt of initial feedback. Further, the effects will be conditional upon the sign of feedback on the performance evaluation (negative vs. positive) such that the indirect mediation effects will be stronger for those receiving negative feedback.

Hypothesis 16a: The addition of structural paths from reactions to feedback to goal-setting, effort, and attributions will provide a better account of the data than the more parsimonious model that specifies that the effects of implicit person theories on task performance on the second task will be mediated by reactions to task feedback, goal-setting, effort, and attributions after the receipt of initial feedback. Further, the effects will be conditional upon the sign of feedback on the initial performance evaluation (negative vs. positive) such that the indirect mediation effects will be stronger for those receiving negative feedback.

A summary of each of the hypotheses is presented in Appendix A as a convenient reference aid.

## Method

### *Participants*

*Sample.* A total of 242 students enrolled in undergraduate psychology courses participated in the study during the Fall 2009 Semester. Students received course credit for participation in two laboratory sessions – a one-hour session and a one-and-a-half-hour session. In the first study session, participants took part in focus groups charged with generating marketing strategies and selecting the most viable strategies for the regional marketing campaign of a fictitious company called Travel University. Travel University offers discount travel to university students (see the Procedure for a background on the study task). In the second session of the study, participants received task feedback based upon their performance on the first session's task. They then completed reaction measures to the feedback. Subsequently, the participants were tasked with developing an implementation strategy for the regional marketing campaign of Travel University based upon one of the ideas their group generated in the first task. 217 students completed both laboratory sessions. Thus, the attrition rate from session one to session two was 10.3%<sup>9</sup>.

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<sup>9</sup> To ensure that attrition did not have an adverse effect on the study results, all demographic characteristics, implicit person theory scores, and task 1 performance scores were examined for group differences. Independent sample t-tests between those participants who completed only one laboratory session versus those participants who completed both sessions did not reveal any significant differences across all the variables.

*Demographic characteristics.* 67.4% of participants were female, and 32.6% were male. The majority of the sample identified themselves as White/Caucasian (83.1%), 6.2% identified themselves as Latino, an equal number identified themselves as Black and Asian (3.3%), 2.5% identified themselves as Other/Multi-Racial, 0.4% identified themselves as Native American or Alaskan Native, and 1.2% declined to respond.

Demographic information pertaining to work-related characteristics was reported by study participants. Specifically, 8.3% of the sample did not have any work experience, 71.1% had less than five years, 19.8% had between five and ten years, and .8% had between 11 and 15 years. 49.2% of the sample had never participated in a formal performance evaluation, 18.6% had participated in 1, 23.6% had participated in 2 to 4, 6.6% in 5 to 7, and 2.1% experienced more than 7 performance evaluations. At the time of the study, 35.1% of the sample held a part time job (i.e., 0 to 20 hours), 3.3% held full time jobs (i.e., greater than 20 hours), and 61.6% were not employed (i.e.,  $N=149$ ).

Thus, the majority of participants were not employed. Of those who were employed, 29.6% held restaurant and food services jobs, 13.0% held retail jobs, 11.3% held customer service jobs, 10.4% held university work-study jobs, 7.0% held professional jobs, and 28.7% held jobs in an unspecified category.

### *Measures*

The full items for each of the measures are reproduced in Appendix B. A diagram that illustrates the flow of each of the study tasks and denotes the point at which the measurement of each focal study variable occurred is presented in Appendix C. Please refer to the respective Appendices for more information on the measures presented

below. Refer to Table 2 to view descriptive and reliability statistics for all study variables.

*Implicit person theories.* Prior to engaging in the marketing tasks, participants' lay beliefs about the malleability of their personal attributes was assessed via a domain-general *kind-of-person* measure developed by Levy and Dweck (1997). Specifically, the four entity-phrased items for this scale were used, omitting the four incrementally-phrased items. In general, many researchers have encountered issues with the lack of fit for measurement models specified with the full 8-item *kind-of-person* scale (E. Dierdorff, personal communication, April 2009). That is, using confirmatory factor analysis to specify a two-factor structure (i.e., incremental and entity factors) has yielded poor fit of the model to the data in a number of applied contexts. It is somewhat curious that even though structural equation modeling techniques have been employed in a number of IPTs' studies to examine its relationship with other constructs, researchers have not reported the fit of latent variable measurement models of the popular kind-of-person 8-item measure used to assess IPTs (e.g., Heslin & VandeWalle, in press; Blackwell et al., 2007).

In a recent study, I compared several models of IPT and found that the best fitting model in terms of Chi-square,  $\chi^2$ -to-degrees-of-freedom ratio, comparative fit index (CFI), and RMSEA was a model that contained only entity items. Some researchers who have examined the issue of poor fit with scales containing incremental items (Dweck et al., 1995) have posited that due to the compelling nature of incrementally-phrased items (i.e., it is socially desirable to agree with items that are characteristically positive), participants are more likely to endorse such items than entity items regardless of their

true standing on the latent construct. Accordingly, Dweck and colleagues (see Dweck et al., 1995) have simply used the entity items and found evidence that a lack of agreement with entity items is indicative of agreement with the incremental theory perspective (i.e., consistent with a bi-polar continuum conceptualization of IPTs). Further, other researchers have commented on the unitary nature (Dweck, 1999; Chiu et al., 1997) and the fairly narrow breadth of the IPTs construct, contending that it is a simple belief that has fairly complex effects (Taberner & Wood, 1999). Therefore, based on the posited unitary nature of the construct and the psychometric issues with scales containing incremental items, only the entity items were selected. Consistent with the prevalent operationalization in the literature (see Heslin & VandeWalle, in press; Blackwell et al. 2007; Heslin et. al., 2005, 2006), IPT is treated as a continuous variable, with higher scores<sup>10</sup> indicating more of an incremental perspective, and lower scores, an entity perspective. A sample item from the scale is, “The kind of person someone is is something very basic about them and it can't be changed very much.” A confirmatory factor analysis of a one-factor model provided excellent fit to the study data ( $\chi^2 = 2.23$ ,  $df = 2$ ,  $p > .05$ ,  $\chi^2$ -df-ratio = 1.11, CFI = .999, RMSEA = .02). Hence, a one-factor model was supported. Additionally, the internal consistency of the measure was adequate ( $\alpha = .86$ ). Responses were captured on a Likert-type scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*).

*Organizational justice.* Measures for the three dimensions of organizational justice were selected based upon their specific use in a performance appraisal context to

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<sup>10</sup> Entity items will be reversed scored so that higher scores indicate more of an incremental perspective.

measure perceptions of organizational justice. Each measure is described separately below.

*Distributive justice.* Perceptions of distributive justice were measured using Korsgaard and Roberson's (1995) four-item scale. Items were slightly modified to fit the context of the study (e.g., items were rephrased to performance on the task instead of performance on the job). The internal consistency of the measure was high ( $\alpha = .94$ ), and consistent with estimates from other studies (cf.,  $\alpha = .93$ ; Korsgaard & Roberson, 1995). A sample item from the scale is, "My performance appraisal fairly represented my performance on the task." Responses were captured on a Likert-type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

*Procedural justice.* Perceptions of procedural justice or the fairness with which the feedback evaluation was conducted was measured using Keeping, Makiney, Levy, Moon, and Gillette's (1999) six-item scale. The internal consistency of the measure was high ( $\alpha = .95$ ). A sample item from the scale is, "The procedures used to evaluate my performance were fair." Responses were captured on a Likert-type scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

*Interactional justice.* Perceptions of interactional justice were measured using Moorman's (1991) six-item scale. The internal consistency of the measure was good ( $\alpha = .90$ ). A sample item from the scale is, "The company representative treated you with kindness and consideration." Responses were measured on a Likert-type scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

*Satisfaction with the feedback process.* Perceptions of feedback satisfaction were measured using six items from Giles and Mossholder's (1990) appraisal session

satisfaction and appraisal system satisfaction scales. Once again, items were slightly modified to fit the context of the study (e.g., items were rephrased from task to job performance, and from employee to group member). Sample items for the scale include, “I feel quite satisfied with my appraisal session” and “The appraisal system does a good job indicating how a group member has performed during the task.” The internal consistency of the measure was high ( $\alpha = .95$ ). Responses were captured on a Likert-type scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*).

*Perceived accuracy of the feedback.* Perceptions of perceived accuracy of the feedback were measured using Stone, Gueutal, and McIntosh’s (1984) nine-item scale. The items were slightly altered from their original form to be consistent with the study tasks. A sample item for the scale is, “The feedback was an accurate evaluation of my performance on the task.” The internal consistency of the measure was high ( $\alpha = .95$ ). Responses were captured on a Likert-type scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

*Supervisor credibility.* Perceptions of supervisor credibility were measured using two scales that assess perceptions of supervisor expertise and trustworthiness, the two dimensions of supervisor credibility that were identified by Hovland, Janis, and Kelley (1953). Perceptions of supervisor expertise were measured using a seven-item scale that was first compiled and used by Hurd (2007). The scale includes three items from a scale developed by Roberson and Stewart (2002), and four additional items created by Hurd (2007). Trust in the supervisor was assessed using five items from McAllister’s (1995) six-item cognition-based trust scale. Responses were given on a Likert-type scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). An exploratory factor analysis (EFA)

using maximum likelihood extraction was conducted by Hurd (2007) to investigate the structure of the 13-item measure. Results supported a single factor accounting for 65% of the variance. For the current study, confirmatory factor analyses were conducted to investigate the model fit of the measure. Poor fit was obtained for the 13-item one-factor model that combined supervisor expertise and trust items. This lack of fit in the current study is intuitive given that it may have been difficult for participants to form judgments of trust since they did not have direct contact with the Travel University executives. Accordingly, the fit of a one-factor model with only supervisor expertise was examined. The model provided an adequate fit to the data ( $\chi^2 = 155.431$ ,  $df = 2$ ,  $p < .05$ ,  $\chi^2$ -df-ratio = 11.10, CFI = .90). Further, internal consistency for the measure was high ( $\alpha = .94$ ). Accordingly, only the expertise items will be aggregated to create a supervisor credibility scale.

*Perceived utility.* Perceptions of perceived utility were measured with four items from Greller (1978). The items were slightly modified to fit the nature of the study tasks. Greller's measure has been used in numerous performance appraisal studies (see Keeping & Levy, 2000). Previous studies have reported acceptable reliability (e.g.,  $\alpha > .83$ ) and validity evidence to support the use of this measure (see Nathan, Mohrman, & Milliman, 1991; Prince & Lawler, 1986). In the current study, the internal consistency of the measure was considerably higher than other studies reported in the literature ( $\alpha = .94$ ). A sample item from this scale is, "The feedback helped me understand my mistakes." Responses were given on a Likert-type scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

*Motivation to use feedback.* Participants' intentions to improve following the receipt of feedback were assessed by adapting two items from Nemeroff and Cosentino (1979) and one item from Dorfman, Stefan, and Loveland (1986). The items were slightly modified to be consistent with the context of the study tasks. The internal consistency reliability of the measure was high ( $\alpha = .93$ ). A sample item for this scale is, "I am willing to change my task behaviors based on the feedback that I received from the company representatives." Responses were given on a Likert-type scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

*Goal level.* Following a similar approach for measuring the difficulty level of goals set to VandeWalle et al. (1999, 2001), one item was used to assess the extent to which participants set a difficult goal for themselves on the final study task. The item for goal difficulty was, "What is your performance goal relative to others on this task?" Participants selected one of the following goals ordered from low difficulty to high difficulty: 5th, 15th, 30th, 50th, 70th, 85th, or 95th percentile. Each of the categories was then assigned a corresponding number to represent the difficulty of the chosen goal (e.g., 5th percentile = 1 and 95th percentile = 7). The validity evidence for this approach to measuring goal difficulty comes from VandeWalle et al. (1999, 2001) who reported significant validity coefficients with both antecedent and dependent variables with which relationships were posited.

*Types of goals set.* The types of goals that participants' pursued were measured after receiving task feedback. An 18-item measure of mastery, performance-approach, and performance-avoidance goals was adapted from Elliot and Church (1997). Specifically, the items were rephrased to more appropriately apply to the context of the

study's tasks. This measure contains 6-items for each type of goal that participants may have pursued during task 2. A sample item for mastery goals is, "I hope to have gained a broader and deeper knowledge of marketing strategies when I am done with this task." A sample item for performance-avoidance goals is, "I wish my performance on this task were not going to be evaluated." Finally, a sample item for performance-approach goals is, "My goal in this task is to perform better than most of the members of my team." Given that the scales had been slightly altered, a more careful examination of the psychometric properties of the scales (i.e., factor structure and internal consistency) was employed. First, a confirmatory factor analysis revealed adequate to good fit to the data of a three-factor correlated model ( $\chi^2 = 366.193$ ,  $df = 132$ ,  $p < .05$ ,  $\chi^2$ -df-ratio = 2.77, CFI = .89, RMSEA = .09). The CFA indicates that the rewording of the items has not substantively altered the measurement properties of the scale. Further, internal consistency reliability was high for both performance approach ( $\alpha = .93$ ) and mastery ( $\alpha = .91$ ) scales, and acceptable for the performance avoidance scale ( $\alpha = .83$ ). In summary, both the confirmatory analysis and reliability statistics suggest that the scales are operating as intended. Responses were given on a Likert-type scale ranging from 1 (*not at all true of me*) to 7 (*very true of me*).

*Attribution beliefs.* Participants' beliefs regarding the relationship between effort and performance were assessed by adapting a nine-item measure used by Blackwell (2002) in an academic setting. Specifically, the items were reworded to fit the work context of the study rather than an educational setting. Blackwell et al. (2007) reported adequate internal consistency reliability ( $\alpha = .79$ ), and good test-retest reliability over a two-week period ( $r = .82$ ) for the measure. The scale contains five positively worded

items and four negatively worded items. A sample positively-worded item from the scale is, “When a task is hard, it just makes me want to work more on it, not less.” A sample negatively-worded item from the scale is, “If you’re not good at a particular task, working hard won’t make you good at it.” Following the process outlined by Blackwell et al. (2007), the positively and negatively worded items were combined to form one scale with negative items recoded so that higher scores on the scale indicate more positive attributions regarding effort and performance.

Examination of the scree plot and extraction sum of square for an EFA using maximum likelihood estimation on a random half of the sample revealed one factor that accounted for 42.59% of the total variance. Further, internal consistency reliability for the scale was adequate ( $\alpha = .83$ ). Further, a CFA based on a random half of the sample indicated marginally acceptable fit ( $\chi^2 = 147.643$ ,  $df = 27$ ,  $p < .05$ ,  $\chi^2$ -df-ratio = 5.47, CFI = .80, RMSEA = .14). Accordingly, a two-factor model, with correlated factors for positively phrased and negatively phrased items, was also computed. The two-factor model lead to a significant improvement in fit over the one-factor model ( $\Delta \chi^2 = 76.98$ ,  $df = 1$ ,  $p < .05$ ). However, other than statistical reasons, there was no theoretical justification for a two-factor model. Accordingly, consistent with theory (see Blackwell et al., 2007), the items were aggregated into one scale. Responses were given on a Likert-type scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

*Effort.* Participants’ self-reported effort following the second study task was assessed retrospectively by adapting a method used by Brown, Cron, and Slocum (1997), VandeWalle et al. (2001), and others. That is, immediately after the final task, participants responded to three items on how much time, work intensity, and overall

effort they put forth during the task. A sample item is, “Compared to other team members, how much time did you spend working on the task?” Internal consistency for the measure in the current sample was good ( $\alpha = .90$ ).

*Task performance.* Task performance was assessed via trained research assistant (RA) observers who rated participants’ performance during each task on the following competencies that were identified as relevant to effective performance: (1) leading and initiating, (2) creating and conceptualizing, (3) supporting and cooperating, (4) interacting and presenting, and (5) organizing and executing. Table 1 lists each competency and its corresponding definition. RAs rated each team member’s performance on all the dimensions using a 5-point rating scale with behavioral anchors at each end of the rating scale. The scale ranged from 1 (*needs improvement*) to 5 (*exceptional*). Two RAs rated each group member’s performance. The average of the two ratings was used for the final score. Any discrepancy greater than two points required the RAs to have a discussion to justify their ratings. Then, individual ratings were adjusted so that the final ratings fell within 2 points of each other. Each participant’s ratings from the first task (i.e., generating marketing strategy ideas) were then used to compose their individualized performance evaluation reports. In addition, the performance ratings were used to determine the nature of the type of feedback comments (positive versus negative) in the performance evaluation that was received prior to performing the task in the second session of the study. The distribution of positive versus negative feedback was fairly well balanced, with 52.1% of the sample receiving negative feedback ( $N = 126$ ), and 47.9% of the sample receiving positive feedback ( $N = 116$ ). Please see Appendix D for the complete observational rating forms. Prior to aggregating ratings across each rater,

intraclass correlation coefficients (ICCs) were computed for absolute agreement on tasks 1 and 2 total performance<sup>11</sup> ratings and assuming a two-way random coefficients model (i.e., borrowing from Generalizability Theory parlance, both raters and tasks are assumed to be sampled from the population universe). For task 1, the ICC was .77. For task 2, the ICC was .83. The ICCs for task 1 and task 2 suggest that raters furnished reasonably similar ratings. Thus, ratings across RAs were aggregated to form one performance score. Exploratory factor analyses on the five performance competency ratings revealed a clear one-factor solution, with 52.50% and 56.44% of the total variance accounted for in tasks one and two performance ratings, respectively. Further, internal consistency reliability estimates for tasks one and two also supports the unitary nature of the performance ratings (Task 1  $\alpha = .84$ , and Task 2  $\alpha = .86$ ).

*Manipulation check.* To ensure that participants' perceptions of the feedback received were consistent with the actual feedback provided, one item was administered at the conclusion of the study tasks: "Overall, the feedback that I received from the company representative was..." with a Likert-type scale ranging from 1 (*negative*) to 3 (*positive*). Note that the feedback that participants actually received is more complex (i.e., feedback on all five performance dimensions was provided). Further, to evaluate whether participants' perceived the deception used in the study to be credible, one question was asked for each of the following elements of the study: feedback, company representative, and purpose of the study. A sample item is, "The purpose of the study was

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<sup>11</sup> ICCs were also computed for each competency (e.g., Leading and Initiating). However, ICCs for the total performance ratings are reported above since operationally total performance scores were used in regression analyses. The ICCs for each competency were also calculated. The mean ICCs across the competencies were .61 for task 1 and .66 for task 2. These competency-level ICCs are relevant for structural equation modeling analyses in which performance was modeled as a latent variable. In all cases, ICC values supported the pooling of scores across raters and competencies.

believable.” Responses to each believability item were given on a True/False scale.

Internal consistency for the four items was acceptable ( $\alpha = .78$ ).

### *Procedure*

During the laboratory study, participants received a performance evaluation that consisted of ratings on each competency that was based on research assistants’ behavioral observations of their performance on the first study task. In addition, they received either generally positive or generally negative feedback along with suggestions for improving performance prior to the final study task (i.e., developing a marketing implementation plan). The sign of the feedback was primarily based upon participants’ actual performance on the initial task, with those whose overall performance ratings were less than 15.5 across all of the five task performance competencies receiving negative feedback, and those whose overall performance ratings were 15.5 or greater across all of the five task performance competencies receiving positive feedback (please see Appendix E for the prototype of each feedback script). The cutoff was set at 15.5 because that represented a performance rating of slightly above average across the performance competency categories. The cutoffs that were predetermined ended up yielding a fairly well-balanced distribution, with 126 of the participants receiving negative feedback and 116 receiving positive feedback.

The study was designed with two principal goals in mind. First, maximization of experimental realism (Aronson, Wilson, & Brewer, 1998) was necessary to ensure that participants were psychologically engaged, so that they would be actively involved in the study tasks and be invested in receiving feedback. Second, the study tasks needed to be comparable to the type of work activities that are performed within an organization to

ensure high psychological fidelity (see Thornton & Mueller-Hanson, 2004). Based upon these two criteria, a marketing task that was developed by Brian Hurd (Hurd, 2007), and used in subsequent studies (e.g., Liff & Hurd, 2009) was adapted for the current study. Specifically, the original study was comprised of one marketing task session and a feedback delivery and reactions measurement session. The current study was extended into two discrete, but related tasks separated by a session in between the two tasks in which participants received a performance evaluation based on their performance on the initial marketing task.

