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EXAMINING THE FEEDBACK ENVIRONMENT AND ACCOUNTABILITY IN INFORMAL
PERFORMANCE MANAGEMENT SYSTEMS

For the degree of Master of Science

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EXAMINING THE FEEDBACK ENVIRONMENT AND ACCOUNTABILITY
IN INFORMAL PERFORMANCE MANAGEMENT SYSTEMS

A Thesis

Submitted to the Faculty

of

Purdue University

by

Paige E. Coulter-Kern

In partial Fulfillment of the

Requirements for the Degree

of

Master of Science

December, 2012

Purdue University

Indianapolis, Indiana

ACKNOWLEDGEMENTS

I would like to express my gratitude toward my thesis advisor, Dr. Jane Williams, for her continuous help and support throughout this project. I am so thankful to have had the opportunity work with her throughout my masters' education. I would also like to thank my thesis committee members, Dr. Leslie Ashburn-Nardo and Dr. Elizabeth Boyd, for their encouragement and guidance during this process. Finally, I would like to thank my parents and my husband for their constant care and motivation.

TABLE OF CONTENTS

	Page
ABSTRACT	v
INTRODUCTION	1
Accountability	3
Outcomes Linked to Accountability.....	4
Models of Accountability	6
Antecedents Linked Previously to Accountability	13
The Feedback Environment	18
Hypotheses	22
Sample.....	25
Procedure.....	26
Measures.....	26
Demographics.....	26
Feedback Environment.....	26
Accountability	27
Developmental Behaviors.....	28
Analyses	29
RESULTS	30
Correlations	30
Mediation	31
Hypothesis One.....	32
Hypothesis Two.....	33
Hypothesis Three.....	33
Hypothesis Four.....	34
Summary	34
DISCUSSION.....	36
Theoretical Implications of Results.....	39
Practical Implications of Results.....	40
Limitations	42
Summary	43
LIST OF REFERENCES.....	1
TABLES	49
FIGURES.....	56

	Page
APPENDICES	
Appendix A. Feedback Environment Scale (FES).....	54
Appendix B. Accountability Scale.....	60
Appendix C. Developmental Behaviors Scale.....	61

ABSTRACT

Coulter-Kern, Paige E. M.S., Purdue University, December 2012. Examining the Feedback Environment and Accountability in Informal Performance Management Systems. Major Professor: Jane R. Williams.

Improving performance management is a high priority for many organizations that want to improve the performance of their employees. Recently, researchers have focused on the social context to promote behavioral change, and have created new scales to examine context, such as the feedback environment. The current study examined internal and external accountability as mediators of the relationship between the feedback environment and developmental behaviors. Participants each completed three scales measuring the feedback environment, internal and external accountability, and developmental behaviors. Results suggested that internal and external accountability both mediate the relationship between the feedback environment and developmental behaviors, but neither is a stronger mediator than the other. In addition, internal and external accountability both mediate the relationship between each component of the feedback environment and developmental behaviors, but again neither is a stronger mediator than the other. This study contributed to the literature on performance management, and emphasized the importance of training supervisors to use the feedback environment to increase perceptions of accountability for employees.

INTRODUCTION

The effectiveness of performance management systems to support behavioral change is a major concern of researchers and practitioners. Performance management is an important part of organizational and employee development, but it is difficult to design and implement an effective system that is accepted by both employees and supervisors which results in real behavioral change (Pulakos, 2009). For example: most employees—supervisors and subordinates alike—have feelings of anxiety about participating in performance evaluations. Supervisors indicate that it is difficult to maintain positive rapport with their subordinates when they are required to evaluate them. Subordinates report being nervous about the outcome of performance evaluation sessions (Pulakos, 2009). Moreover, research suggests that formal performance management systems do not consistently improve performance or result in behavior change. To address these problems, performance appraisal researchers have examined aspects of the system, the rater, and the ratee, and most recently have moved toward examining the social context (Levy & Williams, 2004).

Pulakos and O'Leary (2011) recently reiterated the recurring problems with maintaining an effective performance appraisal system. They indicated the next steps toward improving systems will be to stop studying formal performance appraisal altogether, and start focusing on communication between managers and subordinates:

improving informal performance management. Informal performance management includes frequent communication between supervisors and subordinates about behavior and performance, and improving the quality of the relationship between supervisors and subordinates. It is the quality of these day-to-day communications and relationships that will determine performance management effectiveness (Pulakos, 2009). A good informal performance management system will include clear, relevant, high-quality feedback in which both supervisors and subordinates feel comfortable asking for and giving feedback; and there are positive trust relationships between supervisors and employees (Pulakos and O’Leary, 2011). A good system should then result in behavioral change—the purpose of most performance management systems and the focus of this paper.

Lewis (2011) argues that one important element of these informal performance management systems that often goes underutilized is accountability. Accountability is defined as “being held responsible for one’s actions in terms of expectations and consequences” (London, 2003, p. 181). That is, accountability refers to the self-imposed or external expectations and consequences that compel a person to complete a task or behave a certain way. Lewis (2011) and other advocates of accountability argue that accountability is crucial to the performance appraisal process because it increases the likelihood that employees will use feedback they receive from their supervisors to improve their performance. Following this section, we will discuss informal performance management systems and the types of accountability and subsequent behavior that it predicts—starting with a discussion of accountability.

Accountability

Researchers have suggested that accountability is related to improved performance after receiving feedback in appraisal settings (London, Smither, & Adsit, 1997), but there is still a great deal unknown about creating and increasing accountability. In addition, little is known about the relationship between informal performance management systems and accountability. For example, many researchers have examined tools or strategies to increase accountability when employees rate supervisor performance, but not vice versa (London, Smither, & Adsit, 1997). Researchers have also examined ways to increase accountability via formal elements of a performance appraisal system, but have not focused on factors that increase accountability in informal systems (Leonard & Williams, 2001). There are two purposes of the current study. The first is to identify and examine the factors that predict perceptions of accountability within an informal performance management system. The second is to examine the relationship between accountability and subsequent behavioral change.

Accountability researchers suggest that accountability is an integral part of three aspects of organizations (Cummings and Anton, 1990). The first is the coordination of the organization—accountability ensures that employees will behave in a predictable, desired manner. The second is the development of a social context—where norms hold employees accountable and produce appropriate behavior. The third is executive behavior, or decision-making—people must be held accountable for their decisions and behaviors. The current study relates most closely to the second aspect mentioned by Cummings and Anton (1990), the development of the social context. Once norms are

created through interpersonal feedback and interaction, they hold people accountable and reinforce behavior and the existing social context. This type of accountability is most closely related to the current study because interpersonal feedback and interaction are key elements of an informal performance management system. Below is a discussion of outcomes, models, and antecedents of accountability.

Outcomes Linked to Accountability

In addition to encouraging appropriate behavior and decisions through the social context, accountability has also been linked to a variety of other outcomes important in organizational settings. A variety of these studies follow, but note that few have been directly related to an informal performance management system. For example, Tetlock (1983) linked accountability to decision-making ability. She found that when participants were put in a legal decision-making situation (such as being a juror) and asked to decide on a defendant's verdict, they remembered legal evidence much better when they were held accountable for their decision (such as being asked to justify it to another person).

Several studies have also linked accountability to rating accuracy (Antonioni, 1994; Mero, Guidice, & Brownlee, 2007). Two such studies found that accountability can lead to a negative outcome: inflated ratings. Antonioni (1994) and Mero et al. (2007) found that as subordinates rated their supervisors, they were more likely to give inflated ratings if they were not anonymous (non-anonymity being the accountability mechanism).

Frink and Ferris (1998) studied goals in relation to accountability. They found that accountability could increase employees' use of goals to subsequently improve

performance. In addition, they found that there are differences in the ways people use goals to improve performance based on the level of accountability they perceive. In conditions of low accountability people are more likely to use goals to improve performance. Conversely, in conditions of high accountability, people are more likely to use goals to impression manage. These results may indicate that an excessive focus on accountability, or focusing on certain types of accountability, can be harmful and lead employees to focus more on their image than performance. Relatedly, Ferris et al. (2009) found that decreased role clarity and high accountability predicted employees' use of influence tactics, and conversely, increased role clarity predicted decreased use of influence tactics.

Rohn, Austin, and Lutrey (2002) implemented an accountability intervention in an organization having difficulty with cash register shortages. When the accountability intervention was implemented, shortages were significantly reduced; when the accountability intervention was retracted, shortages increased; when it was introduced a second time, shortages again decreased. The intervention included an accountability component (each employee used their own cash register), and a feedback component (each employee was given shortage information from the previous day).

