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RESEARCH REPORT

Age Differences in Feedback Reactions: The Roles of Employee Feedback Orientation on Social Awareness and Utility

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Organizations worldwide are currently experiencing shifts in the age composition of their workforces. The workforce is aging and becoming increasingly age-diverse, suggesting that organizational researchers and practitioners need to better understand how age differences may manifest in the workplace and the implications for human resource practice. Integrating socioemotional selectivity theory with the performance feedback literature and using a time-lagged design, the current study examined age differences in moderating the relationships between the characteristics of performance feedback and employee reactions to the feedback event. The results suggest that older workers had higher levels of feedback orientation on social awareness, but lower levels of feedback orientation on utility than younger workers. Furthermore, the positive associations between favorability of feedback and feedback delivery and feedback reactions were stronger for older workers than for younger workers, whereas the positive association between feedback quality and feedback reactions was stronger for younger workers than for older workers. Finally, the current study revealed that age-related differences in employee feedback orientation could explain the different patterns of relationships between feedback characteristics and feedback reactions across older and younger workers. These findings have both theoretical and practical implications for building theory about workplace aging and improving ways that performance feedback is managed across employees from diverse age groups.

Keywords: age, older workers, performance feedback, feedback orientation

Organizations all over the world are facing a workforce that is becoming progressively more age-diverse because of population aging (Mor Barak, 2011). This workforce aging trend puts pressure on researchers and practitioners to gain understanding not only about how to attract, recruit, satisfy, and retain employees of all ages, but also about how to effectively manage their performance (Wang, Olson, & Shultz, 2013). One common practice that organizations use to manage employee performance is the provision of performance appraisal and feedback. While research has indicated that age differences do exist in work-related processes, such as work motivation (Kooij, de Lange, Jansen, Kanfer, & Dikkers, 2011), competition (Wong, Gardner, Lang, & Coulon, 2008), and job attitudes (Ng & Feldman, 2010), virtually no studies have examined age differences in how employees react to performance feedback. If such differences exist, they will have important implications not only for theories that guide human resource management research, but also the way performance feedback is administered in organizations.

The current study addresses this gap by examining the role of age differences in moderating the relationships between the characteristics of performance feedback and employee reactions to the feedback event. In particular, we first draw on socioemotional selectivity theory (SST; Carstensen, 1991, 1992) to examine age differences in employees' feedback orientation regarding social awareness and utility (Linderbaum & Levy, 2010). We then examined the moderating effect of age on how employees' perceptions of feedback favorability, delivery, and quality might influence their reactions to feedback. We further tested employee feedback orientation on social awareness and utility as the explanatory mechanisms underlying the moderating effect of age. Figure 1 depicts our theoretical model.

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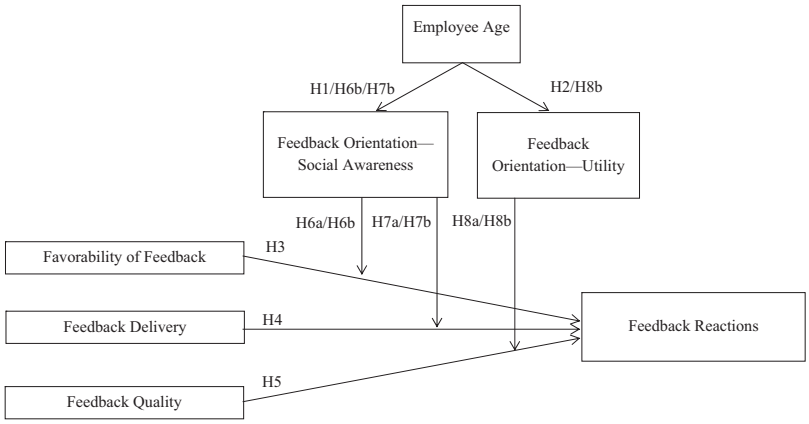

Figure 1. Overall theoretical model. H = Hypothesis.

This study offers several contributions. First, to our knowledge, it is one of the first few studies that connected an important human resource management function (i.e., the provision of performance feedback) to workplace age differences. It reveals the importance of considering and adapting to the aging workforce in human resources (HR) practice. Second, although SST has been used to theorize age-related differences in work-related settings (e.g., Kanfer & Ackerman, 2004; Ng & Feldman, 2010), few studies have directly operationalized the mechanisms specified in SST in a work-related context. As such, the current study is also one of the first studies that directly operationalized and tested SST in workplace settings. Finally, we examine the roles of employee feedback orientation in shaping how employees reacted to performance feedback. This extends previous research on conceptualizing and measuring feedback orientation (e.g., Linderbaum & Levy, 2010; London & Smither, 2002), advancing our understanding about this construct as capturing important feedback-specific individual differences.

Age and Feedback Orientation

SST

A key tenet of SST is that a basic awareness of passage through different life stages is ubiquitous in all cultures and people, and that this awareness has implications for people's emotions, cognitions, and motivations (Carstensen, 1991; Carstensen, Isaacowitz, & Charles, 1999). Specifically, the theory posits that younger individuals, being closer to the beginning of their life cycles, view "time" as *time since birth*, and they thus see time as open-ended. Therefore, their goals tend to be future-oriented: With regard to work, they will aim toward knowledge acquisition, career planning, and the development of ability and skills that will pay off in the future. Older individuals, in contrast, view "time" as *time left in life* and thus see time as limited. Therefore, they tend to have more present-oriented goals: They aim toward regulating their emotions to be positive and pursuing positive social relationships with others. Overall, according to SST (Carstensen, 1991, 1992), older adults focus more on socioemotional experiences, whereas younger adults focus more on skill, knowledge, and opportunity development.

SST has been supported by a number of empirical studies. Carstensen and Turk-Charles (1994) administered a memory test to participants of various ages and found that the proportion of emotion-related material that was recalled significantly increased with age. Similarly, Charles, Mather, and Carstensen (2003) found that older adults' memory patterns resembled those of younger adults who were asked specifically to attend to emotional and relational information, leading them to conclude that older adults spontaneously attend to information that has relational implications. Furthermore, in a study that required participants to describe their social relationships, Fingerman, Hay, and Birditt (2004) found that older adults were more sensitive than younger adults in distinguishing positive relationships from problematic relationships. In particular, older adults placed greater emphasis on deriving positive emotional experiences from their social relationships. Younger adults, on the other hand, focused more on the instrumental values of their social relationships in terms of facilitating their learning and personal growth, rather than on the actual emotional experiences associated with the social relationships. These findings were corroborated by Ebner, Freund, and Baltes (2006), who found that younger adults exhibited higher levels of growth orientation in their daily goals, whereas older adults exhibited higher levels of maintenance and loss prevention orientation in their daily goals.

