

DISSERTATION

THE MEDIATING EFFECT OF REACTIONS TO MULTISOURCE FEEDBACK ON
THE RELATIONSHIP BETWEEN FEEDBACK CHARACTERISTICS AND
MANAGERIAL DEVELOPMENT ACTIVITIES

Submitted by

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In partial fulfillment of the requirements

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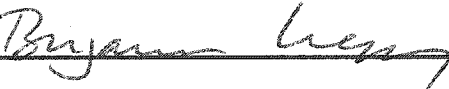
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WE HEREBY RECOMMEND THAT THE DISSERTATION PREPARED UNDER OUR SUPERVISION BY LORI ANDERSON SNYDER ENTITLED THE MEDIATING EFFECT OF USER REACTIONS TO MULTISOURCE FEEDBACK ON THE RELATIONSHIP BETWEEN FEEDBACK CHARACTERISTICS AND MANAGERIAL DEVELOPMENT ACTIVITIES BE ACCEPTED AS FULFILLING IN PART REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY.


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ABSTRACT OF DISSERTATION

THE MEDIATING EFFECT OF REACTIONS TO MULTISOURCE FEEDBACK ON THE RELATIONSHIP BETWEEN FEEDBACK CHARACTERISTICS AND MANAGERIAL DEVELOPMENT ACTIVITIES

This study examined the relationship between multisource feedback characteristics, user reactions to feedback, and manager follow-up actions in a sample of 390 managers employed in a national home improvement company. Managers participated in a multisource feedback process in which self, boss, peer, and direct report performance ratings were collected, and target managers completed a follow-up survey 1-5 months later. Findings revealed that rating discrepancies between the self and other raters, manager perceptions of source credibility and observational opportunity, and internal performance attributions were positively related to target managers' reactions to the feedback process and ratings. In addition, results indicated that manager reactions were related to subsequent goal setting and meeting with others about the feedback and that manager reactions mediated the relationships between source credibility, observational opportunity, and internal performance attributions and the outcome measure of goal setting. Implications for theory, research, and practice of multisource feedback systems are discussed.

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DEDICATION

In memory of Lloyd W. Anderson and in honor of Mary Lou Anderson, whose love, support, and encouragement allowed me to achieve this goal.

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Research on multisource (360-degree) feedback has traditionally focused on issues of measurement, such as agreement within or between sources, to examine the usefulness or effectiveness of the method (Harris & Schaubroeck, 1988; Ilgen & Feldman, 1983; Viswesvaran, Ones, & Schmidt, 1996). However, recently a shift has occurred, generating less focus on psychometric issues and more on user reactions (e.g. Brett & Atwater, 2001; Edwards, Ewen, & Vendantam, 2001; Funderberg & Levy, 1997). This shift may have been caused by a number of factors, especially the dissatisfaction of organizations with their multisource feedback programs (Meyer, 1991), the need for science to catch up to practice in the realm of 360 feedback, and the need to expand the scope of research to address the lack of evidence of the effectiveness of multisource feedback technique (Church & Bracken, 1997; Waldman, Atwater, & Antonioni, 1998).

This study contributes to the understanding of the effectiveness of multisource feedback in several ways. First, it expands previous research on the predictors of user reactions to multisource feedback (e.g., Levy, Cawley, & Foti, 1998) by exploring a previously unresearched variable, the effect of perceived rater observational opportunity, on user reactions. In addition, the current study examines the role of user reactions as a mediator in the relationship between self-other rating discrepancy, performance attributions, source credibility, and observational opportunity and behavioral outcome measures, such as meeting with others following the feedback process and setting goals and development plans. A final contribution is investigation of the relationship between user reactions and managerial follow-up activities, which has not been previously examined. A model of the study variables is presented in Figure 1.

Multisource Feedback

An undeniable trend in the world of work is the increasing use of multisource feedback by organizations. Approximately 12% of American organizations used multisource feedback in 1998, and this percentage is growing exponentially (Waldman et al., 1998). Hedge and Borman (1995) proposed that multisource feedback will become more relevant in the future as changes in technology and work situations make it more difficult for the supervisor to witness all aspects of an employee's performance.

While multisource feedback processes may differ considerably across organizations and situations, there are several aspects of the process that are common. These include developing or selecting the multisource feedback instrument, selecting raters, collecting feedback, processing the results, and presenting the results (Bracken, Timmreck, & Church, 2001). These features will not be examined in the present study, but the method will employ the most common examples of these characteristics.

The instrument used to collect multisource feedback ratings may be standard or customized, on paper or online, and is likely to be composed of a large number of questions, each of which can be categorized into a larger performance dimension that has been determined to be important to the job. In the present study, a set of dimensions are used that represent a range of job activities.

The selection of raters for a multisource feedback program involves a number of related decisions (Farr & Newman, 2001). First, the groups who will be raters should be determined. These may include self, supervisors, peers, subordinates, and internal or external customers. Once this decision is made, individuals from within each group should be asked to serve as raters for each rater. The individuals chosen may be based on

the extent to which the person has the opportunity to observe the behavior of the ratee, the length of the work relationship between the rater and ratee, and the rater's motive for participating. In practice, ratees often select their own raters, especially when multisource feedback is used for developmental purposes. This situation may generate problems of bias, or communicate the notion that the opinions of those who were not selected are less valuable. This element of the multisource feedback process has the potential to effect the recipients' reactions to the feedback. Both the types of sources chosen and the individuals chosen within each source may possess qualities that encourage the recipient to more or less strongly value the feedback received. In the present study, the three most common sources are studied: supervisor, peer, and subordinate.

The actual collection of the multisource feedback may occur using many methods: paper and pencil, online, optical scan forms, or disk-based (Bracken et al., 2001). Raters generally complete the form anonymously, providing only their relationship to the ratee (supervisor, peer, etc.) and possibly some demographic information. After the ratings are entered into a computer (if necessary), the feedback is then analyzed. Typically, each ratee is rated by several peers, subordinates, and customers and these results are aggregated to maintain the confidentiality of the individuals. Self and supervisor ratings are usually analyzed separately. Again, this aspect of the multisource feedback process may influence recipients' reactions. Recipients understand that the feedback is given anonymously and is aggregated for most sources. These factors may affect the extent to which they assign value or fairness when reacting to their results.

The results of the data collected are then presented to the ratee, with the most effective reports presenting feedback in a form that promotes action planning or development (Dalessio & Vasilopoulos, 2001). The reports provide the ratee with detailed information about the ratings from the sources and often supply suggestions for developing those areas in which weaknesses were noted. In the present study, a common form of written feedback was used that specified the level of rating from each source for each performance area.