*Overview.* The study was conducted over two sessions, with the second session consisting of both feedback (based on session one performance) and a task. In the first session, participants worked both individually and in groups of six to eight on a marketing task (*study task 1: generating marketing ideas*). After the first session, participants returned to the laboratory one week later to receive feedback electronically based on their task performance during the first study session. In the second part of the final session, participants worked both individually and in the same group of six to eight with which they worked during the first session of the study on a task that was separate but related to the initial study task (*study task 2: developing a marketing implementation strategy*). A detailed description of the study is presented below. The study was double-blind in that both study participants and research assistants running each study session were unaware of the research questions being investigated in the study.

At the beginning of the first session, participants were welcomed to the study by two research assistants and seated next to a laptop computer around a conference table. Each participant then completed a consent form and filled out initial measures using a

Web-based data collection method (see Appendix C for a list of measures that were completed during this phase). After all the participants were seated, the research assistants announced that the study was a collaboration between university researchers and a new Internet startup company called Travel University, whose objective was to be the premiere discount travel agency of college students. To learn more about the company, and the tasks on which they would be working, participants were shown a six-minute video on their laptop computers. Further, they were informed that the video was from two company representatives who were in charge of evaluating their performance on the tasks. However, both company representatives featured in the video were actually study confederates. The same video was be shown to all participants.

In the video, company representatives from Travel University explained that since the mission of the company was to be the exclusive provider of discounted travel to college students, they (i.e., the participants) were an ideal group from which to solicit ideas on how to effectively market Travel University's services. Therefore, participants were told that they were taking part in a focus group charged with generating innovative marketing and promotional ideas for Travel University (i.e., *study task 1: generating marketing ideas*). Further, they were told that the company representatives would carefully evaluate the merits of each marketing idea and then ask the group to return the following week to develop an implementation strategy for the marketing idea.

The following week, participants were then be asked to return to the laboratory to work on a more detailed plan for implementing the best marketing strategy that was generated during the first task (i.e., *study task 2: developing a marketing implementation strategy*). Participants were told that they would be working on the tasks both

individually and in their group while the research assistants monitor their performance. Further, it was explained that while Travel University's objective was to obtain valuable insight from them regarding different marketing ideas to pursue, the researchers at Colorado State University would be examining their interactions to better understand the group decision-making process. Finally, participants were informed that they would receive individual feedback regarding their performance on the first task from the company representatives. Due to the high volume of performance reviews that were conducted, the evaluations were disseminated electronically. Participants were asked in the next laboratory session to review their performance feedback and respond to a questionnaire prior to engaging in the final study task. They were told that it was very important to review their feedback and respond to the questionnaire because the suggestions of the company representatives may help them work more effectively during the final focus group session. Participants were then led to believe that their performance ratings across both of the focus group sessions was used to place them into one of two groups (i.e. high and average performers), with the groups of higher performers entered into a lottery for a chance to receive a prize from Travel University. However, no lottery was conducted. Participants were informed of the deception that was used at the conclusion of the study.

At the conclusion of the video, participants were given a fact sheet on Travel University (see Appendix F) and an idea sheet that they used to keep track of their marketing ideas. During the first part of the task, participants were allotted 10 minutes to individually brainstorm and develop marketing and promotional strategies for Travel University. Subsequently, participants were told to work in their groups of six to eight for

30 minutes to discuss individual ideas, determine the best two ideas, and then develop these ideas in greater detail. During the group interaction, research assistants took behavioral observation notes that were later used to rate each participant on the task competencies of: (1) leading and initiating, (2) creating and conceptualizing, (3) supporting and cooperating, (4) interacting and presenting, and (5) organizing and executing. Again, please refer to Table 1 for a description of each competency. At the end of the session, all participants submitted their idea sheets. Participants were told that the company representatives would review their work and give each participant individual feedback based upon the ideas that they generated and their performance in the group one week later via an electronic document in which he/she would receive a personalized feedback report and be asked to complete a questionnaire related to the feedback report.

Each participant's feedback report was compiled based upon the following information: 1) the number and originality of marketing ideas listed on the idea sheet, and (2) performance ratings from the group brainstorming sessions as recorded by research assistants. This first session lasted one hour.

Following the first study session, all participants returned to the laboratory one week later and were greeted by the research assistants. After being seated at a computer, participants received their individualized feedback reports. Participants were allotted up to 15 minutes to review their feedback reports. Although the delivery of feedback electronically represented a less dynamic medium for an interaction, it also mirrors the process by which employees in large corporate settings typically receive their annual performance evaluations from their supervisors (prior to a formal meeting).

Following a review of the individualized performance feedback, which contained both the participant's numerical ratings on each competency dimension and general suggestions for improving performance<sup>12</sup>, participants were instructed to complete a questionnaire (see Appendix D for a list of the measures that were completed during this phase). To ensure that participants had an opportunity for input (i.e., maintain procedural and interpersonal fairness), verbal instructions were given to inform participants that they had the option to send an email to the company representatives should they have had any questions regarding the feedback or the task.

In the final segment of the study, participants engaged in another session in which they worked on a task both individually and with groups. The central phenomenon of interest in the session was participants' task performance following the receipt of session 1 task feedback. A brief video was shown that described the second task on which the company representatives wanted the focus group to work. The video lasted approximately five minutes. The group was informed during the video that the company representatives selected one of their marketing ideas to be further developed. Specifically, the participants were asked to take the marketing idea that they identified in the first study session and develop a detailed plan that Travel University could use to implement the original marketing idea. The plans generated by groups were to include the full scope of activities that the company should use to attract potential customers and generate revenue, including commercials, viral marketing campaigns (i.e., Web-based advertising

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<sup>12</sup> Recall that the nature of the performance feedback received (i.e., positive versus negative) was based upon the participant's actual performance ratings across the five task performance competencies. Specifically, those whose overall performance ratings were less than 15.5 across all of the five task performance competencies received a negative feedback script, and those whose overall performance ratings were 15.5 or greater across all of the five task performance competencies received a positive feedback script.

strategies), billboards, events hosted at universities, and so forth. First, participants were given an implementation sheet that they used to keep track of their ideas for the implementation plan. During the first part of the task, participants were allotted 10 minutes to individually brainstorm implementation plan ideas for Travel University. Subsequently, participants were told to work in their groups of six to eight for 30 minutes to discuss individual ideas, and then to develop a comprehensive plan that contained the best ideas that were generated. Further they were told that they should consider both whether their idea would likely lead to attracting customers (i.e., capture the attention of college students), and whether the plan would generate revenue (i.e., make college students more likely to purchase from Travel University) when deciding on how to evaluate the merits of different elements of their plan.

At the conclusion of the group task, participants completed a final survey that contained manipulation check items described in the Measures section. Participants were then debriefed as a group. During the debriefing, they were informed about the true nature of the study (i.e., the study was solely for research purposes and that Travel University is not an actual company). However, they were told that their feedback was based on their actual performance during the task. This final session lasted one and a half hours. The total length of the study was 2.5 hours.

## Results

### *Data Handling*

*Screening for missing variables.* Prior to conducting any hypothesis testing, the data were screened in accordance with procedures outlined by Tabachnick and Fidell (2007). Specifically, all study variables were screened to determine if any data were missing. With structural equation modeling, achieving model convergence is dependent upon having data for all observations. Models may fail to converge when such data is missing. Missing Values Analysis was conducted using PASW (Predictive Analytics Software, formerly known as SPSS) 18.0. Given that the data collection was employed via online surveys that required responses on all variables, the MVA did not reveal any missing data.

*Screening for univariate and multivariate outliers.* Next, all independent, moderating, and dependent variables were examined for outliers. To screen for univariate outliers, Z scores were produced for the implicit person theories scale, all the appraisal effectiveness scales, the goal setting scales, the effort scale, the attribution beliefs scale, and task performance. Any standardized scores greater than 3.29 ( $p < .001$ ) would be flagged as potential outliers (Tabachnick & Fidell, 2007). However, across all of the study variables, no scores were close to the 3.29 critical value.

Next, to screen for multivariate outliers, Mahalanobis' distance values were produced in SPSS by regressing the participant case number on all study variables. Mahalanobis' distance is defined as the distance of a case from the centroid of the remaining cases where the centroid is the point at which the means of all variables intersect. This value is evaluated for significance against the  $\chi^2$  distribution. Mahalanobis' distance values for each case were then inspected against the .001 critical value, with degrees of freedom based on the number of predictors in the regression equation ( $\chi^2 = 36.123, df = 14$ ). Using this cutoff, three cases were identified as possible outliers. Therefore, additional inspection of the three individual cases was warranted. Examining the cases led to two conclusions. First, the number of variables that could be classified as outliers was not large for either case. Second, the pattern of values for either cases did not warrant deletion. Furthermore, given the relatively large sample size relative to the cases, they are not expected to have a substantive effect on the results.

*Normality of study variables.* Next, all study variables were screened for normality (e.g., inspecting the skewness and kurtosis). Please refer to Table 2 for the descriptive statistics for all study variables. Table 2 also presents Z statistics for skewness and kurtosis that were formed by subtracting each skewness or kurtosis value by zero and then dividing by the standard error of the respective statistic. Each variable was then tested for significant skewness and kurtosis using the alpha level of .001 ( $Z = 3.29$ ). Based on the .001 cutoff, the hypothesis of zero skewness was rejected for task 2 performance and for goal level. Tests of all other variables on skewness and kurtosis were not significant. Accordingly, task 2 performance and goal level were more closely examined. Inspecting histograms with a normal curve superimposed indicated that the

distributions were close to normal. Furthermore, responses were all within the normal range. With larger sample sizes, the standard errors for skewness and kurtosis decrease, making even minor deviations in skewness or kurtosis appear to be significant. Several transformations were attempted (square root and log transformations) that did not make any substantive differences in the normality of task 2 performance and goal level.

Accordingly, the untransformed distributions were used in all subsequent analyses.

#### *Descriptive Statistics And Correlations Among Study Variables*

Table 2 presents descriptive statistics for all of the study variables. An inspection of the range of each variable and the mean and standard deviation values in Table 2 reveals that all the responses were within the expected range. Further, restriction of range does not appear to be a problem with any of the study variables since there is a considerable proportion of scores from the mean.

Table 3 presents correlations among all of the study variables. All study variables were significantly correlated with task 2 performance, except performance avoidance goals, where no relationship was exhibited. First, feedback sign (i.e., negative or positive) exhibited a positive manifold of correlations with all study variables. This pattern of correlations provides some evidence for the effectiveness of feedback manipulation (see the manipulation check presented below for more details). Most notably, feedback sign was moderately to strongly related to task 2 performance, and the full set of appraisal outcome measures. Moreover, feedback sign was related to attribution beliefs, performance approach goals, mastery goals, and level of goal set. Interestingly, participants' postdictive estimate of actual effort was moderate to strongly positively related to task 2 performance ( $r = .52, p < .01$ ). Contrary to previous research (Liff &

Hurd, 2009), and the extant study hypotheses, IPTs were not significantly related to any appraisal reaction measures. However, IPTs were positively related to both performance approach goals and task 2 performance, albeit of a small magnitude.

#### *Manipulation Check*

Prior to examining any of the study's hypotheses, several variables were examined to ascertain whether the study manipulations (i.e., deception and the positive versus negative feedback manipulation) had the intended effects. First, I looked at the correlation between participants' description of the feedback received and the actual feedback received. There was a strong positive association between participants' perceptions of the feedback received and the sign of the feedback delivered ( $r = .72, p < .001$ ).

Second, I examined the proportion of participants who believed the cover story in the experiment. Overall, 64% of respondents believed the study, 59.4% thought Travel University was believable, 77% thought the task they were given to work on was believable, 71.9% thought the feedback they received from the company representatives was believable, and 48.4% thought the company representatives were believable. In summary, there was mixed support for the believability of the study. In particular, the nature of the task and the feedback received were believable to the vast majority of participants. However, the company representatives and the company itself were only convincing to approximately half of the participants.

#### *Evaluation of the Study Hypotheses*

*Regression analyses.* Hierarchical multiple regression analyses were conducted first to evaluate Hypotheses 1 – 9a. For the ease of the presentation of results, and to

minimize redundancy, results of all regression analyses are reported in Tables 4, 5, and 6. For the basic hypotheses specifying that IPTs are related to an outcome (i.e., Hypotheses 1 – 9), as well as the moderated hypotheses that posited that the relationship between IPTs and an outcome will be conditional upon initial performance level (i.e., Hypotheses 1a – 9a), the following hierarchical regression equations were estimated. First, the dependent variable (e.g., procedural justice) was regressed on IPTs<sup>13</sup>. A significant  $R^2$  provides support for the main effect hypotheses (e.g., Hypothesis 1). In the second step, an intermediate regression equation was calculated to add the first-order effects of feedback sign to the model. In the final step, an interaction variable was entered into the model. That is, the dependent variable was regressed on IPTs (Step 1), feedback sign (Step 2), and the product of IPTs and feedback sign. The change in  $R^2$  was then evaluated at this final step to assess the significance of the interaction and to quantify its magnitude (i.e.,  $\Delta R^2$ ). A significant change in  $R^2$  provides support for the basic moderation hypotheses proposed above (i.e., Hypotheses 1a – 9a). To remove nonessential multicollinearity (see Cohen et al., 2003), all predictor variables were centered prior to analyses.

Tables 4 and 5 present the results for Hypotheses 1 through 4a, and 5 through 8a, respectively. An examination of Tables 4 and 5 reveals that there is no support for any of the hypotheses that IPTs would significantly predict appraisal reactions following the receipt of feedback on task 1 performance. That is, across the full class of appraisal reactions (i.e., distributive justice, procedural justice, interactional justice, appraisal

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<sup>13</sup> IPTs were treated as a continuous variable calculated by taking the reverse-scored sum of the four scale items - forming a scale score that ranged from possible values of 4 to 24 - with higher values representing more of an incremental perspective.

satisfaction, perceived utility, supervisor credibility, motivation to improve, and perceived accuracy). The only significant predictor, across all regression models for appraisal reactions, was feedback sign, which accounted for 8% to 31% of the variance in appraisal reactions ( $\Delta R^2s = 0.08$  to  $0.31$ ), with the receipt of positive feedback predicting more positive reactions to feedback. None of the proposed interactions between IPTs and feedback sign were significant. Therefore, contrary to prior research (Liff & Hurd, 2009), no support is garnered for main effect Hypotheses 1 through 8, nor moderated Hypotheses 1a through 8a of the current study.

The results for Hypotheses 9 and 9a are presented in Table 6. Specifically, Hypothesis 9 stated that IPTs would be positively related to Task 2 Performance. Hypothesis 9a predicted that there would be an interaction between IPTs and the sign of feedback, such that the relationship with task 2 performance would be stronger for those receiving negative feedback on the initial task compared to those with positive performance evaluations. Examining Table 6 reveals that IPTs significantly predicted task 2 performance ( $\beta = 0.16$ ,  $R^2 = 0.02$ ,  $p < .05$ ), with more of an incremental IPT predicting higher performance. As with the appraisal reaction regression models, feedback sign was a significantly positive predictor of task 2 performance, with more positive feedback predicting higher performance at time 2 ( $\beta = 0.44$ ,  $\Delta R^2 = 0.19$ ,  $p < .01$ ). However, the proposed interaction between IPTs and feedback sign did not attain significance ( $\beta = -0.07$ ,  $\Delta R^2 = 0.005$ ,  $p > .05$ ). Thus, since participants' implicit person theory beliefs measured before the study predicted task 2 performance, support is provided for Hypothesis 9. However, given that this relationship is invariant with respect to the sign of the feedback one received, no support is provided for Hypothesis 9a.

To evaluate whether or not there was a difference in the magnitude of the relationship between IPTs and performance on tasks 1 and 2, Williams' T-test for dependent correlations was used (see Chen & Popovich, 2002). The Williams' T-test revealed the correlations between IPTs and task 1 performance ( $r = .10, p > .05$ ), and IPTs and task 2 performance ( $r = .16, p < .05$ ) did not differ significantly ( $t = -0.81, p > .05$ ). Accordingly, Hypothesis 10 was not supported.

#### *Evaluation of Mediation Models*

*Overview of structural equation modeling analyses.* Prior to reporting the results for the mediation models that were developed and tested, an overview is provided that outlines the basic procedures that were followed for testing all subsequent hypotheses.

To evaluate each of the basic and complex mediation models specified (in Hypotheses 11 – 16a), structural equation modeling with EQS 6.1 was used. Specifically, the analyses were accomplished via a multi-step process that first required the estimation of a measurement model prior to specifying a combined model that contained both measurement and structural paths. This approach has been advocated by other researchers (see Anderson & Gerbing, 1988) so that one can first ascertain if there are psychometric issues with measures prior to estimating the relationship among variables of interest. Accordingly, first a measurement model or confirmatory factor analysis was conducted on the measures to allow for inspection of the factor loadings. The measurement models estimated serve as an assessment of how well each set of indicators measured each of the latent constructs. Next, structural models were examined to assess the extent to which the hypothesized models provided an adequate fit to the data.

The following indices were used to evaluate model fit:  $\chi^2$ ,  $\chi^2$ -to-degrees of freedom ratio, comparative fit index (CFI), and root mean square error of approximation (RMSEA). The CFI was evaluated against the cutoff of .90, and the RMSEA was evaluated against the cutoff of .08, in accordance with the general rule of thumb guidelines in the research literature (Hu & Bentler, 1999). Further, a  $\chi^2$ -to-degrees of freedom ratio 2.0 or below is desirable, with a cutoff for acceptable fit of 5.0 (Swaim, 2008). While the  $\chi^2$  value is important because it is used to calculate other fit indices (e.g., CFI and RMSEA), it is not meaningful to interpret a lone  $\chi^2$  value because it is a “badness-of-fit” statistic that increases partly as a function of sample size (i.e., it rewards for small sample sizes; Cortina & Bludau, 2007). In addition, each of the hypothesized path coefficients in the respective models were examined for significance.

For each of the mediation models, a nested models approach was conducted to assess whether a full or partial mediation model was more plausible. One model is considered to be nested within another if it is a special case of the more restrictive (i.e., less complex) model and it has the same number of factors, the same number of variables, and the same structure, but a different number of restrictions placed on it (Swaim, 2008). Models that were nested were directly compared by using a Chi-square difference test between the two models. The test statistic was then evaluated against a critical value based on the difference in degrees of freedom between the two models. If there was a significant decrease in Chi-square, the more complex mediation model(s) were preferred. Alternatively, if there was a significant increase in Chi-square, then the more restrictive mediation model(s) was preferred. If there was not a significant difference in the change in Chi-square, then the more restrictive (i.e., simple model) was

preferred due to parsimony. Following the testing of models via structural equation modeling, the significance of the indirect effects were tested via a bootstrapping procedure implemented using PASW 18.0 (formerly known as SPSS) to verify whether there was evidence of a significant indirect effect (this procedure is described in more detail below).

Finally, multi-group analyses were conducted to examine whether the proposed mediation models were conditional upon one's initial level of performance (i.e., mediation was moderated). This analysis was used for the following hypotheses: 11a, 12a, 13a, and 14a. Multi-group analysis was employed to determine whether the path coefficients between IPTs and mediators, and mediators and outcomes, were invariant across groups receiving positive and negative feedback, respectively. Recall that the feedback sign was based upon participants' initial level of performance across the five task performance competencies. Specifically, it was assigned based on the following cutoffs: (1) those whose overall performance ratings were less than 15.5 across all of the five task performance competencies received negative feedback, and (2) those whose overall performance ratings were 15.5 or greater across all of the five task performance competencies received positive feedback<sup>14</sup>. Accordingly, two groups were created that were used to test for the invariance of the hypothesized relationships (i.e., positive and negative feedback groups).

Broadly, the multi-group analysis involved the following steps. First, the original data file was split into two separate groups, one consisting of all participants who received positive feedback ( $N = 102$ ), and the other consisting of those who received

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<sup>14</sup> The 15.5 cutoff was used because it represented a performance rating of slightly above average across the performance competency categories.

negative feedback ( $N = 114$ ). Second, models were estimated for each group (positive and negative feedback) without any constraints. Then, an analysis was run whereby all the structural paths were constrained to be equal across the two groups. A significant Chi-square difference test between the two models indicates that at least one equality constraint is not met. In other words, the relationships vary between the two groups. Finally, the path coefficients of interest were directly compared –by inspecting the  $\chi^2$  values from the LaGrange Multiplier test that provides values for each constraint placed on the model- to ascertain between which structural coefficients invariance may exist (Byrne, 2006). Alternatively, if the Chi-square difference test was not significant, then there was no support for the respective moderated mediation hypothesis.