While considerably less research has examined SST in the workplace, several studies suggest that age-related motivational orientations do manifest themselves in occupational settings. For instance, Kanfer and Ackerman (2004) noted that younger workers, in comparison to older workers, tend to have a "learning orientation" and treat workplace challenges as learning and development opportunities. Wong et al. (2008) also found that older employees were more cooperative and less competitive than younger employees. Along the same lines, older workers typically display more affective commitment to their organizations, while younger employees tend to place greater importance on "employability" and opportunity for advancement than do older ones (Barnes-Farrell & Matthews, 2007; D'Amato & Herzfeldt, 2008; Wang & Zhan, 2012). Furthermore, using SST as the theoretical basis, Ng and Feldman (2010) found in their meta-analysis that older workers tended to have more positive job attitudes than did younger workers, suggesting that older workers were more emotionally focused at work. Similarly, in another meta-analysis, Ng and Feldman (2012) showed that age was negatively related to career development motivation and behaviors and motivation to learn. Given this evidence supporting the utility of SST in work settings, we apply

Table 1
Means, SDs, Reliabilities, and Correlations Among Study Variables

Variables	*M*	*SD*	1	2	3	4	5	6	7
Time 1									
1. Relative age in dyad	1.22	0.37	—						
2. Dyad tenure (in years)	4.79	3.16	−0.11**	—					
3. Number of prior supervisor feedback events	4.04	3.03	−0.04	0.51**	—				
4. Supervisor gender	1.16	0.23	0.07	0.05	0.05	—			
5. Supervisor age	40.45	6.26	0.18**	0.26**	0.10**	0.07	—		
6. Dyad gender congruence	1.89	1.07	−0.08*	−0.01	0.01	−0.15**	0.01	—	
7. Leader–member exchange	5.01	1.67	−0.09*	0.06	0.11**	0.06	0.17**	0.08*	(0.83)
8. Age	35.19	6.92	−0.59**	0.33**	0.14**	−0.01	0.13**	0.01	0.03
9. Feedback orientation—Utility	3.60	0.71	0.02	0.05	0.04	0.01	−0.02	0.01	0.14**
10. Feedback orientation—Social awareness	3.34	0.68	0.04	0.01	−0.03	0.01	0.02	0.04	0.07
11. Feedback orientation—Self-efficacy	3.62	0.64	0.03	0.03	0.03	0.03	0.05	0.02	0.04
12. Feedback orientation—Accountability	3.42	0.61	−0.01	−0.02	0.01	0.02	−0.03	−0.05	0.12**
Time 2									
13. Social desirability	6.44	3.75	−0.04	−0.01	0.02	0.00	0.01	−0.01	0.09*
14. Favorability of feedback	4.60	1.33	0.06	0.02	0.17**	0.03	0.11**	0.02	0.44**
15. Feedback quality	5.13	1.26	0.01	0.01	0.11**	0.07	0.06	−0.04	0.57**
16. Feedback delivery	5.21	1.17	−0.04	0.04	0.10**	0.08*	0.09*	0.02	0.62**
17. Satisfaction with the feedback	4.14	1.41	−0.03	0.02	0.07	0.08*	0.02	−0.08*	0.39**
18. Perceived utility	2.37	0.74	0.07	0.01	0.04	0.06	0.01	−0.14**	0.30**
19. Perceived accuracy	4.56	1.53	0.04	0.01	0.06	0.09*	0.04	−0.10**	0.33**
20. Overall feedback reaction	0.00	0.93	0.05	0.01	0.06	0.08*	0.02	−0.12**	0.35**

Note. $N = 623$; *SD* = standard deviation Relative age in dyad: 1 = *supervisor is older*, 2 = *supervisor is younger*. Supervisor gender: 1 = *male*, 2 = *female*. Dyad gender congruence: 1 = *not congruent*, 2 = *congruent*.
* $p < .05$. ** $p < .01$.

SST to examine the age differences in employees' feedback orientation.

Feedback Orientation

According to London and Smither (2002), feedback orientation refers to "an individual's overall receptivity to feedback" (p. 81). Further measurement development and validation work conducted by Linderbaum and Levy (2010) showed that feedback orientation contains four dimensions. Social awareness refers to an individual's tendency to use feedback so as to be aware of others' views of him/herself and to inform the quality of his or her social relations at work. Utility refers to an individual's tendency to use feedback to improve his or her performance and achieve desired career goals. Accountability refers to an individual's tendency to feel a sense of obligation to follow up on feedback. Feedback self-efficacy refers to an individual's perceived competence to interpret and respond to feedback appropriately.

In the current study, we focus on examining feedback orientation on social awareness and utility, because they are most relevant to the premises of SST. Specifically, given that SST suggests that older adults focus more on socioemotional experiences and pursuing positive social relationships with others, it is conceivable that older workers are more likely to have stronger orientation on using feedback to understand others' views about themselves and to inform the quality of their social relations at work than younger workers. In other words, we expect older workers to have higher feedback orientation on social awareness than younger workers. Furthermore, given that SST suggests that younger adults focus more on knowledge acquisition and personal development, it is conceivable that younger workers are more likely to use feedback to improve their performance and facilitate their career pursuit. Therefore, we expect younger workers to have higher feedback orientation on utility than older workers.

Hypothesis 1: Age is positively related to feedback orientation on social awareness.

Hypothesis 2: Age is negatively related to feedback orientation on utility.

It should be noted that we do not hypothesize age differences in feedback orientation on accountability and feedback self-efficacy in the current study. This is because it would be difficult to form directional hypotheses regarding the potential age effects on these two feedback orientation dimensions. Specifically, it is possible that younger individuals aiming to climb the corporate ladder may feel accountable to perform following feedback because they perceive this will enable their development. However, it is equally valid that older individuals aiming to foster positive social relationships may feel accountable to perform following feedback to create a better relationship with one's supervisor and coworkers. Similarly, feedback self-efficacy could correlate positively with age, because increased proficiency and experience may lead to higher self-efficacy (Magogwe & Oliver, 2007). However, it is also possible that this relationship could be negative, because older adults may experience reduced self-efficacy in the workplace because of experiencing stereotypes and diminished opportunities (Maurer, 2001). Our empirical data indeed suggest that age was not related to feedback orientation on accountability and feedback self-efficacy (see null correlational findings in Table 1 and null regression findings in Table 2).