Models of Multisource Feedback

Despite the popularity of multisource feedback among practitioners and organizations, understanding of the process and outcomes of the method provided have arguably not kept pace. One marker of this situation is the lack of a comprehensive theory describing the multisource feedback process and its desired outcomes. A process model of multisource feedback was proposed by Bracken et al. (2001) that includes many steps related to readiness evaluation, development of the instrument, collecting data, providing feedback, and evaluating the process. In addition, Dalton and Hollenbeck (2001) proposed a model of behavior change following multisource feedback modeled after Prochaska, Norcross, and Di Clemente's (1995) four-stage change process. This model includes the stages of becoming aware, preparing for change and developmental planning, taking action, and maintaining the gain.

While these models may be useful for understanding certain elements of the multisource feedback process, they appear to fail to address a number of aspects of the process, such as user reactions. This study is intended to examine the importance of user

reactions and gain insight into their potential placement in models of multisource feedback.

The Nature of Feedback Interpretation

Ilgen, Fisher, and Taylor (1979) provide a comprehensive model of how recipients process feedback. Their model includes four stages: perception of feedback, acceptance of feedback, desire to respond to feedback, and intended response. The feedback perception phase is focused on how accurately recipients perceive feedback. The second phase is concerned with whether the recipient believes that the feedback accurately reflects his or her performance. The third phase focuses on motivation to respond in accordance with the feedback, while the fourth phase is concerned primarily with goal setting relevant to the feedback. Each of the phases is affected by characteristics of the recipient, the feedback source, and the feedback message.

Based on Ilgen et al.'s (1979) model, feedback reactions occur primarily in the acceptance phase, and there may be several characteristics of the recipient, sources, or feedback that affect these reactions. For example, individuals' beliefs that it is possible to improve skills and beliefs that they themselves are capable of improving have been related to reactions to feedback (Maurer, Mitchell, & Barbeite, 2002). In addition, recipients are likely to be affected by the psychological closeness or credibility of the feedback sources (Albright & Levy, 1995; Ilgen et al., 1979), the opportunity that a rater has to witness the ratee's performance, or the ratee's perceptions of the attributions others assign to their performance (Levy et al., 1998). Characteristics of the feedback itself are also likely to affect reactions. Previous research has revealed that reactions may be influenced by rater training and frequency of feedback (Dobbins, Cardy, & Platz-Vieno,

1990), and level of ratings or discrepancy between self and other ratings (Levy et al., 1998).

User Reactions

The recent shift in research to focusing on user reactions to feedback has provided a basic understanding of both the spectrum of user reactions and the factors that influence them. Previous research has investigated a variety of measures of reactions to performance appraisal (Keeping & Levy, 2000; Maurer et al., 2002). Such reactions include satisfaction, utility, accuracy, and notions of justice. In addition, several of these reactions may be directed toward both the feedback procedure and the actual ratings received. Keeping and Levy (2000) note that reaction measures used in previous research have frequently confounded types of reactions, such as researchers labeling a construct as satisfaction that actually includes elements of fairness. However, in previous research, it has also been quite common to operationalize user reactions by examining reactions to the feedback process and ratings separately, with each measure including items that tap satisfaction, utility, accuracy, and/or justice (e.g., Dipboye & de Pontbriand, 1981; Levy et al., 1998).

A number of factors have been determined to affect user reactions, including aspects of the feedback process and system, individual variables, and organizational variables. Arguably, the most common variable related to user reactions is ratings. Level of ratings from raters and the discrepancy between self and other ratings have been related to reactions in several studies (Brett & Atwater, 2001; Dipboye and de Pontbriand, 1981; Maurer et al., 2002). Source credibility has also been found to influence reactions (Albright & Levy, 1995). Relationships with multisource feedback

reactions have also been found for the extent to which the factors included in the appraisal were job-relevant and the opportunity that target managers had to express their opinions in a session with their manager (Dipboye and de Pontbriand, 1981), social support of skill development, individual beliefs that skill improvement is possible, and self-efficacy of development (Maurer et al., 2002) and organizational level and perceived knowledge of the performance appraisal system (Williams & Levy, 2000). Based on previous research in the areas of feedback interpretation and user reactions, the effects of self-other rating discrepancy, performance attributions, observational opportunity, and source credibility on user reactions to multisource feedback will be examined in the current study.

This study also examines the possibility of user reactions operating as a mediator in the relationship between characteristics of the feedback and target manager behaviors following feedback. These reflect the likelihood that prior to action being taken by the ratee in response to the feedback received, it is required that the ratee believe in the accuracy, usefulness, and/or fairness of the feedback process and ratings. This cognitive process is reflected in Ilgen et al.'s (1979) model, in which acceptance of feedback precedes the decision to act on feedback.

Outcomes of Multisource Feedback

In general, research focusing on outcomes of multisource feedback has been lacking. Desired outcomes of feedback are commonly considered to include increased performance levels or developmental actions taken by target managers following the process (Maurer et al., 2002), as well as organizational outcomes such as customer loyalty or revenue enhancement (Walker & Smither, 1999).

A few studies have found that receiving feedback generates positive subsequent changes in others' ratings, especially for upward feedback (Atwater, Roush, & Fischthal, 1995; Johnson & Ferstl, 1999; Smither et al., 1995). Atwater, Waldman, Atwater, and Cartier (2000) more thoroughly examined this phenomenon using a field experiment. The results comparing two of the experimental conditions provide support that the upward feedback is causing change in supervisor performance rather than regression to the mean or another explanation. For some supervisors, self and subordinates rated at times 1 and 2, and the supervisor received feedback at times 1 and 2, while for others, the supervisor only received feedback at time 2. The performance of supervisors in the first condition improved, while those in the second condition did not.

In addition to the main effect that receiving feedback appears to have on subsequent performance, the discrepancy of self-other feedback also appears to have an effect on outcomes of multisource feedback. In most studies, the results indicate that a negative performance discrepancy (the "other" rater rating lower than the self rating) is most conducive to subsequent performance improvement (Johnson & Ferstl, 1999; Smither et al., 1995; Walker & Smither, 1999).

Other changes relevant to receiving feedback may also be important markers of effectiveness. Meeting with others following receiving feedback implies that the target manager feels accountable to the raters and desires to have additional communication about the performance ratings. The importance of this behavior was supported by Walker and Smither (1999), who found that managers who met with their direct reports to discuss their upward feedback had greater improvements in their ratings a year later than those who did not. In addition, managers' ratings improved more in

years when they discussed their results with direct reports than in years when they did not. Other behaviors, such as goal setting and developmental planning may also be related to long-term outcomes, but this connection has not been established in previous research. The current study thus examines the managerial development activities of meeting with others and setting goals as relevant outcomes of the multisource feedback process and investigates the relationship of target manager reactions to such outcomes. Hypothesis 1: Target manager reactions to feedback are positively related to meeting with others and goal setting.

Performance Rating Discrepancy

A series of studies have examined the agreement among sources in multisource feedback (Harris & Schaubroeck, 1988; Mabe & West, 1982). Findings have generally indicated a fairly low correlation among sources, especially for pairs including self ratings. The meta-analysis conducted by Harris and Schaubroeck revealed that correlations between self and supervisor ratings ($\rho = .35$) and self and peer ratings ($\rho = .32$) were only moderate in size, and smaller than peer-supervisor rating correlations.