In conclusion, research suggests that perceptions of accountability can have strong effects on behaviors such as decision-making ability, memory of information, rating accuracy, use of goals to improve performance, and honesty. Interestingly, in each of the studies listed above the source holding each employee accountable was external to the individual. In other words, a person external to the employee was communicating expectations and consequences that effected behavior. As will be reported below, several

models of accountability—including the one of focus in the current study—differentiate between internal and external sources of accountability.

Models of Accountability

Most research on accountability has been conducted since the 1980s, and several different models have been developed. Researchers use different terms to describe employees that are held accountable internally versus externally, but most identify the same two types of accountability. Specifically, most models separate it in terms of an internal source (the self) holding a person accountable and an external source holding a person accountable. This distinction is important because the different types of accountability may be associated with different outcome behaviors and different antecedents (Leonard & Williams, 2001). Below are models in which researchers have discussed these differences.

Cummings and Anton (1990) were among the first researchers to separate the two types of accountability. They defined an internal source of accountability as *felt responsibility*, or “cognitive and emotional acceptance of responsibility,” (p. 258). (They differentiate felt responsibility and regular responsibility by describing felt responsibility as an individual perception and regular responsibility as observable. They indicate that an individual “acts on” felt responsibility but is “judged” on responsibility [page 266].) They define an external source holding a person accountable as simply “accountability.” In their model, an event for which an employee feels responsible can lead to “felt responsibility” (with an internal source) or “accountability” (with an external source) based on where the perceptions of accountability come from. For example, if an

employee is late for work and then reprimanded by a supervisor, he or she will have perceptions of “accountability” to arrive on time in the future. Conversely, if an employee is late for work and misses a desirable opportunity to achieve a personal goal, he or she will have perceptions of “felt responsibility” to arrive on time in the future.

They also identified mediators between an event for which one feels responsible and both types of accountability. For example, clarity of expectations is a mediator between an event and felt responsibility. As employees gain better understanding of their supervisors’ expectations, they will feel more internally accountable. This mediator is consistent with Lewis (2011) and Cummings and Anton’s (1990) statements that accountability can be maintained through the social context, because expectations are often expressed through interpersonal communication. Foreseeability is a mediator between an event and external accountability. When employees are able to foresee consequences of their actions, they will feel more externally accountable. Cummings and Anton’s model is frequently cited in accountability literature; however, few researchers have empirically tested the model.

Frink (1994) explains the distinction between being held accountable by an internal versus external source slightly differently by identifying three ways to characterize accountability: as an individual condition (with an internal source), as an organizational condition (with an external source), and as a process (moving from external accountability to internal accountability). This third understanding of accountability accounts for the possibility that a person can feel accountable both to themselves and another person. Despite these differences, Frink’s conception of accountability is very similar to Cummings and Anton (1990). Notably, Frink also

distinguishes between accountability mechanisms implemented by an external source and accountability that is actually *perceived*. It is important to remember this distinction in organizational settings; employees will only respond to accountability that they perceive, even if other sources of accountability are present.

Schlenker and Weigold (1989) do not introduce a model of accountability, but they note that there are different outcomes of internal and external accountability. They state that external accountability leads to social control and internal accountability leads to self-regulation (holding oneself to certain standards). They emphasize that the self-regulation that comes from internal accountability is “indispensable” to the comprehension of accountability as a whole because without it (p. 22), individuals could only be held accountable by an external source—they would never be internally motivated to perform well.

Schlenker and Weigold (1989) also defined a process of accountability including four phases. 1. Inquiry, where an individual’s behavior is compared to performance standards. 2. Accounting, where an individual explains their behavior. 3. Judgment, where it is determined if the behavior was appropriate. 4. Sanction, where rewards or punishments are given based on the verdict. These phases can apply to internal or external accountability. They are similar to Schlenker and Weigold’s outcomes of accountability (self-regulation and social control), where examining behavior, judging behavior, and rewarding behavior are important. Given that our current interest is in how to generate real behavioral change following feedback within an informal performance management setting, a closer examination of factors that lead to internal perceptions of accountability and subsequent feedback-related behavior is important. The current study

will use London, Smither, and Adsit's (1997) model of accountability (which is set in a feedback context) to examine these questions. Their model is described below.

The original London, Smither, and Adsit (1997) model was revised in 2003 (London, 2003) and was set in a feedback setting with numerous sources. It can however, be easily broadened to other feedback environments (i.e., traditional top-down or informal feedback setting). In the most recent version (London, 2003), the actor—the person being held accountable—is the central component of the model (see Figure 1). Essentially, different factors influence the actor's perceptions of accountability, which subsequently affects his or her developmental behavior. The source of accountability (the entity or person holding the actor accountable), the objective (behavioral expectations for the employee), and the structure of accountability ("forces" used to increase accountability, such as job security or feelings of morality) are all factors that influence the actor. These components determine the actor's feelings or perceptions of accountability, which in turn determine the actor's behavior.

London defines external accountability as an external source that holds a person accountable, and internal accountability as a person holding him or herself accountable. He states that internal accountability is the internally derived obligation a person feels to use feedback to improve performance. This is often based on feelings and perceptions, such as seeking to impress a supervisor or feeling morally obligated. External accountability is the obligation a person feels to improve his or her performance based on external factors, such as decreased pay, the threat of losing a position, or knowledge that a supervisor is watching (2003). If the source of accountability is the self, feelings of accountability will be internal. If the source of accountability is the organization or a

supervisor or co-worker, perceptions of accountability will be external. In a previous model, London, Smither, and Adsit (1997) discuss two concepts—forces and mechanisms—that help to explain why a source of accountability can have an impact on the actor. For example, if the source of accountability is a supervisor, the force holding a person accountable may be a desire to stay employed. If the source holding a person accountable is the self, a force may be a desire to excel in work. Therefore, based on the work of Schlenker and Weigold (1989), London, Smither, and Adsit (1997), and London (2003), one could anticipate that internal perceptions of accountability would activate self-regulatory behavior related to the feedback received in an informal setting. Below are two studies that have looked specifically at internal, not just external, accountability.

To date, only two studies have used the London model to examine reactions to feedback. Interestingly, they are also the only two studies to separate internal and external perceptions of accountability. Leonard and Williams (2001) examined the mediating effect of accountability on the relationship between several individual and organizational factors and engagement in developmental activities. Developmental behaviors are characterized by activities employees engage in to learn and improve their skills. These activities differ from formal training because they are usually performed on an individual basis, and are not necessarily specific to a job or task (Noe, Wilk, Mullen, & Wanek, 1997). For instance, they include but are not limited to: seeking feedback, seeking out training and learning opportunities, discussing feedback with relevant others, creating a developmental plan, and/or identifying a mentor. Leonard and Williams (2001) hypothesized that that the relationship between several internal forces (need for achievement and self-efficacy) and external mechanisms (perceptions of work

environment, supervisor support, and situational constraints) with developmental behaviors would be mediated by internal and external accountability. They found that nearly every one of these relationships was fully or partially mediated by internal and external accountability, providing excellent support for the role of accountability in promoting developmental behavior. The current study is partially modeled after Leonard and Williams (2001).

Similarly, Bewley (2003) also found that accountability predicted increased developmental behaviors (along with intentions to use multi-source feedback). In this study, Bewley replicated and extended the findings of Leonard and Williams (2001). The internal forces she examined included conscientiousness, need for achievement, self-efficacy, perceived feedback value, perceived feedback accuracy, and organizational commitment. The external mechanisms she examined included ratee development actions to use MSF, manager support to use MSF, and organizational support for continuous learning. Two models were tested, one in which developmental behavior predicted accountability, and one in which accountability predicted developmental behavior. The model in which accountability predicted developmental behavior was more strongly supported than the alternative model. Bewley's findings provide further support for Leonard and Williams' research, and indicate that internal and external accountability mediate unique relationships and are strongly related to activities which are important for individual and organizational success.

Despite the seeming importance of separating internal and external accountability to increasing our understanding accountability, research on each type separately has been scarce. Typically researchers examine it as one construct, or frequently external

accountability is studied under the umbrella label “accountability.” One possible explanation for this is that accountability has often been studied in formal performance appraisal settings, not informal performance management settings. Perhaps because formal performance appraisal techniques have been studied more than performance management tactics, and formal performance appraisal is more closely related to external accountability (external sources, such as supervisors, usually emphasize external consequences, policies, and expectancies), external accountability has received more attention.