8	9	10	11	12	13	14	15	16	17	18	19	20
—												
−0.22**												
0.25**	(0.89)											
0.04	0.21**	(0.84)										
0.05	0.27**	0.22**	(0.82)									
	0.34**	0.26**	0.38**	(0.77)								
0.05	0.04	0.05	0.19**	0.16**	(0.73)							
0.01	0.20**	0.09*	0.16**	0.08*	0.03	(0.87)						
0.04	0.24**	0.10**	0.20**	0.10**	0.01	0.47**	(0.89)					
−0.03	0.16**	0.06	0.11**	0.07	0.04	0.43**	0.52**	(0.83)				
−0.12**	0.22**	0.12**	0.18**	0.12**	0.13**	0.47**	0.46**	0.49**	(0.93)			
−0.16**	0.34**	0.18**	0.22**	0.13**	0.07	0.39**	0.39**	0.29**	0.71**	(0.90)		
−0.12**	0.15**	0.07	0.12**	0.08*	0.05	0.34**	0.30**	0.33**	0.64**	0.52**	(0.95)	
0.13**	0.25**	0.18**	0.18**	0.12**	0.06	0.43**	0.38**	0.33**	0.86**	0.84**	0.81**	—

Characteristics of Feedback and Employee Feedback Reactions

Various characteristics of feedback have been examined as determinants of employees' feedback reactions. Summarizing the literature, Steelman, Levy, and Snell (2004) developed a taxonomy of feedback environment, which captures the "contextual or situational characteristics of the feedback process" (p. 166). This taxonomy includes dimensions such as source credibility, feedback quality, feedback delivery, favorable and unfavorable feedback, source availability, and promoting feedback seeking. Given that this taxonomy was developed to assess "the contextual aspects of day-to-day supervisor-subordinate and coworker-coworker feedback processes rather than the formal performance appraisal feedback session" (Steelman et al., 2004; p. 166), in the current study, we focused on dimensions that are most relevant in capturing the characteristics of a specific feedback session, including favorability of feedback, feedback delivery, and feedback quality. Specifically, favorability of feedback refers to whether the feedback is perceived as being generally positive or negative by the employee.[1] Feedback delivery refers to the manner in which the performance feedback is given. It captures how considerate the source is when providing feedback (e.g., being supportive, thoughtful, empathetic, and tactful; Steelman et al., 2004). Feedback quality refers to the extent to which the feedback is relevant, consistent, specific, and detailed in terms of helping improve one's job performance (Steelman et al., 2004).

We expect favorability of feedback to be positively related to employee feedback reactions. First, favorable feedback informs the employee about his or her good standing on job performance and engenders positive emotional experience such as pleasantness and pride (Brett & Atwater, 2001; Kluger & DeNisi, 1996). According to self-enhancement theory, these affectively positive evaluations received from others can promote positive attitudes toward the experience (Shrauger, 1975; Tesser, 1988), leading to positive reactions. Second, favorable feedback is more likely to conform to employees' self-images than unfavorable feedback (Shrauger, 1975). As such, employees may view favorable feedback as being more credible, useful, and accurate (Brett & Atwater, 2001; Podsakoff & Farh, 1989).

Hypothesis 3: Favorability of feedback is positively related to employee feedback reactions.

We also expect feedback delivery to be positively associated with employee feedback reactions. Specifically, when the feedback is given in a considerate manner, employees are likely to feel that they are treated well interpersonally by the feedback source (usually their supervisors) during the process (Elicker et al., 2006; Jawahar, 2010). This desirable relational characteristic of feedback

[1] We acknowledge that in Steelman et al.'s (2004) taxonomy, favorable feedback and unfavorable feedback are treated as separate dimensions in describing the day-to-day feedback environment. However, when it comes to the specific feedback event (e.g., formal performance appraisal), employees are likely to form general perceptions of the overall favorability of the feedback largely based on the performance ratings that they receive (Brett & Atwater, 2001). This notion of a general construct of favorability is supported by our current finding that the four-item favorable feedback subscale and the four-item unfavorable feedback subscale adapted from Steelman et al. (2004) were highly correlated ($r = -.92$) and formed a measure of favorability of feedback with good internal consistency (Cronbach's alpha = .87). Furthermore, we obtained the HR records from the company from which we sampled our participants and found that employees' ratings of favorability of feedback were highly correlated with the overall performance ratings they received from their supervisors ($r = .69$).

Table 2
Regression Models for Predicting Feedback Orientation Dimensions

	Feedback orientation—Social awareness				Feedback orientation—Utility				Feedback orientation—Self-efficacy				Feedback orientation—Accountability			
	Step 1		Step 2		Step 1		Step 2		Step 1		Step 2		Step 1		Step 2	
	B	*SE*	*B*	*SE*	*B*	*SE*	*B*	*SE*	*B*	*SE*	*B*	*SE*	*B*	*SE*	*B*	*SE*
Control variables																
Relative age in dyad	0.03	0.02	0.02	0.02	−0.02	0.03	−0.01	0.03	0.04	0.04	0.08	0.05	0.01	0.04	0.07	0.05
Dyad tenure	0.01	0.03	−0.01	0.03	0.01	0.02	0.02	0.02	0.02	0.05	0.01	0.05	−0.02	0.05	−0.04	0.05
Number of prior supervisor feedback events	−0.03	0.04	−0.01	0.03	0.02	0.02	0.00	0.02	0.01	0.05	0.01	0.05	0.01	0.05	0.01	0.05
Supervisor gender	0.01	0.04	0.01	0.04	0.03	0.03	0.04	0.03	0.03	0.04	0.03	0.04	0.01	0.04	0.01	0.04
Supervisor age	0.02	0.02	0.02	0.02	0.03	0.04	0.03	0.04	0.03	0.04	0.02	0.04	−0.05	0.04	−0.07	0.04
Dyad gender congruence	0.04	0.03	0.03	0.03	−0.01	0.04	−0.07	0.05	0.03	0.04	0.03	0.04	−0.06	0.04	−0.05	0.04
Leader–member exchange	0.10	0.06	0.10	0.06	0.14*	0.06	0.12*	0.06	0.02	0.04	0.02	0.04	0.12**	0.04	0.13**	0.04
Social desirability	0.04	0.04	0.05	0.04	0.04	0.06	0.05	0.06	0.19**	0.04	0.19**	0.04	0.15**	0.04	0.15**	0.04
Main effect																
Age			0.25**	0.08			−0.29**	0.07			0.07	0.05			0.10	0.06
R^2		0.03		0.09		0.03		0.11		0.04		0.04		0.04		0.06
F		2.35		7.84**		4.65*		13.68**		7.06*		7.56**		7.32**		8.40**
R^2 change				0.06			0.07					0.00			0.02	
F change				9.77**				17.16**				1.28				2.66

Note. *SE* = standard error.
* $p < .05$. ** $p < .01$.

is likely to lead to positive employee reactions. Furthermore, according to van den Bos, Wilke, and Lind (1998), the information received from an interaction associated with good interpersonal treatment is often given more weight in cognitive processing and is more likely to be used to guide actions. As such, employees may also attach higher levels of utility and accuracy to the feedback (Jawahar, 2010; Steelman et al., 2004) and react to it more positively.