The difference between self perceptions of one's performance and others' perceptions has been claimed as a motivational tool inherent in multisource feedback. Numerous studies have indicated that the magnitude and direction of self-other rating discrepancies are relevant to outcomes of feedback (Atwater & Yammarino, 1992; Van Velsor, Taylor, & Leslie, 1993). Atwater and Yammarino (1997) proposed a four-category model that captures the direction of self-other rating discrepancies. Their model included overestimators, underestimators, in-agreement/good estimators, and in-agreement/poor estimators. In-agreement/good and in-agreement poor estimators differ

in the level of performance in comparison to the mean. In-agreement/good estimators have self and other ratings above the mean, while in-agreement/poor estimators have self and other ratings below the mean. Researchers have further predicted that in-agreement/good estimators should have the highest outcomes, and overestimators will have poorer outcomes than underestimators (Atwater, Ostroff, Yammarino, & Fleenor, 1998). Atwater et al. (1998) supported these general propositions by using a polynomial regression method to examine the categories of performers. They used subordinate and peer ratings to predict a managerial effectiveness rating from the target manager's supervisor and found that in-agreement/good estimators and underestimators performed best on effectiveness outcome measures, while overestimators with low subordinate ratings were least effective.

However, research findings on this topic are complex when considering a variety of outcome measures. It appears that while receiving overestimation is related to low effectiveness (Atwater et al., 1998), it is also related to increased subsequent performance (Johnson & Ferstl, 1999; Smither et al., 1995; Walker & Smither, 1999), but more negative reactions to feedback. Brett and Atwater (2001) found that self ratings higher than other ratings were related to low perceptions of accuracy and usefulness as well as higher negative affective reactions. In contrast, high ratings from others were not related to positive reactions and perceptions, but only to the absence of negative reactions. Levy et al. (1998) found that larger discrepancies and more negative discrepancies (supervisor rating lower than self rating) both were related to more negative reactions to feedback. The current study will focus on the actual size and direction of the performance discrepancy.

Hypothesis 2: Rating discrepancies are positively related to target manager reactions to feedback, such that self ratings that are higher than “other” ratings are related to more negative target manager reactions.

Performance Attributions

An additional factor that has received little attention in the realm of multisource feedback is the effect of ratee attributions of performance. Social psychological theories of attribution indicate that individuals make attributions not only about others' performance (Heider, 1958), but also about their own performance (Nisbett & Valins, 1972; Weiner, 1985). Levy (1993) found that self appraisal is related to attributions such that higher self ratings predict more internal attributions for performance. Thus, it is likely that ratees assign explanation to their own behavior and performance and may draw on this information as they complete self ratings and react to the feedback process.

In previous research, Weiner et al.'s (1972) conceptualization of attribution has been used. This model proposes four sources of attribution: ability, effort, luck, and task difficulty. Ability and effort are considered internal causes, while luck and task difficulty are considered external causes. However, in the performance appraisal context, luck does not seem to be as relevant. It is hard to imagine that one's performance over the interval since the previous appraisal (commonly 6-12 months) would be explainable by luck. Task difficulty may indeed serve as a likely cause for performance in an organizational setting, but other external causes for behavior also possible stem from constraints such as lack of resources, high workload, or role ambiguity. The current study will follow up previous research by focusing on the internal causes of ability and effort.

Source Credibility

Multisource feedback research has generally disregarded the effect of rater personal characteristics on recipient reactions and acceptance of feedback. This situation is reasonable, considering that ratings are generally anonymous and aggregated across raters within a source (i.e., peers, subordinates, customers). Previous research on multisource feedback *has* examined the effects of ratee perceptions of rater credibility and power on recipient acceptance of feedback, intention to act on feedback, goal setting, and ratings of acceptance, usefulness, and satisfaction (Albright & Levy, 1995; Fedor, 1991; Giffin, 1967; Ilgen et al., 1979).

Source credibility has been shown to be an important influence on feedback perceptions and outcomes (e.g., Bannister, 1986; Ilgen et al., 1979). Several researchers have described the subcomponents of credibility in the feedback realm. Giffin (1967) suggested five components of credibility in interpersonal communication that can be easily applied to the multisource feedback model: expertise, reliability, intention toward the listener, dynamism, and personal attraction of rater for the target manager. Ilgen et al. (1979) and O'Keefe (1990) each proposed similar dimensions of credibility: expertise and trustworthiness by Ilgen et al., and competence and trustworthiness by O'Keefe. Ilgen et al. (1979) define expertise as familiarity with the tasks on which the target is rated and knowledge of the target's performance of the task. They conceive of trustworthiness as the recipient's trust in the rater's motives for providing feedback. These conceptions of credibility have been used to generate a measure for assessing the perceived credibility of each rater group within the current study.

Observational Opportunity

One potential influence on feedback recipients' weighting of feedback differentially by source is the perception that some sources have more opportunity to observe certain behaviors. Researchers have acknowledged that differential observational opportunity is likely to occur in multisource feedback processes (Lawler, 1967), but primarily have applied this idea to understanding whether all raters should rate all behaviors and whether ratings from different sources should necessarily agree (Borman, 1974; Farr & Newman, 2001). There is also evidence that target managers perceive differences that sources have to observe their performance in various areas. For example, supervisors report their belief that subordinates can adequately assess their performance for some areas and not others (McEvoy, 1990). In addition, research has indicated that greater observational opportunity is related to greater accuracy in ratings (Furnham & Stringfield, 1998).

Recipients' beliefs about differences in observational opportunity have rarely been examined in relation to recipients' reactions to multisource feedback. Tuckman and Oliver (1968) concluded that observational opportunity affected credibility perceptions in their study, in which feedback from students improved teacher performance, but feedback from supervisors decreased performance. Their explanation for these results suggested that because supervisors rarely witnessed teachers conducting class, targets viewed their feedback as low in credibility and thus downplayed the importance of supervisor feedback. It is thus likely that feedback recipients perceive a connection between observational opportunity and effective rating of performance and consider this factor when interpreting the feedback. Observational opportunity has been overlooked in

previous research, but adequate theoretical justification implies that it may be an important antecedent of target manager reactions.

Hypothesis 3: Internal performance attributions, source credibility and observational opportunity are positively related to target manager reactions to feedback.

Relationships among Study Variables in Previous Research

Albright and Levy (1995) examined the effect of source credibility and performance rating discrepancy on reactions to multisource feedback in a laboratory experiment. Following performance on a task, participants completed a self rating and then received bogus feedback from either an expert or a group of peers. Participants who received feedback that was positively discrepant reacted more positively to the feedback than those who received negatively discrepant feedback. The credibility of the sources was also examined. Expert ratings were related to more positive reactions than peer feedback.

