

# Self-Efficacy as a Moderator of Information-Seeking Effectiveness

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The authors assessed previously unexplored processes by which information seeking and self-efficacy contribute to self-regulatory effectiveness in industrial selling. They assessed the synergistic interaction of inquiry and monitoring with respect to role clarity and tested whether this interaction was further moderated by self-efficacy. Results indicated that the role-clarifying effects of feedback inquiry and monitoring were contingent rather than independent. Role clarity increased as the combination of inquiry and monitoring increased. Furthermore, these joint effects were moderated by self-efficacy, such that high-self-efficacy employees were able to effectively use the combination of inquiry and monitoring to clarify role expectations, whereas low-self-efficacy employees were not. Implications for theory, practice, and future research are discussed.

Effective self-regulation of work behavior requires aligning personal goals and performance with the expectations and standards of the organization. To make this alignment, employees must be clear about what their roles entail and how closely their behavior conforms to role expectations and standards. Because role expectations and standards are often dynamic and implicit, effective self-regulation requires individuals to continuously seek information to direct, evaluate, and adjust their efforts (Ashford, 1986; Kanfer & Kanfer, 1991; Morrison, 1993).

Seeking information and accurately interpreting it are critical to self-regulatory effectiveness (Ashford, 1989; Carver & Scheier, 1998). However, research attempting to identify people who more and less effectively seek information has met with only mixed success. Research has focused primarily on identifying personality traits associated with tendencies to seek greater or lesser amounts of information.

This research has indicated some tendencies for people with particular dispositions to seek more or less feedback, but results

have been inconsistent. For example, Northcraft and Ashford (1990) found that self-esteem was significantly related to seeking feedback about individual performance but not social comparison feedback. Fedor, Rensvold, and Adams (1992) also found mixed results regarding relationships between self-esteem and feedback seeking. Vancouver and Morrison (1995) found that the relationship between self-esteem and information seeking was moderated by seekers' perceptions of the quality of their relationship with the target person. Thus, although information-seeking research has provided a number of important insights into effective self-regulation, it has been only modestly successful in identifying characteristics associated with more and less effective self-regulation through information seeking.

An alternative (and complementary) research strategy is to focus on factors that influence how effectively individuals seek, integrate, and interpret information from superiors and coworkers to clarify role expectations and perform up to standard. This approach involves seeking moderators of information-seeking effectiveness as well as antecedents of the amount or frequency of information sought.

One such individual-differences construct that has been shown to influence self-regulatory effectiveness in a number of achievement domains is self-efficacy (Bandura, 1997; Stajkovic & Luthans, 1998). Self-efficacy refers to individuals' beliefs that they have the ability and resources to succeed at a specific task. Self-efficacy beliefs contribute to effective performance by increasing motivation, task focus, and effort and decreasing anxiety and self-defeating negative thinking (Bandura, 1997).

Self-efficacy differs in important ways from self-esteem. Bandura (1997) explained that self-efficacy and self-esteem "refer to entirely different things. Perceived self-efficacy is concerned with judgments of personal capability, whereas self-esteem is concerned with judgments of self-worth. There is no fixed relationship

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between beliefs about one's capabilities and whether one likes or dislikes oneself" (p. 11).

We hypothesized that self-efficacy beliefs moderate the effectiveness with which employees use information seeking to improve role clarity and work performance. Being relatively free from cognitive distractions, biases, and distortions, employees with high (vs. low) self-efficacy should be better able to clarify role expectations by seeking information. In contrast, employees with low self-efficacy tend to be distracted by intrusive negative thoughts and subject to negative cognitive biases and uncertainties about their abilities (Bandura, 1997). We also tested the rival hypothesis that employees with high self-efficacy self-regulate more effectively because they seek greater amounts of information and therefore achieve greater role clarity and performance.

We also extended the information-seeking literature by testing whether the two primary methods of information seeking, direct inquiry and monitoring the behavior of others, have a synergistic interaction effect with respect to role clarity. We also assessed whether role clarity mediates the joint effects of self-efficacy and information seeking on work performance. By testing these processes, we identified new mechanisms through which information seeking and self-efficacy combine to enhance role clarity and performance. The hypothesized and alternative models guiding our study are depicted in Figures 1A and 1B.