Hypothesis 4: Feedback delivery is positively related to employee feedback reactions.

Feedback quality is expected to be positively associated with employee feedback reactions as well. Specifically, when the feedback is relevant, consistent, specific, and detailed, the informational value of the feedback is high in terms of helping improve the recipient's job performance (London, 1997; Steelman et al., 2004). As such, employees should react more positively to the feedback, because they are likely to be more satisfied with high-quality feedback and to perceive high-quality feedback as being more useful and accurate than low-quality feedback. Indeed, employees reported higher levels of satisfaction with feedback when the feedback was specific and consistent (Baron, 1993; Ilgen, Fisher, & Taylor, 1979). Relevant and detailed feedback was also perceived as being more useful and accurate (Brett & Atwater, 2001).

Hypothesis 5: Feedback quality is positively related to employee feedback reactions.

Moderation Effects of Age and Feedback Orientation as the Underlying Mechanism

SST can be directly applied to understanding how age may moderate the relationships between feedback characteristics and employee feedback reactions. As mentioned earlier, favorability of feedback can inform employees about how others view their standing on job performance and engender significant emotional experiences (Brett & Atwater, 2001; Kluger & DeNisi, 1996). Furthermore, feedback delivery captures the interpersonal treatment during the feedback event, directly forming the relational experience for the feedback recipient (Elicker et al., 2006; Jawahar, 2010). Given that SST suggests that older adults tend to focus more on their socioemotional experiences and pursuing positive social relationships with others, favorability of feedback and feedback delivery should have stronger relationships with feedback reactions for older workers than younger workers. We further argue that, on the basis of Hypothesis 1, these moderation effects of age are manifested via age-related differences in employees' feedback orientation on social awareness. Specifically, older workers may be more sensitive than younger workers to favorability of feedback and feedback delivery, because their focus on socioemotional experiences may lead them to have stronger orientation on using the overall favorability of feedback and the way feedback is delivered to understand others' views about themselves and to inform the quality of their relationships with the social environment at work.

Hypothesis 6: (a) Age moderates the effect of favorability of feedback such that favorability of feedback has a stronger impact on older (vs. younger) workers' feedback reactions; and (b) this moderating effect of age is mediated by feedback orientation on social awareness.

Hypothesis 7: (a) Age moderates the effect of feedback delivery such that feedback delivery has a stronger impact on older (vs. younger) workers' feedback reactions; and (b) this moderating effect of age is mediated by feedback orientation on social awareness.

Similarly, feedback quality indicates how much useful information is offered to the employee for further improving his or her performance (London, 1997; Steelman et al., 2004). Given that SST suggests that younger adults tend to focus more on knowledge acquisition and personal development, feedback quality should have stronger relationships with feedback reactions for younger workers than older workers. Furthermore, on the basis of Hypothesis 2, this moderation effect of age is likely to manifest via age-related differences in employees' feedback orientation on utility. Specifically, younger workers may be more sensitive than older workers to feedback quality because their focus on personal development has led them to have stronger orientation on using feedback as an opportunity to improve their performance and career pursuit.

Hypothesis 8: (a) Age moderates the effect of feedback quality such that feedback quality has a stronger impact on younger (vs. older) workers' feedback reactions; and (b) this moderating effect of age is mediated by feedback orientation on utility.

Method

Participants and Procedure

Participants were 623 Chinese employees from a mechanical equipment manufacturer located in Shanghai, China. The age of participants ranged from 20 to 60 (the typical mandatory retirement ages in China are between 50 and 60, depending on gender and profession; Yao & Peng, 2013). The average age of the sample was 35.19 (SD = 6.92) years, with 27.93% between age 20 and 29, 41.89% between age 30 and 39, 23.92% between age 40 and 49, 5.94% between age 50 and 59, and 0.32% at age 60. Therefore, the age distribution is positively skewed, with 30.18% of the sample being older than 40. This suggests that there is sufficient representation of older workers in our sample. Of the sample, 74% were male.

Participants were administered surveys at two points in time.[2] The study announcement, along with a letter assuring confidentiality and voluntary participation, was distributed by the HR department to all employees (employees from the HR department and top management team were excluded from this study). Employees were assured that their managers and organization would not know their individual responses to the survey. Out of a total of 871 (76.12%) employees, 663 responded to the Time 1 survey, which was administrated 2 weeks before the annual performance evaluations. Among them, 623 (93.97%) responded to the Time 2 survey, which was administrated immediately after they had their performance feedback meeting with their supervisors. These high response rates were likely achieved as a result of corporate sponsorship and the use of company time to complete the surveys. In the current analysis, we only used data from participants who responded to both surveys.

Measures

A translation/back-translation procedure was followed to translate the English-based measures into Chinese. In the Time 1 survey, participants provided demographic information regarding both themselves and their immediate supervisor. They also completed the measures of feedback orientation on utility and social awareness, as well as leader–member exchange (LMX). The Time 2 survey measured the characteristics of the feedback event, participant reactions to the performance feedback, and social desirability.

Feedback orientation. Feedback orientation dimensions were each measured with a five-item scale developed by Linderbaum and Levy (2010) and further validated by Dahling, Chau, and O'Malley (2012). Participants rated each item on a 5-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*). Cronbach's alpha was 0.89 for feedback orientation on utility, 0.84 for feedback orientation on social awareness, 0.82 for feedback orientation on self-efficacy, and 0.77 for feedback orientation on accountability.

Feedback characteristics. Subscales from Steelman et al.'s (2004) feedback environment scale (FES) were adapted to assess the characteristics of the performance feedback that the participant had just received from his or her supervisor (see Appendix for adapted items). Participants rated each item on a 7-point scale (1 = *strongly disagree*, 7 = *strongly agree*). Specifically, *favorability of feedback* was measured with eight items (i.e., the four-item favorable feedback subscale and the four-item unfavorable feedback subscale). Because the subscale scores were highly correlated (r = −.92), we reverse coded the unfavorable feedback subscale items and averaged the ratings across eight items to form the score for favorability of feedback (Cronbach's alpha = .87). *Feedback delivery* was measured with the five-item feedback delivery subscale (Cronbach's alpha = .83). *Feedback quality* was measured with the five-item feedback quality subscale (Cronbach's alpha = .89). It is important to note that our way of measuring feedback characteristics focused on capturing the characteristics of a specific performance appraisal event, rather than on capturing the characteristics of day-to-day feedback processes as typically measured in FES.