A study by Levy et al. (1998) expanded the investigation of the effects of rating discrepancy on reactions to include performance attributions, examined in both a laboratory and a field setting. In the laboratory study, participants completed a task and provided self ratings and performance attributions. Later, participants received expert feedback ratings and attributions and completed evaluations of the feedback, sources, and system. Main effects of rating discrepancy and attributional discrepancy on feedback and systems reactions were detected. Those who received higher supervisor ratings reported more positive reactions. Attributional discrepancy also predicted feedback and system reactions, such that participants who were told that an expert felt their performance was

caused more by internal causes than they themselves believed reported more positive reactions.

Experiment 2 by Levy et al. (1998) placed the examination of the effect of rating and attributional discrepancy on target manager reactions in a field context. During a performance appraisal process, subordinates were asked to complete a self evaluation at the same time their supervisors evaluated them. The subordinate and supervisor then met to discuss the results, and the subordinate later filled out a measure indicating perceptions of attributional discrepancy on the causes of performance. The study found that performance rating discrepancy predicted reactions, such that supervisor ratings that were lower than self ratings were related to more negative feedback and system reactions. Similar to experiment 1, results for experiment 2 indicated a main effect of attributional discrepancy on reactions to feedback (the relationship with systems reactions approached significance), such that supervisor attributions that relied more on internal causes were related to more positive reactions.

No previous studies examining the role of target manager reactions to multisource feedback as a mediator were located by the researcher. The mediation hypotheses in the current study reflect the belief that target managers must believe in the accuracy, usefulness, and/or fairness of the feedback process and ratings before they choose to take action in response to the feedback received. As mentioned earlier, this cognitive process is reflected in Ilgen et al.'s (1979) model, in which acceptance of feedback precedes the decision to act on feedback.

Hypothesis 4: Target manager reactions to feedback mediate the relationship between source and rating characteristics (internal performance attributions, rating discrepancy,

source credibility, and observational opportunity) and developmental action-taking (meeting with others and goal setting).

Overview of the Current Study

The current study mirrors the work of Levy et al. (1998) and Albright and Levy (1995) by examining the effects of performance rating discrepancy and performance attributions on target manager reactions in a field setting. In addition, this study extends the work of these researchers in several ways: 1) it examines the effect of source credibility and observational opportunity as predictors of target manager reactions in addition to rating and attributions, 2) it examines the variables of rating discrepancy, performance attributions, source credibility, observational opportunity for the sources of boss, peers, and direct reports, and 3) it investigates the operation of target manager reactions as a mediator of the relationship between the source-related variables and developmental actions such as meeting with others and goal setting activities.

In this study, target manager reactions will be operationalized as two measures, reactions toward feedback ratings and reactions toward feedback process. This conceptualization is supported by experiments 1 and 2 in Levy et al. (1998). While their experiment 1 originally included three reaction measures, toward feedback ratings, sources, and processes, no significant relationships were found with the feedback source reactions. Similarly, in experiment 2, the scales representing reactions to feedback ratings and sources appeared to be indistinguishable based on high intercorrelation and factor analysis results, and thus were combined. This study also will examine managers' own perceptions of causes of their performance rather than perceptions of the difference in attributions between the boss and self. This decision was made because in many

multisource feedback situations, target managers may not have much information on their boss' attributions. Instead, this study will follow Levy (1993) in examining the manager's own attributions for performance and extending this to investigate the relationship between such attributions and target manager reactions.

Method

Sample

A total of 710 managers at a large national home hardware store were invited to participate in the study. Participants ranged from store managers to organizational executives. Eligibility for inclusion in the study was determined by recent participation as a target manager (ratee) in the organization's multisource feedback process. A total of 390 responses were received, resulting in a response rate of 54.9%.

Measures

Observational opportunity. Ratings of the participants' perceptions of the opportunity each source (i.e., supervisor, peers, subordinates) has to observe their performance were obtained using a three item measure (e.g., "My primary boss has adequate opportunity to witness my performance in all of the tasks of my position," "My primary boss has excellent first-hand knowledge of my performance level in my current position," and "My primary boss is unable to observe my performance for some of the aspects of my position" (reverse scored)). Responses were made on a 5-point scale (1 = strongly disagree, 5 = strongly agree). Internal consistency as calculated by coefficient alpha was .82 for the boss scale, .77 for the peer scale, and .68 for the direct report scale.

Source credibility. Respondents indicated their perceptions of the credibility of each source using a three item measure (e.g., "My peers have a good understanding of the

skills required to perform my job,” “My peers are familiar with all aspects of my position,” and “My peers do not have good knowledge of my position’s duties” (reverse scored)). Responses were made on a 5-point scale (1 = strongly disagree, 5 = strongly agree). Internal consistency as calculated by coefficient alpha was .78 for the boss scale, .78 for the peer scale, and .70 for the direct report scale.

Rating discrepancy. Ratings were collected from each rater on 18 items representing a range of performance areas. Ratings were made on a 5-point scale (1 = significant development needed, 5 = outstanding strength). Rating discrepancies were calculated for each source across the 18 items included in the multisource feedback process. First, composite multisource ratings were calculated for each source by averaging across raters (when applicable), then summing across the 18 items. Alphas for the composites were as follows: self .89, boss .90, direct reports .97, and peer .95. Next, rating discrepancies were calculated by subtracting the self composite from each “other” source composite (supervisor, peers, and direct reports). Reliabilities for the difference scores for each discrepancy were calculated as specified by Zimmerman and Williams (1982) for two measures with unequal variance. Results were as follows: self-boss .89, self-peer .89, self-direct report .91.

Performance attributions. Respondents were asked to indicate the extent to which they believed their performance could be explained by the internal reasons of ability and effort. Responses were made on a 5-point scale (1 = not at all, 4 = a great deal). The ability and effort items were combined into the internal subscale. Reliability of the scale as calculated by coefficient alpha was .82.

Reactions to ratings. Target manager reactions to the feedback ratings were measured by four items inquiring about satisfaction, fairness, and usefulness (i.e., “I was satisfied with the performance ratings I received”, “The performance ratings I received were fair”, “The 360 feedback I received gave me a better understanding of my strengths and areas needing improvement”, and “The numerical data in the feedback report were useful for my development”). Responses were made on a five-point scale (1 = strongly disagree, 5 = strongly agree). Internal consistency as calculated by coefficient alpha was .84.

Reactions to process. Target manager reactions to the feedback process were measured by three items inquiring about satisfaction, fairness, and usefulness (i.e., “The 360 process was worth my time and effort”, “I was satisfied with the 360 process”, “The 360 process was fair”). Responses were made on a five-point scale (1 = strongly disagree, 5 = strongly agree). Internal consistency as calculated by coefficient alpha was .86.