### Role Clarity

To effectively self-regulate goal-directed behavior, employees must possess a clear and accurate understanding of role expectations and standards (Bandura, 1997; Carver & Scheier, 1998). Role expectations in complex task environments are multidimensional and dynamic. In such circumstances, employees must continuously monitor the work environment to update their understanding of the organization's expectations and assess whether they are delivering

the "right stuff" through their role performance. Lack of clarity can lead to misdirected or insufficient effort and inability to anticipate organizational reactions. According to Weick (1995), the absence of a clear and accurate understanding of role expectations "means that the assumptions necessary for rational decision making are absent" (p. 92).

Thus, understanding the personal characteristics and processes that contribute to role clarity has far-reaching implications for organizational effectiveness. In previous research, role clarity has been significantly linked to work performance (Jackson & Schuler, 1985). Previous research (e.g., Ashford, 1986; Ashford & Cummings, 1983; Ashford & Tsui, 1991; Morrison, 1993) also has indicated that employees use proactive information seeking to improve role clarity. Thus, before developing our hypotheses regarding self-efficacy, we focus on the interaction of inquiry and monitoring in clarifying role expectations and standards.

### Proactive Information Seeking

To obtain needed information, employees can either directly ask their supervisor or coworkers (inquiry) or observe their behavior (monitoring) and infer from it how their performance is being evaluated (Ashford & Cummings, 1983). Even though inquiry and monitoring are often used together (Ashford & Tsui, 1991), research has focused only on their independent (i.e., main effect) relationships with role clarity, work behaviors, and job outcomes. Inquiry and monitoring each entail distinct benefits and costs and may, to some extent, be synergistic. This led us to propose an interaction between them. The Inquiry  $\times$  Monitoring interaction hypothesis was based on the idea that although both methods of information seeking have advantages, neither one alone provides sufficiently reliable, accurate, and complete information for effective role clarification. In the following sections, we analyze the

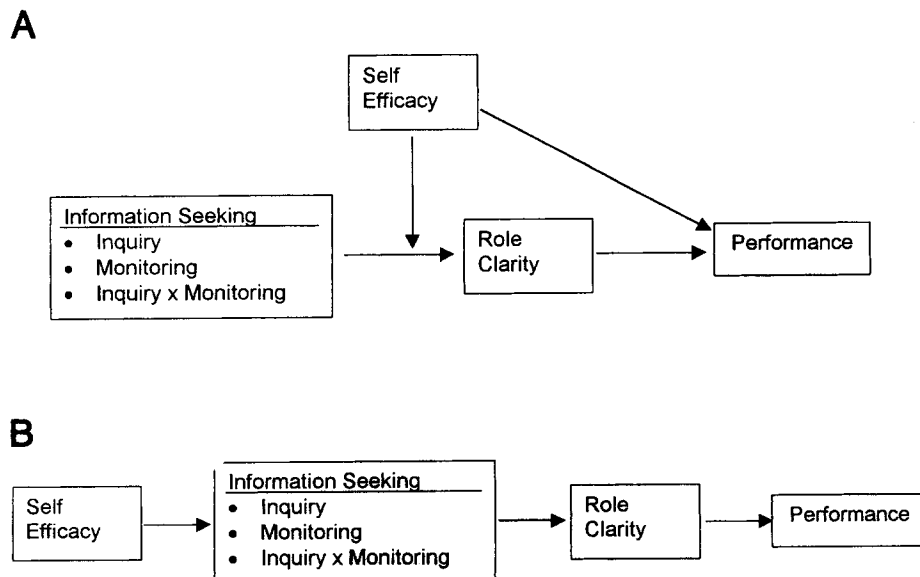


Figure 1. Hypothesized model (A) and alternative model (B) of self-efficacy and information-seeking effects on role clarity and performance.

costs and benefits of inquiry and monitoring and the synergy that develops when both are used together.

### *Benefits and Costs of Inquiry*

Inquiry typically yields information that relates directly to employees' concerns and leads to conscious and attentive cognitive processing (Ashford & Tsui, 1991). The straightforward quality of information obtained by inquiry and its direct relevance to subordinates' individual concerns regarding work procedures, organizational norms, performance evaluation, and so forth are likely to improve role clarity (Ashford & Tsui, 1991; Morrison, 1993).