Separating internal and external accountability could significantly increase practitioners’ understanding of accountability and improve their ability to use it for performance management processes (Leonard & Williams, 2001; Bewley, 2003). The specific study of internal or external accountability will help practitioners determine the best way to encourage employees to engage in developmental behaviors and thus promote behavioral change. In the past, the primary source of accountability in organizations has been external. For example, supervisors appointed tasks to employees, and then provided rewards or consequences based on employees’ performance of those tasks (often through formal performance appraisal). In today’s changing work environment, however, employees are expected to be more independent and proactive (Grant & Ashford, 2008). They are expected to seek feedback, adapt to changing environments, and pursue personal development (Grant & Ashford, 2008). As managers give employees more autonomy and they are allowed to think more creatively, they will be required to hold themselves accountable—in other words, hold themselves internally accountable (Leonard & Williams, 2001). In addition to studying outcomes, examining

the antecedents to external and internal accountability will help develop a better understanding of the construct. In the current study we will examine which elements of the feedback environment predict internal versus external accountability. Following is a discussion of these antecedents.

Antecedents Linked Previously to Accountability

In addition to Leonard and Williams (2001) and Bewley (2003), many researchers have proposed antecedents linked to accountability. Most, however, have not been tested empirically. Bourbon (1982) was one of the first researchers to propose possible antecedents to accountability. He created an informal list including: clarifying expectations, creating goals, measuring performance, providing feedback, and employing consequences. These are very similar to a list of “ingredients” for accountability London discussed with his model of accountability (2003, p. 182). London suggests four antecedents: there should be clear expectations about the actor’s behavior, preparation/support to help the actor carry out expected behaviors, reports of performance to be used for assessment, and consequences for behavior that does/does not follow expectations. Both lists include having clear expectations, the measurement of performance, and consequences for good/poor performance. Following are some variables that have also been identified by researchers as potential antecedents to accountability, but they are specific to internal or external accountability. In addition, the variables are split into untested propositions and those supported by empirical evidence. Interestingly, more researchers have focused on the antecedents to internal accountability

in their propositions than antecedents to external accountability, despite the fact that external accountability has been empirically studied more frequently.

Untested Propositions of Antecedents to Accountability (Internal)

As indicated above, researchers have proposed untested antecedents of internal accountability. Two variables that are mentioned more than once are clear expectations (i.e. receiving feedback to make expectations known) and a positive supervisor-subordinate relationship (Cummings & Anton, 1990; Dose & Klimoski, 1995; Frink & Klimoski, 1998). Dose and Klimoski (1995) suggested that increased feedback, autonomy (the more an employee feels in control of their abilities, resources, and methods), and task significance (when employees feel their work has significance and personal meaning) will also lead to internal accountability with the self as the source of internal accountability. They indicated that an employee's positive or negative relationship with their supervisor will positively or negatively affect all of the above variables, and that a combination of all of the above will create the strongest perceptions of accountability.

Relatedly, Frink and Klimoski (1998) proposed that an employee would feel most accountable to a person (such as a supervisor) when their relationship is positive. They suggest that the relationship an employee has with the source of their accountability affects the positive or negative reaction they expect from the source, which can then positively or negatively affect their behavior. If Employee X likes and has a good relationship with her supervisor, she will want to maintain that relationship. Employee X is then more likely to perform well to elicit a favorable reaction from her supervisor. A

positive supervisor/subordinate relationship is associated with internal accountability because there are no concrete external consequences for poor performance.

Untested Propositions of Antecedents to Accountability (External)

Like internal accountability, most research on the antecedents of external accountability is comprised of untested propositions. Cummings and Anton (1990) suggested that antecedents to external accountability are: rationality, foreseeability, and deviation. For instance, to be held externally accountable a person should understand what constitutes rational behavior (rationality), be able to foresee that some behaviors will lead to negative consequences (foreseeability), and understand that many negative behaviors are ones that deviate from normal, everyday expectations (deviation). They suggested that antecedents to internal accountability are: the situation (whether the person feels in control in that particular situation, in other words, he or she has autonomy), clarity of expectations (how well the employee understands what is expected of them), resistance (employees will feel more accountable for an event when they meet resistance from others that is related to that event), uniqueness (one individual alone is responsible for an event, it is not a team effort), significance (a task is meaningful and important), and irreversibility (a poor decision cannot be fixed later). Notably, these antecedents are somewhat unique from those tested and proposed by most other researchers, but have some similarities (discussed below).

Empirical Evidence of Accountability

To date, only two known studies have empirically examined internal or external accountability. Leonard and Williams (2001) examined the mediating effect of accountability on the relationship between several individual and organizational factors and engagement in developmental activities. Developmental behaviors are characterized by activities employees engage in to learn and improve their skills. These activities differ from formal training because they are usually performed on an individual basis, and are not necessarily specific to a job or task (Noe, Wilk, Mullen, & Wanek, 1997). For instance, they include but are not limited to: seeking feedback, seeking out training and learning opportunities, discussing feedback with relevant others, creating a developmental plan, and/or identifying a mentor. Leonard and Williams (2001) hypothesized that the relationship between several internal forces (need for achievement and self-efficacy) and external mechanisms (perceptions of work environment, supervisor support, and situational constraints) with developmental behaviors would be mediated by internal and external accountability. They found that nearly every one of these relationships was fully or partially mediated by internal and external accountability, providing excellent support for the role of accountability in promoting developmental behavior. The current study is partially modeled after Leonard and Williams (2001).

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Researchers have proposed a variety of possible antecedents to both internal and external accountability that are discussed above, but Leonard and Williams (2001) and Bewley (2003) are among the only researchers to test them empirically and within a feedback context. There are, however, many similarities across propositions. Notably, clarity of expectations (i.e. receiving feedback that helps to clarify an employee's role) is identified as important by almost all of the aforementioned researchers (London, 2003, p. 182; Cummings & Anton, 1990; Dose & Klimoski, 1995; Bourbon, 1982). Some other frequently mentioned antecedents to accountability are: meaning/significance of work, appraising performance, employing consequences, and the relationship between a supervisor and subordinate. Many of these antecedents can be combined to describe an atmosphere that researchers have termed the "feedback environment" (Steelman, Levy, & Snell, 2004), which predicts several important organizational outcomes (Dahling & O'Malley, 2011). The feedback environment is discussed in further detail below. Given

that the goal of this study is to better understand how to generate real behavior change and performance improvement, the relationship between the feedback environment, both internal and external accountability, and developmental behaviors will be examined.

The Feedback Environment

The feedback environment refers to the day-to-day interactions and the exchange of feedback information that occurs in an organization, including how involved employees are in giving, receiving, and seeking performance feedback (Steelman, Levy, & Snell, 2004). Steelman et al. (2004) identified facets of the feedback environment, which include a variety of variables important to feedback literature: source credibility, feedback quality, feedback delivery, favorable feedback, unfavorable feedback, source availability, and promotion of feedback seeking. For example, a positive feedback environment could be identified by daily performance-related conversations between an employee and supervisor, in which the supervisor or co-worker speaks clearly, speaks with real knowledge and valuable insight, and encourages further communication. A situation in which there was little conversation about performance, or if feedback was poorly portrayed, irrelevant, or inaccurate, would be indicative of a negative feedback environment. In the current study, the feedback environment should be related to perceptions of accountability because it is similar to many previously identified antecedents of accountability, such as clarity of expectations and the relationship between a supervisor and subordinate.

Several recent studies have examined the relationships between the feedback environment and several important organizational outcomes. Norris-Watts and Levy

(2004) found that the relationship between the feedback environment and organizational citizenship behavior was mediated by affective commitment. Rosen, Levy, and Hall (2006) found that a more positive feedback environment was related to lower perceptions of organizational politics. In addition, perceptions of politics were related to employee satisfaction and commitment, as well as task performance and organizational citizenship. Whitaker, Dahling, and Levy (2007) studied the feedback environment in relation to feedback-seeking, role clarity, and performance. They found that the feedback environment was positively related to all three of these outcomes. In other words, when individuals reported the feedback environment was positive and supportive (they received helpful feedback more often), they reported that they were more likely to seek out feedback in the future (a self-regulatory behavior), they understood their position and responsibilities better, and they had higher performance ratings. In a field study in Belgium, Anseel, and Lievens (2007) found that the feedback environment was positively related to job satisfaction, and that this relationship was mediated by LMX (leader-member exchange) relationships.

More recently, Dahling and O'Malley (2011) endorsed a positive feedback environment as an important factor for a strong, effective performance management system in response to Pulakos and O'Leary (2011). They suggested that a positive feedback environment would help alleviate the communication problems that restrict the success of an informal performance management system. It would also encourage better performance, increased trust, and more organizational citizenship behaviors—several desirable outcomes of performance management (Dahling & O'Malley, 2011). In addition, they suggested that a positive feedback environment would predict employees'

acceptance and use of that feedback. This would result in changed behavior and improved performance—both signs of a successful performance management system.