Meeting with others. Action the respondent took following the feedback process, in terms of meeting with others, was measured by four items, (i.e., “I discussed my 360 results with my boss”, “I discussed my 360 results with my direct reports”, “I discussed my 360 results with my peers”, and “I met with a Feedback Provider/Coach (not my boss) who helped me understand my results and discussed them with me”). Responses were made using three responses (1 = no, and don't plan to, 2 = no, but plan to, 3 = yes). These values were treated as a continuous scale because they represent increasing action or intention to meet with raters. Internal consistency as calculated by coefficient alpha was .41. The low reliability for this measure may be a reflection of the fact that the scale

is essentially dichotomous or that feedback recipients may tend to meet with some rater groups and not others.

Goal setting. Actions the respondent took to promote development following receiving 360 results were assessed with two items (i.e., “I used my 360 results to create a development plan or add to an existing development plan”, and “I set personal improvement goals as a based on my 360 results”). Responses were made on a five-point scale (1 = strongly disagree, 5 = strongly agree). Internal consistency as calculated by coefficient alpha was .76.

Procedure

Managers completed a yearly multisource feedback process used for developmental and administrative purposes. One to five months later, target managers completed a survey about their reactions to the feedback process, the actions they took following receiving the feedback results, their beliefs about the causes of their performance, and their perceptions of the source credibility and observational opportunity and of each source (primary boss, peers, direct reports). The survey was completed online. Managers were invited to participate in the voluntary survey, which required them to use an identification code to link their survey responses with their feedback results. Respondents were assured that following linkage of the two sets of data, all identifying information would be removed.

Results

Preliminary Analyses

The study variables were first examined using descriptive statistics, followed by testing of each hypothesis. Means and standard deviations are presented in Table 1. In

general, respondents perceived their raters as being credible and having moderately high opportunity to observe their behavior. Target managers tended to perceive their performance to be largely caused by internal sources. Self ratings of target managers were slightly higher than boss and peer ratings (i.e., negative discrepancies), and slightly lower than direct report ratings (i.e., positive discrepancies). Standard deviations of self-other discrepancies were quite large, however, indicating that the size of the discrepancies varied considerably across target managers. Respondents' reactions to the feedback process and ratings were moderately positive. Most respondents had either met with some raters or planned to, and agreed that they used their feedback for goal setting. Overall, there appears to be little restriction of range in the variables, and thus no artificial attenuation in correlations.

Differences in mean levels of the variables were examined by feedback source (boss, peer, direct reports) using a series of one-way ANOVAs. The difference in mean level of perceived source credibility by feedback source was significant ($F(2,1094) = 18.00, p < .05, \eta^2 = .03$). A post-hoc Tukey's HSD test indicated that the average item rating for boss credibility ($M = 3.79, SD = .88$) was greater than for peers ($M = 3.66, SD = .87$) or direct reports ($M = 3.41, SD = .72$). The mean difference in level of perceived observational opportunity by feedback source was also significant ($F(2,1094) = 35.47, p < .05, \eta^2 = .06$). Tukey's HSD test indicated that direct reports were perceived as having the significantly greater observational opportunity ($M = 3.53, SD = .72$), than bosses ($M = 3.36, SD = .96$) and peers ($M = 3.01, SD = .83$). The difference between boss and peer observational opportunity was also significant.

For rating discrepancy, self ratings tended to be higher than boss and peer ratings (negative discrepancy/overestimator), and lower than direct report ratings (positive discrepancy/underestimator). Mean differences in level of rating discrepancy by source were also found to be significantly different ($F(2,712) = 11.80, p < .05, \eta^2 = .03$). The mean difference between self and boss ratings on the scale ($M = -2.29, SD = 10.33$) was larger than the difference between self and peer ratings ($M = -1.65, SD = 7.93$), but this difference was not statistically significant. The discrepancy between self and direct report ratings ($M = 1.88, SD = 8.85$) was significantly different than self-boss and self-peer discrepancies and negative, indicating that direct report ratings were higher on average than self ratings.

The relationships among the variables were examined using correlation (See Table 2). All variables were significantly correlated, with the following exceptions. Performance attributions were not significantly related to any other study variable. Rating discrepancies tended not to be related to most predictors (credibility, observational opportunity, or performance attributions) or outcome variables. Meeting with others was correlated only with target manager reactions. In addition, reactions to process and reactions to ratings were found to be highly correlated ($r = .71$) and showed similar patterns of relationship with the other study variables. Confirmatory factor analyses hypothesizing a one factor model, two factor model (reactions toward process and reactions toward ratings), and three factor model (satisfaction, usefulness, and fairness of process and ratings) of reactions revealed that a one-factor model was a significantly better fit to the data. Based on these findings, some paths in the model were dropped and hypotheses were not tested for these paths. In particular, reactions to process and

reactions to ratings were combined to form an overall assessment of reactions to both the feedback process and the ratings received. Second, all mediation analyses including rating discrepancy or meeting with others were dropped.

Hypothesis 1

Table 2 reveals that hypothesis 1, which predicts that target manager reactions are positively related to meeting with others and goal setting, was supported. Target manager reactions were significantly positively related to both meeting with others ($r = .19, p < .05$) and goal setting ($r = .52, p < .05$).

Hypothesis 2

Hypothesis 2, that rating discrepancy is positively related to target manager reactions, such that negative discrepancies (self ratings higher than “other” ratings) are related to more negative reactions was partially supported as indicated in Table 2. Self-boss rating discrepancy was significantly positively related to total target manager reactions ($r = .12, p < .05$). Similarly, self-peer discrepancy was significantly positively related to total reactions ($r = .17, p < .05$). However, self-direct report discrepancy was not significantly related to total reactions ($r = .13, p > .05$). The findings indicate that target managers had more positive reactions to the feedback process and ratings when the boss and peers rated the target manager higher than the manager rated him/herself.

Hypothesis 3

Hypothesis 3, that internal performance attributions, source credibility and observational opportunity are positively related to target manager reactions, was also supported as indicated in Table 2. Performance attributions were significantly related to reactions ($r = .32, p < .05$). Observational opportunity and source credibility for all three

sources were significantly positively related to reactions ($r = .18$ to $.31$ for credibility and $r = .19$ to $.26$ for observational opportunity). This finding indicates that increased perceptions of internal performance attributions, source credibility, and observational opportunity are associated with more positive reactions to feedback.

Hypothesis 4

Hypothesis 4 predicted that the relationship between the independent variables in the model (observational opportunity, source credibility, and internal performance attributions) and the dependent variable (goal setting) would be mediated by target manager reactions to feedback. This combination of variables results in a total of 7 mediation analyses when examining observational opportunity and credibility for each source (supervisor, peer, and direct reports).

For each model, the mediation analyses conformed to procedures suggested by Baron and Kenny (1986). First, the mediator (reactions) was regressed on the independent variable (observational opportunity, source credibility, performance attributions). Second, the dependent variable (goal setting) was regressed on the independent variable. Finally, the dependent variable was regressed on the independent variable and mediator. Mediation is deemed to occur if the effect of the independent variable on the dependent variable is less in the third step than the second. Full mediation is indicated if the independent variable has no effect in the third step.