Feedback reactions. Following previous research (e.g., Elicker, Levy, & Hall, 2006; Jawahar, 2010; Keeping & Levy,

[2] We also asked the participants to complete a Time 3 survey 8 weeks after the performance feedback meeting, and 610 out of 623 (97.91%) did so. The Time 3 survey measured participant reactions to the performance feedback session (i.e., satisfaction with the feedback, perceived utility, and perceived accuracy) again. We found that participant reactions to the performance feedback session were highly correlated between Time 2 and Time 3 (r = .84 for satisfaction with the feedback, r = .84 for perceived utility, r = .87 for perceived accuracy, and r = .91 for overall feedback reaction). Furthermore, the findings from regression analyses and mediated moderation analyses were consistent using either Time 2 or Time 3 reactions measures as the dependent variables. As such, for the purpose of brevity, we only report findings from Time 1 and Time 2 data in the current article. Interested readers can contact the corresponding author for findings related to Time 3 measures.

[3] We acknowledge that Keeping and Levy's (2000) taxonomy of performance appraisal reactions also included procedural justice, distributive justice, and satisfaction with the appraisal system. However, later research has conceptualized and examined justice-related perceptions as antecedents or process variables that drive feedback reactions (Elicker et al., 2006; Jawahar, 2010). Furthermore, given that our focus is on employee feedback reaction toward a specific appraisal and feedback session, we felt that examining employee satisfaction with the feedback matched our purpose better than examining employee satisfaction with the appraisal system. As a consequence, we followed Elicker et al. (2006) and Jawahar (2010) and did not include procedural justice, distributive justice, and satisfaction with the appraisal system as indicators of feedback reaction in the current study.

2000), we measured satisfaction with the feedback, perceived utility, and perceived accuracy as indicators of employee feedback reactions.[3] Specifically, employee *satisfaction with the feedback* was measured using a three-item scale (Giles & Mossholder, 1990; Keeping & Levy, 2000). Participants rated each item on a 6-point scale (1 = *strongly disagree*, 6 = *strongly agree*; Cronbach's alpha = .93). The *perceived utility* of the performance feedback was assessed by using a four-item measure (Greller, 1978; Keeping & Levy, 2000). Participants rated each item on a 4-point scale (1 = *do not feel this way, not at all*, 4 = *I feel exactly this way, completely*; Cronbach's alpha = .90). Finally, an eight-item scale (Keeping & Levy, 2000; Stone, Gueutal, & McIntosh, 1984) was used to assess *perceived accuracy*. Participants rated each item on a 7-point scale (1 = *strongly disagree*, 7 = *strongly agree*; Cronbach's alpha = .95).

Control variables. Previous research has suggested that the supervisor-employee relationship, supervisor characteristics, and similarity and familiarity between the dyad may influence employees' reactions to performance feedback (Avery, McKay, & Wilson, 2007; Elicker et al., 2006; Schraeder & Simpson, 2006; Truxillo & Burlacu, in press). To control the potential effect that the relationship between employees and their supervisors might have on the feedback reactions, we measured LMX at Time 1 using the LMX-8 scale (Bauer & Green, 1996). To gain a sense regarding the extent to which our findings might be biased by common method variance, social desirability was measured at Time 2 using a 13-item scale (Reynolds, 1982). We also controlled for supervisors' gender, age, the gender congruence between the dyad, the relative age in the dyad, the dyad tenure, and how many times that supervisor had delivered formal performance feedback to the subordinate before. We included these control variables to provide a more rigorous examination of the hypothesized effects.

Results

Preliminary Analysis

To ensure the construct validity of the measures, we conducted confirmatory factor analysis (CFA). We first estimated a 10-factor model (i.e., feedback orientation on social awareness and utility, favorability of feedback, feedback quality, feedback delivery, satisfaction with the feedback, feedback utility, feedback accuracy, LMX, and social desirability), which yielded good fit to the data, $\chi^2(df = 1907) = 2743.01$, $p < .01$, Comparative Fit Index (CFI) = 0.95, root mean square error of approximation (RMSEA) = 0.03. All the scale items loaded significantly onto the expected latent construct (standardized factor loadings ranged from .52 to .94), suggesting good measurement quality. However, given the sizable correlations among the three feedback reactions variables (*r*s = .52–.71), we further estimated a second-order confirmatory factory analysis (CFA) model on the basis of the 10-factor model. In this model, we specified all three feedback reactions latent variables to load on a second-order latent variable (i.e., overall feedback reaction). This second-order CFA model yielded good model fit to the data, $\chi^2(df = 1922) = 2763.60$, $p < .01$, CFI = 0.95, RMSEA = 0.03. In addition, it did not fit the data worse than the 10-factor CFA model, $\Delta\chi^2(\Delta df = 15) = 20.59$, $p > .10$. As such, it is reasonable to use the scores on the three feedback reactions variables to form a composite for feedback reactions. Given that the three feedback reactions variables were measured with different response formats, we first standardized these variables and then averaged their scores to form the score for overall feedback reaction. This overall feedback reaction variable was used in the subsequent analyses.

Testing Main Effects

Table 1 presents the means, *SD*s, and correlations among all study variables. Hypotheses 1 and 2 were tested with two hierarchical regression models predicting feedback orientation on social awareness and utility, respectively. Table 2 presents regression coefficients of each regression model. We found that age was positively related to employees' feedback orientation on social awareness ($B = .25$, $p < .01$) and accounted for 6% of variance above and beyond the control variables, supporting Hypothesis 1. Age was also negatively related to employees' feedback orientation on utility ($B = -.29$, $p < .01$) and accounted for 7% variance above and beyond the control variables, supporting Hypothesis 2.

Hypotheses 3 to 5 were tested with a hierarchical regression model predicting employee overall feedback reactions (see Table 3 for regression coefficients). Specifically, regression results at Step 2 of the model showed that favorability of feedback ($B = .36$, $p < .01$), feedback delivery ($B = .20$, $p < .01$), and feedback quality ($B = .26$, $p < .01$) were all positively related to employee overall feedback reaction, supporting Hypotheses 3, 4, and 5, respectively.