All of these relationships could lead to positive outcomes for organizations, but some are also linked to accountability—the focus of this study. Clarity of expectations was one of the most important antecedents to internal accountability and it is also an outcome of the feedback environment. Feedback and positive supervisor/subordinate relationships are also antecedents of accountability that are empirically related to the feedback environment (Bourbon, 1982; Dose & Klimoski, 1995; Frink & Klimoski, 1998; Cummings & Anton, 1990; Whitaker et al., 2007; Anseel & Lievens, 2005). In addition, most of these variables are specifically related to *internal* accountability. As noted earlier, internal accountability may be especially important in an informal performance management context because of the autonomy employees now experience (Grant & Ashford, 2008).

In addition to these points, Rutkowski and Steelman (2004) formally linked the feedback environment to accountability in a study of upward feedback. They found that when a positive feedback environment existed between supervisors and subordinates, supervisors reported greater accountability to use feedback they received from subordinates. Rutkowski and Steelman (2004) did not examine these relationships, however, in a traditional downward feedback situation or in an informal setting, nor did they differentiate between external and internal accountability.

Similar constructs in the motivation literature may help to clarify the relationship between the feedback environment and accountability. Just as researchers distinguish between internal and external accountability in performance management literature,

researchers also distinguish between intrinsic and extrinsic motivation in motivation literature (Ryan and Deci, 2000). Intrinsic and extrinsic motivation lie on a continuum from: motivation to complete a task because it is enjoyable (intrinsic), to motivation to complete a task due to consequences (extrinsic) (Ryan and Deci, 2000). External accountability is closely related to extrinsic motivation, and internal accountability is most closely related to intrinsic motivation.

Ryan and Deci (2000) describe several processes by which a person can become more intrinsically motivated (i.e. feel more internally accountable). Interestingly, motivation literature repeatedly advocates the benefits of intrinsic over extrinsic motivation for performance. Two of the processes for becoming more intrinsically motivated are Identification and Integration. Identification occurs when people see that a task has value and then accept that it is a valuable enterprise and worth spending time on. Integration occurs when people not only see the value of a task, but also perceive it as aligned with their own values and beliefs.

Both of these terms (Identification and Integration) can be used to describe the process of receiving feedback within a positive feedback environment (where the feedback is relevant, truthful, and helpful) and subsequently feeling more accountable. The feedback environment can increase the value an employee perceives in a task through clearer expectations, increased meaning, and increased significance. In addition, the value they perceive may increase even more as the supervisor communicates that *they* value the task. The employee may therefore identify the value of the task, and it may even become integrated into the employee's own values. Based on the motivation

literature, benefits of a positive feedback environment (meaning and expectations) should increase internal motivation to improve performance after feedback (i.e. internal accountability).

Hypotheses

It is clear that a positive feedback environment is related to a host of positive outcomes including developmental behaviors (Rutkowski & Steelman, 2004). Based on the research by Leonard and Williams (2001) and Bewley (2003) as well as the research outlined above, the relationship between the feedback environment and developmental behaviors should have been mediated by perceptions of accountability. In addition, perceptions of internal accountability should have accounted for more of the variability in developmental behaviors (been a stronger mediator) than perceptions of external accountability.

In addition, I hypothesized that specific components of the feedback environment would be more strongly related to internal accountability than external accountability, and that specific components of the feedback environment would be more strongly related to external accountability than internal accountability. Specifically, source credibility, feedback quality, feedback delivery, and source availability would all be more strongly related to internal than external accountability because all three of these facets should have been related to how well the employee understood his/her job and expectations for performance, and helped them take ownership for their position—wanting to perform well based on intrinsic motivation. A credible source that gives high-quality feedback in a tactful manner would help the employee take ownership and be

motivated to perform well more than a source that had little contact with the employee and provided irrelevant feedback in a tactless manner. In addition, an employee who had a supervisor or co-worker who promoted feedback seeking would better understand his/her job and expectations for performance. Conversely, favorable feedback and unfavorable feedback should have been more strongly related to external than internal accountability because both would emphasize how the supervisor felt about the employee's performance to the employee, and caused them to focus on the supervisors evaluation while performing (see Figure 2).

Hypothesis 1: The feedback environment will be positively correlated with developmental behaviors and this relationship will be mediated by accountability.

Hypothesis 2: Internal accountability will be a stronger mediator (account for more of the variability in developmental behaviors) of the relationship between the feedback environment and developmental behaviors than external accountability.

Hypothesis 3: Internal accountability will be a stronger mediator of the relationship between developmental behaviors and the following facets of the feedback environment than external accountability: source credibility, feedback quality, feedback delivery, source availability, and promotes feedback seeking.

Hypothesis 4: External accountability will be a stronger mediator of the relationship between developmental behaviors and the following facets of the feedback environment than internal accountability: favorable feedback and unfavorable feedback.

METHOD

Sample

Data were collected from employed undergraduate students. The students were recruited via an online psychology research website, Sona Systems, and received one course credit as compensation for participating in the study. Each participant was required to be at least 18 years old, and currently working at least 20 hours per week. There was a 20-hour minimum to ensure that most employees worked during the week, not just on weekends. This helped to eliminate variation between a weekday-work environment and a weekend-work environment that was irrelevant to the study. Responses were collected from 202 students, but the responses of 19 students were eliminated because they did not meet the 20-hour minimum, leaving 181 total responses. The sample was 70.7% female, and 78.5% White, 8.8% Black, 3.9% Hispanic, 2.2% Asian, and 4.4% Undisclosed. Respondent's ages ranged from 18 to 52, with a mean of 21.9 years, and a standard deviation of 5.65. Most frequently, respondents had been in their current position for 1-2 years. On average, respondents worked 28 hours per week, with a standard deviation of 8.14.

Procedure

Participants completed the following measures in a computer in a lab setting: a set of demographic items, the feedback environment scale (including all dimensions and subsections), a measure of accountability (including internal and external subsections), and a measure of developmental behaviors (including all subsections).

Measures

Demographics

All participants provided their age, ethnicity, gender, role within the organization where they were currently working, how long they have been with the organization, and how many hours on average they worked each week. If participants were working in more than one organization, they were instructed to answer the questions based on the organization where they had worked the longest.

Feedback Environment

The Feedback Environment Scale was used to measure the feedback environment (Steelman, Levy, & Snell, 2004). The scale had two dimensions: the coworker feedback environment and the supervisor feedback environment, and there were seven subsections within each dimension. The Cronbach's alpha of the overall scale was .95. The alpha of each subsection is given below for both the supervisor and co-worker dimensions, respectively (Steelman, Levy, & Snell, 2004). Subsections more closely related to internal feedback were: source credibility (.88, .80) ("My supervisor is generally familiar

with my performance on the job.”), feedback quality (.94, .93) (“My coworkers give me useful feedback about my job performance.”), feedback delivery (.84, .81) (“My supervisor is supportive when giving me feedback about my job performance.”), source availability (.78, .74) (“My coworkers are usually available when I want performance information.”), and promotes feedback seeking (.81, .80) (“My supervisor is often annoyed when I directly ask for performance feedback.”). Those more closely related to external feedback were: favorable feedback (.88, .87) (“When I do a good job at work, my coworkers praise my performance.”), and unfavorable feedback (.84, .87) (“When I don’t meet deadlines, my supervisor lets me know”) (Steelman, Levy, & Snell, 2004).

Accountability

Accountability was measured using a scale adapted from Leonard and Williams (2001). The scale consisted of 8 items, and included two different types of items, internal accountability (.86) (“I feel responsible for using the feedback I receive from my supervisor.”) and external accountability (.50) (“My supervisor will notice if I make changes as a result of the feedback I receive.”). There were 4 items in each subsection, but the item order was mixed in the questionnaire. It is not known why the alpha for external accountability was low, but it could be related to the sample of college students. Researchers checked the inter-item correlations, checked to make sure the alpha could not be improved if any individual items were removed, checked for typos in the survey, and checked to make sure the data was computed correctly. It may be that in the types of jobs students held, supervisors do not have expectations regarding feedback, or these

expectations change frequently. For example, perhaps students' supervisors and co-workers changed on a daily basis, and subsequently, their perceptions of external accountability were inconsistent.

Developmental Behaviors

Developmental behaviors were also measured using a scale adapted from Leonard and Williams (2001). The overall alpha of the scale was .92. There are three dimensions to the adapted scale (reasons for adaptations are discussed below). The first dimension (10 items) was participation in developmental activities (.82) (“Even when it has not been required, I have taken advantage of opportunities to make improvements.”). The second dimension (6 items) was intentions to participate in future developmental activities (.83) (“I intend to make changes in my performance.”). The third dimension (6 items) was frequency of participation in developmental activities (.87) (“In the past two months, how often have you initiated an opportunity to make improvements?”). Three items were eliminated from the original participation subsection because they referred to developmental opportunities that were probably not available to all participants, for example, “In the past two months, how often have you taken advantage of formal opportunities (e.g. classes, training sessions) to improve your performance?”