Mediation Analyses for Internal Performance Attributions

The operation of target manager reactions as a mediator in the relationship between internal performance attributions and goal setting was first examined. The results of the mediation analysis are presented in Table 3. The effect of internal

performance attributions on goal setting was significant ($\beta = .25, p < .05$), and decreased to a level that approached non-significance after goal setting was entered ($\beta = .09, p = .048$). This analysis indicates that reactions partially mediate the relationship between internal performance attributions and goal setting.

Mediation Analyses for Credibility

The relationship between boss credibility and goal setting was examined with target manager reactions to feedback operating as the mediator. The results of the mediation analysis are presented in upper portion of Table 4. The effect of boss credibility on goal setting was significant ($\beta = .20, p < .05$), but decreased to non-significant levels when reactions to feedback was entered into the equation ($\beta = .04, p > .05$).

Next, the prediction that the relationship between peer credibility and goal setting is mediated by reactions was examined. The beta weight of peer credibility on goal setting was significant ($\beta = .18, p < .05$). After adding reactions, this value became non-significant ($\beta = .05, p > .05$).

Results for direct report credibility were similar to those for peer credibility. The effect of direct report credibility on goal setting ($\beta = .12, p < .05$) decreased to a non-significant level when reactions were added to the equation ($\beta = .02, p > .05$). These findings indicate that reactions to feedback fully mediate the relationships between boss, peer, and direct report credibility and goal setting.

Mediation Analyses for Observational Opportunity

The relationship between boss observational opportunity and goal setting was examined with reactions to feedback operating as the mediator (See bottom part of Table

4). The effect of boss observational opportunity on goal setting was significant ($\beta = .10$, $p < .05$), but decreased to non-significant levels when reactions to feedback was entered into the equation ($\beta = -.03$, $p > .05$).

Next, the prediction that the relationship between peer observational opportunity and goal setting is mediated by reactions was examined. The beta weight of peer observational opportunity on goal setting was non-significant ($\beta = .08$, $p > .05$) and remained non-significant after adding reactions ($\beta = -.02$, $p > .05$).

Results for observational opportunity of direct reports were similar to those for boss observational opportunity. The effect of direct report observational opportunity on goal setting ($\beta = .15$, $p < .05$) decreased to a non-significant level when reactions were added to the equation ($\beta = .04$, $p > .05$).

Table 5 presents the results for the series of mediation tests. Findings indicate that reactions partially mediate the relationship between internal performance attributions and goal setting. In addition, reactions appear to fully mediate the relationship between the feedback characteristics of perceived rater observational opportunity and perceived rater credibility and goal setting in this study. This relationship holds for credibility perceptions of all sources and observational opportunity perceptions of boss and direct reports. The analyses failed to detect mediation only for peer observational opportunity, due to the fact that peer observational opportunity was not found to relate significantly to goal setting.

Discussion

The results of this field study support many components of the structural model (Figure 1) depicting hypothesized relationships among several variables in a system of

multisource feedback. Managers reacted more favorably to the feedback process and ratings when the boss and peers rated the manager higher than the manager rated him/herself. This finding replicates the results of Brett and Atwater (2001), Albright and Levy (1995), and Levy et al. (1998). Managers also react more favorably when they attribute the cause of their performance to internal causes such as ability and effort. Previous research has not addressed this relationship, but looked instead at how differences in attributions from the boss and target manager affect reactions (Levy et al., 1998). Because managers may often not have a clear understanding of their boss' attributions for the manager's performance, and the cognitive process of determining difference in attribution is a difficult one, this finding is important in showing that the more concise variable of manager internal performance attribution is related to reactions.

When managers perceive the other raters as credible and having adequate opportunity to observe their behavior, their reactions are also more positive. This finding expands the results of Albright and Levy's (1995) lab experiment in which expert feedback was related to more positive reactions than peer feedback. The relationship between observational opportunity and target manager reactions has not been previously explored, but appears to be important based on the findings of the present study. Results of the present study also indicate that reactions of managers to the feedback process and ratings are positively related to taking subsequent follow-up action such as setting goals and meeting with others about their feedback. While this relationship has not been examined in previous research, the positive finding supports the cognitive process proposed by Ilgen et al.'s (1979) model, in which acceptance of feedback precedes the decision to act on feedback.

A major contribution of this study is the finding that managers' reactions to the feedback process and ratings operate as a mediator between the characteristics of the feedback and the managers' follow-up actions. These findings contribute to researchers' understanding of the psychological processes that underlie the interpretation of feedback by target managers and clarify how feedback characteristics (e.g., source credibility, observational opportunity, and internal performance attributions) relate to follow-up action by the managers. Manager reactions is the key variable that links perception of the credibility of the sources, the opportunity raters have to observe the target manager's performance, and performance attributions with the manager's decision to set goals and development plans for performance improvement.

While the results of this study indicate that target manager reactions do appear to directly relate to meeting with others, these reactions do not operate as a mediator between feedback characteristics and meeting with others. The lack of supportive findings for this hypothesis may be due to the low reliability of the scale measuring intentions to meet with others. It is possible that this problem was caused by the scale used to assess this variable, which was not truly continuous, but had three response options, "no," "no, but plan to," and "yes." In addition, it is possible that target managers choose to meet with certain sources and fail to meet with others for a variety of reasons, such as perceptions of the credibility and observational opportunity of the sources, their proximity, or organizational pressures and politics. This would imply that the expectation that these actions are highly intercorrelated was erroneous.

Unlike some previous studies, the discrepancies between self and other ratings were not found to relate to the outcome variables of this study. This is a somewhat

puzzling result, but not entirely unexpected based on previous research. Findings about the relationship of rating discrepancy and feedback outcome measures in previous studies have been complicated. Negative discrepancies (self ratings higher than ratings from other sources) have been related to low supervisor ratings of effectiveness on a separate measure (Atwater et al., 1998), increased subsequent performance (Johnson & Ferstl, 1999; Smither et al., 1995; Walker & Smither, 1999), and more negative reactions to feedback (Brett & Atwater, 2001). Thus, the picture of how rating discrepancies relate to participant reactions and subsequent actions and performance is not clear. In addition, previous researchers have used a variety of methods to calculate self-other discrepancy. Atwater et al. (1998) discuss methods such as correlation of self and other ratings, magnitude of difference scores, regression based models, and categorization schemes. It is likely that the use of differing indices of difference may affect the relationship between rating discrepancies and outcome measures.

Strengths and Weaknesses of the Study

The research design used in the current study incorporates several strengths, which support the validity of the results. The sample, which is quite large and made up of current managerial employees, makes it more likely that the findings will generalize to employees in other organizations. In addition, the study examined an existing multisource feedback system in place in an organization rather than one constructed for the purpose of the study. Finally, the data were collected at two points in time, and some of the data was collected from others (i.e., the study was not entirely self-report).