Finally, if in the final mediation models estimated (i.e., regression paths are specified from IPTs to mediators, and mediators to the task 2 performance outcome) there was evidence that the regression path from IPTs to the mediator(s) and the regression path(s) from the mediator(s) to the outcomes were significant, a test of the indirect effects (i.e., the product of the IPTs→Mediators and Mediators→Outcome regression paths) was employed. Support for mediation is only obtained if the indirect effect is significant (Preacher & Hayes, 2008). The path coefficients from any of the estimated models that met the basic conditions for mediation were then tested using a bootstrapping procedure that resampled data 5000 times with replacement from the current data set. This resampling procedure was then used to create confidence interval estimates of the population indirect effects. If the estimates did not contain 0, then mediation was supported. Alternatively, if the estimates contained 0, then mediation was not supported. This approach applies to both basic and conditional mediation models.

The specific analysis for each hypothesis is discussed in the respective sections below.

*Hypotheses 11 – 14.* The fit statistics for the measurement and structural models used to test all basic mediation models (i.e., where moderated mediation was not modeled) for hypotheses 11 through 14 are reported in Table 7. In the table, the fit statistics for three models are presented for each hypothesis in the following manner: in the first model for each hypothesis examined, a measurement model was estimated that does not contain any regression paths (i.e., Measurement Model); in the second model, regression paths were added from IPTs to the mediator(s) and the mediator(s) to task 2 performance (i.e., Indirect Effects Mediation Model), in the third model, a path was added from IPTs to Task 2 Performance (i.e., Indirect and Direct Effects Mediation Model).

Hypothesis 11 stated that the effects of IPTs on task 2 performance would be mediated by the latent variable of feedback reactions. First, the measurement model, which included correlated latent factors for IPTs, reactions to feedback, and performance provided an adequate fit to the data ( $\chi^2 = 2696.02$ ,  $df = 1366$ ,  $p < .05$ ,  $\chi^2$ -df-ratio = 1.97, CFI = 0.87, RMSEA = 0.07). Further, the indirect effects only mediation model ( $\chi^2 = 2680.09$ ,  $df = 1367$ ,  $p < .05$ ,  $\chi^2$ -df-ratio = 1.98, CFI = 0.87, RMSEA = 0.07), which added regression paths from IPTs to reactions to feedback, and from reactions to feedback to performance, and the combined direct and indirect effects mediation model ( $\chi^2 = 2681.99$ ,  $df = 1362$ ,  $p < .05$ ,  $\chi^2$ -df-ratio = 1.97, CFI = 0.87, RMSEA = 0.07), which added a direct regression path from IPTs to performance, provided adequate fit to the data. The Chi-square difference test between the two models was not significant ( $\Delta \chi^2 = 1.90$ ,  $df = 1$ ,  $p > .05$ ). Thus, due to parsimony, the indirect effects only model is preferred. Further,

examining the regression coefficients revealed that IPTs did not significantly predict the full class of feedback reactions ( $\beta = -0.07, p > .05$ ). Thus, one of the basic conditions to be met for an indirect effect to be evidenced was not satisfied (see Mathieu & Taylor, 2006). However, both direct effects that were modeled were significant such that in the combined indirect and direct effects mediation model, both IPTs ( $\beta = 0.15, p < .05$ ) and reactions to feedback ( $\beta = 0.28, p < .05$ ) positively predicted task 2 performance. Nonetheless, since IPTs did not significantly predict feedback reactions, evidence of an indirect effect is untenable. Thus, Hypothesis 11 was not supported.

Hypothesis 12 postulated that both the types of goals (i.e., mastery, performance-approach, or performance-avoidance) and the level of goal set after receiving feedback would mediate the effects of IPTs on task 2 performance. First, the measurement model, which included correlated latent factors for IPTs, types of goals, the level of goal set, and performance, provided a good fit to the data ( $\chi^2 = 624.19, df = 314, p < .05, \chi^2$ -df-ratio = 1.99, CFI = 0.90, RMSEA = 0.07). Further, the indirect effects only mediation model ( $\chi^2 = 708.36, df = 318, p < .05, \chi^2$ -df-ratio = 2.23, CFI = 0.88, RMSEA = 0.08), which added regression paths from IPTs to each type of goal (i.e., mastery, performance-approach, or performance-avoidance), and the level of goal set, and from the latter factors to performance, as well as the combined direct and indirect effects mediation model ( $\chi^2 = 721.20, df = 317, p < .05, \chi^2$ -df-ratio = 2.28, CFI = 0.87, RMSEA = 0.08), which added a direct regression path from IPTs to performance, provided adequate fit to the data. Moreover, a Chi-squared difference test indicated that there was a significant decrement in fit by specifying a direct path from IPTs to task 2 performance ( $\Delta \chi^2 = -12.84, df = 1, p < .05$ ). Thus, the simpler model that specified both the types of goals (i.e., mastery,

performance-approach, or performance-avoidance) and the level of goal set on the IPTs to outcomes relationships was preferred. Investigating the path coefficients in the model revealed that while IPTs did not significantly predict mastery goals ( $\beta = -0.05, p > .05$ ) or performance-avoidance goals ( $\beta = -0.04, p > .05$ ), it did significantly predict performance-approach goals ( $\beta = 0.20, p < .05$ ) and the level of goal-setting ( $\beta = -0.05, p > .05$ ). Furthermore, the direct regression path from IPTs to task 2 performance was not significant ( $\beta = 0.09, p > .05$ ). However, since basic conditions were met for an indirect effect, a bootstrapping procedure that was described in the overview section above was conducted based on a path model of the extant structural equation model. Regression beta weight estimates for the 95% confidence interval (CI) generated for the total indirect effect [-0.01, 0.10], the indirect effect for performance approach [-0.03, 0.04], performance avoidance [-0.01, 0.02], and mastery goals [-0.02, 0.05], as well as the level of goal set [0.00, 0.07] all contained 0. Therefore, since all CIs produced for each potential indirect effect contained 0, there was no evidence of an indirect effect, and thus Hypothesis 12 was not supported.

Hypothesis 13 predicted that the positive relationship between IPTs and Task 2 Performance would be mediated by participants' actual effort. The measurement model that was estimated, which included correlated latent factors for IPTs, effort, and performance, provided excellent fit to the data ( $\chi^2 = 73.72, df = 33, p < .05, \chi^2$ -df-ratio = 1.45, CFI = 0.98, RMSEA = 0.05). Further, the indirect effects only model ( $\chi^2 = 74.40, df = 52, p < .05, \chi^2$ -df-ratio = 1.43, CFI = 0.98, RMSEA = 0.05), which added regression paths from IPTs to effort and effort to performance, and the combined direct and indirect effects mediation model ( $\chi^2 = 73.72, df = 51, p < .05, \chi^2$ -df-ratio = 1.45, CFI = 0.98,

RMSEA = 0.05), which added a direct regression path from IPTs to performance, both provided excellent fit to the data. The Chi-square difference test between the indirect effects only and the combined indirect and direct effects model was not significant ( $\Delta\chi^2 = 0.68, df = 1, p > .05$ ). Thus, due to parsimony, the indirect effects only model is preferred. Inspection of the regression paths reveals that effort was a strong predictor of Task 2 Performance ( $\beta = 0.57, p < .05$ ). However, IPTs did not significantly predict effort ( $\beta = 0.05, p > .05$ ). Since IPTs did not significantly predict effort, evidence of an indirect effect is untenable. Thus, Hypothesis 13 was not supported.

Finally, Hypothesis 14 stated that the effects of IPTs on task performance on the second task would be mediated by effort attributions after the receipt of initial feedback, with more of an incremental perspective being associated with greater effort attributions. The measurement model that was estimated, which included correlated latent factors for IPTs, effort attributions, and performance, provided acceptable fit to the data ( $\chi^2 = 339.38, df = 132, p < .05, \chi^2$ -df-ratio = 2.57, CFI = 0.86, RMSEA = 0.09). Further, the indirect effects only model ( $\chi^2 = 341.11, df = 133, p < .05, \chi^2$ -df-ratio = 2.56, CFI = 0.86, RMSEA = 0.09), which added regression paths from IPTs to effort attributions and effort attributions to performance, and the combined direct and indirect effects mediation model ( $\chi^2 = 339.41, df = 132, p < .05, \chi^2$ -df-ratio = 2.57, CFI = 0.86, RMSEA = 0.09), which added a regression path from IPTs to performance, both provided acceptable fit to the data. The Chi-square difference test between the indirect effects only and the combined indirect and direct effects model was not significant ( $\Delta\chi^2 = 1.70, df = 1, p > .05$ ). Thus, due to parsimony, the indirect effects only mediation model is preferred. Examining the regression paths in the direct-effects only model reveals that effort attributions were a

moderate predictor of task 2 performance ( $\beta = .33, p > .05$ ), but IPTs did not significantly predict effort attribution beliefs ( $\beta = 0.05, p > .05$ ). Those with a stronger belief that effort is related to performance tended to perform better on the second performance task than those with lower effort attribution beliefs. However, since IPTs did not significantly predict effort attribution beliefs, this effect is independent of IPTs. Therefore, evidence of an indirect effect is untenable. Thus, Hypothesis 14 was not supported.

*Hypotheses 11a – 14a.* The fit statistics for the measurement and structural equation models used to test all conditional mediation models (i.e., where multigroup analyses were used to investigate moderated mediation) for hypotheses 11a through 14a are reported in Table 8. In the table, the fit statistics for two models are presented for each hypothesis in the following manner: in the first model for each hypothesis examined, a baseline model was estimated that allowed for differences in the regression paths for positive and negative feedback groups (i.e., No Constraints Baseline Model); in the second model, the regression paths for IPTs to mediators and mediators to outcomes were constrained to be equal across the two feedback groups (i.e., Regression Paths Constrained Model). All models that were estimated had both indirect and direct effects estimated as described in the respective hypotheses listed above (e.g., see Hypothesis 12 for a description of how the model for Hypothesis 12a was estimated). In the table, the models are presented with the more complex, constrained model first so that a comparison to the baseline model yields positive Chi-square values. That is, since all things being equal, Chi-square values increase as restrictions are placed on a model, the standard convention is to subtract the no constraints baseline model from the regression paths constrained model.

Hypothesis 11a predicted that the relationship between IPTs, reactions to feedback, and task 2 performance would be conditional upon the feedback group, with stronger effects in the negative feedback group. Both the baseline no constraints model ( $\chi^2 = 5566.99$ ,  $df = 2728$ ,  $p < .05$ ,  $\chi^2$ -df-ratio = 2.04, CFI = .77, RMSEA = .10), and the regression paths constrained model ( $\chi^2 = 5573.58$ ,  $df = 2731$ ,  $p < .05$ ,  $\chi^2$ -df-ratio = 2.04, CFI = .77, RMSEA = .10), provided suboptimal fit to the data. For the regression paths constrained model, three equality constraints were placed on the model so that all regression paths between the positive and negative feedback groups were set to be equal. Further, a lack of a significant difference between the two models ( $\Delta\chi^2 = 6.59$ ,  $df = 3$ ,  $p > .05$ ) indicated that the regression paths did not vary across the two groups. Thus there is no evidence for conditional relationships (i.e., different slopes) between IPTs, reactions to feedback, and performance. Accordingly, Hypothesis 11a is not supported.

Hypothesis 12a contended that the relationship between IPTs, types of goals, level of goal-setting, and task 2 performance, would be conditional upon the feedback group, with stronger effects in the negative feedback group. Both the baseline no constraints model ( $\chi^2 = 1098.11$ ,  $df = 640$ ,  $p < .05$ ,  $\chi^2$ -df-ratio = 1.74, CFI = 0.85, RMSEA = 0.08), and the regression paths constrained model ( $\chi^2 = 1113.12$ ,  $df = 633$ ,  $p < .05$ ,  $\chi^2$ -df-ratio = 1.74, CFI = 0.85, RMSEA = 0.08), provided adequate fit to the data. For the regression paths constrained model, seven equality constraints were placed on the model so that all regression paths between the positive and negative feedback groups were set to be equal. There was a significant difference between the two models ( $\Delta\chi^2 = 15.01$ ,  $df = 7$ ,  $p < .05$ ) indicating that at least one regression path differed between the two groups. Inspection of the LaGrange Multiplier Test for the equality constraint revealed that the regression path

from IPTs to performance-avoidance goals was significant ( $\chi^2 = 4.89, df = 1, p < .05$ ), indicating that the regression path differed significantly in the positive and negative feedback groups. After the equality constraint was released for the regression path of IPTs on performance-avoidance goals, the modified regression paths constrained model no longer differed from the baseline, no constraints model ( $\Delta \chi^2 = 7.42, df = 6, p > .05$ ).

A more careful examination of the freed regression path revealed that in the group that received positive feedback, IPTs significantly negatively predicted performance avoidance goals ( $\beta = -0.232, p < .05$ ). However, in the negative feedback group, IPTs positively, albeit nonsignificantly, predicted performance avoidance goals ( $\beta = 0.15, p > .05$ ). Furthermore, in the positive feedback group, performance avoidance goals negatively predicted task 2 performance ( $\beta = -0.28, p > .05$ ). Since IPTs were related to performance avoidance goals (i.e., the mediator) and the mediator was related to the outcome (i.e., task 2 performance), the basic conditions were met for investigating mediation. Accordingly, a bootstrapping procedure (see the overview above for a more in depth description) was conducted using the positive feedback group to estimate whether or not the indirect effect was significant. Regression beta weight estimates for the 95% confidence interval (CI) generated for the total indirect effect [-0.11, 0.01], the indirect effect for performance approach [-0.04, 0.02], performance avoidance [-0.09, 0.00], and mastery goals [-0.04, 0.01], as well as the level of goal set [0.00, 0.07] all contained 0. Therefore, since all CIs produced for each potential indirect effect contained 0, there was no evidence of an indirect effect. Further, while there was a conditional effect between IPTs and performance-avoidance goals, it was, counter to prediction the effect was stronger in the positive feedback group. Thus, Hypothesis 12a was not supported.

Hypothesis 13a predicted that the relationship between IPTs, effort, and task 2 performance would be conditional upon the feedback group, with stronger effects in the negative feedback group. Both the baseline no constraints model ( $\chi^2 = 91.59$ ,  $df = 64$ ,  $p < .05$ ,  $\chi^2$ -df-ratio = 1.43, CFI = 0.97, RMSEA = 0.06), and the regression paths constrained model ( $\chi^2 = 95.79$ ,  $df = 67$ ,  $p < .05$ ,  $\chi^2$ -df-ratio = 1.43, CFI = 0.97, RMSEA = 0.06), provided suboptimal fit to the data. Further, a lack of a significant difference between the two models ( $\Delta \chi^2 = 4.20$ ,  $df = 3$ ,  $p > .05$ ) indicated that the regression paths in both groups did not vary. Thus there is no evidence for conditional relationships (i.e., different slopes) between IPTs, effort, and performance. Accordingly, Hypothesis 13a is not supported.

Hypothesis 14a predicted that the relationship between IPTs, effort attribution beliefs, and task 2 performance would be conditional upon the feedback group, with stronger effects in the negative feedback group. Both the baseline no constraints model ( $\chi^2 = 442.34$ ,  $df = 264$ ,  $p < .05$ ,  $\chi^2$ -df-ratio = 1.68, CFI = 0.86, RMSEA = 0.08), and the regression paths constrained model ( $\chi^2 = 442.34$ ,  $df = 267$ ,  $p < .05$ ,  $\chi^2$ -df-ratio = 1.67, CFI = 0.86, RMSEA = 0.08), provided acceptable fit to the data. Further, a lack of a significant difference between the two models ( $\Delta \chi^2 = 2.77$ ,  $df = 3$ ,  $p > .05$ ) indicated that the regression paths in both groups did not vary. Thus there is no evidence for conditional relationships (i.e., different slopes) between IPTs, effort, and performance. Accordingly, Hypothesis 14a is not supported.

Hypotheses 15, 15a, 16, and 16a could not be directly tested because IPTs were not directly related to reactions to feedback, goal-setting type (IPTs only significantly predicted performance approach goals) and goal level, effort, and effort attributions, and

no evidence of an indirect effect was tenable. All of the structural equation models based on Hypotheses 15 through 16a were predicated on finding significant effects in the models that were generated to evaluate Hypotheses 11 through 14a. Accordingly, none of the more complex models were generated because requisite preliminary evidence from the models described above was not garnered. Thus, no support was obtained for Hypotheses 15, 15a, 16, and 16a. Instead, several exploratory models were examined.

*Exploratory models.* Given that there was no a priori specification of models in which the relationships between reactions to feedback and task 2 performance were mediated by self-regulatory processes or the relationship between IPTs and task 2 performance was mediated by self-regulatory processes, an exploratory approach for testing additional mediation models was adopted. Accordingly, a number of models were estimated using the bootstrapping procedure described previously. This procedure produces the same regression weight estimates as one would obtain in structural equation modeling with only observed variables.

First, an exploratory model was estimated to see if the effects of IPTs on task 2 performance could be mediated by the combined set of self-regulatory variables (actual effort, performance approach goals, performance avoidance goals, mastery goals, level of goal set, and attribution beliefs). This model represents a combination of the models tested for Hypotheses 12, 13, and 14. IPTs significantly predicted performance approach goals ( $\beta = 0.18, p < .05$ ), and the level of the performance goal that was set ( $\beta = 0.14, p < .05$ ). However, IPTs did not significantly predict actual effort ( $\beta = 0.12, p > .05$ ), mastery goals ( $\beta = 0.05, p > .05$ ), nor performance avoidance goals ( $\beta = 0.05, p > .05$ ). Further, only actual effort significantly predicted performance ( $\beta = 0.46, p < .05$ ). Regression beta

weight estimates for the 95% bias corrected and accelerated confidence interval (CI) generated for the total indirect effect [-0.01, 0.15], the indirect effect for performance approach [-0.06, 0.01], performance avoidance [-0.00, 0.02], and mastery goals [-0.01, 0.03], actual effort [-0.00, 0.13], as well as the level of goal set [-0.00, 0.05] all contained 0. Therefore, since all CIs produced for each potential indirect effect contained 0, there was no evidence of an indirect effect.

A series of eight additional exploratory models were estimated to assess the tenability of self-regulatory factors mediating the effects of reactions to feedback on performance. That is, I investigated models that people first react to feedback, and that in turn has a direct effect on self-regulatory decisions (i.e., the types of goals set, the level of goal set, attribution beliefs, and actual effort), which in turn affect performance. A number of researchers point to this basic model as most central in the performance evaluation process (see Smither et al., 2005). Since there was no a priori guidance in terms of which reactions to feedback would be most strongly associated with the self-regulatory factors, separate models were estimated for each type of feedback reaction. Thus, in total, eight models were estimated with each type of feedback reaction serving as the dependent variable in one model (i.e., perceived utility, motivation to improve, appraisal satisfaction, distributive justice, procedural justice, interactional justice, supervisor credibility, and perceived accuracy). A summary of the estimates of indirect effects of the exploratory feedback reactions models is presented in Tables 9 and 10. The first column of Tables 9 and 10 describes the model that was examined. For example, the Perceived Utility model in Table 9 is a model in which the effects of perceived utility on task 2 performance are transmitted via the self-regulatory mediators of types of goals set,

level of goal set, attribution beliefs, and actual effort. That is, the only parameter that differed across models was the type of feedback reaction. The next column reports the beta coefficients from the regression model, and the last two columns report the confidence intervals produced using the bootstrapping procedure described above.

Examining Tables 9 and 10 reveals that across six out of eight models, the self-regulatory factors, as a set, had a significant indirect effect. Thus, as a set, the self-regulatory factors mediated the relationship between the type of feedback reaction and task 2 performance, except for distributive and procedural justice. Overall, as feedback reactions became more positive, participants tended to engage in more self-regulatory activities. Furthermore, examining the specific indirect effects reveals that actual effort mediated the effects of feedback reactions on task 2 performance in seven out of the eight models examined. None of the other mediators carried significant effects. Therefore, the results can be interpreted as effort mediating the effects of feedback reactions in all models except for perceived accuracy.

### *Summary of Results*

Broadly, this study sought to address several questions. First, the question was posed whether the effectiveness of a feedback intervention varied as a function individuals' IPT beliefs. Effectiveness of feedback interventions translates operationally to the extent to which IPTs have an effect on task feedback reactions and task performance, two indicators of whether or not feedback was effective. With respect to task feedback reactions, contrary to past empirical support, IPTs did not affect any of the reactions to feedback, nor were the relationships between IPTs and reactions to feedback conditional upon the level of feedback one received (i.e., no support was obtained for

Hypotheses 1 through 8a). On the contrary, sign of feedback received had a significant main effect on each reaction to feedback such that more positive feedback predicted more positive reactions. The effects of feedback sign on reactions to feedback were moderate to large across all feedback reactions with  $R^2$  values ranging from 0.08 to 0.31 (i.e., 8% to 31% of the total variance). With respect to task performance, IPTs significantly predicted task 2 performance. Thus, support was provided for Hypothesis 9. However, this effect was not dependent upon the sign of feedback. Therefore, Hypothesis 9a was rejected.