Analyses

Mediated regression was used to test all four hypotheses. Hypothesis One was tested using Preacher and Hayes' (2004) Sobel method and Hayes' (2004) SPSS macro for simple mediation. Hypotheses Two, Three, and Four were examined using Preacher and Hayes' (2008) Indirect method, and Hayes' (2008) SPSS macro for multiple mediation.

RESULTS

Correlations

There were strong, positive correlations between scores on the feedback environment and both accountability ($r = .47, p < .01$), and developmental behaviors ($r = .56, p < .01$) (see Table 1). In addition, there was a strong positive correlation between accountability and developmental behaviors ($r = .63, p < .01$). There were also strong, positive correlations between scores on both internal and external accountability and each subsection of the feedback environment, as well as between scores on both internal and external accountability and each subsection of developmental behaviors. Correlations between the demographic variables and each scale were also examined. Interestingly, the correlation between participant age and intentions to participate in developmental behavior, although positive, was slightly weaker than other correlations ($r = .17, p < .05$), and the correlation between job tenure and overall accountability was slightly weaker than other correlations ($r = .16, p < .05$). In addition, there were low to moderate significant correlations between the feedback environment and gender ($r = -.17, p < .05$) and between internal accountability and gender ($r = -.29, p < .01$) (females had higher scores in both cases). There were no other meaningful relationships between demographic variables and outcome variables.

T-tests were conducted to examine gender differences on scores for the feedback environment scale and internal accountability scale. Females scored higher on the feedback environment ($M = 3.86$) than males ($M = 3.68$), and an independent samples t-test indicated that this difference was significant ($t(178) = 4.01, p < .01$ (two-tailed)). Females also scored higher on internal accountability ($M = 4.33$) than males (3.92), and an independent samples t-test indicated that this difference was also significant ($t(178) = 2.34, p < .05$ (two-tailed)).

Mediation

All mediation analyses were tested using the Preacher and Hayes (2004) Sobel and Preacher and Hayes (2008) Indirect methods. These methods have greater statistical power than the Baron and Kenny (1986) mediation method, the number of tests used is reduced, and Type I and Type II errors are less likely. This procedure uses bootstrapping to estimate indirect effects and provide a more accurate estimate of the population. As suggested by Preacher and Hayes (2004), we choose 5000 iterations of bootstrapping to increase statistical power.

Both the Preacher and Hayes (2004) Sobel and Preacher and Hayes (2008) Indirect methods can be used to test for mediation, but there are some differences between the two. The Preacher and Hayes (2004) Sobel method can be used to determine if one variable mediates the relationship between two variables. The Preacher and Hayes (2008) Indirect method can be used for the same purpose as the Preacher and Hayes (2004) Sobel method, but it can also be used to examine multiple mediators and determine if one variable has a stronger mediated effect than another variable. Using this

method, both variables can be examined in a single test, rather than comparing two different Preacher and Hayes (2004) Sobel tests.

Both methods present a z-score for the indirect effect of the IV on the DV through the proposed mediator (Preacher & Hayes, 2004; 2008), or in other words, a z-score for the effect of the proposed mediator on the DV when considering the IV. Mediation exists if the p-value for this z-score is significant at the .05 level, and if the 95% confidence interval of the z-score does not contain zero (Preacher & Hayes, 2004). The Preacher and Hayes (2008) Indirect method also presents a confidence interval to examine whether there is a significant difference in the strength of multiple mediators, which they refer to as the *contrast* between two mediators. One variable has a significantly stronger effect than another variable if the confidence interval of the contrast between the two variables does not contain zero (Preacher & Hayes, 2008).

Hypothesis One

Hypothesis One stated that the feedback environment would be positively correlated with developmental behaviors and this relationship would be mediated by accountability. Hypothesis One was tested using the Preacher and Hayes (2004) Sobel method and was supported. The feedback environment was positively correlated with developmental behaviors ($r = .58, p < .001$), and this relationship was mediated by accountability ($z = 5.11, p < .01, 95\% \text{ CI } [.1826, .4077]$) (see Table 2).

Hypothesis Two

Hypothesis Two stated that internal accountability would be a stronger mediator than external accountability on the relationship between the feedback environment and developmental behaviors. Hypothesis Two was tested using the Preacher and Hayes (2008) Indirect method and was not supported. Even though both internal and external accountability had significant effects on developmental behaviors when considering the feedback environment as a whole (internal: $z = 4.09$, $p < .01$, 95% CI [.1049, .3029]; external: $z = 3.75$, $p < .01$, 95% CI [.0792, .2723]) (see Table 2), the contrast testing the difference between the two effects was not significant (95% CI [-.1126, .1788]) (see Table 3). Thus, internal accountability was not a significantly stronger mediator than external accountability.

Hypothesis Three

Hypothesis Three stated that internal accountability would be a stronger mediator than external accountability on the relationships between source credibility, feedback quality, feedback delivery, source availability, and promotes feedback seeking and developmental behaviors. This was also tested with the Preacher and Hayes (2008) Indirect method and was not supported. As with Hypothesis Two, both internal and external accountability were significant mediators of all these relationships at the $p < .01$ level (see Table 2), but the contrasts testing the differences between the two effects were not significant (see Table 3). The only exception was for external accountability and the relationship between feedback delivery and developmental behaviors, which was significant only at the .05 level ($z = 2.52$, $p < .05$, 95% CI [.0157, .1831]) (see Table 2).

The relationship between each facet of the feedback environment, internal and external accountability, and the *subsections* of developmental behaviors were also examined, but there were no significant differences between the developmental behaviors subsections.

Hypothesis Four

Hypothesis Four stated that external accountability would be a stronger mediator than internal accountability on the relationships between favorable feedback, unfavorable feedback, and developmental behaviors. Hypothesis Four was tested using the Preacher and Hayes (2008) Indirect method and was not supported. As with Hypotheses two and three, both internal and external accountability were significant mediators of these relationships at the $p < .01$ level (see Table 2), but the contrasts testing the differences between the two effects were never significant (see Table 3). The only exception was for internal accountability and the relationship between favorable feedback and developmental behaviors. ($z = 2.46$, $p < .05$, 95% CI [.0167, .1883]) (see Table 2). The indirect effects of internal and external accountability on the subsections of developmental behaviors when considering each facet of the feedback environment were also examined, but there were no significant differences.

Summary

Hypothesis One of this study was supported: overall accountability mediates the relationship between the feedback environment and developmental behaviors.

Hypotheses two, three, and four all referred to possible differences between the mediated

effect of internal and external accountability, and were not supported. The size of the indirect effects of internal and external accountability did not differ, and both internal and external accountability were significant mediators throughout the analyses.

DISCUSSION

As stated in the introduction, researchers have been disappointed with the inconsistent effects of performance management systems in recent years (Pulakos, 2009). Current systems are often unreliable or do not produce desired behavioral change. In an effort to create performance management systems that produce change and improve performance, researchers have turned their focus to the social context of performance management (Levy & Williams, 2004).

Levy and Williams (2004) emphasized the importance of social context to performance appraisal and management, and many researchers have begun examining variables in this realm. For example, Pulakos and O'Leary (2009) emphasized informal performance management (ongoing communication between supervisors and subordinates), and Steelman, Levy, and Snell (2004) examined the feedback environment—a variable that measures the strength of this communication process. The current study examined whether the social context could predict employees responses to feedback. This is consistent with Lewis' (2011) suggestion that organizations need to find ways to increase employees' perceptions of accountability to use feedback that they receive. This study sought to add to the literature on both the feedback environment and accountability.

Previously, research has been conducted on accountability as a mediator between different antecedents (including the feedback environment) and developmental behaviors. Rutkowski and Steelman (2004) found that accountability mediated the relationship between the feedback environment and developmental behaviors. Leonard and Williams (2001) separated internal and external accountability, and found unique relationships to each. Specifically, they found that need for achievement and developmental behaviors, as well as self-efficacy and developmental behaviors, were mediated by internal accountability. They also found that the relationships between perceptions of work environment and developmental behaviors, supervisor support and developmental behaviors, and situational constraints and developmental behaviors were mediated by external accountability.