The findings of this study should be tempered by recognition of certain limitations, however. As mentioned above, testing of the hypotheses regarding the

follow-up action of meeting with others were hampered by failure of the scale to achieve adequate reliability and correlate with other measures in the study. Second, the multisource feedback survey used in the current study was developed for use in the sample organization, and is not a widely used instrument. Thus, some of the results of the study may not generalize to other similar instruments. Finally, the circumstances of data collection may have impacted the results. The target manager and other raters were aware that their multisource feedback ratings may be used for developmental or administrative purposes. As revealed by previous research, ratings collected for administrative purposes may be more lenient than those collected for developmental purposes (Klimoski & Inks, 1990; London, Wohlers, & Gallagher, 1990). In addition, when completing the follow-up survey, managers used an identification number to connect their feedback results with the survey responses. This situation may have resulted in some managers responding in a way that was perceived as desirable to ensure that their responses were not used against them by the organization.

Implications

Results of the study reveal strengths and weaknesses of current models of feedback interpretation and multisource feedback. The findings confirm the relevance of Ilgen et al.'s (1979) model to the multisource feedback context by showing the importance of reactions to feedback on follow-up actions. In general, few models of the specific process of multisource feedback have been proposed. In those that have been presented, the importance of reactions appears to be neglected. Neither the comprehensive process model of multisource feedback presented by Bracken et al. (2001) nor the model of behavioral change of multisource feedback presented by Dalton and

Hollenbeck (2001) include this construct. The results of the current study imply that the conspicuous absence of reactions to feedback should be reconsidered in future models.

In addition, the findings indicate a need to move towards developing a comprehensive theory of multisource feedback that includes not only the steps involved in planning, developing, and administering a multisource feedback process, but also psychological mechanisms that underly interpretation of results by target managers and follow-up actions. Several streams of research may be synthesized in such a theory. For instance, the potential that increased performance following multisource feedback may result from causes other than examination of the rating discrepancy or from setting goals related to increasing performance should be examined. It is possible that such change may also result from setting goals to increase future feedback levels, from reinforcement and punishment related to the feedback, or through the social interaction, such as meeting with raters, that may accompany receiving multisource feedback. Such a theory would be useful in advancing research in the area of multisource feedback from descriptive studies to theory testing.

Implications for practitioners and developers and administrators of multisource feedback can also be derived from this study. The relationship between internal performance attributions, source credibility, and observational opportunity and both target manager reactions and goal setting indicate that organizations should attend to these factors when developing and administering a multisource feedback process. Internal performance attributions may be increased by conducting attribution training, a method developed to assist students in increasing internal locus of control (Miller, Brickman, & Bolen, 1975; Shelton, Anastopoulos, & Linden, 1985), and by altering

conditions that may limit managers' control over their performance. Perceptions of source credibility may be increased by providing training to raters about the rating process as well as the specific duties of the target manager's position. Perceptions of observational opportunity may be more difficult to improve, but could be altered by having raters complete ratings only for dimensions on which they have adequate opportunity to observe (Borman, 1974). The results also imply that follow-up action to receiving feedback is more likely in the presence of positive reactions to the feedback process and ratings. Thus, organizations should assess reactions and make an effort to improve aspects of the process or results that participants find unsatisfactory. In particular, organizations should ensure that numerical data are clearly expressed and relatively easy for target managers to interpret. In striving for performance improvements as a result of the multisource feedback process, organizations that follow these suggestions may find their efforts more successful.

The findings of this study also have numerous implications for future research. First, the results imply that the variable of observational opportunity should be further studied to examine its relationship with source credibility and other relevant constructs and determine whether it captures information that feedback recipients perceive as useful and important in interpreting their results. Second, the results of the confirmatory factor analysis on target manager reactions indicate that reactions to feedback process and ratings are best conceived as a single factor in the current study. Combined with similar results from Levy et al. (1998), these findings question Keeping and Levy's (2000) caution against combining aspects of reaction measures and demand additional research on the dimensions of reactions to multisource feedback. Third, replication of the

mediation analyses in this study using different outcome variables would provide additional evidence about the effectiveness of multisource feedback, as well as clarifying the circumstances under which target manager reactions have a mediating or direct effect. Finally, the results imply that when studying predictors of follow-up action to multisource feedback, reactions should be included to determine whether the predictors have a significant effect beyond reactions.

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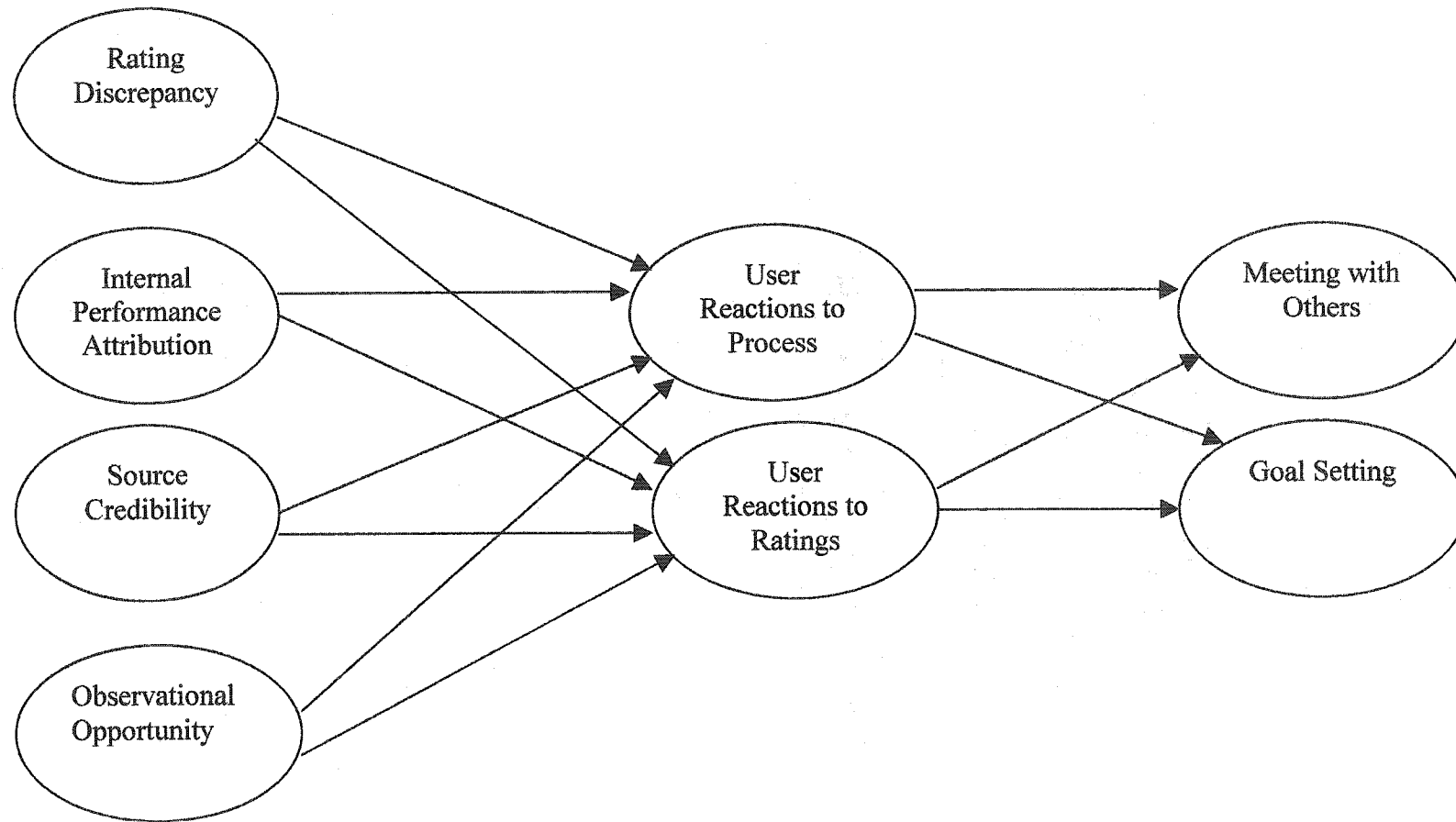