The final overarching aim of the study was to develop and test a number of competing models. Overall, while there was support for a number of models evaluated in terms of how well they were able to fit the observed correlational pattern of the data, none of the models in which IPTs were included provided evidence that the effects of IPTs on task 2 performance were transmitted via the intervening processes of reactions to feedback, goal-setting, effort attributions, nor effort. Thus, Hypotheses 10 through 16a were also not supported.

Finally, a number of exploratory models across seven out of eight types of feedback reactions supported the mediating role of effort in the relationship between reactions to feedback and task 2 performance. That is, reactions to feedback lead to improved performance on task 2 through increased effort following the receipt of more positive feedback.

## Discussion

One of the primary goals of the current study was to integrate theory and research from the educational and the organizational psychology domains to understand the extent to which dispositional factors affect the efficacy of feedback interventions. Specifically, the theoretical framework drew on both Dweck and Leggett's (1988) social-cognitive framework from the educational domain, and Kluger and DeNisi's (1996) Feedback Intervention Theory from the performance appraisal literature within the organizational domain. The synthesis of these two domains provided fertile ground for understanding how lay beliefs regarding the malleability of attributes affect reactions to feedback and performance in a complex work context. That is, a performance appraisal context represents an achievement-type situation in which the evaluation focus should make individuals' IPT beliefs particularly salient, and in turn, such beliefs regarding the malleability of attributes should affect the extent to which people allocation cognitive resources toward the self (i.e., an entity perspective) or the task (i.e., as incremental perspective) following a feedback intervention.

Further, research on feedback in educational settings (Hong et al., 1999) provided empirical evidence for the differential reactions of students to feedback, with those with an incremental perspective tending to react less negatively to performance setbacks than entity counterparts. Moreover, longitudinal research (Blackwell et al., 2007) found that

the belief that intelligence is malleable in seventh graders predicted an upward trajectory in mathematics grades over two years of junior high school, while a belief that intelligence is fixed predicted a flat trajectory. Thus, ample evidence exists in the educational domain that demonstrates the relationship among IPTs, reactions to feedback, and long-term academic performance vis-à-vis the benefits of adopting more of an incremental IPT. In addition, using a very similar study task and environment, Liff and Hurd (2009) found support for the predictive validity of IPTs for perceptions of interactional justice and supervisor credibility.

Nonetheless, despite a sound theoretical rationale and previous empirical support, no linkage between IPTs and reactions to feedback was substantiated in the current study. In contrast, the present study provided evidence of a direct relationship between IPTs and task 2 performance. However, none of the hypothesized moderators or mediators was a significant intervening variable in the relationship between IPTs and task 2 performance. Thus, the current results can only be interpreted with respect to the independent effects of IPTs on task 2 performance, and the effects of reactions to feedback on performance via the intervening mechanism of effort. Contrary to the hypothesized models, the effects of IPTs on performance were not transmitted via reactions to feedback or self-regulatory processes. Instead, as the exploratory models demonstrated, the effects of reactions to feedback on performance tended to be mediated by individual effort during the task.

#### *The Relative and Practical Importance of the Study's Findings*

Prior to interpreting the results and discussing their implications for future research and practice, a basic question should be addressed that will help frame the remainder of the discussion. How important is each predictor in relation to the other? In

addition, another related question that emerges is, are the results practically significant? Unfortunately, with both traditional ordinary least squares regression and structural equation modeling, the relative contribution of each predictor is obscured when there is even a slight to moderate intercorrelation among predictors (LeBreton et al., 2007). Accordingly, a procedure known as relative importance analysis was performed to ascertain the importance of each predictor in the presence of all other predictors (Johnson, 2000; LeBreton et al., 2007). Relative importance analyses utilize factor analytic techniques to provide a more robust and intuitive approach to partitioning total  $R^2$  into a more meaningful decomposition that takes into account the contribution each predictor makes to  $R^2$  considering both its unique contribution, and its contribution in the presence of other predictors. The overall model  $R^2$  is the same as would be obtained in a regular regression analysis. However, a new set of predictors is created, with predictors that are orthogonal to one another. This allows for a more straightforward, less obfuscated comparison of the predictive efficacy of each independent variable.

In order to perform a relative importance analysis, all predictor variables were included as independent variables. In total, the analysis consisted of 16 predictors, including feedback sign, IPTs, all reactions to feedback, goal-setting type and level, attribution beliefs, and effort. The dependent variable of interest was time 2 performance. Overall, the set of 16 predictors accounted for 42% of the variance in task 2 performance (multiple  $R = 0.65$ ). Raw relative weights from this analysis represent the proportion of unique variance predicted by each variable given every other variable in the model. Rescaled relative weights (i.e., raw relative weights / model  $R^2$ ) represent the proportion of variance predicted in the dependent variable that may be attributed to that variable.

Overall, IPTs accounted for just over 1% of the unique variance, and 2.8% of the total predictable variance in task 2 performance. In contrast, the two most potent/important predictors were effort and feedback sign, which each accounted for 38.1% and 23.2% of the total predicted variance, respectively. That is, 25.75% percent of the variance in performance was accounted for by the two predictors (i.e., 61.3% of the variance that was predicted, or  $61.3\% * 42\%$ ). Effort uniquely predicted 16% of the variance, while feedback sign uniquely predicted 10% of the variance. All other predictors ranged from .8% to 5% of the predictable variance. The full estimates from this analysis are presented in Table 11.

From the relative importance analysis, it is clear that effort and feedback sign were the most important predictors. Thus, in the current study, IPTs and reactions to feedback were considerably less important than the feedback one received and the effort one put forth during the second task. Nonetheless, even in the presence of such powerful predictors, IPTs and reactions to feedback (all except distributive justice) still accounted for a nontrivial portion of the total predictable variance.

Contrasting the effect sizes for IPTs and reactions to feedback on performance with those found in medical research is particularly illuminating. As Spencer (1996) noted in an article in which he compared psychological effect sizes to those found in medical research, a phi correlation ( $\phi$ ) of .035 (i.e., the special case of a Pearson correlation when both variables are naturally dichotomous) between the use of aspirin and heart attack rates while not of a large magnitude, is quite practically significant in terms of the reduction of risk in the population. In practical terms, in a sample of 22,071, this reduced the rate of coronary-related events between the control and treatment groups

by .91%, which again may not seem particularly impressive. However, expressing the effect as the percentage reduction in risk in the control group yields 41.90% (the difference of heart attack rates in the control group minus the treatment group / the heart attack rate in the control group), which is quite a significant number to insurance companies who could substantially reduce payout benefits. That is, the use of aspirin in the control group would have led to a 41.90% reduction in coronary incidents. This example illustrates an important point. Even an effect of small or modest magnitude when considered in the aggregate in the actual population, can have serious consequences.

Consistent with Spencer's (1996) recommendations, social scientists should take heed of the manner in which criteria for practical significance is broadly construed within the medical sciences. Thus, in psychological research, we need to interpret our findings with a broader lens than statistical significance alone. This issue with respect to IPTs will be discussed in more depth in the forthcoming section on implications for practice.

Considering the effect of IPTs on performance by adopting a broader lens suggests that a correlation with performance of .16 is of sufficient magnitude that its importance should not be summarily dismissed. Accordingly, one contribution of this study is demonstrating that social-cognitive effects of IPTs on performance in an academic setting generalize to an adult sample on a task that more closely resembles a work context. That is, in the current study, even in a complex task environment, and a one-week lag in measurement, implicit person theory beliefs positively predicted subsequent performance. Further, consistent with theoretical contentions and empirical research (see Blackwell et al., 2007), noting that IPTs are unrelated to initial

performance, IPTs and task 1 performance were not significantly related ( $r = 0.10$ ) in the current study. It was only after receiving feedback that IPTs and task performance were significantly related ( $r = 0.15$ ).

Thus, while evidence wasn't furnished that IPTs' effects on performance operate via the intervening mechanism of reactions to task feedback, the one substantive feature that differed from time 1 to time 2 performance tasks was the provision of feedback on the task. The focus on evaluation presumably made IPT beliefs regarding the malleability of individual attributes particularly salient. Accordingly, those with more of an incremental perspective were able to perform better in time 2 than entity theorist counterparts. Thus, with respect to performance, this study provides preliminary evidence in a feedback context that mirrors organizational tasks of a link between IPTs and task performance following the receipt of feedback. In contrast to the conditional hypothesis that was proposed, this effect did not depend on whether positive or negative feedback was received.

Another contribution of the current study is that it adds to the scant body of empirical evidence linking appraisal reactions to performance outcomes. Keeping and Levy (2000) note that performance appraisal reactions are important because they represent a criterion of great interest to practitioners and they have been theoretically linked to determinants of appraisal acceptance and success. Appraisal reactions also serve as key indicator of the utility of an appraisal system (Cardy & Dobbins, 1994; Murphy & Cleveland, 1995). However, beyond appraisal reactions serving as a proxy for acceptance and usefulness, one of the objectives of a good performance management system is to help employees develop and improve their performance. The current study demonstrates

that reactions to such performance feedback are an important predictor of whether or not an employee will perform well after an appraisal. Specifically, mediation models in the current study demonstrated that reactions to feedback affected how much effort was allocated to the task that followed the performance feedback. This relationship held for all feedback reactions except for perceived accuracy.

In terms of the relative importance of reactions to feedback as predictors of task 2 performance, each of the feedback reactions predicted approximately 2% of the total predictable variance. There are two exceptions. First, motivation to improve independently accounted for 5.5% of the total predictable variance (or 2% of the variance in task 2 performance). Second, procedural justice only accounted for .8% of the predictable variance. Therefore, in the presence of all other predictors, motivation to improve was the most important feedback reaction while procedural justice was of least importance.

#### *Elaboration on Null Results*

Notwithstanding the support received for the effects of IPTs on performance, a large proportion of my theoretical propositions were not supported. Thus, the lack of significant findings with respect to the full class of appraisal reactions leads to several alternate explanations that are most plausible. First, it is possible that the theory that has been advanced with respect to the mediating role of process variables in the relationship between IPTs and performance is false. Second, it is possible that there are boundary conditions or situational specificity within which IPTs, reactions to feedback, goal-setting, attribution beliefs, and effort, would be related, but the necessary environment to activate such relationships did not occur in the current study. Third, there could be a lack

of validity for reactions to feedback and the other proposed mediators of goal-setting type and level, effort, and attribution beliefs. Finally, there could be measurement issues with the IPTs scale that was used to operationalize the construct. Each of these rival explanations will be addressed in more detail below.

First, explanation one, the notion that theory may have been falsely specified, cannot be evaluated based on the available empirical evidence. The only other research linking IPTs and performance appraisal reaction criteria was the Liff and Hurd (2009) study. While the Liff and Hurd (2009) study provided preliminary support for a relationship between IPTs and feedback reactions, several of the hypotheses predicting that IPTs would have an effect on reaction criteria were not supported (distributive justice, procedural justice, appraisal satisfaction, and feedback accuracy). Further, the rather small sample that was available in the Liff and Hurd (2009) study limits the replicability of the results. That is, it is unclear whether the results would be the same if the study were repeated with another sample. It is possible that there are idiosyncratic sample characteristics that threaten the Liff and Hurd (2009) study's external validity.

Another element that differed between the Liff and Hurd (2009) study and the current study was the manner in which feedback was delivered. Specifically, feedback in the prior study was delivered in person, but in the current study, all feedback was delivered electronically. It is possible that feedback delivered face-to-face may be more likely to prime participants' IPT beliefs. Thus, future research should investigate whether the medium in which feedback is delivered has an effect on the relationship between IPTs and reactions to feedback. In general, research evidence supports the superiority of feedback delivered via the face-to-face medium because it allows for richer

communication and may convey more detailed task-relevant information regarding performance through nonverbal behavior (see Hebert & Vorauer, 2003).

While it is possible the medium could attenuate the relationship between IPTs and performance appraisal reactions, it is unlikely that the feedback medium would only affect the IPTs-mediator relationships. It stands to reason that if an electronic medium is less effective, then reactions to such feedback would be less likely to be related to performance. However, all of the feedback reactions were positively related to task 2 performance. In summary, one cannot confirm nor dismiss the possibility of this explanation. There is a relative dearth of research on how IPTs affect individuals' reactions to performance appraisals. Although other research indicates that managers' IPTs are related to how their employees perceive their appraisal interviews to be conducted (Heslin et al., in press), more research needs to be conducted to examine the role of employees' IPTs in a field setting. Since the hypotheses in the Liff and Hurd (2009) study were advanced based upon sound theorizing and all significant and non-significant effects were in the hypothesized direction, this potential threat to the current study's statistical conclusion validity seems to be a less likely explanation than the others that have been generated. More research is needed to substantiate or discredit the veridicality of the mediating models advanced in the current study.

Second, explanation two, the notion that the extent to which IPTs are related to reactions to feedback, types and level of goal-setting, attribution beliefs, and effort depends on the situation is in line with one of the maxims derived from the classic person versus situation debate among personality researchers (see Kendrick & Funder, 1988). In I-O psychology, trait activation theory (Tett & Burnett, 2003) was proposed to

incorporate the notion that features of the work environment (the task, the social climate, and the organizational climate) elicit varying levels of trait activation (i.e., act as moderators). For example, while someone in a research and development position at a pharmaceutical company may be high on extraversion, extraversion will only be related to job performance to the extent that there is an opportunity to express the trait, and furthermore, expression of the trait is relevant to job performance. In the case of the research and development position, if the job requires collaborating with others, then extraversion should relate to job performance.

In the current study, there is indirect evidence that IPTs were primed or salient because a relationship was exhibited with task 2, but not task 1 performance. Further, there is no empirical research that provides boundary conditions within which IPTs should be differentially relevant. In fact, Heslin et al. (in press) have called for more research in this domain. In Dweck and Leggett's original framework, they noted that differences in the goals that incremental versus entity theorists pursue should be most pronounced when the task is perceived as challenging or difficult. It is possible that the current task was not viewed as sufficiently challenging, which could have attenuated the IPTs-to-mediators and IPTs-to-performance relationships. Once again, more research is needed to tease apart the boundary conditions within which IPTs are most relevant.

Third, explanation three contends that the failure to find support for the mediating role between IPTs and performance could be due to a lack of validity for the mediators or performance ratings. This explanation is untenable because positive correlational manifolds were exhibited with task 2 performance. That is, distributive justice, interactional justice, procedural justice, appraisal satisfaction, perceived accuracy,

perceived utility, motivation to improve, supervisor credibility, effort, goal level, mastery goals, performance approach goals, and attribution beliefs were all significantly positively related to task 2 performance. Further, all of the correlations were in the hypothesized direction. The only variable that was not significantly related to task 2 performance was performance avoidance goals. In short, this explanation can be ruled out since the overwhelming majority of intervening variables were related to task 2 performance.

Finally, explanation four contends that there could be measurement issues with the IPTs scale that account for the failure to obtain support for the posited intervening variable effects. Nonetheless, with respect to the internal structure of the scale, confirmatory factor analysis on the four-item scale provided excellent fit for a one-factor solution. Moreover, this factor had high internal consistency reliability. However, another issue that was not directly examined in this study is whether or not a self-report instrument is appropriate to measure the implicit person theories construct. This issue is considered by Dweck and colleagues (Dweck et al., 1995) with respect to a social desirability effect that occurs with incrementally-phrased items (please see the Method section for a more in depth discussion of this issue).

While the current study adopted Dweck et al.'s (1995) approach by only using entity-phrased items, there may be issues with the self-report method for measuring the IPTs construct in general. The issue raised herein is similar to the faking debate in the personality domain (see Murphy et al., 2007). In general, most evidence suggests that while people can adjust their scores to represent themselves in a more socially desirable light, it is generally a uniform effect that occurs, and thus, the rank-ordering across

examinees does not appreciably change. However, as with other personality variables, many self-report measures yield low operational validity coefficients for predicting outcomes (see Murphy et al., 2007). Effect sizes for IPTs with criteria of interest tend to be small to moderate at best (see Heslin et al., in press, Heslin et al. 2005; Heslin et al., 2006; Liff & Hurd, 2009).

Accordingly, advances in measurement have given rise to a relatively new technique that puts a modern spin on the projective technique. A team of researchers at Colorado State University is currently in the process of developing a conditional reasoning test for implicit person theories. Conditional reasoning tests were pioneered by Larry James (see James, 1998). James (1998) argued that self-report personality measures are only effective at measuring the explicit personality, that portion of personality of which people are aware. It consists primarily of self-described dispositions or tendencies to think, behave, or feel in ways that are available to introspection. In addition, people who have a desire to present themselves in a positive light or lack self-insight may fail to give an accurate description of their personality. James devised a method to tap a person's implicit personality, or aspects of personality of which the person is unaware. This testing method has its roots in the projective testing technique (e.g., Rorschach). The logic is that when a person is given a problem where he/she must select from several alternatives, their choices can reveal different implicit biases. In general, James argued that people have the desire to appear rational. However, when their behavior goes against norms, they use defense or justification mechanisms to build logical foundations for their rationalizations. People with different dispositions are prone to develop different justification methods; hence, the approach is labeled conditional

reasoning. This approach seems to be particularly amenable to implicit person theories, since the construct taps basic beliefs that may not ordinarily be subject to conscious awareness.

Below is an example of how this approach might translate to an item for the measurement of implicit person theories:

Bonita, a research scientist at a pharmaceutical company, has been asked by her manager, Lawrence, to take on a new assignment. Lawrence wants Bonita to become the project manager for the development of a new experimental drug at the company. The new drug, Procivil, is in the early stages of development. The drug is being engineered to cure prostate cancer. The company is counting on a radical breakthrough in order to bring the drug to the market within the next several years. However, the company has had difficulty meeting expectations in the past. Several years ago, a number of drug trial studies were conducted on a similar drug that was promised to cure thyroid cancer. The drug trials revealed that the drug was unable to extend survival rates beyond that of the leading cancer drug on the market.

The company has halted all research and development work on the product since it was viewed as a significant failure. Toby, the previous project manager for the thyroid drug, was fired from the company for his failure to deliver on promises he had made. In the past, Bonita has had success on other cancer drug development projects, but she has never had full responsibility over the entire drug development process.

Which of the following options represents the most logical course of action for Bonita?

- A) She should accept the assignment because it is important work and presents an opportunity for career development.
- B) She should decline the assignment because it may ultimately harm her future at the company.
- C) She should decline the position because her colleagues might resent the new assigned parking space and other perks that come with the position.
- D) She should accept the assignment because she has had some success in similar roles before.
- E) She should decline the assignment because she is planning on taking a vacation some time soon.

The above question taps the justification mechanism of task difficulty. That is, research suggests that incremental and entity theorists differentially classify tasks based on how threatening they are perceived to be (Elliott & Harackiewicz, 1996). Whereas incremental theorists tend to frame difficult tasks as an opportunity to learn or grow, entity theorists view difficult tasks as threatening and thus will generate reasons to avoid the task. Response option A represents the incremental perspective. Response options B and D represent entity theorists' attempts to either avoiding a threatening task that exposes one to failure, or accept the task if it is perceived to be only moderately difficult and successful performance is virtually assured. Response options C and E represent illogical responses that would be used to assess whether examinees were paying attention or just indiscriminately responding. For a full conditional reasoning test, other defense mechanisms would also be used in additional items. This item was only presented for illustrative purposes. It remains to be seen whether the development of a conditional

reasoning test for implicit person theories will enhance predictive validity. However, this method seems to be more amenable to measuring the construct than the traditional self-report instrument as the conceptual domain of the construct and that tapped by the measurement method are aligned. Accordingly, this is a fruitful area for future research.

Considering all of the potential explanations identified above to address the significant proportion of null results, explanation four seems to be the most plausible. For the other potential explanations, there is contrary evidence that casts doubt over the rival explanations. Thus, rather than discounting theory linking IPTs and reactions to feedback in an appraisal context, more research is needed to improve the measurement of the IPTs construct.

#### *External Validity*

While many researchers have scrutinized the overuse of undergraduate students in psychological research with respect to the potential threat to the generalizability of results (e.g., Sears, 1986), there are several reasons that this threat may be somewhat overstated as it applies to the current study. First, since the aim of the study was to investigate a basic psychological process in a work context, it was appropriate to use undergraduate students to first understand the effect in such a context. Namely, the aim of the current study was to understand the basic process by which the implicit person theories phenomenon operates within a work context. If the goal of the study were to estimate the population effects in a working population, then a different sampling strategy would have been employed (e.g., simple random sampling for the local working population).