In the current study, although accountability as a whole did mediate the feedback environment and developmental behaviors, results indicated that internal and external accountability do not differ in the strength of their effects on developmental behaviors when considering the feedback environment. In addition, the effects do not differ when considering specific subsections of either the feedback environment and/or developmental behaviors. These results are somewhat inconsistent with the findings of Leonard and Williams (2001), who found differences in the mediation effects of internal and external accountability on developmental behaviors. While the studies are similar, they examined different antecedents (need for achievement, self-efficacy, perceptions of work environment, supervisor support, and situational constraints), so the results cannot be directly compared.

There are many possible reasons we did not find the anticipated differences for internal and external accountability. One possibility is that internal and external accountability can work together or build on one another. Perhaps the feedback environment affects both internal and external accountability equally, and perceptions of external accountability influence perceptions of internal accountability or vice versa. Researchers should examine how accountability perceptions develop and whether we can effectively discern the different types of accountability perceptions with our current measures.

In addition, perhaps researchers would find differences if they considered outcome variables other than developmental behaviors, such as concrete performance goals. Supervisors and co-workers are probably more likely to comment and give feedback on concrete goals than to comment on developmental behaviors. For example, perhaps employees would feel more internally accountable in a positive feedback environment if they set their own concrete performance goals (such as making the most sales). Employees would be measuring their own progress and success, but could still receive feedback from others. Similarly, perhaps employees would feel more externally accountable in a positive feedback environment if their supervisors set performance goals (such as increasing sales by fifty percent). Employees' progress would then be measured by their supervisors, and they could still receive feedback from others. Future research should examine whether internal and external accountability mediate the relationship between the feedback environment and a concrete performance goal.

Theoretical Implications of Results

The study results indicated that the feedback environment does have an indirect effect on developmental behaviors through accountability. It appears that the quality of the feedback environment sends cues and information to employees regarding expectations for use of feedback. For instance, if a supervisor gives an employee a great deal of helpful feedback after completing a project, the employee will be more likely to engage in developmental behaviors afterward because they will feel accountable to perform well in the future. Conversely, if a supervisor does not give an employee helpful feedback after completing a project, the employee will not feel as accountable to perform well in the future, and will be less likely to engage in developmental behaviors. This finding is consistent with those of Rutkowski and Steelman (2004), who also found that accountability was a mediator between the feedback environment as a whole and developmental behaviors as a whole. In addition, this finding is consistent with performance management literature as a whole, and supports the importance of the social context (Levy & Williams, 2004) and informal communication between employees and supervisors (Pulakos & O'Leary, 2011).

This study contributed further to the literature by examining the subscales of the feedback environment scale. Results indicated that all seven elements of the feedback environment were related to accountability and developmental behaviors. This supports the notion that all elements of the feedback environment are important for predicting employees' perceptions of accountability and for predicting the likelihood that they will engage in developmental behaviors. Therefore, in future studies researchers should continue to examine each component of the feedback environment individually.

In addition, this study used the newer Preacher and Hayes (2004), rather than the Baron and Kenny (1986), approach to mediation. Replicating the findings of Rutkowski and Steelman (2004) using different methodology further establishes the mediated nature of the relationships between these variables and how they related to one another. It also provides further evidence that the social context, the feedback environment, and accountability are all important variables in performance management and should be studied further.

Practical Implications of Results

These findings have many practical implications for organizations. First, though not all hypotheses were supported, the feedback environment and accountability are clearly important factors that predict employees' likelihood to engage in developmental behaviors. If organizations want to encourage more developmental behaviors, they should work to create positive feedback environments so employees feel accountable to engage in developmental behaviors. Organizations should help supervisors create a positive feedback environment by training them in each individual section of the feedback environment. For instance, if a supervisor has trouble providing favorable or unfavorable feedback, he or she should be taught the merits of using feedback in a coaching situation (Steelman, Levy & Snell, 2004). Many supervisors are reluctant to give negative feedback (Steelman, Levy, & Snell, 2004), but the current study shows that even negative feedback predicts accountability, and it can be a useful tool. The feedback

environment scale should be used to assess where supervisors excel and fall short when giving feedback, and then they can be trained based on these findings (Steelman, Levy, & Snell, 2004).

Second, the current study suggests that creating internal and external accountability separately may be more complex than simply using an employee's feedback environment. Though internal accountability is desirable to organizations, it may be difficult to help employees to feel internally accountable through feedback without also making them feel externally accountable. Most organizations already have external mechanisms in place, such as bonuses. Therefore, to enhance employees' perceptions of internal accountability to engage in developmental behaviors, organizations may want to use other tactics, such as hiring employees with certain individual difference variables like need for achievement and self-efficacy (Leonard and Williams, 2001). There may also be other ways to increase internal accountability in addition to a positive feedback environment, such as employee satisfaction. Constructs measuring the social context should continue to be examined as we learn more about accountability, because organizations need both internal and external accountability mechanisms.

Third, these findings have implications for performance management as a whole. This study replicates the findings of Rutkowski and Steelman (2004), providing further evidence that both the feedback environment and accountability are important variables to the performance management process. While we did not find differences between internal and external accountability, this study clearly demonstrated that these variables are critical to the performance management process, and should continue to be examined

by both researchers and organizations. Organizations cannot afford to focus on feedback only during an “evaluation period” of performance management; constant feedback is integral to increasing accountability and developmental behaviors (Pulakos & O’Leary, 2011). Organizations must also consistently focus on the climate of feedback they are creating, and train their managers to create excellent feedback environments. Future research should focus on identifying best practices for establishing a positive feedback environment.

Limitations

The first limitation of this study is that it employed a cross-sectional design and all measures were based on self-report. The data did not appear to be compromised by issues related to mono-methodology, however, because correlations between the three measurement scales (accountability, feedback environment, and developmental behaviors) and correlations between their facets were varied, and usually between .3 and .6. Most were significant at the $p < .001$ level, but the correlations were not high enough to cause concern (for example, correlations of .8 or .9). In addition, given that our focus was on employee perceptions, it was necessary to collect our data through self-report.

A second limitation of the current study is the sample. The sample was made up of students who may tend to have different work experiences than the general population and may have different expectations related to development in their current positions. This may, in part, also explain the low internal consistency estimate for external accountability ($\alpha = .50$). Part-time workers perhaps do not experience those types of expectations regarding feedback use from supervisors and/or co-workers, or perhaps their

own experiences with their supervisors and co-workers were inconsistent. Participants were required, however, to have a significant work experience (i.e., 20+ hours a week), and results can still be generalizable to part-time employees in the workforce.

Summary

The current study supported the importance of the feedback environment as a factor that predicts both accountability and developmental behavior. Perceptions of accountability appear to be essential to understanding employees' responses to feedback. Accountability research is growing in popularity (Lewis, 2011), and this study indicated that both internal and external accountability are mediators of the relationship between the feedback environment and developmental behaviors. In the future, improving feedback environments should be a high priority for organizations that want to increase developmental behaviors.

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TABLES

Table 1
Correlation Matrix

Variable	Mean	Standard Deviation	1	2	3	4	5	6	7	8	9	10	11	12
1 FB environment	3.81	0.47	1											
2 Internal Accountability	4.21	0.64	.38**	1										
3 External Accountability	3.32	0.63	.39**	.37**	1									
4 Accountability	3.77	0.52	.46**	.83**	.82**	1								
5 Develop. Behaviors	3.52	0.65	.58**	.53**	.49**	.62**	1							
6 Source Credibility	4.03	0.52	.84**	.34**	.27**	.37**	.47**	1						
7 FB Quality	3.89	0.63	.86**	.33**	.32**	.39**	.56**	.81**	1					
8 FB Delivery	3.77	0.59	.82**	.29**	.20**	.30**	.39**	.69**	.71**	1				
9 Favorable FB	3.57	0.69	.79**	.28**	.49**	.46**	.45**	.60**	.60**	.59**	1			
10 Unfavorable FB	3.68	0.65	.49**	.19*	.28**	.28**	.38**	.24**	.31**	.21**	.35**	1		
11 Source Availability	3.91	0.55	.72**	.24**	.26**	.30**	.34**	.48**	.49**	.54**	.53**	.26**	1	
12 Promotes FB-Seeking	3.79	0.67	.84**	.36**	.29**	.39**	.52**	.66**	.68**	.66**	.59**	.33**	.63**	1

Note: ** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

Table 2

Sobel tests of mediation using Developmental Behaviors as the dependent variable.