Figure 1. Conceptual model of study variables.

Table 1.

Descriptive Statistics on Study Variables.

	Item Minimum	Item Maximum	Item <i>M</i>	Item <i>SD</i>	Scale <i>M</i>	Scale <i>SD</i>
Rating Discrepancy – Boss ^a	-2.11	1.72	-.13	.57	-2.29	10.33
Rating Discrepancy – Peers ^a	-1.24	1.46	-.09	.44	-1.64	7.93
Rating Discrepancy – Direct Reports ^a	-1.61	1.40	.10	.49	1.88	8.85
Internal Performance Attributions	1.00	5.00	3.78	.91	.84	1.69
Observational Opportunity – Boss	1.00	5.00	3.36	.96	10.08	2.87
Observational Opportunity – Peer	1.00	5.00	3.01	.83	9.02	2.50
Observational Opportunity – Direct Reports	1.00	5.00	3.53	.72	10.58	2.51
Source Credibility – Boss	1.00	5.00	3.79	.88	11.37	2.64
Source Credibility – Peers	1.00	5.00	3.66	.87	10.97	2.61
Source Credibility – Direct Reports	1.00	5.00	3.41	.72	10.25	2.71
User Process Reactions	1.00	5.00	3.78	.75	11.35	2.25
User Ratings Reactions	1.00	5.00	3.74	.65	14.96	2.60
Total User Reactions	1.00	5.00	3.76	.64	26.31	4.48
Meeting with others	1.00	3.00	2.15	.48	7.42	1.93
Goal Setting	1.00	5.00	3.74	.71	7.48	1.43

Note. ^a A positive number means that the rating from the boss, peers, or direct reports is higher than the self rating. A negative number means that self ratings are higher than ratings from others.

Table 2.

Correlations among study variables.

	1	2	3	4	5	6	7
1. Rating Discrepancy – Boss N = 350							
2. Rating Discrepancy – Peers N = 222	.67**						
3. Rating Discrepancy – Direct Reports N = 198	.63**	.76**					
4. Internal Performance Attributions	.06	-.03	-.09				
5. Observational Opportunity – Boss	.17**	.14*	.11	.11*			
6. Observational Opportunity – Peer	.03	.15*	.05	.11*	.27**		
7. Observational Opportunity – Direct Reports	.02	-.05	.07	.15**	.22**	.23**	
8. Source Credibility – Boss	.11	.10	.05	.14**	.69**	.13**	.16**
9. Source Credibility – Peers	-.03	.01	.03	.03	.27**	.33**	.22**
10. Source Credibility – Direct Reports	-.05	-.01	.10	.17**	.24**	.19**	.67**
11. User Process Reactions	.05	.09	-.06	.27**	.21**	.16**	.20**
12. User Ratings Reactions	.16**	.20**	.17*	.32**	.27**	.19**	.18**
13. Total User Reactions	.12*	.17*	.13	.32**	.26**	.19**	.21**
14. Meeting with others	.06	.10	.01	-.16*	-.02	.08	.09
15. Goal Setting	-.03	.03	-.03	.25**	.10*	.08	.15**

	8	9	10	11	12	13	14
1. Rating Discrepancy - Boss							
2. Rating Discrepancy – Peers							
3. Rating Discrepancy – Direct Reports							
4. Performance Attributions							
5. Observational Opportunity – Boss							
6. Observational Opportunity – Peer							
7. Observational Opportunity – Direct Reports							
8. Source Credibility – Boss							
9. Source Credibility – Peers	.43**						
10. Source Credibility – Direct Reports	.15**	.16*					
11. User Process Reactions	.26**	.25*	.16*				
12. User Ratings Reactions	.31**	.23*	.17*	.71*			
13. Total User Reactions	.31**	.26*	.18*	.91*	.93*		
14. Meeting with others	.02	.04	.03	.15*	.20*	.19*	
15. Goal Setting	.20**	.18*	.12*	.52*	.44*	.52*	.32*

Note: * $p < .05$, ** $p < .01$. N = 317 except as noted.

Table 3.

Results of Analyses Examining the Mediating Role of User Reactions in the Relationship between Internal Performance Attributions and Goal Setting.

	β	ΔR^2
Step 1:		.06*
Internal Performance Attributions	.25*	
Step 2:		.21*
Internal Performance Attributions	.09*	
User Reactions	.49*	

* $p < .05$.

Table 4.

Results of Analyses Examining the Mediating Role of User Reactions in the Relationship between Source Credibility and Observational Opportunity and the Outcome Variable of Goal Setting.

	Boss		Peers		Direct Reports	
	β	ΔR^2	β	ΔR^2	β	ΔR^2
Source Credibility						
Step 1:		.04*		.03*		.01*
Credibility	.20*		.18*		.12*	
Step 2:		.23*		.24*		.29*
Credibility	.04		.05		.02	
User Reactions	.50*		.51*		.54*	
Observational Opportunity						
Step 1:		.01*		.01*		.02*
Observational Opportunity	.10*		.08		.15*	
Step 2:		.26*		.26*		.28*
Observational Opportunity	-.03		-.02		.04	
User Reactions	.53*		.52*		.54*	

* $p < .05$.

Table 5.

Summary of Analyses Examining the Mediation Role of User Reactions in the Effect of Observational Opportunity and Source Credibility on Goal Setting (hypothesis 4).

Internal Performance Attributions	*
Observational Opportunity – Boss	**
Observational Opportunity – Peer	
Observational Opportunity – Direct Reports	**
Source Credibility – Boss	**
Source Credibility – Peers	**
Source Credibility – Direct Reports	**

Notes. ** indicates full mediation, * indicates partial mediation.