Second, many students occupy the category of young working adults, and therefore, differences between the current sample and a nonstudent population may not

be as pronounced as assumed. For example, in the current study, many students at least held part-time jobs (see the Method section for the specific demographic information). Further, there was no strong a priori basis for expecting differences in the IPTs-to-outcomes relationships between nonstudent working adults and undergraduate students. That is, as reviewed in the Introduction, several field studies that have been conducted with working adults (i.e., Heslin & VandeWalle, in press; VandeWalle et al. 2005, 2006) have extended the basic findings of the effects of IPTs on outcomes from academic settings to a work context. Nevertheless, prior to generalizing to a nonstudent adult working population, replication will be needed in the population of interest before drawing any conclusions. Thus, this laboratory study, along with all others, is being used to establish the basic nature of the IPTs phenomena while field studies should then be used to substantiate their effects in actual organizational settings.

### *Limitations*

The current study used a design whereby the same raters rated performance during time one and time two. This design introduces the potential that raters could remember a participant, and such a carry-over effect could influence their ratings on the second task. Several potential changes to the study design were explored to prevent this potential bias from unduly affecting the study's results (e.g., raters could have been surveyed to ascertain whether they remembered any aspects of participants' performance). However, the proposed alternatives would have introduced additional confounds that would have weakened the internal validity of the study (e.g., priming raters to remember performance at time 1). However, it is possible that the use of the same raters at both observational points could influence the statistical conclusion validity

(i.e., internal validity) by operating in the direction of a posited effect and inflating observed relationships. That is, it is possible that a negative carryover effect could occur whereby performance ratings in time 2 were deflated because the rater remembered the participant from time 1. This would have more of a pronounced effect on entity theorists as it may appear that they were less responsive in the face of negative feedback. If this effect were present, it would have been in the direction of Hypothesis 9a, which posited that there would be an interaction between implicit person theories and the sign of the feedback, such that the relationship with each competency performance dimension would be stronger on the second task for those receiving negative feedback on the initial task compared to those with positive performance evaluations. However, no support was found for this hypothesis. Therefore, the effect does not appear to be a substantive concern. Similarly, no support was found for any of the moderation hypotheses where this effect would be most likely to operate.

To mitigate this potential threat, raters were explicitly instructed during training to approach each study session with a blank slate. That is, they were told not to let any information from a previous study session influence their ratings, and that the evaluation should only be based on current behavior. In addition, the fact that there was a one-week lag between behavioral observations and ratings from task 1 to task 2, and that raters had the cognitively demanding task of rating up to six participants in any given session, it is less likely that they would be able to remember sufficient task 1 performance information about the participants. Nonetheless, it is feasible that a rater could remember information about some of the participants, which may or may not influence the rating process. Therefore, this issue is subject to future empirical investigation.

Further, it is worth noting that in practice the same raters are often used for the same participant over multiple occasions, both in assessment centers, and in cases in which supervisors rate their employees' performance (most notably for performance reviews). With the assessment center method, using different raters may introduce rater idiosyncratic effects that may be equally problematic (A. Gibbons, personal communication, October 2009). Nonetheless, a literature search revealed that this is a largely neglected area (for a discussion of the issue and potential approaches for mitigation using a generalizability theory approach, see Hoyt, 2000). Thus, future research should investigate the potential tradeoffs between using different rating designs.

#### *Future Research Directions*

Several areas worthy of future research that were identified in the preceding sections on *Elaboration on Null Results* and *Limitations* will be summarized below. First, the most pressing need for research on IPTs is in the area of measurement. Consistent with the direction that the field of personality testing is moving in selection contexts, alternatives to self-report measurement for IPTs should be considered. While robust findings have occurred in the educational domain, as our population of interest shifts to older, more wary test takers, self-report measures may be inadequate. Furthermore, given that the IPTs construct is purportedly composed of implicit fundamental beliefs, it may not be sufficiently tapped via an explicit measurement technique. Thus, as discussed above, developing and validating a conditional reasoning test for implicit person theories is a fruitful area for future research.

Another area that will be important for future research is considering the boundary conditions of IPTs' effects in an organizational setting. In the current study, the

feedback sign accounted for a significant proportion of the variance in task 2 performance. However, in actual organizational settings in which the time between receiving feedback and performance is more distal, it remains to be seen whether the effects of IPTs on performance will differ in magnitude from that of the current study. Thus, given that the current laboratory research substantiated the effect of IPTs on performance, research needs to be conducted in organizational settings to assess the extent to which the basic phenomenon operates in an organizational environment.

Finally, as a methodological issue for both future research and practice involving performance ratings, additional inquiry is needed to untangle the effects of using different rating designs on rating accuracy. In general, there is support for the efficacy of frame-of-reference training and behavioral observation rater training to improve accuracy (Woehr & Huffcutt, 1994); however, there is little empirical research demonstrating the effects of using a repeated rater approach versus separate raters for multiple observation and rating points. Other research suggests that there are differences with respect to which people are able to adjust their ratings to match fluctuations in performance (Karl & Wexley, 1989). In general, Karl and Wexley (1989) found that ratings were more accurate for ascending and descending performance patterns compared to consistently average performance. Moreover, those managers with ascending performance received higher ratings than those with either consistently average or descending performance. Heslin et al. (2005) found that managers' IPTs affected their ability to recognize changing patterns in performance, with those adopting more of an incremental perspective better able to recognize changes in performance. Thus, initial evidence suggests individual differences in rating accuracy

over repeated occasions. Future research needs to more systematic quantify the potential effect and methodological and training remedies for addressing the issue.

#### *Implications for Research and Practice in Organizations*

In the current study, reactions to feedback as a set of predictors accounted for over 18% of the predictable variance in  $R^2$ , or 8% of the variance in task 2 performance. In addition, almost all of the exploratory models tested supported an indirect relationship with the effects of feedback reactions on time 2 performance mediated by individuals' effort during the task. Specifically, more positive perceptions of interactional justice, distributive justice, supervisor credibility, appraisal satisfaction, accuracy, utility, as well as greater motivation to improve, led to an increase in effort, and in turn, greater performance following the receipt of performance feedback. Thus, this study provides empirical evidence of the importance of feedback reactions not just as an indicator of acceptance or use of an appraisal system (Keeping & Levy, 2000), but also as a link to tangible outcomes such as performance.

Accordingly, organizations should measure reactions to feedback and examine their potential relationship with job performance and more distal indices such as turnover, productivity, and corporate financial performance (Huselid, 1995; Delaney & Huselid, 1996; Cascio & Young, 2003). Once more empirical research is available that substantiates the link between appraisal reactions and indices of organizational effectiveness, practitioners can use appraisal reactions to target improvements in an appraisal system, which in turn should lead to improvements in more distal outcomes that would yield tangible benefits for organizations.

Finally, while the overall importance of IPTs in the presence of other predictors was modest, IPTs still predicted a comparable amount of variance in performance to that of most reactions to feedback criteria. Thus, as discussed above, IPTs may still occupy relevance in organizational settings. In other areas, researchers have demonstrated the ability to induce a relatively stable change (i.e., over a six week period) in IPTs, as well as a concomitant change in entity IPT managers' ability to recognize more accurately positive changes in employee performance (Heslin et al., 2005). Specifically, Heslin and VandeWalle (2008) developed an incremental intervention based on principles of self-persuasion (see Aronson, 1999) that was used with entity theorists.

First, the entity theorists were presented with scientific evidence on the positive effects of holding incremental assumptions. Managers were also shown a video that illustrated how the mind is capable of "growing like a muscle" for an individual's entire lifespan. Second, counter-attitudinal idea generation was used. Managers were asked to generate three reasons why it is important to recognize the ability for others to change. Third, a counter-attitudinal reflection component was used whereby managers were asked to think of examples where people they knew had changed. Fourth, a counter-attitudinal advocacy component was included that involved each participant writing an email to a hypothetical protégé to convince the person that abilities can be developed. Finally, a cognitive dissonance component was included whereby managers had to think of several situations in which they had observed a person learn something that they thought he/she could not learn. Each anecdote was then shared in a small group discussion.

The above social persuasion intervention could easily be included as part of a leadership development workshop. It is a relatively low-cost, low-risk intervention. The

current study contributes to the growing body of research that has extended findings on IPTs from an educational to a work context. Given the robust findings for the positive effects of adopting more of a growth mindset (i.e., incremental perspective) over a fixed or entity perspective, organizations should benefit from promoting incremental perspectives. In fact, in a recent book, Dweck (2006) provided some anecdotes of companies that have benefitted from executive management teams whose approaches to corporate governance were consistent with a growth mindset.

Thus, the current study contributes to the body of evidence suggesting the importance of implicit person theories in an organizational environment. Specifically, this study demonstrates that in addition to the effects of managers' IPTs on their behavior toward others (Heslin et al., 2005, 2006), IPTs also occupy a role in how employees perform following the receipt of performance feedback.

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Table 1  
*Competencies And Definitions For Study Tasks*

<b>Competency</b>	<b>Definition</b>
<i>Leading and Initiating</i>	Takes control and exercises leadership over the group. Initiates action, gives direction and takes responsibility for the progress of the group toward its objectives. Directs the conversation flow; facilitating participation and blocking those who monopolize the discussion; encouraging those who haven't spoken yet to speak; uses open-ended questions to draw out quieter members; creating opportunities for others to speak.
<i>Creating and Conceptualizing</i>	Works well in situations requiring openness to new ideas and conceptualizing experiences. Handles situations and problems with innovation and creativity. Proposes an idea or way to generate ideas; offering facts or ideas; building on others' ideas by contributing an additional point.
<i>Supporting and Cooperating</i>	Supports others and shows respect for them. Summarizes and reinforces contributions to the team; is willing to compromise with others to help the team reach a solution; reduces tension within the group by using humor; explores differences between ideas; expresses ways to integrate different ideas.
<i>Interacting and Presenting</i>	Communicates effectively with other team members; Clearly presents ideas; Responds to criticism or questions about ideas; Successfully persuades and influences others of the merits of an idea; Convinces other team members to alter their position in considerate of an alternate idea.
<i>Organizing and Executing</i>	Plans ahead, works in a systematic and organized way. Is able to take the marketing idea generated and create a systematic plan that would lead to its successful implementation.

Table 2  
*Descriptive Statistics for Study Variables*

Variable	N	Mean	SD	Skew	SE	$Z_s$	Kurtosis	SE	$Z_k$
1. Actual Effort	217	9.96	2.23	-0.09	0.17	-0.55	0.74	0.33	2.22
2. Mastery Goals	217	28.95	6.90	-0.28	0.17	-1.67	0.34	0.33	1.01
3. Performance Avoidance Goals	217	22.72	7.00	-0.19	0.17	-1.13	-0.37	0.33	-1.10
4. Performance Approach Goals	217	26.48	7.94	-0.22	0.17	-1.30	-0.19	0.33	-0.57
5. Supervisor Credibility	217	56.56	15.19	-0.40	0.17	-2.39	0.11	0.33	0.32
6. Attribution Beliefs	217	50.46	7.38	-0.34	0.17	-2.03	-0.55	0.33	-1.64
7. Perceived Utility	217	17.88	5.56	-0.36	0.17	-2.19	-0.40	0.33	-1.21
8. Perceived Accuracy	217	38.09	6.35	-0.15	0.17	-0.88	0.96	0.33	2.90
9. Appraisal Satisfaction	217	25.35	8.75	-0.07	0.17	-0.40	-0.57	0.33	-1.71
10. Interactional Justice	217	28.95	7.29	-0.48	0.17	-2.87	-0.04	0.33	-0.11
11. Procedural Justice	217	27.96	7.41	-0.49	0.17	-2.97	0.17	0.33	0.50
12. Distributive Justice	217	13.39	4.20	-0.29	0.17	-1.74	-0.74	0.33	-2.23
13. Implicit Person Theories	242	14.54	4.06	-0.05	0.16	-0.30	-0.51	0.31	-1.62
14. T1 Task Performance	242	15.81	3.22	-0.36	0.16	-2.27	-0.05	0.31	-0.15
15. T2 Task Performance	216	15.94	3.46	-0.79	0.17	-4.75*	0.59	0.33	1.77
16. Motivation to Improve	217	13.85	4.31	-0.49	0.17	-2.95	-0.15	0.33	-0.44
17. Goal Level	217	5.20	1.74	-0.89	0.17	-5.33*	-0.02	0.33	-0.06

T1 - Task 1; T2 - Task 2;  $Z_s$  – skewness Z values;  $Z_k$  – kurtosis Z values. \* Significant at the .001 level.

Table 3  
*Correlations Among Control, Process, and Outcome Variables*

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Implicit Person Theories	(.86)																
2. Feedback Sign	.15*	--															
3. Task 2 Performance	.16*	.46**	(.86)														
4. Distributive Justice	-.02	.51**	.20**	(.94)													
5. Procedural Justice	-.03	.35**	.16*	.72**	(.95)												
6. Interactional Justice	.05	.51**	.21**	.68**	.68**	(.90)											
7. Appraisal Satisfaction	.03	.55**	.24**	.76**	.71**	.70**	(.95)										
8. Perceived Accuracy	.00	.48**	.22**	.83**	.65**	.61**	.84**	(.95)									
9. Perceived Utility	-.04	.28**	.22**	.48**	.47**	.54**	.59**	.52**	(.94)								
10. Attribution Beliefs	.09	.37**	.29**	.18**	.14*	.28**	.25**	.17*	.25**	(.83)							
11. Motivation to Improve	.01	.37**	.34**	.51**	.49**	.59**	.58**	.50**	.71**	.28**	(.93)						
12. Supervisor Credibility	.03	.38**	.21**	.64**	.68**	.71**	.74**	.68**	.60**	.25**	.63**	(.94)					
13. Performance Approach Goals	.17*	.41**	.27**	.21**	.21**	.32**	.31**	.18**	.28**	.32**	.50**	.28**	(.93)				
14. Performance Avoid Goals	.03	.01	.13	-.06	-.03	.02	.03	-.03	.22**	-.05	.28**	.11	.28**	(.83)			
15. Mastery Goals	.04	.41**	.33**	.31**	.36**	.40**	.39**	.32**	.41**	.48**	.60**	.43**	.60**	.33**	(.91)		
16. Actual Effort	.12	.32**	.52**	.14*	.16*	.27**	.21**	.12	.20**	.34**	.41**	.20**	.46**	.14*	.52**	--	
17. Goal Level	.14*	.46**	.29**	.21**	.18*	.19**	.22**	.16*	.17*	.39**	.32**	.13	.45**	.05	.40**	.37**	--

Note.  $N = 242$  except for italicized correlations where  $N = 217$ ; Coefficient Alpha reliabilities are presented along the diagonal where available and appropriate.  
 \*  $p < .05$ , \*\*  $p < .01$

Table 4  
*Results of Regression Analyses for Hypotheses 1 through 4a*

Predictor Variable	Distributive Justice (H1-1a)			Procedural Justice (H2-2a)			Interactional Justice (H3-3a)			Appraisal Satisfaction (H4-4a)		
	$R^2$	$\Delta R^2$	$\beta$	$R^2$	$\Delta R^2$	$\beta$	$R^2$	$\Delta R^2$	$\beta$	$R^2$	$\Delta R^2$	$\beta$
Step 1												
IPTs	0.00	--	-0.02	.00	--	-0.03	0.00	--	0.05	0.00	--	0.03
Step 2												
IPTs	--	--	-0.11	--	--	-0.09	--	--	-0.03	--	--	-0.06
Feedback Sign	0.27*	0.27*	0.53*	0.13*	0.13*	0.36*	0.26*	0.25*	0.51*	0.31*	0.31*	0.57*
Step 3												
IPTs	--	--	-0.11	--	--	-0.10	--	--	-0.04	--	--	-0.07
Feedback Sign	--	--	0.52*	--	--	0.39	--	--	0.53*	--	--	0.59*
Interaction	0.27*	0.00	0.02	0.14*	0.00	-0.08	0.26*	0.00	-0.07	0.32*	0.00	-0.09

\* $p < .01$

\*\* $p < .05$

Table 5  
*Results of Regression Analyses for Hypotheses 5 through 8a*

Predictor Variable	Perceived Utility (H5-5a)			Supervisor Credibility (H6-6a)			Motivation To Improve (H7-7a)			Perceived Accuracy (H8-8a)		
	$R^2$	$\Delta R^2$	$\beta$	$R^2$	$\Delta R^2$	$\beta$	$R^2$	$\Delta R^2$	$\beta$	$R^2$	$\Delta R^2$	$\beta$
Step 1												
IPTs	0.00	--	-0.04	.00	--	0.02	0.00	--	0.01	0.00	--	0.00
Step 2												
IPTs	--	--	-0.08	--	--	-0.04	--	--	-0.06	--	--	-0.08
Feedback Sign	0.08*	0.08*	0.29*	0.15*	0.15*	0.40*	0.14*	0.14*	0.38*	0.23*	0.23*	0.49*
Step 3												
IPTs	--	--	-0.08	--	--	-0.05	--	--	-0.06	--	--	-0.08
Feedback Sign	--	--	0.29*	--	--	0.43	--	--	0.41*	--	--	0.50*
Interaction	0.08*	.00	-0.00	0.17*	0.00	-0.12	0.15*	0.00	-0.10	0.23*	0.00	-0.04

\* $p < .01$

\*\* $p < .05$

Table 6  
*Results of Regression Analyses for Hypotheses 9 and 9a*

Predictor Variable	Task 2 Performance Score (H5-5a)		
	$R^2$	$\Delta R^2$	$\beta$
Step 1			
IPTs	0.02**	--	0.16**
Step 2			
IPTs	--	--	0.08
Feedback Sign	0.21*	0.19*	0.44*
Step 3			
IPTs	--	--	0.08
Feedback Sign	--	--	0.46*
Interaction	0.22*	.00	-0.07

\* $p < .01$

\*\* $p < .05$

Table 7  
*Hypotheses 11 - 14 Mediation Model Tests Summary*

Model	$\chi^2$	<i>df</i>	$\chi^2/df$	CFI	RMSEA	$\Delta \chi^2$	<i>df</i>
H11 Measurement Model	2696.02	1366	1.97	0.87	0.07	--	--
H11 Indirect Effects Mediation Model	2680.09*	1367	1.98	0.87	0.07	--	--
H11 Indirect and Direct Effects Mediation Model	2681.99*	1362	1.97	0.87	0.07	1.90	1
H12 Measurement Model	624.19*	314	1.99	0.90	0.07	--	--
H12 Indirect Effects Mediation Model	708.36*	318	2.23	0.88	0.08	--	--
H12 Indirect and Direct Effects Mediation Model	721.20*	317	2.28	0.87	0.08	-12.84*	1
H13 Measurement Model	73.72*	51	1.45	0.98	0.05	--	--
H13 Indirect Effects Mediation Model	74.40*	52	1.43	0.98	0.05	--	--
H13 Indirect and Direct Effects Mediation Model	73.72*	33	1.95	0.98	0.05	0.68	1
H14 Measurement Model	339.38*	132	2.57	0.86	0.09	--	--
H14 Indirect Effects Mediation Model	341.11*	133	2.56	0.86	0.09	--	--
H14 Indirect and Direct Effects Mediation Model	339.41*	132	2.57	0.86	0.09	1.70	1

*Note.* CFI = Comparative Fit Index, and RMSEA = Root Mean Square Error of Approximation.  
 $\Delta \chi^2$  = delta chi-square test. \*  $p < .001$ ; \*\*  $p < .05$

Table 8  
*Hypotheses 11a – 14a Multigroup Analysis Conditional Mediation Model Tests Summary*

Model	$\chi^2$	df	$\chi^2/df$	CFI	RMSEA	$\Delta \chi^2$	df
H11a Regression Paths Constrained	5573.58*	2731	2.04	0.77	0.10	--	--
Model							
H11a No Constraints Baseline Model	5566.99*	2728	2.04	0.77	0.10	6.59	3
H12a Regression Paths Constrained	1113.12*	640	1.74	0.85	0.08	--	--
Model							
H12a No Constraints Baseline Model	1098.11*	633	1.74	0.85	0.08	15.01**	7
H13a Regression Paths Constrained	95.79	67	1.43	0.97	0.06	--	--
Model							
H13a No Constraints Baseline Model	91.59	64	1.43	0.97	0.06	4.20	3
H14a Regression Paths Constrained	445.11	267	1.67	0.86	0.08	--	--
Model							
H14a No Constraints Baseline Model	442.34	264	1.68	0.86	0.08	2.77	3

*Note.* CFI = Comparative Fit Index, and RMSEA = Root Mean Square Error of Approximation.  
 $\Delta \chi^2$  = delta chi-square test. \*  $p < .001$ ; \*\*  $p < .05$