However, several factors limit the quantity and range of information that employees can typically acquire by direct inquiry. For example, impression management concerns limit the amount of information that employees acquire by direct inquiry (Ashford & Cummings, 1983; Ashford & Northcraft, 1992; Morrison & Bies, 1991). Even when subordinates do inquire, the value of the information they obtain may be limited. Supervisors and coworkers may dodge critical questions or respond equivocally. Also, responses from supervisors and coworkers may be subject to bias from socially desirable responding. These considerations suggest that inquiry alone is insufficient to satisfy employees' perceived information needs. Simultaneously using monitoring tactics along with inquiry may help overcome these limitations.

### *Benefits and Costs of Monitoring*

Monitoring involves observing situations or attending to the behavior of others for cues that are useful as feedback (Ashford & Cummings, 1983). It enables employees to acquire tacit information and feedback while circumventing impression management costs (e.g., Ashford & Cummings, 1983; Morrison & Bies, 1991).

To a greater extent than inquiry, monitoring involves inferring the meaning and implications of subtle and ambiguous behavioral cues (Ashford & Cummings, 1983). The accuracy of these inferences is likely to be low because individuals may focus on irrelevant cues or erroneously interpret relevant ones (Taylor, Fisher, & Ilgen, 1984). Thus, the diagnostic value of monitoring alone is questionable. All else equal, information obtained by monitoring is likely to be less useful for clarifying role expectations than that which is obtained by inquiry.

### *Inquiry $\times$ Monitoring Interaction*

Employees are often likely to use both inquiry and monitoring to obtain information and feedback (Ashford & Tsui, 1991). Because their benefits are synergistic, their joint effects may be greater than the sum of their separate effects. Contingencies formed by crossing high and low levels of inquiry and monitoring are depicted in Figure 2.

When both inquiry and monitoring are low, employees have inadequate role-clarifying information. They must rely on information provided routinely by their supervisor, coworkers, and work tasks, and they may lack timely and specific information relevant to their individual concerns. When inquiry is high but monitoring is low, employees possess information that is incomplete to address all their concerns. In this condition, employees may discount the value of information based on inquiry alone

		Inquiry	
		Low	High
Monitoring	High	Ambiguous Information, Inferential errors likely	Synergistic Information, Effective role clarification
	Low	Inadequate Information	Incomplete Information, Social desirability bias

Figure 2. Information conditions resulting from high and low inquiry and monitoring.

because they suspect a desirable responding bias on the part of the information source. When monitoring is high but inquiry is low, employees possess ambiguous information that must be interpreted accurately to be useful; however, behavioral cues in all work settings are subtle and ambiguous, and perceptual and inferential processes are subject to bias, leading to high risk of erroneous interpretations (Nisbett & Wilson, 1977). In these three conditions, information obtained is likely to fall short of that needed to effectively clarify role expectations.

When both inquiry and monitoring are high, information obtained from the two methods is synergistic. For example, inferences regarding the meaning and significance of information obtained by monitoring may be more accurate when employees also possess related information obtained by inquiry. Information obtained by inquiry can provide a context, framework, or schema that facilitates interpretation of more ambiguous information obtained by monitoring (Thomas, Clark, & Gioia, 1993; Weick, 1995). In a similar manner, monitoring may help subordinates "read between the lines" and obtain information that enhances what they are willing to ask for or supervisors are willing to convey in response to inquiry. Monitoring may also be used to assess the validity of information obtained by inquiry (e.g., to gauge the correspondence between the supervisor's verbal feedback and actual behavior). When inquiry is high, the accuracy of inferences about the meaning and significance of information obtained by monitoring is likely to be greater than when inquiry is low.

The expected synergy between inquiry and monitoring leads to the prediction that each tactic will be more positively related to role clarity when it is used together with the other tactic. In particular, we expected the slopes of the relationships between inquiry (monitoring) and role clarity to vary across levels of monitoring (inquiry), becoming more positive as levels of the moderator increase. Both inquiry and monitoring are likely to be more strongly related to role clarity when the level of the other is high.