Testing Moderation Effects

Moderation hypotheses (i.e., Hypotheses 6a, 7a, and 8a) were tested by entering three two-way interaction terms between age and feedback characteristics into Step 3 of the above mentioned regression model. Each two-way interaction term was created by taking the product of the corresponding two independent variables after they were centered. We found that the interaction between age and favorability of feedback was significant in predicting feedback reactions ($B = .21$, $p < .01$). Following Cohen, Cohen, West, and Aiken (2003), we plotted this interaction in Figure 2, showing that the positive relationship between favorability of feedback and employee feedback reactions was stronger for older workers than for younger workers, supporting Hypothesis 6a. Similarly, the interaction between age and feedback delivery was significant in predicting feedback reactions ($B = .18$, $p < .05$). This interaction is plotted in Figure 3, suggesting that the positive relationship between feedback delivery and feedback reactions was stronger for older workers than for younger workers, supporting Hypothesis 7a. The interaction between age and feedback quality was also significant in predicting feedback reactions ($B = -.24$, $p < .01$). This interaction, plotted in Figure 4, showing that the positive relationship between feedback quality and feedback reactions was stronger for younger workers than for older workers, supporting Hypothesis 8a.

Testing Mediated Moderation Effects

The hypothesized mediated moderation effects (i.e., Hypotheses 6b, 7b, and 8b) are essentially "mono-level Type II mediated moderation effects" described by Liu, Zhang, and Wang (2012), referring to the situation where the mediator (i.e., feedback orien-

Table 3
Regression Models for Predicting Overall Feedback Reaction

	Step 1		Step 2		Step 3		Step 4	
	B	*SE*	*B*	*SE*	*B*	*SE*	*B*	*SE*
Control variables								
Relative age in dyad	0.08	0.06	0.08	0.07	0.07	0.07	0.07	0.08
Dyad tenure	0.08	0.06	0.08	0.07	0.08	0.07	0.08	0.07
Number of prior supervisor feedback events	0.10	0.07	0.08	0.06	0.08	0.06	0.07	0.06
Supervisor gender	0.04	0.05	0.04	0.05	0.04	0.05	0.05	0.07
Supervisor age	−0.01	0.04	0.00	0.05	0.01	0.05	0.01	0.05
Dyad gender congruence	−0.04	0.05	−0.04	0.07	−0.03	0.07	−0.02	0.07
Leader–member exchange	0.37**	0.07	0.14*	0.07	0.11	0.06	0.10	0.06
Social desirability	0.03	0.03	0.03	0.04	0.03	0.04	0.03	0.04
Main effects								
Age			−0.09	0.08	−0.05	0.06	−0.05	0.06
Feedback orientation—Utility			0.22**	0.07	0.17*	0.07	0.16*	0.07
Feedback orientation—Social awareness			0.07	0.06	0.07	0.06	0.06	0.06
Favorability of feedback			0.36**	0.06	0.26**	0.06	0.21**	0.07
Feedback delivery			0.20**	0.06	0.16*	0.07	0.16*	0.07
Feedback quality			0.26**	0.07	0.19*	0.08	0.17*	0.08
Interactions								
Age × Favorability of Feedback					0.21**	0.07	0.04	0.07
Age × Feedback Delivery					0.18*	0.08	0.05	0.08
Age × Feedback Quality					−0.24**	0.08	−0.05	0.07
Feedback orientation—Social Awareness × Favorability of Feedback							0.24**	0.06
Feedback orientation—Social awareness × Feedback Delivery							0.23**	0.05
Feedback Orientation—Utility × Feedback Quality							0.20**	0.05
R^2		0.14		0.31		0.36		0.38
F		9.88**		16.38**		11.13**		11.96**
R^2 change			0.17		0.05		0.02	
F change				23.47**		4.70**		2.73**

Note. *SE* = standard error.
* $p < .05$. ** $p < .01$.

tation on social awareness and utility in the current study) serves as a proxy to the original moderator (i.e., age) in altering the relationship between independent and dependent variables (i.e., feedback characteristics and feedback reactions). We tested these effects by following the bootstrapping approach recommended by Edwards and Lambert (2007) and Liu et al. (2012). Specifically, we first obtained the coefficients for interaction terms between feedback orientation variables and corresponding feedback characteristics in Step 4 of the regression model (Table 3). The interaction between feedback orientation on social awareness and favorability of feedback ($B = .24$, $p < .01$), the interaction between feedback orientation on social awareness and feedback delivery ($B = .23$, $p < .01$), and the interaction between feedback orientation on utility and feedback quality ($B = .20$, $p < .01$) were all significant in predicting feedback reactions. Figures 5–7 show that the patterns of these interactions are consistent with the moderation effects of age.

The bootstrapping approach was used to derive 95% confidence intervals (CIs) of the products of the regression coefficients for age predicting feedback orientations and the corresponding interaction

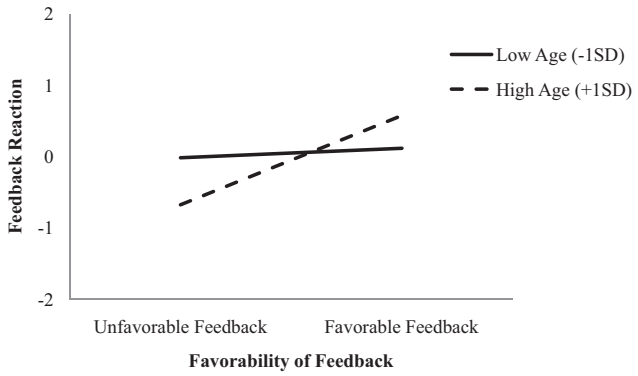

Figure 2. Age moderates the relationship between favorability of feedback and feedback reactions. *SD* = standard deviation.

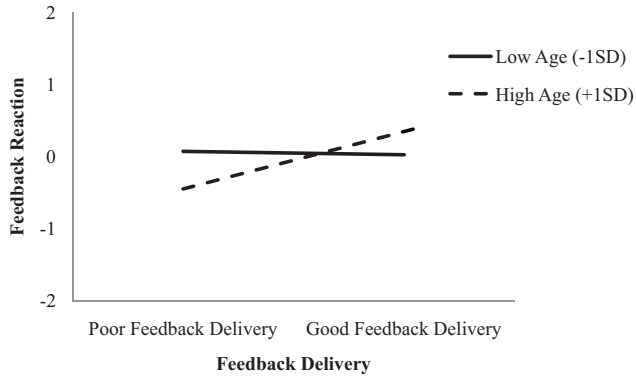

Figure 3. Age moderates the relationship between feedback delivery and feedback reactions. *SD* = standard deviation.