IV	M	z	Indirect Effect	Lower CI at 99	Lower CI at 95	Upper CI at 95	Upper CI at 99	CI includes 0?
FB Environment	Accountability	5.11**	0.29	.16	.18	.41	.45	no
FB Environment	Internal	4.09**	0.19	.08	.10	.30	.34	no
FB Environment	External	3.75**	0.17	.06	.08	.27	.32	no
Source Credibility	Accountability	4.57**	0.24	.09	.12	.37	.42	no
Source Credibility	Internal	3.94**	0.18	.06	.09	.29	.34	no
Source Credibility	External	3.25**	0.13	.02	.05	.25	.29	no
FB Quality	Accountability	4.73**	0.19	.09	.11	.28	.32	no
FB Quality	Internal	3.86**	0.13	.04	.06	.22	.26	no
FB Quality	External	4.55**	0.11	.04	.05	.19	.22	no
FB Delivery	Accountability	3.83**	0.18	.06	.09	.29	.33	no
FB Delivery	Internal	3.59**	0.15	.05	.07	.24	.27	no
FB Delivery	External	2.52*	0.09	-.01	.02	.18	.21	yes at 99
Favorable FB	Accountability	5.32**	0.23	.13	.15	.32	.35	no
Favorable FB	Internal	3.46**	0.12	.03	.06	.19	.21	no
Favorable FB	External	4.12**	0.16	.07	.09	.25	.28	no
Unfavorable FB	Accountability	3.66**	0.16	.04	.07	.27	.30	no
Unfavorable FB	Internal	2.46*	0.09	.00	.02	.19	.23	yes at 99
Unfavorable FB	External	3.34**	0.12	.04	.05	.20	.23	no
Source Availability	Accountability	3.87**	0.20	.08	.10	.31	.36	no
Source Availability	Internal	3.04**	0.14	.04	.06	.24	.27	no
Source Availability	External	3.14**	0.13	.03	.06	.22	.26	no
Promotes FB-Seeking	Accountability	4.74**	0.18	.09	.11	.28	.32	no
Promotes FB-Seeking	Internal	4.06**	0.14	.06	.07	.22	.25	no
Promotes FB-Seeking	External	3.35**	0.10	.03	.04	.18	.21	no

Notes: ** Significant at the 0.01 level (2-tailed). *Significant at the 0.05 level (2-tailed). **Line 1 refers to Hypothesis 1.**

Table 3

Indirect tests of mediation using Developmental Behaviors as the dependent variable.

Refers to Hypothesis:	IV	M	Lower Contrast CI	Upper Contrast CI	CI Includes 0?
2	FB Environment	Internal vs. External	-.11	.18	yes
3	Source Credibility	Internal vs. External	-.09	.17	yes
3	FB Quality	Internal vs. External	-.07	.13	yes
3	FB Delivery	Internal vs. External	-.04	.14	yes
4	Favorable FB	Internal vs. External	-.11	.10	yes
4	Unfavorable FB	Internal vs. External	-.09	.09	yes
3	Source Availability	Internal vs. External	-.09	.12	yes
3	Promotes FB-Seeking	Internal vs. External	-.07	.13	yes

FIGURES

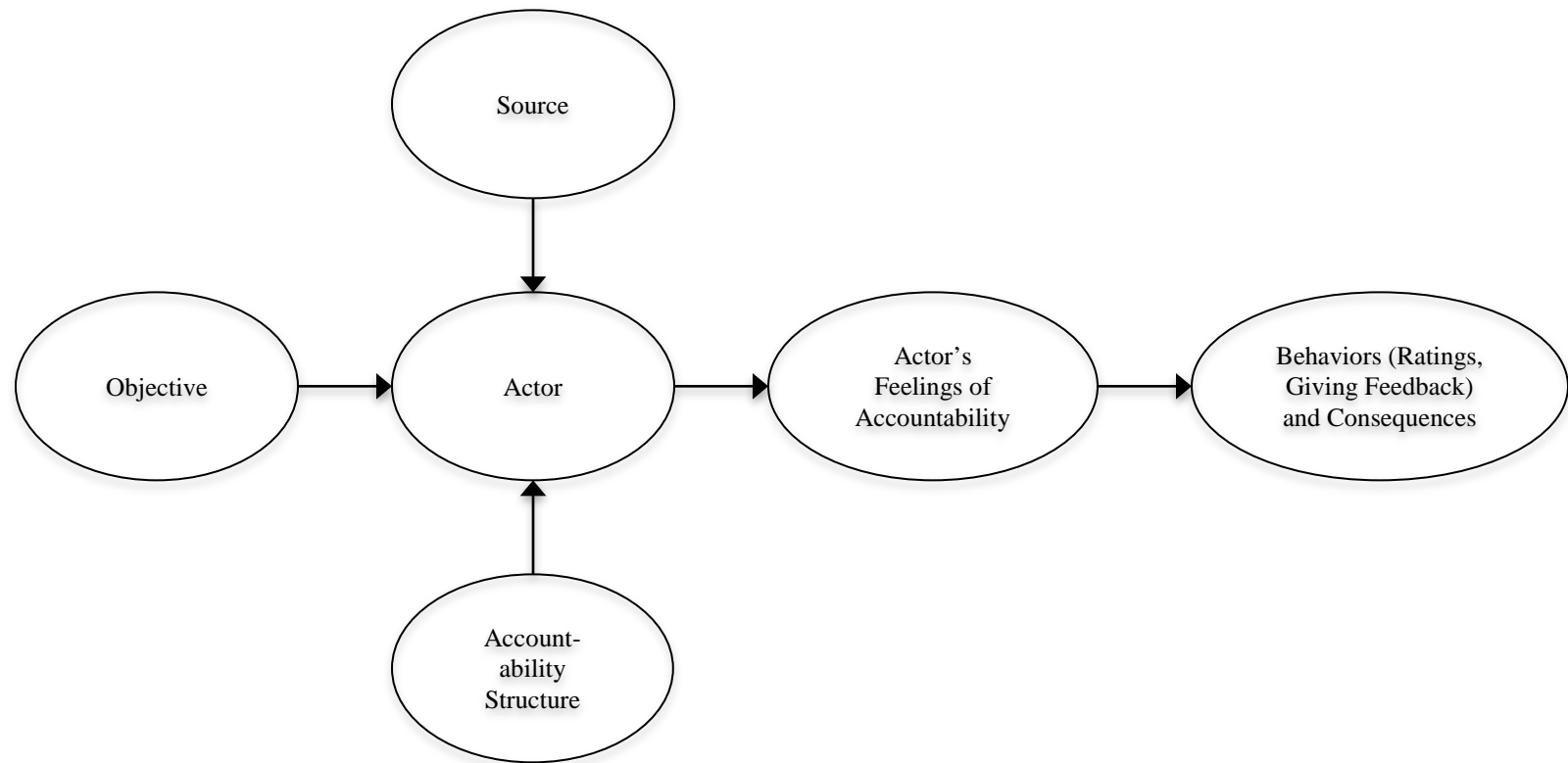


Figure 1. London's model of accountability (2003).

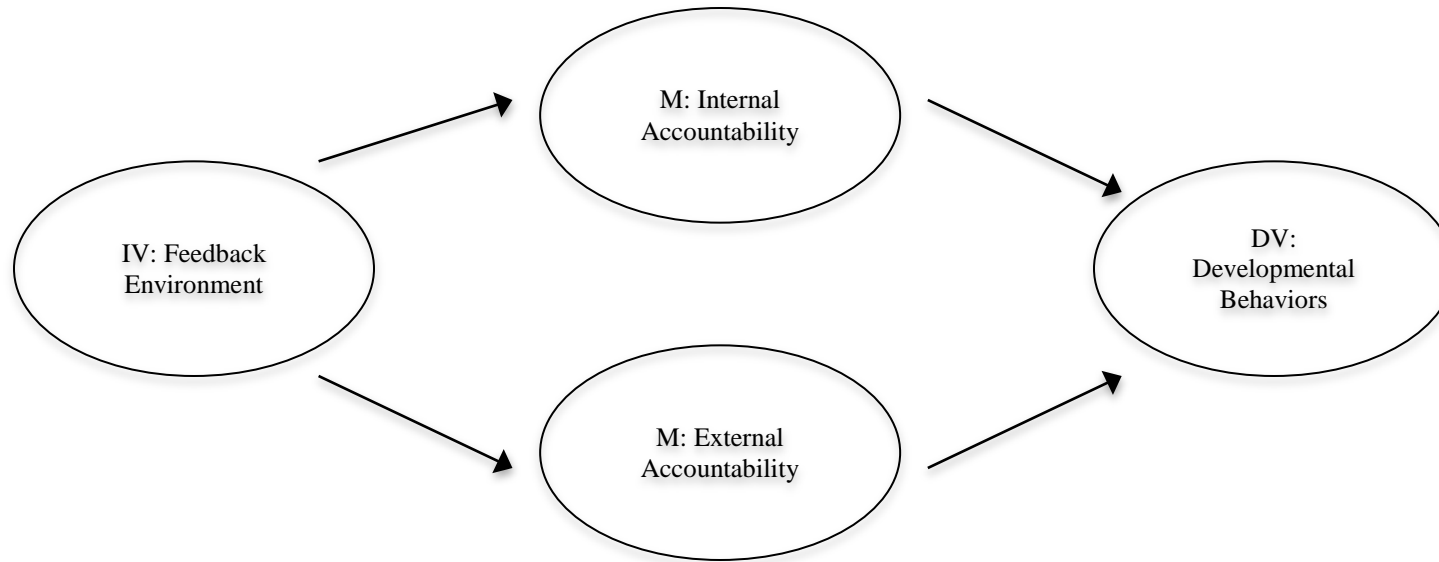


Figure 2. Model of the relationship between the feedback environment and developmental behaviors mediated by internal and external accountability.