*Hypothesis 1:* Inquiry and monitoring will interact such that role clarity increases as the combination of inquiry and monitoring in-

creases. The slopes of the relationships of inquiry and monitoring with role clarity will become increasingly positive as the level of the other method of information seeking increases.

### Self-Efficacy

Self-efficacy refers to beliefs regarding one's capacity to successfully perform a specific task (Bandura, 1997). Individuals with high self-efficacy believe they have the ability and resources to accomplish specific tasks, and this belief motivates goal setting, strategic planning, effort, and performance (Bandura, 1991, 1997; Wood & Bandura, 1989). Self-efficacy has been found to positively influence performance in many work contexts (Stajkovic & Luthans, 1998).

In addition to increasing performance through motivation, planning, and effort, self-efficacy may also operate jointly with information seeking to improve role clarity, which, in turn, influences performance. In particular, we expected individuals with high self-efficacy to use the combination of inquiry and monitoring more effectively than individuals with low self-efficacy to improve role clarity.

### Moderating Effects of Self-Efficacy

Differences in cognitive processing between employees with high and low self-efficacy may lead to greater synergy between inquiry and monitoring for employees with high self-efficacy. Employees with high self-efficacy may be better able to seek, integrate, and interpret information and clarify role expectations. They are more focused on task requirements and less distracted by performance anxiety and off-task cognitions (Bandura, 1997). Greater task focus should enable individuals with high self-efficacy to accurately interpret information.

In contrast, individuals with low self-efficacy may doubt their ability to accurately interpret information and feedback. Because they doubt their own abilities, they may impute positive feedback to impression management motives and therefore discount it. Also, individuals who doubt their abilities tend to seek information that is consistent with their views of themselves and interpret ambiguous information in a manner consistent with these views (Swann, 1985, 1987). These processes may lead individuals with low self-efficacy to ineffectively seek information.

Distraction from off-task cognitions may also reduce the ability of individuals with low self-efficacy to use information seeking to self-regulate effectively. Individuals with low self-efficacy tend to be distracted by ruminations about perceived inadequacies and failures, which consume limited cognitive resources that are needed to process task demands and seek, attend to, integrate, and interpret information effectively (Bandura, 1991).

Several studies have suggested that efficacy beliefs facilitate integration and effective use of complex information. Bandura and Jourden (1991), Bandura and Wood (1989), and Wood and Bandura (1989) found that individuals with high (vs. low) self-efficacy performed significantly better in management simulations requiring complex information integration and learning of nonlinear probabilities and contingencies. Cervone, Jiwani, and Wood (1991) commented that individuals with high self-efficacy "learn more from feedback, respond more adaptively to the decision environment, and, over time, are better able to translate their learning into improved performance" (p. 259).

To build on Hypothesis 1, we predicted that individuals with high self-efficacy use the combination of inquiry and monitoring more effectively than individuals with low self-efficacy to improve role clarity. Thus, the prediction calls for a three-way Self-Efficacy  $\times$  Inquiry  $\times$  Monitoring interaction. In this interaction, the combination of inquiry and monitoring should have a more positive effect on role clarity for employees with high self-efficacy than for employees with low self-efficacy.

*Hypothesis 2a:* Self-efficacy will moderate the relationship between information seeking and role clarity. The combination of inquiry and monitoring methods of information seeking will be more strongly related to role clarity for employees with high self-efficacy than for employees with low self-efficacy.

As an alternative to the moderation hypothesis, it is also possible that self-efficacy and information seeking may be jointly related to role clarity through a process of mediation rather than moderation. It is possible that self-efficacy leads to greater frequency of information seeking, which, in turn, positively influences role clarity. This sequence is consistent with the idea that employees with high self-efficacy are more task-focused and motivated to seek performance-facilitating information than are employees with low self-efficacy (e.g., Jones, 1983). This alternative hypothesis implies that differences in self-regulatory effectiveness result from differences in the amount of information sought instead of (or in addition to) differences in ability to effectively interpret and use information.

*Hypothesis 2b:* Information seeking will mediate an indirect relationship between self-efficacy and role clarity.