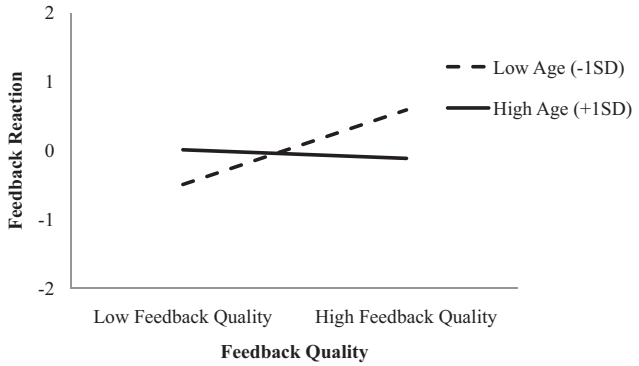

Figure 4. Age moderates the relationship between feedback quality and feedback reactions. *SD* = standard deviation.

terms predicting feedback reactions. Table 4 presents the components of the product, the point estimates of the product coefficients, and the 95% bootstrap CIs of the product coefficients. Based on the bootstrap CIs, Hypotheses 6b and 7b were supported. Feedback orientation on social awareness significantly mediated the moderating effects of age on the relationships between favorability of feedback and feedback delivery and feedback reactions. Hypothesis 8b was also supported. Feedback orientation on utility significantly mediated the moderating effect of age on the relationship between feedback quality and feedback reactions.

Discussion

The current study offered three sets of interesting findings. First, we found that older workers had higher levels of feedback orientation on social awareness, but lower levels of feedback orientation on utility than younger workers. Second, we found that the positive associations between favorability of feedback and feedback delivery and feedback reactions were stronger for older workers than for younger workers, whereas the positive association between feedback quality and feedback reactions was stronger for younger workers than for older workers. Third, the current study revealed that age-related differences in employee feedback orientation could explain the different patterns of relationships between feedback characteristics and feedback reactions across older and younger workers.

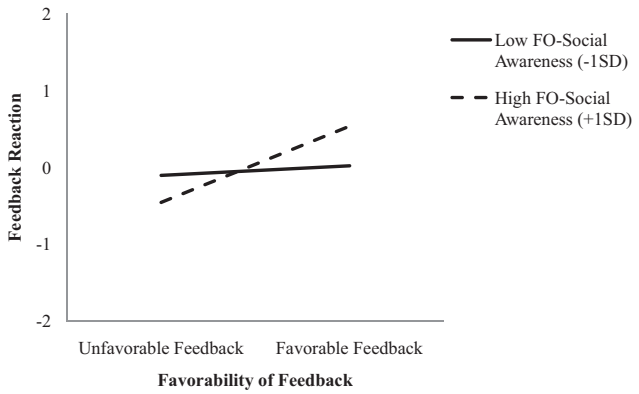

Figure 5. Feedback orientation on social awareness moderates the relationship between favorability of feedback and feedback reactions. FO = feedback orientation; *SD* = standard deviation.

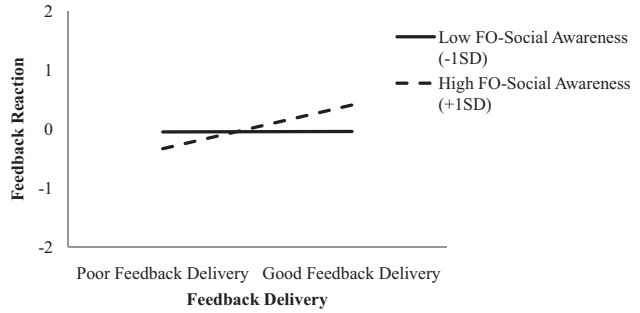

Figure 6. Feedback orientation on social awareness moderates the relationship between feedback delivery and feedback reactions. FO = feedback orientation; *SD* = standard deviation.

Theoretical Implications

The current findings have several important theoretical implications. First, the current study directly operationalized and tested SST in a work-related context by mapping age-related goal priorities to two specific types of feedback orientation—social awareness and utility. Doing so allowed us to effectively integrate SST with the current advances in the performance feedback literature, providing an overarching theoretical framework to incorporate employee age as a boundary condition of the performance feedback process at work. Relying on this theoretical development, we were able to clearly demonstrate that age-related differences in employee feedback orientation explained the mechanisms through which younger and older workers exhibited different reaction patterns toward different feedback characteristics. As such, our study illustrates an effective approach to connect life span developmental theories with organizational psychology theories to investigate potential age-related effects in work and organizational settings. Specifically, following this approach, future research can draw on life span development theories (e.g., SST) that describe age differences in cognitive and motivational processes and connect these theories to work-related phenomena that are affected by

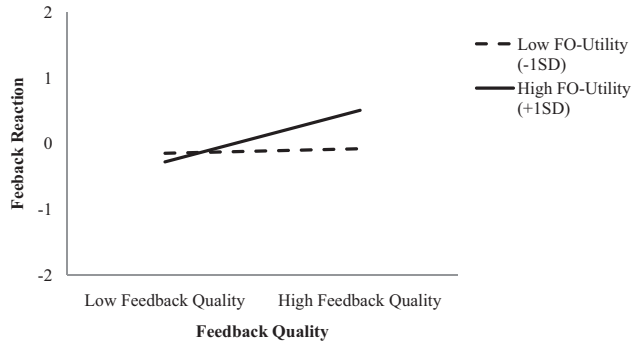

Figure 7. Feedback orientation on utility moderates the relationship between feedback quality and feedback reactions. FO = feedback orientation; *SD* = standard deviation.

Table 4
Bootstrap Confidence Intervals for the Hypothesized Mediated Moderation Effects

	Overall feedback reaction
Testing Hypothesis 6d	
FO—Social Awareness × Favorability of Feedback ($B_{MX\rightarrow Y}$)	0.24**
Age → FO—Social awareness ($B_{W\rightarrow M}$)	0.25**
Mediated moderation effect ($B_{W\rightarrow M}B_{MX\rightarrow Y}$)	0.060*
95% Bootstrap CIs of $B_{W\rightarrow M}B_{MX\rightarrow Y}$	[0.018, 0.114]
Testing Hypothesis 7d	
FO—Social Awareness × Feedback Delivery ($B_{MX\rightarrow Y}$)	0.23**
Age → FO—Social awareness ($B_{W\rightarrow M}$)	0.25**
Mediated moderation effect ($B_{W\rightarrow M}B_{MX\rightarrow Y}$)	0.058**
95% Bootstrap CIs of $B_{W\rightarrow M}B_{MX\rightarrow Y}$	[0.018, 0.106]
Testing Hypothesis 8d	
FO—Utility × Feedback Quality ($B_{MX\rightarrow Y}$)	0.20**
Age → FO—Utility ($B_{W\rightarrow M}$)	−0.29**
Mediated moderation effect ($B_{W\rightarrow M}B_{MX\rightarrow Y}$)	−0.058**
95% Bootstrap CIs of $B_{W\rightarrow M}B_{MX\rightarrow Y}$	[−0.103, −0.023]