Table 9  
*Indirect Effects Estimates for Exploratory Mediation Models*

Model	Mediator	Indirect Effect	Bootstrapping 95% CI	
		$\beta$ Point Estimate	Lower	Upper
Perceived Utility	Total Indirect Effect	0.12*	0.03	0.22
	Performance Approach	-0.02	-0.06	0.03
	Performance Avoidance	0.02	-0.01	0.05
	Mastery	-0.01	-0.08	0.06
	Effort	0.09*	0.03	0.17
	Effort Attributions	0.03	-0.01	0.08
	Level of Goal	0.02	0.00	0.05
Motivation to Improve	Total Indirect Effect	0.19*	0.08	0.33
	Performance Approach	-0.04	-0.12	0.04
	Performance Avoidance	0.02	-0.01	0.06
	Mastery	-0.03	-0.13	0.07
	Effort	0.18*	0.11	0.28
	Effort Attributions	0.03	-0.01	0.09
	Level of Goal	0.03	-0.01	0.08
Appraisal Satisfaction	Total Indirect Effect	0.11*	0.02	0.21
	Performance Approach	-0.02	-0.08	0.02
	Performance Avoidance	0.00	-0.01	0.03
	Mastery	-0.01	-0.08	0.06
	Effort	0.10*	0.04	0.18
	Effort Attributions	0.03	-0.01	0.08
	Level of Goal	0.02	-0.01	0.06
Distributive Justice	Total Indirect Effect	0.08	-0.01	0.16
	Performance Approach	-0.01	-0.06	0.02
	Performance Avoidance	-0.01	-0.04	0.01
	Mastery	-0.01	-0.07	0.04
	Effort	0.07*	0.01	0.14
	Effort Attributions	0.02	-0.00	0.07
	Level of Goal	0.02	-0.01	0.06

Bootstrapping 95% CI, bias corrected and accelerated; 5,000 bootstrap samples. \*  $p < .05$

Table 10  
*Indirect Effects Estimates for Exploratory Mediation Models (cont'd.)*

Model	Mediator	Indirect Effect	Bootstrapping 95% CI	
		$\beta$ Point Estimate	Lower	Upper
Procedural Justice	Total Indirect Effect	0.08	-0.01	0.18
	Performance Approach	-0.01	-0.06	0.02
	Performance Avoidance	-0.00	-0.03	0.01
	Mastery	-0.01	-0.08	0.06
	Effort	0.08*	0.01	0.16
	Effort Attributions	0.02	-0.00	0.06
	Level of Goal	0.02	-0.00	0.06
Interactional Justice	Total Indirect Effect	0.15*	0.05	0.27
	Performance Approach	-0.02	-0.08	0.03
	Performance Avoidance	0.00	-0.01	0.03
	Mastery	-0.00	-0.08	0.06
	Effort	0.12*	0.05	0.22
	Effort Attributions	0.03	-0.00	0.09
	Level of Goal	0.02	-0.01	0.06
Supervisor Credibility	Total Indirect Effect	0.11*	0.01	0.21
	Performance Approach	-0.02	-0.07	0.03
	Performance Avoidance	0.01	-0.00	0.04
	Mastery	-0.01	-0.09	0.06
	Effort	0.09*	0.02	0.19
	Effort Attributions	0.03	-0.00	0.08
	Level of Goal	0.01	-0.00	0.05
Perceived Accuracy	Total Indirect Effect	0.06	-0.03	0.16
	Performance Approach	-0.01	-0.05	0.01
	Performance Avoidance	-0.00	-0.03	0.01
	Mastery	-0.02	-0.07	0.04
	Effort	0.06	-0.01	0.13
	Effort Attributions	0.02	-0.00	0.07
	Level of Goal	0.01	-0.00	0.05

Bootstrapping 95% CI, bias corrected and accelerated; 5,000 bootstrap samples. \*  $p < .05$

Table 11  
*Relative Importance Analysis for All Study Predictors*

Variable	Raw Relative Weights	Relative Weights as a Percentage of $R^2$
1. Implicit Person Theories	0.012	2.80%
2. Performance Approach Goals	0.011	2.60%
3. Performance Avoid Goals	0.008	1.80%
4. Mastery Goals	0.017	4.10%
5. Actual Effort	0.159	38.10%
6. Supervisor Credibility	0.008	2.00%
7. Attribution Beliefs	0.022	5.30%
8. Motivation to Improve	0.023	5.50%
9. Distributive Justice	0.007	1.70%
10. Procedural Justice	0.004	0.80%
11. Interactional Justice	0.007	1.80%
12. Appraisal Satisfaction	0.008	2.00%
13. Perceived Accuracy	0.010	2.30%
14. Perceived Utility	0.008	2.00%
15. Goal Level	0.017	4.10%
16. Feedback Sign	0.097	23.20%

Model  $R^2 = 0.42$ .

Figure 1

*Original Basic Social-Cognitive Model of the IPT-Task Feedback Relationship*

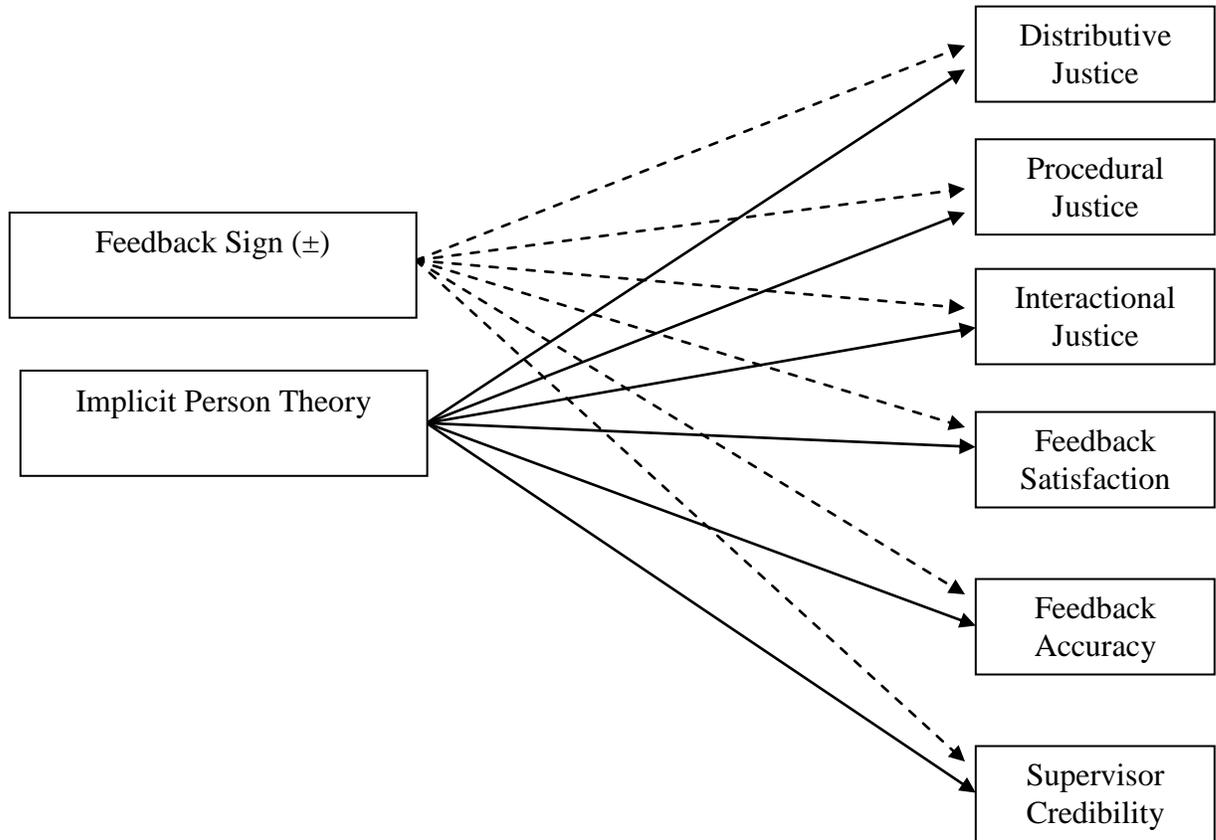
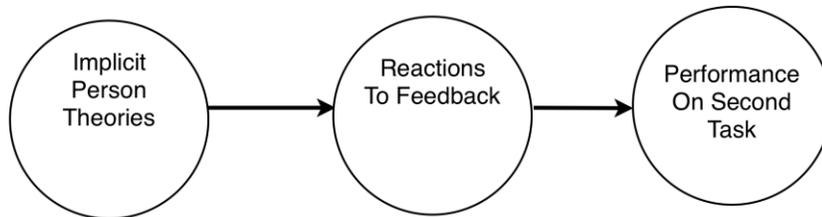


Figure 2  
*Basic Theoretical Mediated Social-Cognitive Models of The Effects of Implicit Person Theories on Performance*

Model 2: Basic Mediation Model



Model 2b: Conditional Mediation Model

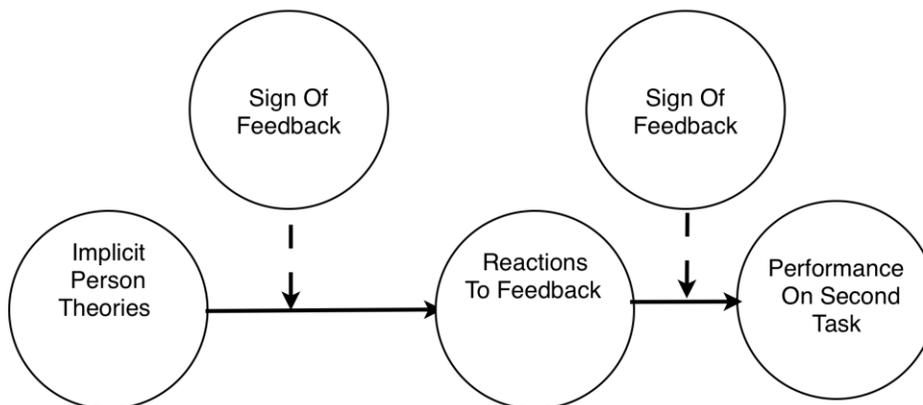


Figure 3

*Theoretical Multiple Mediated Social-Cognitive Models of The Effects of Implicit Person Theories on Performance*

*Model 3: Simultaneous Multiple Mediation Model*

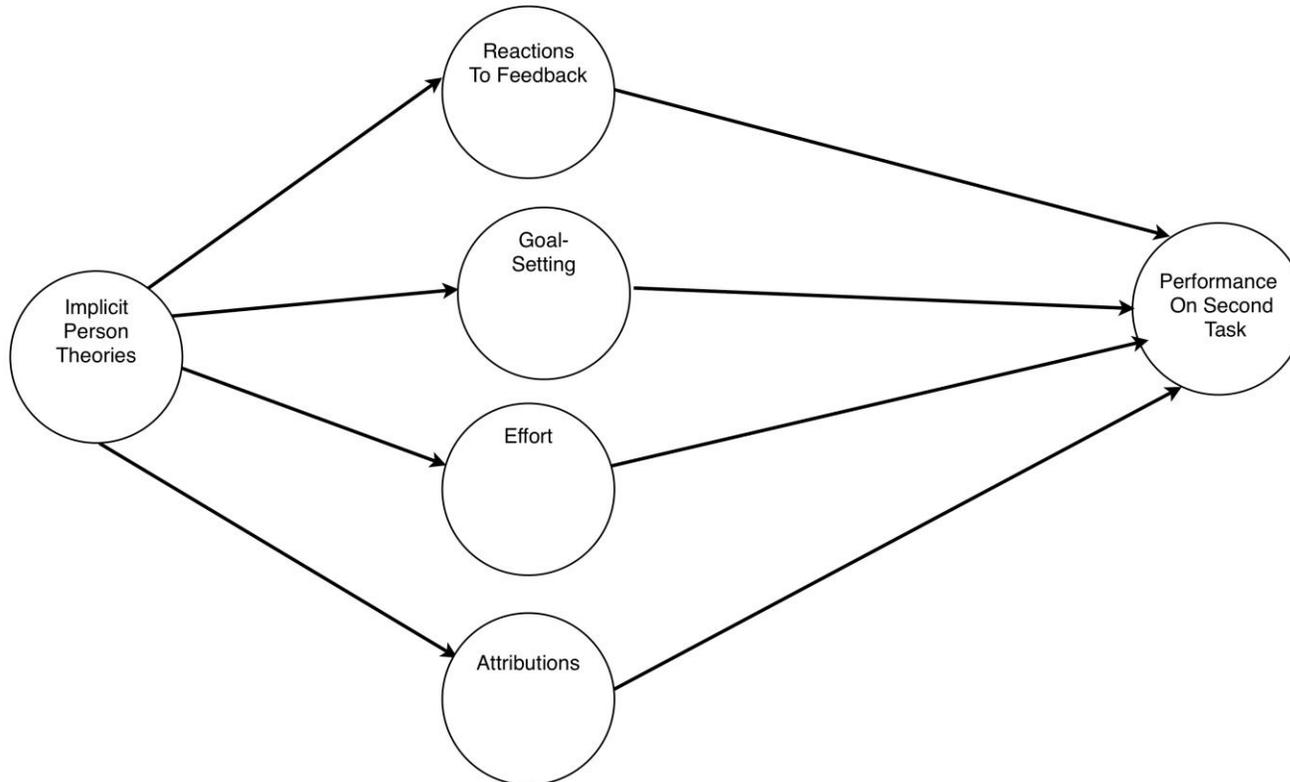


Figure 4

*Theoretical Multiple Mediated Social-Cognitive Models of The Effects of Implicit Person Theories on Performance (cont'd.)*

Model 3b: Multiple Stage Mediation Model

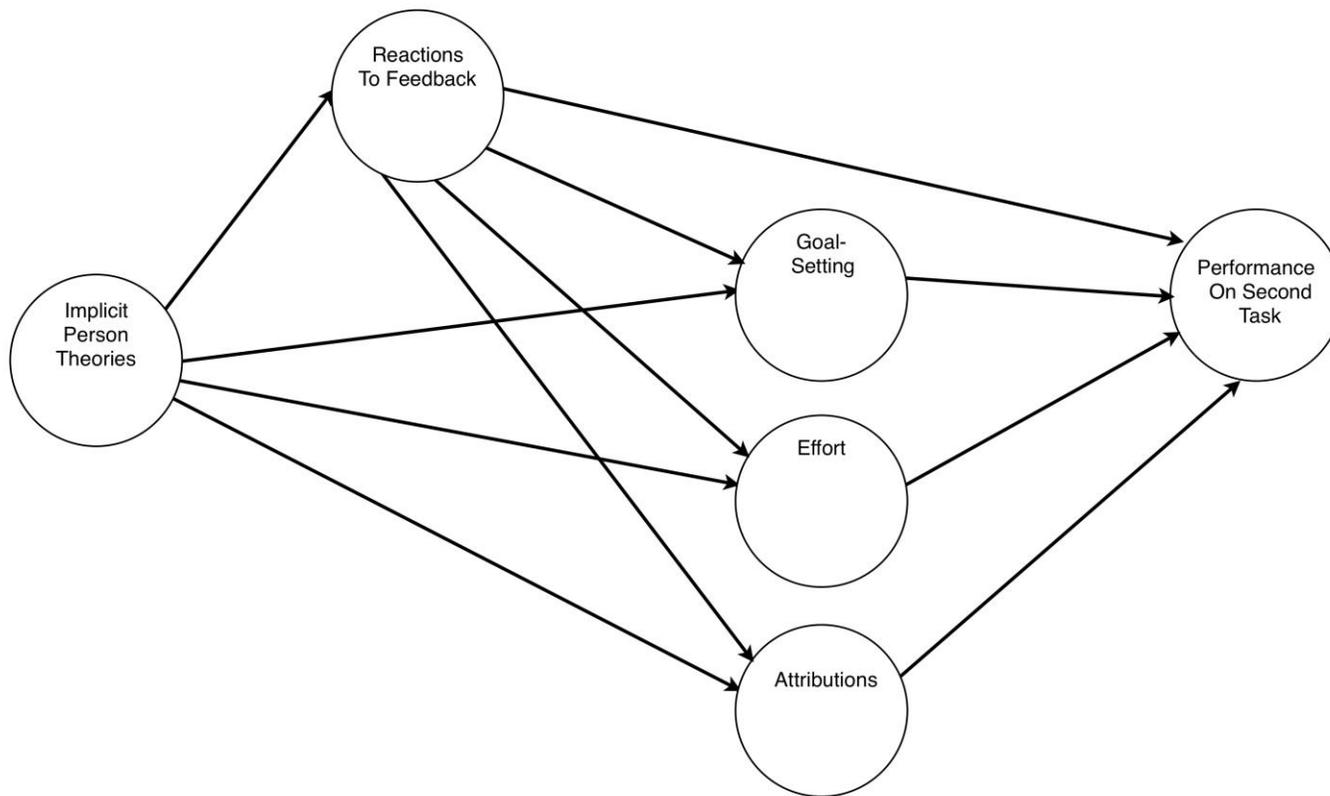


Figure 5

*Theoretical Conditional Multiple Mediated Social-Cognitive Models of The Effects of Implicit Person Theories on Performance*

*Model 4: Simultaneous Multiple Mediation Model*

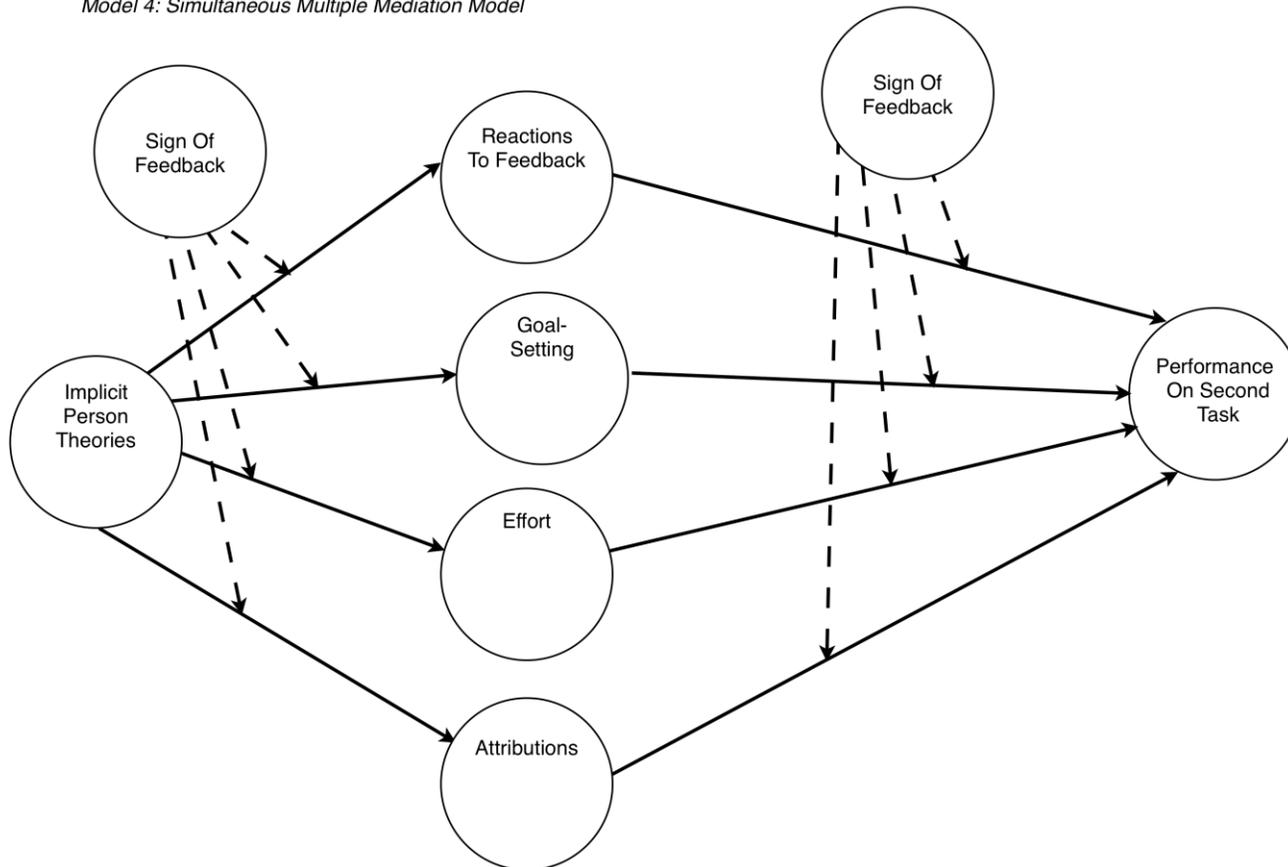
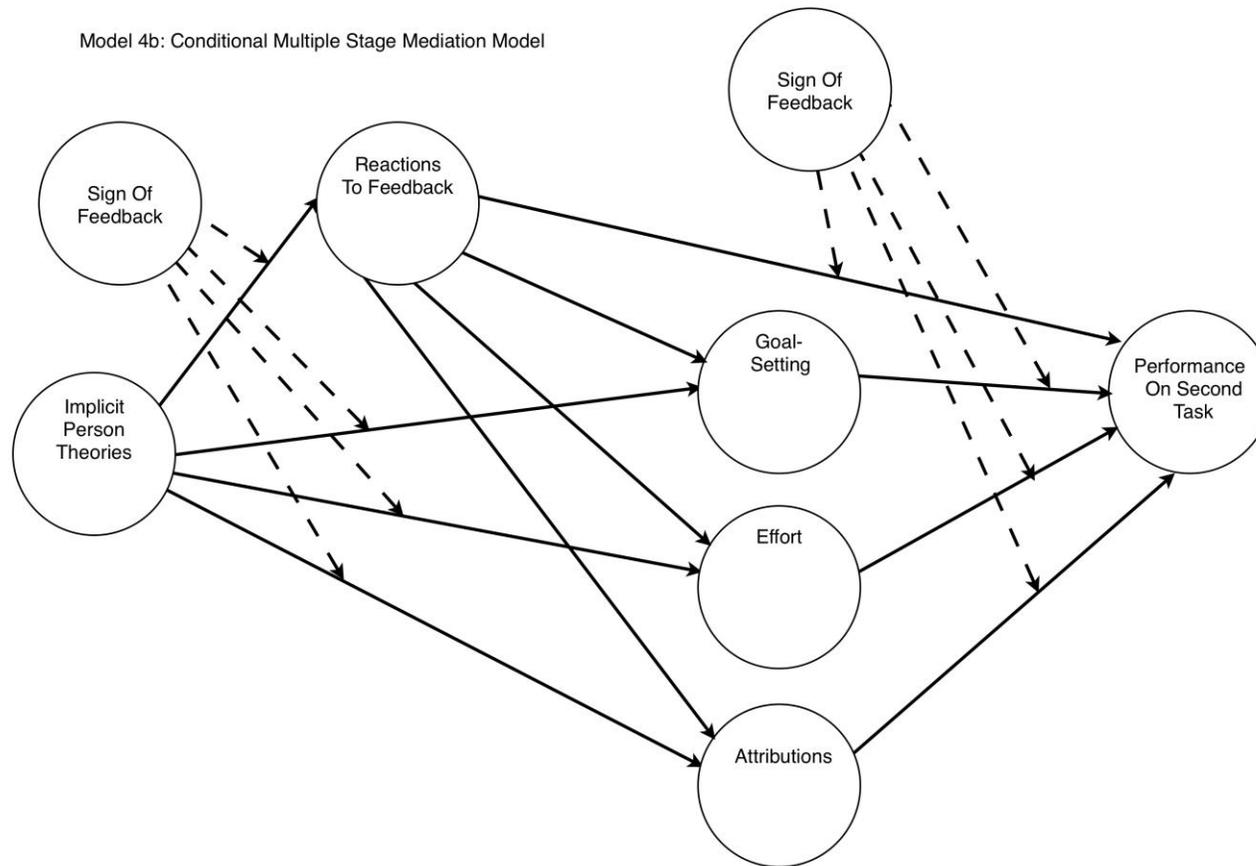