### Mediating Effects of Role Clarity

Although scholars (e.g., Ashford, 1986; Ashford & Cummings, 1983) have maintained that information seeking is related to performance through the mediation of role clarity, empirical support for this linkage is lacking. Consistent with previous theorizing (Ashford & Cummings, 1983), we posited that information seeking leads to greater role clarity and that role clarity, in turn, contributes to higher performance.

*Hypothesis 3:* Role clarity will mediate the effects of information seeking on work performance.

## Method

### Research Setting and Data Collection

We collected data using a mail survey of salespeople from two Fortune 500 firms. The companies sold a wide variety of industrial products through multiple specialized salesforces. The salespeople were sent a questionnaire with a cover letter describing the study and assuring confidentiality. We mailed questionnaires to 340 salespeople, 279 (82%) of whom returned complete and usable responses. Respondents' average age was 44 years, and their average job tenure was 16 years. Ninety-one percent of respondents were male, and most had at least a college degree. We controlled statistically for organizational membership in subsequent analyses.

### Measures

All measures were submitted to confirmatory factor analysis to assess unidimensionality and convergent and discriminant validity. Items used in

the final measures had factor loadings greater than .5 on the intended construct and no cross loadings greater than .25. Chi-square tests indicated that all interconstruct correlations were substantially less than 1.

**Information seeking.** For inquiry and monitoring, we asked how frequently study participants sought four different types of information from their supervisor and from coworkers. These included (a) overall job performance (appraisal information), (b) role expectations (referent information), (c) values and attitudes of the firm (social information), and (d) technical aspects of the job (technical information). For inquiry, we asked study participants to consider (a) how frequently in the past 3 months they asked their direct supervisor for each of the four types of information and (b) how frequently they asked coworkers for each type of information (eight items in total). Response formats consisted of 7-point scales anchored by 1 (*almost never*) and 7 (*very frequently*). For monitoring, we asked how frequently in the past 3 months study participants had observed and monitored the behavior of (a) supervisors and (b) coworkers for the four types of information (eight items in total).

Exploratory factor analysis produced distinct factors for source of information (supervisor and coworkers) and method of seeking (inquiry and monitoring) but not for different types of information. The factors representing distinct sources of information within methods (i.e., inquiry from supervisor and coworkers, monitoring from supervisor and coworkers) were sufficiently internally consistent ( $\alpha = .77$  for inquiry and  $\alpha = .79$  for monitoring) to combine into single composite indices representing the inquiry and monitoring constructs.

**Self-efficacy.** Self-efficacy was measured using the strength and magnitude scales recommended by Bandura (1997) and Lee and Bobko (1994). Study participants indicated whether they expected to achieve each of 10 levels (in 5% increments, from 75%–79% of quota to more than 120% of quota) of performance against their annual sales quota. The salespeople indicated whether they believed they could attain each level (yes or no) and their confidence (0% to 100%) of being able to attain each level. Self-efficacy scores consisted of the summation of confidence ratings.

**Role clarity.** We measured role clarity with a scale developed by Singh and Rhoads (1991). Study participants indicated how certain they were about role requirements and expectations on eight items related to role clarity with respect to their supervisor. Response formats consisted of 7-point scales anchored by 1 (*very uncertain*) and 7 (*very certain*).

**Performance.** Self-ratings of performance were measured using seven items from Behrman and Perreault (1982) that asked the extent to which the salespeople met their sales objectives. The response format asked study participants to rank themselves into percentiles in their division. Because rankings were published regularly, they were able to do this accurately.

## Control Variables

Previous research has shown that supervisor-initiated feedback, supervisory consideration, initiation of structure, self-generated feedback, and job tenure are positively related to role clarity. Therefore, we controlled statistically for these relationships before testing the hypotheses.

**Supervisor-initiated feedback.** We asked study participants to indicate how frequently they received unsolicited feedback from their supervisor on the same four dimensions described above for inquiry and monitoring.

**Supervisory consideration and initiation of structure.** Supervisory consideration refers to a leadership style that promotes psychological support, mutual respect and trust, and friendliness (Bass, 1990). Initiation of structure refers to the extent to which a supervisor defines subordinates' work roles by specifying procedures and assigning tasks (Bass, 1990). Both have been found to be positively related to role clarity (Jackson & Schuler, 1985). We measured supervisory consideration (six items) and initiation of structure (five items) by using adaptations of House and Dessler's (1974) scales, previously validated in a similar study context by Teas (1983). All had 7-point scales ranging from 1 (*very false*) to 7 (*very true*).