Note. FO = feedback orientation; CI = confidence interval. $B_{MX\rightarrow Y}$ refers to the regression coefficient for the interaction between the predictor (i.e., X, feedback characteristics) and the mediator (i.e., M, feedback orientation variables) in predicting the dependent variables (i.e., Y, overall feedback reaction). $B_{W\rightarrow M}$ refers to the regression coefficient for the original moderator (i.e., W, age) in predicting the mediator (i.e., M, feedback orientation variables). $B_{W\rightarrow M}B_{MX\rightarrow Y}$ refers to product coefficient that represents the hypothesized mediated moderation effect.
* $p < .05$. ** $p < .01$.

the same cognitive and motivational processes. Thus, age-related effects on these work-related phenomena can be hypothesized and tested to further develop theory regarding the workplace aging process.

Second, our findings underscore the importance of considering age differences in relation to the effectiveness of human resource management functions that are commonly carried out in organizations (Truxillo, Cadiz, & Rineer, 2014). In particular, our findings support Kanfer and Ackerman's (2004) notion that many human resource functions consisting of and administered via social interactions (in this case, formal performance appraisal and feedback giving) may have different implications for employees with different ages. For example, our findings suggest that when providing feedback to older workers, supervisors should avoid solely focusing on performance aspects that need development so that older workers will not perceive the feedback as being unfavorable. Likewise, our findings suggest that providing feedback in a considerate manner to older workers and improving the informational quality of feedback to younger workers are more likely to engender desirable feedback reactions from them, respectively. It is important to note that in addition to the motivational mechanisms specified in SST, age-related differences in social–cognitive processing may also drive the differences in ways that younger and older adults process social interactions at work (Jex, Wang, & Zarubin, 2007; Wang & Zhan, 2012). For example, Hess (1994) suggests that memory representations of social events change with aging, influencing how newly experienced social interactions are cognitively processed. Furthermore, Wang et al. (2013; also see Shultz, Wang, Crimmins, & Fisher, 2010; Wang & Chen, 2004; Wang & Chen, 2006) suggests that older adults' potential losses in fluid intelligence could impact their social judgment and motivation in the workplace.

Third, our findings that age was associated with feedback orientations on social awareness and utility support Linderbaum and Levy's (2010) conceptualization of feedback orientation as a type of malleable individual difference. It advances our understanding regarding how individuals' feedback orientation can develop and change over time. This finding is also consistent with Ng and Feldman's (2013) recent theorizing regarding how age-related within-person changes in personality and goal orientation may influence employees' work behaviors. Further, our investigation of the interaction effects between feedback characteristics and feedback orientation answers Linderbaum and Levy's (2010) call for examining person-by-situation interactions that occur during the feedback process. Focusing on this interaction helps better identify how individuals fit to different feedback strategies. It offers a starting point to understand how employee development can be more fully leveraged across diverse individuals.

Limitations and Directions for Future Research

The findings of the current study should be interpreted with some cautions. First, given that all variables were measured via self-report, common method bias is a concern. However, our findings were derived after controlling for social desirability, which had quite low correlations with all other variables (*r*s ranged from −.04 to .13). These low correlations alleviate the concern of common method bias to some extent, because the covariation between a self-report measure and social desirability reflects the level of systematic error variance because of using self as the common rating source (Linderbaum & Levy, 2010; Smith & Ellingson, 2002). Nevertheless, future research can simultaneously manipulate various feedback characteristics in the lab setting and directly record employee reactions to address the potential problem of common method bias.

Second, the current sample contained mostly male workers from a Chinese company, which may limit the generalizability of the current findings and call for future replications. Furthermore, in

China there is a strong emphasis on treating older individuals with respect (Tsui & O'Reilly, 1989). Thus, it is possible that older and younger workers in the current sample actually received different forms of feedback, because supervisors might take age into account when delivering feedback to employees. However, our data suggest that age was not correlated with perceived feedback characteristics (Table 1). Nevertheless, future research should address this potential confound by directly measuring the actual feedback content and delivery for older and younger workers.

Third, our investigation of feedback characteristics was not comprehensive. For example, we did not measure source credibility and promoting feedback seeking in the current study, which have been shown to relate to employee feedback reactions (Steelman et al., 2004). Thus, it may be interesting for future research to examine whether older and younger employees react differently to these two feedback characteristics. Similarly, although beyond the scope of the current study, relative age of the supervisor-subordinate dyad may be another moderator to examine on the relationships between feedback characteristics and feedback reactions.

Finally, the current study did not examine the change in feedback reactions over time, nor did it measure behavioral reactions (for instance, job performance improvement) following the feedback event. Instead, the logical leap was made that employee reactions following the feedback would be rather stable and likely drive their behavior on the job. Future research should examine whether these assumptions are valid and extend the current findings to job behaviors.

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(*Appendix follows*)

Appendix

Measures of Feedback Characteristics

Adapted items from Feedback Environment Scale (Steelman, Levy, & Snell, 2004).

Instruction to the participants:

"Please indicate the degree to which you agree with the following statements *regarding the performance feedback session you just had with your supervisor*)." (1 = *strongly disagree*, 7 = *strongly agree*).

Adapted from the Unfavorable Feedback subscale:

1. My supervisor let me know that I did not meet certain deadlines.
2. My supervisor told me that my work performance did not meet organizational standards.
3. My supervisor let me know that my job performance fell below what was expected.
4. My supervisor told me about the mistakes I made at work.

Adapted from the Favorable Feedback subscale:

5. My supervisor praised my performance.
6. I did not receive praise from my supervisor. (reverse coded)
7. My supervisor let me know that I was doing a good job at work.
8. I received positive feedback from my supervisor.

Adapted from the Feedback Quality subscale:

9. My supervisor gave me useful feedback about my job performance.
10. The performance feedback received from my supervisor is helpful.
11. I value the feedback I received from my supervisor.
12. The feedback I received from my supervisor will help me to do my job.
13. The performance feedback I received from my supervisor is not very meaningful. (reverse coded)

Adapted from the Feedback Delivery subscale:

14. My supervisor was supportive when giving me feedback about my job performance.
15. My supervisor was considerate of my feelings when giving me performance feedback.
16. My supervisor provided the feedback in a thoughtless manner. (reverse coded)
17. My supervisor did not treat me very well when providing my performance feedback. (reverse coded)
18. My supervisor was tactful when giving me performance feedback.

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