Figure 6

*Theoretical Conditional Multiple Mediated Social-Cognitive Models of The Effects of Implicit Person Theories on Performance (cont'd.)*



## APPENDICES

## Appendix A

### *Summary of Study Hypotheses*

#### Task Feedback Reactions

Hypothesis 1: Implicit person theories will be positively related to perceptions of distributive justice after the initial performance evaluation, with those subscribing to more of an incremental theory exhibiting more positive distributive justice perceptions.

Hypothesis 1a: The relationship between implicit person theories and distributive justice after the initial performance evaluation will be stronger for those receiving negative feedback after the initial task compared with those experiencing more positive performance evaluations.

Hypothesis 2: Implicit person theories will be positively related to perceptions of procedural justice after the initial performance evaluation, with those subscribing to more of an incremental theory exhibiting more positive perceptions.

Hypothesis 2a: The relationship between implicit person theories and procedural justice after the initial performance evaluation will be stronger for those receiving negative feedback after the initial task compared with those receiving more positive performance evaluations.

Hypothesis 3: Those with more of an incremental IPT will perceive their treatment during the appraisal process following the initial performance evaluation to be more equitable than entity counterparts.

Hypothesis 3a: The relationship between implicit person theories and interactional justice after the initial performance evaluation will be stronger for those receiving

negative feedback during the initial task compared with those with positive performance evaluations.

Hypothesis 4: Implicit person theories will be positively related to perceptions of feedback satisfaction after the first performance evaluation, with those subscribing to more of an incremental theory exhibiting more positive perceptions.

Hypothesis 4a: The relationship between implicit person theories and perceptions of feedback satisfaction following the first performance evaluation will be stronger for those receiving negative feedback after the initial task compared with those receiving positive performance evaluations.

Hypothesis 5: Implicit person theories will be positively related to perceived utility, with those subscribing to more of an incremental theory exhibiting more positive perceptions after the first performance evaluation.

Hypothesis 5a: The relationship between implicit person theories and perceived utility following the first performance evaluation will be stronger for those receiving negative feedback after the initial task compared with those receiving positive performance evaluations.

Hypothesis 6: Implicit person theories will be positively related to perceptions of supervisor credibility, with those subscribing to more of an incremental theory exhibiting more positive perceptions after the first performance evaluation.

Hypothesis 6a: The relationship between implicit person theories and perceptions of supervisor credibility following the first performance evaluation will be stronger for those receiving negative feedback after the initial task compared with those receiving positive performance evaluations.

Hypothesis 7: Implicit person theories will be positively related to motivation to use feedback, with those subscribing to more of an incremental theory exhibiting more positive perceptions after the first performance evaluation.

Hypothesis 7a: The relationship between implicit person theories and motivation to use feedback following the first performance evaluation will be stronger for those receiving negative feedback after the initial task compared with those receiving positive performance evaluations.

Hypothesis 8: Implicit person theories will be positively related to perceived accuracy of feedback, with those subscribing to more of an incremental theory exhibiting more positive perceptions after the first performance evaluation.

Hypothesis 8a: The relationship between implicit person theories and perceived accuracy of feedback will be stronger for those receiving negative feedback after the initial task compared with those receiving positive performance evaluations.

#### Task Performance

Hypothesis 9: Implicit person theories will be positively related to each competency performance dimension on the second task.

Hypothesis 9a: There will be an interaction between implicit person theories and the sign of the feedback, such that the relationship with each competency performance dimension will be stronger on the second task for those receiving negative feedback on the initial task compared to those with positive performance evaluations.

Hypothesis 10: The relationship between implicit person theories and performance will be stronger on the second task than it will be after the initial task.

#### Basic Mediation Model

Hypothesis 11: The effects of implicit person theories on task performance on the second task will be mediated by reactions to feedback.

#### Basic Conditional Mediation Model

Hypothesis 11a: The effects of implicit person theories on task performance on the second task will be mediated by reactions to feedback. Further, the effects will be conditional upon sign of feedback on the initial task (positive versus negative) such that the indirect mediation effects will be stronger for those receiving negative feedback.

#### Self-Regulatory Mediators

Hypothesis 12: The effects of implicit person theories on task performance on the second task will be mediated by goal-setting after the receipt of initial feedback.

Hypothesis 12a: The effects of implicit person theories on task performance on the second task will be mediated by goal-setting after the receipt of initial feedback. Further, the effects will be conditional upon sign of feedback on the initial task (positive versus negative) such that the indirect mediation effects will be stronger for those receiving negative feedback.

Hypothesis 13: The effects of implicit person theories on task performance on the second task will be mediated by self-reported effort after the receipt of initial feedback.

Hypothesis 13a: The effects of implicit person theories on task performance on the second task will be mediated by self-reported effort after the receipt of initial feedback. Further, the effects will be conditional upon sign of feedback on the initial task (positive versus negative) such that the indirect mediation effects will be stronger for those receiving negative feedback.

Hypothesis 14: The effects of implicit person theories on task performance on the second task will be mediated by effort attributions after the receipt of initial feedback, with more of an incremental perspective being associated with greater effort attributions.

Hypothesis 14a: The effects of implicit person theories on task performance on the second task will be mediated by effort attributions after the receipt of initial feedback, with more of an incremental perspective being associated with greater effort attributions. Further, the effects will be conditional upon sign of feedback on the initial task (positive versus negative) such that the indirect mediation effects will be stronger for those receiving negative feedback.

#### Simultaneous Multiple Mediation Model

Hypothesis 15: The effects of implicit person theories on task performance on the second task will be mediated by the combined set of reactions to task feedback, goal-setting, effort, and attributions after the receipt of initial feedback.

#### Multiple Stage Mediation Model

Hypothesis 15a: The addition of structural paths from reactions to feedback to goal-setting, effort, and attributions will provide a better account of the data than the more parsimonious model that specifies that the effects of implicit person theories on task performance on the second task will be mediated directly through reactions to task feedback, goal-setting, effort, and attributions after the receipt of initial feedback.

#### Conditional Multiple Mediation Models

Hypothesis 16: The effects of implicit person theories on task performance on the second task will be mediated by the combined set of reactions to task feedback, goal-setting, effort, and attributions after the receipt of initial feedback. Further, the effects

will be conditional upon sign of feedback on the initial task (positive versus negative) such that the indirect mediation effects will be stronger for those receiving negative feedback.

Hypothesis 16a: The addition of structural paths from reactions to feedback to goal-setting, effort, and attributions will provide a better account of the data than the more parsimonious model that specifies that the effects of implicit person theories on task performance on the second task will be mediated by reactions to task feedback, goal-setting, effort, and attributions after the receipt of initial feedback. Further, the effects will be conditional upon sign of feedback on the initial task (positive versus negative) such that the indirect mediation effects will be stronger for those receiving negative feedback.

## Appendix B

### Implicit Person Theories

Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
1	2	3	4	5	6

Using the scale above, please indicate the extent to which you agree or disagree with each of the following statements by circling your response on a scale from 1 (strongly disagree) to 6 (strongly agree) that most closely corresponds with your opinion.

1.	The kind of person someone is is something very basic about them and it can't be changed very much.	1	2	3	4	5	6
2.	People can do things differently, but the important parts of who they are can't really be changed.	1	2	3	4	5	6
3.	Everyone is a certain kind of person and there is not much that can be done to really change that.	1	2	3	4	5	6
4.	As much as I hate to admit it, people really can't change their deepest attributes.	1	2	3	4	5	6

### Distributive Justice

Strongly Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Strongly Agree
1	2	3	4	5

The following items refer to the feedback you received from the company representative. Please read each statement, and circle your response on a scale from 1 (strongly disagree) to 5 (strongly agree) that most closely corresponds with your attitude.

1.	The feedback I received was fair.	1	2	3	4	5
2.	I agree with the feedback I received on the task.	1	2	3	4	5
3.	I agree with the way that the company representative rated my performance.	1	2	3	4	5
4.	My performance appraisal fairly represented my work on the task.	1	2	3	4	5

### Procedural Justice

Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

The following items refer to the procedures used to provide you with feedback on the task. Please read each statement, and circle your response on a scale from 1 (strongly disagree) to 7 (strongly agree) that most closely corresponds with your attitude.

1.	The procedures used to evaluate my performance were fair.	1	2	3	4	5	6	7
2.	The process used to evaluate my performance was fair.	1	2	3	4	5	6	7
3.	The procedures used to evaluate my performance were appropriate.	1	2	3	4	5	6	7
4.	The process used to evaluate my performance was appropriate.	1	2	3	4	5	6	7
5.	The procedures used to evaluate my performance were impartial.	1	2	3	4	5	6	7
6.	The process used to evaluate my performance was impartial.	1	2	3	4	5	6	7

### Interactional Justice

Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

The following items refer to the company representative who provided you with feedback on the task. Please read each statement, and circle your response on a scale from 1 (strongly disagree) to 7 (strongly agree) that most closely corresponds with your attitude.

1.	The company representative considered your viewpoint.	1	2	3	4	5	6	7
2.	The company representative was able to suppress personal biases.	1	2	3	4	5	6	7
3.	The company representative provided you with timely feedback about the decision.	1	2	3	4	5	6	7
4.	The company representative treated you with kindness and consideration.	1	2	3	4	5	6	7
5.	The company representative showed concern for you as a participant in this study.	1	2	3	4	5	6	7
6.	The company representative took steps to deal with you in a truthful manner.	1	2	3	4	5	6	7

### Satisfaction with the Appraisal Session

Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6

The following items refer to your general thoughts about the performance appraisal. Please read each statement, and circle your response on a scale from 1 (strongly disagree) to 6 (strongly agree) that most closely corresponds with your attitude.

1.	I felt quite satisfied with the feedback the company representative gave me.	1	2	3	4	5	6
2.	I feel good about the way that the appraisal session was conducted.	1	2	3	4	5	6
3.	The company representative conducted a very effective appraisal session with me.	1	2	3	4	5	6

### Satisfaction with the Appraisal System

4.	The appraisal system does a good job indicating how a group member has performed on the task.	1	2	3	4	5	6
5.	In general, I feel the company representative has an excellent performance appraisal system.	1	2	3	4	5	6
6.	The appraisal system provides a fair and unbiased measure of the level of a group member's performance.	1	2	3	4	5	6

### Perceived Accuracy of the Appraisal

Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

The following items refer to the feedback you received from the company representative. Please read each statement, and circle your response on a scale from 1 (strongly disagree) to 7 (strongly agree) that most closely corresponds with your attitude.

1.	The feedback was an accurate evaluation of my performance on the task.	1	2	3	4	5	6	7
2.	I do not feel the feedback reflected my actual performance on the task.*	1	2	3	4	5	6	7
3.	I believe the feedback was correct.	1	2	3	4	5	6	7
4.	The feedback was consistent with how I felt I performed on the task.	1	2	3	4	5	6	7
5.	The feedback was not a true assessment of my work.*	1	2	3	4	5	6	7
6.	The company representative accurately judged my performance on the task.	1	2	3	4	5	6	7
7.	The company representative incorrectly appraised my work.*	1	2	3	4	5	6	7
8.	The company representative's evaluation of my work matched my own evaluation.	1	2	3	4	5	6	7
9.	The company representative's evaluation reflected my true performance.	1	2	3	4	5	6	7

\*Indicates a reverse coded item

### Perceived Utility of the Appraisal

Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

The following items refer to the feedback you received from the company representative. Please read each statement, and circle your response on a scale from 1 (strongly disagree) to 7 (strongly agree) that most closely corresponds with your attitude.

1.	The feedback helped me learn how I can do the task better.	1	2	3	4	5	6	7
2.	I learned a lot from the feedback.	1	2	3	4	5	6	7
3.	The feedback helped me understand my mistakes.	1	2	3	4	5	6	7
4.	I have a clearer idea of what is expected of me because of the feedback.	1	2	3	4	5	6	7

### Motivation To Improve

Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

The following items refer to the feedback you received from the company representative. Please read each statement, and circle your response on a scale from 1 (strongly disagree) to 7 (strongly agree) that most closely corresponds with your attitude.

1.	I am willing to change my task behaviors based on the feedback that I received from the company representative.	1	2	3	4	5	6	7
2.	The feedback motivates me to work harder on the next task.	1	2	3	4	5	6	7
3.	Now that I have been presented with feedback, I am motivated to improve my performance.	1	2	3	4	5	6	7

### Attribution Beliefs

Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

Please read each of the following statements, and circle your response on a scale from 1 (strongly disagree) to 7 (strongly agree) that most closely corresponds with your attitude.

1.	To tell the truth, when I work hard on a task, it makes me feel like I'm not very smart.*	1	2	3	4	5	6	7
2.	It doesn't matter how hard you work—if you're not smart, you won't do well.*	1	2	3	4	5	6	7
3.	If you're not good at a particular task, working hard won't make you good at it.*	1	2	3	4	5	6	7
4.	If a task is hard for me, it means I probably won't be able to do really well at it.*	1	2	3	4	5	6	7
5.	If you're not doing well at something, it's better to try something easier.*	1	2	3	4	5	6	7
6.	When a task is hard, it just makes me want to work more on it, not less.	1	2	3	4	5	6	7
7.	If you don't work hard and put in a lot of effort, you probably won't do well.	1	2	3	4	5	6	7
8.	The harder you work at something, the better you will be at it.	1	2	3	4	5	6	7
9.	If a task is hard, it means I'll probably learn a lot doing it.	1	2	3	4	5	6	7

Supervisor Credibility: Expertise

Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

The following items refer to your feelings about the company representative who provided you with feedback. Please read each question, and circle your response on a scale from 1 (strongly disagree) to 7 (strongly agree).

1.	The company representative was familiar with what it took for me to do a good job on the task.	1	2	3	4	5	6	7
2.	The company representative knew a lot about my task performance.	1	2	3	4	5	6	7
3.	I have confidence in the company representative's ability to evaluate my performance on the task.	1	2	3	4	5	6	7
4.	The company representative is very capable of giving me feedback on the task.	1	2	3	4	5	6	7
5.	The company representative is well qualified.	1	2	3	4	5	6	7
6.	The company representative approached the job of giving me feedback with professionalism.	1	2	3	4	5	6	7
7.	The company representative has credibility.	1	2	3	4	5	6	7

Supervisor Credibility: Trust

Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

The following items refer to your feelings about the company representative who provided you with feedback. Please read each question, and circle your response on a scale from 1 (strongly disagree) to 7 (strongly agree).

1.	The company representative approaches his/her job with professionalism and dedication.	1	2	3	4	5	6	7
2.	I see no reason to doubt the company representative's competence and preparation.	1	2	3	4	5	6	7
3.	I can rely on the company representative not to needlessly make my participation in this study more difficult than necessary.	1	2	3	4	5	6	7
4.	Most people, even those who aren't close friends of the company representative, trust and respect him/her.	1	2	3	4	5	6	7
5.	Other team members in this session consider him/her to be trustworthy.	1	2	3	4	5	6	7
6.	If people knew more about the company representative, they would be more concerned and monitor his/her performance more closely.*	1	2	3	4	5	6	7
7.	I see my company representative as trustworthy.	1	2	3	4	5	6	7

\*Indicates a reverse coded item.

### Goal-Setting Questions

1. What is your performance goal relative to others on this task? Please indicate from among the choices below the level of performance that you desire to achieve relative to all others on this task. A goal at the 5<sup>th</sup> percentile (i.e., response choice 1) means that goal is to perform equal to or better than 5% of everyone else on the task. In contrast, a goal at the 95<sup>th</sup> percentile (i.e., response choice 7) indicates that your goal is to perform equal to or better than 95 percent of everyone else on the task.

5 <sup>th</sup> Percentile	15 <sup>th</sup> Percentile	30 <sup>th</sup> Percentile	50 <sup>th</sup> Percentile	70 <sup>th</sup> Percentile	85 <sup>th</sup> Percentile	95 <sup>th</sup> Percentile
1	2	3	4	5	6	7

### Goal-Setting Items

Please respond to the following items based upon how well they apply to you in terms of the types of goals that you plan on setting for the next session of the marketing task. Accordingly, indicate the extent to which you believe each item to be true of the goals that you will set, on a scale from 1 (*not at all true of me*) to 7 (*very true of me*), on the next session's task when you meet with your group.