APPENDICES

Appendix A. Feedback Environment Scale (FES)

All constructs were measured on a 7-point Likert-type scale ranging from strongly disagree to strongly agree (Steelman, Levy, & Snell, 2004). No headings were used in the actual survey. Reverse-scored items are denoted with an italicized font and the letter “R.”

Supervisor Source

Source credibility

1. My supervisor is generally familiar with my performance on the job.
2. In general, I respect my supervisor’s opinions about my job performance.
3. *With respect to job performance feedback, I usually do not trust my supervisor. R*
4. My supervisor is fair when evaluating my job performance.
5. I have confidence in the feedback my supervisor gives me.

Feedback quality

1. My supervisor gives me useful feedback about my job performance.
2. The performance feedback I receive from my supervisor is helpful.
3. I value the feedback I receive from my supervisor.
4. The feedback I receive from my supervisor helps me do my job.
5. *The performance information I receive from my supervisor is generally not very meaningful. R*

Feedback delivery

1. My supervisor is supportive when giving me feedback about my job performance.
2. When my supervisor gives me performance feedback, he or she is considerate of my feelings.
3. *My supervisor generally provides feedback in a thoughtless manner. R*
4. *My supervisor does not treat people very well when providing performance feedback. R*
5. My supervisor is tactful when giving me performance feedback.

Favorable feedback

1. When I do a good job at work, my supervisor praises my performance.
2. *I seldom receive praise from my supervisor. R*
3. My supervisor generally lets me know when I do a good job at work.
4. I frequently receive positive feedback from my supervisor.

Unfavorable feedback

1. When I don't meet deadlines, my supervisor lets me know.
2. My supervisor tells me when my work performance does not meet organizational standards.
3. On those occasions when my job performance falls below what is expected, my supervisor lets me know.
4. On those occasions when I make a mistake at work, my supervisor tells me.

Source availability

1. My supervisor is usually available when I want performance information.
2. *My supervisor is too busy to give me feedback. R*
3. *I have little contact with my supervisor. R*
4. I interact with my supervisor on a daily basis.
5. *The only time I receive performance feedback from my supervisor is during my performance review. R*

Promotes feedback seeking

1. *My supervisor is often annoyed when I directly ask for performance feedback. R*
2. *When I ask for performance feedback, my supervisor generally does not give me the information right away. R*
3. I feel comfortable asking my supervisor for feedback about my work performance.
4. My supervisor encourages me to ask for feedback whenever I am uncertain about my job performance.

Coworker Source

Source credibility

1. My coworkers are generally familiar with my performance on the job.
2. In general, I respect my coworkers' opinions about my job performance.
3. *With respect to job performance feedback, I usually do not trust my coworkers. R*

4. My coworkers are fair when evaluating my job performance.
5. I have confidence in the feedback my coworkers give me.

Feedback quality

1. My coworkers give me useful feedback about my job performance.
2. The performance feedback I receive from my coworkers is helpful.
3. I value the feedback I receive from my coworkers.
4. The feedback I receive from my coworkers helps me do my job.
5. *The performance information I receive from my coworkers is generally not very meaningful. R*

Feedback delivery

1. My coworkers are supportive when giving me feedback about my job performance.
2. When my coworkers give me performance feedback, they are usually considerate of my feelings.
3. *My coworkers generally provide feedback in a thoughtless manner. R*
4. *In general, my coworkers do not treat people very well when providing performance feedback. R*
5. In general, my coworkers are tactful when giving me performance feedback.

Favorable feedback

1. When I do a good job at work, my coworkers praise my performance.
2. *I seldom receive praise from my coworkers. R*
3. My coworkers generally let me know when I do a good job at work.
4. I frequently receive positive feedback from my coworkers.

Unfavorable feedback

1. When I don't meet deadlines, my coworkers let me know.
2. My coworkers tell me when my work performance does not meet organizational standards.
3. On those occasions when my job performance falls below what is expected, my coworkers let me know.
4. On those occasions when I make a mistake at work, my coworkers tell me.

Source availability

1. My coworkers are usually available when I want performance information.
2. *My coworkers are too busy to give me feedback. R*
3. *I have little contact with my coworkers. R*
4. I interact with my coworkers on a daily basis.

Promotes feedback seeking

1. *My coworkers are often annoyed when I directly ask them for performance feedback. R*
2. *When I ask for performance feedback, my coworkers generally do not give me the information right away. R*
3. I feel comfortable asking my coworkers for feedback about my work performance.
4. My coworkers encourage me to ask for feedback whenever I am uncertain about my job performance.

Appendix B. Accountability Scale

All items were measured using a 7-point Likert-type scale from strongly disagree to strongly agree (Leonard & Williams, 2001). In the actual survey, no headings were used and the item order was mixed. Reverse-scored items are denoted with an italicized font and the letter “R.”

Internal Accountability

1. I feel responsible for making positive changes in the workplace.
2. *I am not concerned with making positive changes in the workplace. R*
3. It is important to me that I make positive changes in the workplace.
4. It is important to me that I make improvements in the workplace.

External Accountability

1. My supervisor will notice if I make positive changes.
2. My peers will notice if I make positive changes.
3. There will be negative consequences if I do NOT make positive changes.
4. I am held responsible by others in the workplace to make positive changes.

Appendix C. Developmental Behaviors Scale

Items in the dimensions “Participation in Developmental Activities” and “Intentions to Participate in Future Developmental Activities” were measured using a 7-point Likert-type scale from strongly disagree to strongly agree. Items in the dimension “Frequency of Participation in Developmental Activities” were measured using a 6-point Likert-type scale using the following anchors: not applicable/not available, never, seldom, occasionally, often, and frequently. Adapted from Leonard and Williams (2001). The item order was not altered, and no headings were used in the actual survey. Reverse-scored items are denoted with an italicized font and the letter “R.”

Participation in Developmental Activities

1. Even when it has NOT been required, I have taken advantage of opportunities to make improvements in my performance.
2. I have identified one or more peer(s) that I use as my role model for developing myself.
3. I have identified one or more supervisor(s) that I use as my role model for developing myself.
4. I have created a developmental plan.
5. I have used performance feedback to inform me of the skills that I need to develop.
6. I have discussed my performance feedback with my supervisor to gain further information.

7. After receiving feedback, I have engaged in job experiences (e.g. increase in responsibilities, job rotation) that required me to expand my skills.
8. I have attempted to make changes in my performance based on the recommendations given to me through feedback.
9. *I have not participated in any developmental programs or courses after receiving performance feedback. R*
10. I have discussed performance feedback with my peers to gain further information.

Intentions to Participate in Future Developmental Activities

1. I intend to increase my job responsibilities in order to expand my skill base after receiving feedback.
2. If I have created one, I intend to share my developmental plan with relevant others in the organization.
3. I intend to discuss my performance with my supervisor to determine if I have made improvements after receiving feedback.
4. I intend to engage in developmental programs provided by my organization after receiving performance feedback.
5. I intend to seek out a mentor to guide me in developing my skills after receiving performance feedback.
6. I intend to make changes in my performance after receiving feedback.

Frequency of Participation in Developmental Activities

1. In the past two months, how often have you sought information from your peers regarding your performance?
2. In the past two months, how often have you sought information from your supervisor(s) regarding your performance?
3. In the past two months, how often have you sought out new experiences (e.g. training, applied experiences) to improve your performance?
4. *In the past two months, how often have you taken advantage of formal opportunities (e.g. classes, training sessions) to improve your performance?*
DELETED
5. In the past two months, how often have you initiated an opportunity to make improvements to your performance?
6. *In the past two months, how often have you taken advantage of developmental opportunities to improve your performance? DELETED*
7. In the past two months, how often have you sought out advice or mentoring from another peer to improve your performance?
8. In the past two months, how often have you sought out advice or mentoring from one of your supervisors to improve your performance?
9. *In the past two months, how often have you self-assessed your performance against your developmental plan? DELETED*