Not At All True Of Me	Disagree	Somewhat True Of Me	Neutral	Somewhat True Of Me	True Of Me	Very True Of Me
1	2	3	4	5	6	7

### Performance-Approach Goals

1.	It is important to me to do better than the other members of my team.	1	2	3	4	5	6	7
2.	My goal in this task is to perform better than most of the members of my team.	1	2	3	4	5	6	7
3.	I am striving to demonstrate my ability relative to others in my team.	1	2	3	4	5	6	7
4.	I am motivated by the thought of outperforming my peers on my team.	1	2	3	4	5	6	7
5.	It is important to me to do well compared to others in my team.	1	2	3	4	5	6	7
6.	It is important to me to do well on this task to show my ability to the company representative.	1	2	3	4	5	6	7

### Mastery Goals

1.	I want to learn as much as possible from this task.	1	2	3	4	5	6	7
2.	It is important for me to understand the elements of the final task as thoroughly as possible.	1	2	3	4	5	6	7
3.	I hope to have gained a broader and deeper knowledge of marketing strategies when I am done with this task.	1	2	3	4	5	6	7
4.	I desire to completely master the skills required to perform well on this task.	1	2	3	4	5	6	7
5.	I prefer a task that heightens my curiosity, even if it is difficult to perform well.	1	2	3	4	5	6	7
6.	I prefer a task that really challenges me so I can learn new things.	1	2	3	4	5	6	7

### Performance-Avoidance Goals

1.	I often think to myself, “ What if I do poorly on this task?”	1	2	3	4	5	6	7
2.	I worry about the possibility of getting a poor evaluation on the final task.	1	2	3	4	5	6	7
3.	My fear of performing poorly on this task is often what motivates me.	1	2	3	4	5	6	7
4.	I just want to avoid doing poorly on the final task.	1	2	3	4	5	6	7
5.	I am afraid if I ask the study supervisor or my team members a “dumb” question, they might not think I’m very smart.	1	2	3	4	5	6	7
6.	I wish my performance on this task were not going to be evaluated.	1	2	3	4	5	6	7

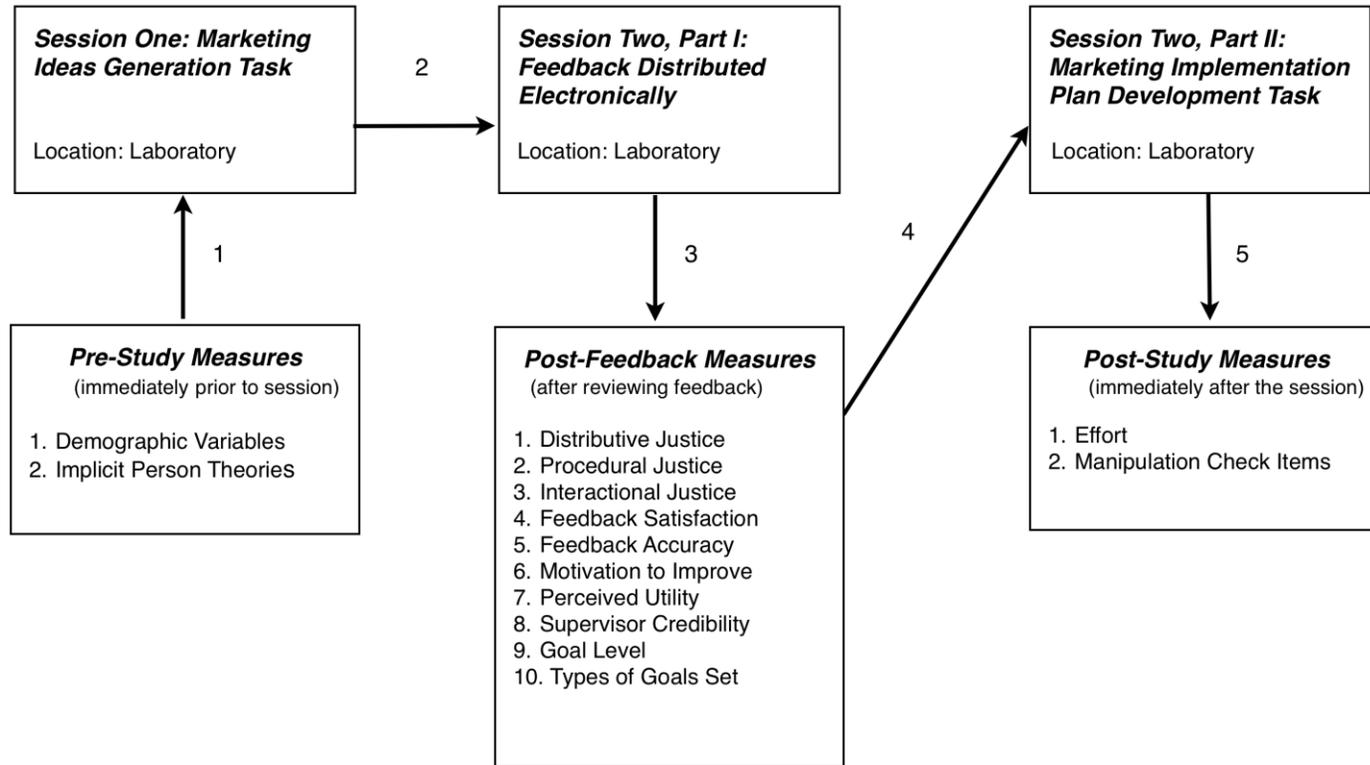
### Actual Effort

Please indicate the amount of effort you put forth during the task that you just completed by responding to the following questions.

Much Less Than Average	Slightly Less Than Average	Average	Slightly More Than Average	Much More Than Average
1	2	3	4	5

1.	Compared to other team members, how much time did you spend working on the task?	1	2	3	4	5
2.	Compared to other team members, how intensely did you work on the task?	1	2	3	4	5
3.	Compared to other team members, how much overall effort did you expend while working on the task?	1	2	3	4	5

Appendix C  
Sequence of Study Phases And Measures



Appendix D  
Observational Rating Forms For Marketing Tasks

1. Competency: **Leading and Initiating**

- Takes control and exercises leadership over the group. Initiates action, gives direction and takes responsibility for the progress of the group toward its objectives. Directs the conversation flow; facilitating participation and blocking those who monopolize the discussion; encouraging those who haven't spoken yet to speak; uses open-ended questions to draw out quieter members; creating opportunities for others to speak.

1	2	3	4	5
DOES NOT MEET MINIMUM STANDARDS	BELOW EXPECTATIONS	MEETS EXPECTATIONS	EXCEEDS EXPECTATIONS	EXCEPTIONAL PERFORMANCE (rarely achieved)
<p><b>-Behavioral Indicators- Negative Examples</b></p> <ul style="list-style-type: none"> <li>• Serves more of a background or peripheral role. Only response when is explicitly asked to be other group members.</li> <li>• Does not take initiative over the group's tasks.</li> <li>• May only provide input after he/she is called upon by another group member.</li> </ul>				<p><b>-Behavioral Indicators- Positive Examples</b></p> <ul style="list-style-type: none"> <li>• Emerges as a clear leader in group discussions. Directs the conversation flow; facilitating participation and blocking those who monopolize the discussion; encouraging those who haven't spoken yet to speak; using open-ended questions to draw out quieter members; creating opportunities for others to speak</li> <li>• Prefers to take control or manage the work of the group.</li> </ul>

2. Competency: ***Creating and Conceptualizing***

- Works well in situations requiring openness to new ideas and conceptualizing or brainstorming. Handles situations and problems with innovation and creativity. Proposes an idea or way to generate ideas; offering facts or ideas; building on others' ideas by contributing an additional point.

1	2	3	4	5
DOES NOT MEET MINIMUM STANDARDS	BELOW EXPECTATIONS	MEETS EXPECTATIONS	EXCEEDS EXPECTATIONS	EXCEPTIONAL PERFORMANCE (rarely achieved)
<p><b><i>-Behavioral Indicators- Negative Examples</i></b></p> <ul style="list-style-type: none"> <li>• Does not propose any ideas for marketing the company, Or idea(s) that he/she proposes lacks originality (e.g., place a classified ad in the University's newspaper).</li> <li>• Suggestions fail to address Colorado State University's local market.</li> </ul>				<p><b><i>-Behavioral Indicators- Positive Examples</i></b></p> <ul style="list-style-type: none"> <li>• Generates significant innovative or novel ideas for marketing the company. Significant ideas are those of substantial quality and/or quantity.</li> <li>• Generates ideas that are unique to Colorado State University's market.</li> </ul>

3. Competency: **Supporting and Cooperating**

- Supports others and shows respect for them. Summarizes and reinforces contributions to the team; is willing to compromise with others to help the team reach a solution; reduces tension within the group by using humor; explores differences between ideas; expresses ways to integrate different ideas.

1	2	3	4	
DOES NOT MEET MINIMUM STANDARDS	BELOW EXPECTATIONS	MEETS EXPECTATIONS	EXCEEDS EXPECTATIONS	EXCEPTIONAL PERFORMANCE (rarely achieved)
<p><b>-Behavioral Indicators- Negative Examples</b></p> <ul style="list-style-type: none"> <li>• Is unwilling to alter his/her ideas to arrive at a solution that will benefit the team.</li> <li>• Is disrespectful to other team members by failing to consider their ideas.</li> <li>• Criticizes other team members by making general negative statements about them.</li> </ul>				<p><b>-Behavioral Indicators- Positive Examples</b></p> <ul style="list-style-type: none"> <li>• Helps resolve any barriers in the group's progress by altering his/her ideas to arrive at a solution that is best for the team.</li> <li>• Shows respect for other team members by listening and considering their ideas.</li> <li>• Reinforces the effort of other team members by noting the positive aspects of</li> </ul>

				their ideas.
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4. Competency: ***Interacting and presenting***

- Communicates effectively with other team members; Clearly presents ideas; Responds to criticism or questions about ideas; Successfully persuades and influences others of the merits of an idea; Convinces other team members to alter their position in considerate of an alternate idea.

<b>Observational Notes:</b>				
1	2	3	4	5
<b><i>Needs Improvement</i></b>	<b><i>Below Average</i></b>	<b><i>Average</i></b>	<b><i>Above Average</i></b>	<b><i>Exceptional</i></b>
<p><b><i>-Behavioral Indicator Examples-</i></b></p> <ul style="list-style-type: none"> <li>• Cannot clearly articulate the strengths of one's own or another's contribution(s).</li> <li>• Arguments (if made) do not convince other team members to consider another point of view.</li> </ul>				<p><b><i>-Behavioral Indicator Examples-</i></b></p> <ul style="list-style-type: none"> <li>• Clearly articulates the strengths of one's own or another's contribution(s).</li> <li>• Persuades others to consider a different viewpoint.</li> </ul>

5. Competency: **Organizing and executing**

- Plans ahead, works in systematic and organized way. Is able to take the marketing idea generated and create a systematic plan that would lead to its successful implementation.

1	2	3	4	5
DOES NOT MEET MINIMUM STANDARDS	BELOW EXPECTATIONS	MEETS EXPECTATIONS	EXCEEDS EXPECTATIONS	EXCEPTIONAL PERFORMANCE (rarely achieved)
<p><b>-Behavioral Indicators- Negative Examples</b></p> <ul style="list-style-type: none"> <li>Ideas for implementation are poorly organized. Implementation plan is not clearly articulated.</li> <li>Does not provide an implementation plan that would lead to a successful marketing strategy for Travel University.</li> </ul>				<p><b>-Behavioral Indicators- Positive Examples</b></p> <ul style="list-style-type: none"> <li>Is able to define discrete components of the marketing idea. Implementation plan is laid out (i.e., presented) in a clear, systematic manner.</li> <li>Provides a very thorough and systematic implementation plan that would very likely lead to a successful marketing strategy for Travel University.</li> </ul>

Appendix E  
Sample Negative Performance Evaluation Script



## PERFORMANCE EVALUATION REPORT

Participant ID Number:	
Position Title:	Focus Group Member
Date Of Review:	

### OVERVIEW

The following report was prepared by company representatives from Travel University based upon your performance in the focus group in which you participated. The company representatives reviewed the notes of the research assistants from Colorado State University and carefully examined your idea sheets from the focus group session. When rating your performance on each of the competency dimensions, the following criteria were used: 1) the number and originality of marketing ideas that you generated, and (2) performance ratings from the group brainstorming sessions as recorded by research assistants.

### OVERALL SUMMARY RATING

Overall, your performance on this task was not at the level that we expected. We were looking for some really innovative ideas. Although you did generate some ideas, they were too general, and not at the level we were expecting from this focus group. A number of the ideas you generated were ones that we had already thought of ourselves. Specifically, we were hoping for some more ideas unique to Colorado State University's market.

You generated *[Insert the number of ideas generated from Idea Sheet]* marketing ideas. Your overall performance rating across all five competencies was **15** out of a possible 25 points.

### ELIGIBILITY FOR PRIZE

We are sorry to inform you, but you were not one of the top performers in your group. However, if you are able to perform exceptionally well (exceed expectations) on the final task, you may still be eligible to be entered into a lottery to win a prize from Travel University.

Appendix E  
*Sample Negative Performance Evaluation Script (cont'd.)*

**ACCOMPLISHMENTS AND RECOMMENDATIONS FOR IMPROVEMENT**

Below is a summary of your overall areas of strength and areas in need of performance improvement before the final focus group task.

1. Your major strengths during the task were the following:

Directions: If the person scored 4 or higher on any of the competencies, use the following text: [After examining the CSU researchers' notes from the session, we have identified [insert number of areas 4 or higher] where you clearly performed above our expectations. Specifically, you were strong on the [insert competencies names] competency.

If he/she did not perform above expectations on any competencies, state the following: [Unfortunately, there were not any notable strengths that emerged in your performance during either your individual work, or your participation with the group. ]

2. Below is a list of areas where you can improve your subsequent performance on the final task.

An area for improvement is any competency rated as 3 or lower. Use the following text: [After examining the CSU researchers' notes from the session, we have identified several areas in which you may be able to improve your performance on the final task. Particularly, your performance in the following competency areas was below our expectations: [list each competency rated as 3 or lower].

3. For each competency that was identified in #2 as a potential area for improvement, please refer to the *Description Of Ideal Performance* in the *Competency Ratings* section that follows below. It may be helpful for your performance on the final marketing task to review the behaviors that are characteristic of those who have performed well on this task.

Appendix E  
*Sample Negative Performance Evaluation Script (cont'd.)*

**Competency: Supporting and Cooperating**

**Definition:** Supports others and shows respect for them. Summarizes and reinforces contributions to the team; is willing to compromise with others to help the team reach a solution; reduces tension within the group by using humor; explores differences between ideas; expresses ways to integrate different ideas.

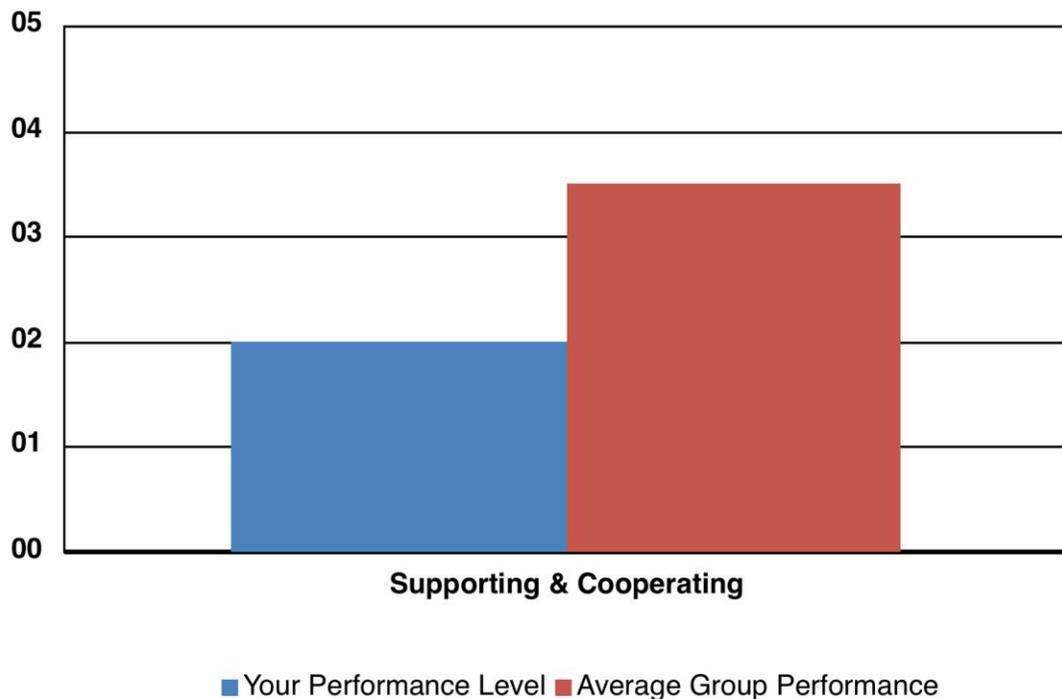
**Ideal Performance Level:** 5 EXCEPTIONAL PERFORMANCE

**Description Of Ideal Performance:**

Those who performed well on this task exhibit the following behaviors:

- Help resolve any barriers in the group’s progress by altering his/her ideas to arrive at a solution that is best for the team.
- Show respect for other team members by listening and considering their ideas.
- Reinforce the effort of other team members by noting the positive aspects of their ideas.

**Your Level Of Performance:** [Insert Numerical Rating For Supporting And Cooperating]





## PERFORMANCE EVALUATION REPORT

Participant ID Number:	
Position Title:	Focus Group Member
Date Of Review:	

### OVERVIEW

The following report was prepared by company representatives from Travel University based upon your performance in the focus group in which you participated. The company representatives reviewed the notes of the research assistants from Colorado State University and carefully examined your idea sheets from the focus group session. When rating your performance on each of the competency dimensions, the following criteria were used: 1) the number and originality of marketing ideas that you generated, and (2) performance ratings from the group brainstorming sessions as recorded by research assistants.

### OVERALL SUMMARY RATING

Overall, your performance on this task was very good. I am pleased with the ideas you generated. You had many good individual ideas, and your group came up with some innovative strategies that we at Travel University are eager to pursue when we market and promote our website later this year.

You generated *[Insert the number of ideas generated from Idea Sheet]* marketing ideas.

Your overall performance rating across all five competencies was **20** out of a possible 25 points.

### ELIGIBILITY FOR PRIZE

Congratulations! You were identified as a top performer in your group. If you continue to perform well (exceed expectations) on the next task, you will be entered into a lottery for a chance to receive a prize from Travel University.

## Appendix E

### *Sample Positive Performance Evaluation Script (cont'd.)*

#### **ACCOMPLISHMENTS AND RECOMMENDATIONS FOR IMPROVEMENT**

Below is a summary of your overall areas of strength and areas in need of performance improvement before the final focus group task.

1. Your major strengths during the task were the following:

[From the RAs observational notes, state where the person performed above expectations (4 or higher) on as many of the competencies as possible. That is, try to make at least three positive comments overall. *Pull information from RAs' notes on the following five competencies: (1) leading and initiating, (2) creating and conceptualizing, (3) supporting and cooperating, (4) interacting and presenting, and (5) organizing and executing.*]

2. Below is a list of areas where you can improve your subsequent performance on the final task.

List any competencies that are three or lower and use the following text: [While your performance was very good across the competencies, we have identified a couple of areas where you may be able to improve your performance on the final task. Particularly, your performance in the following competency area was below our expectations: *[insert the names of any competencies rated as 3 or lower here.]*]

If none of the competencies are rated below a three, you can list the same text as above, but insert a competency with a rating below a 5. In the highly unlikely event that someone receives a 5 across all the competencies, you can use the following text: [You performed exceptionally well across all of the competencies. Accordingly, we do not have any specific areas that you should focus on for improvement. Please continue to maintain your current level of performance on the next task.]

3. For each competency that was identified in #2 as a potential area for improvement, please refer to the *Description Of Ideal Performance* in the *Competency Ratings* section that follows below. It may be helpful for your performance on the final marketing task to review the behaviors that are characteristic of those who have performed well on this task.

Appendix F  
*Travel University Information Sheet*

# TRAVEL UNIVERSITY.COM

It's your world. Explore It.

## **About Us**

Travel University is the online travel service that enables students to travel for less. By negotiating with travel agencies on their behalf, Travel University provides college students with exclusive, significantly discounted travel services. Travel University is based in Fort Collins, Colorado with an additional location in College Station, Texas.

## **What We Offer**

Our "Five Spheres" of travel service include:

- Airfare discounts (to worldwide destinations on all major US and European Airlines)
- Train discounts (including Amtrak, Eurail, and Rail Europe)
- Bus discounts (including Greyhound, Chinatown buses, and European Bus Service)
- Lodging discounts (in the US and Europe)
- Destination Guides

Additionally, we also offer special deals on Spring Break and Group Travel.

## **We Need Your Help!**

Before we launch our new state-of-the-art website later this summer, we need your help to brainstorm some creative *marketing* and *promotional* ideas for Travel University. Because YOU (as college students) are our target audience, we are conducting focus groups around several Northern Colorado universities. Your task in this focus group is to come up with inspired ways to market and promote our new service.

- **Marketing:** How can we get the news out about Travel University? What should we emphasize? Where should we market and advertise about the amazing services we provide? What would convince you to use Travel University?
- **Promotion:** We also want to get your input on some innovative ways to promote our website. What specials or give-away prizes would persuade you to travel with us? Should we offer any special promotions throughout the year for specific students?

Since two heads are better than one, after working on this task by yourself you will then work in groups to come up with the best two ideas from your group's individual members. The group with the best ideas will be eligible for a random prize drawing!

Thank you and Good luck!