**Self-generated feedback.** Self-evaluations and feedback based on self-monitoring of performance constitute a source of role-clarifying information (Ashford, 1989). We measured self-generated feedback with five 7-point Likert scales from Kohli and Jaworski (1994).

**Job tenure.** The longer employees occupy a role, the more opportunity they have to internalize its norms and learn what is expected, thereby increasing their role clarity (Ashford, 1986; Ashford & Cummings, 1983). We measured job tenure with a single item.

**Organizational membership.** We included a dummy-coded variable to control for possible effects of organizational membership on role clarity and performance.

## Results

The correlations among the constructs and other descriptive statistics are reported in Table 1. We tested Hypotheses 1 and 2a by using a three-step analysis. In the first step, we conducted a regression of role clarity on the control variables. In this analysis, self-generated feedback ( $\beta = .32, p < .01$ ) and supervisory consideration ( $\beta = .59, p < .01$ ) were significantly related to role clarity, as indicated in Table 2.

In the second step, we submitted the residual variance in role clarity (i.e., after the effects of the control variables were removed)

Table 1  
Descriptive Statistics and Correlations for the Study Variables

Construct	M	SD	1	2	3	4	5	6	7	8	9	10	11
1. Inquiry	3.32	1.35	(.87)										
2. Monitoring	3.39	1.38	.63	(.93)									
3. Self-efficacy	729.29	160.26	.04	.02	—								
4. Supervisor-initiated feedback	3.80	1.38	.28	.29	.02	(.82)							
5. Supervisory consideration	5.46	1.28	.15	.13	.16	.24	(.90)						
6. Initiation of structure	3.93	1.12	.17	.27	.08	.22	.08	(.70)					
7. Self-generated feedback	5.92	0.80	-.09	-.07	.16	-.01	.15	.04	(.84)				
8. Role clarity	5.49	1.00	.02	-.03	.14	.23	.64	.12	.37	(.92)			
9. Performance	79.62	8.87	-.11	-.15	.26	-.12	.00	-.08	.32	.22	(.88)		
10. Job tenure	15.62	9.67	-.28	-.24	-.03	.01	.06	.04	.15	.15	.09	—	
11. Inquiry $\times$ Monitoring	12.26	8.32	.05 <sup>a</sup>	.00 <sup>a</sup>	.03	.30	.17	.24	-.06	.01	-.12	-.30	—

Note. Correlations  $> .11$  are significant at  $\alpha = .05$ , correlations  $> .14$  are significant at  $\alpha = .01$ , and correlations  $> .15$  are significant at  $\alpha = .001$ . Coefficient alphas are indicated in parentheses along the diagonal.

<sup>a</sup> Correlations indicated are for mean-centered variables.

Table 2  
Standardized Parameter Estimates for Test of Hypotheses 1 and 2a (Role Clarity as Dependent Variable)

Predictor	$\beta$
Step 1	
Supervisor-initiated feedback	.06
Consideration	.59**
Initiation of structure	.04
Experience	.06
Self-generated feedback	.32**
Organizational membership	.07
Step 2	
Inquiry	-.03
Monitoring	-.18**
Inquiry $\times$ Monitoring	.10†
Step 3	
Self-efficacy	-.04
Inquiry	.04
Monitoring	-.20**
Inquiry $\times$ Monitoring	.03
Self-Efficacy $\times$ Inquiry	.10
Self-Efficacy $\times$ Monitoring	-.10
Self-Efficacy $\times$ Inquiry $\times$ Monitoring	.15*

Note. For Step 1,  $R^2 = .55$ . For Step 2,  $R^2 = .05$  (increment over Step 1). For Step 3,  $R^2 = .06$  (increment over Step 1).

†  $p < .10$ . \*  $p < .05$ . \*\*  $p < .01$ .

to a regression in which inquiry and monitoring (both mean centered) and the Inquiry  $\times$  Monitoring interaction were the independent variables. In this analysis, monitoring was negatively related to role clarity ( $\beta = -.18, p < .01$ ), whereas inquiry was not significantly related to role clarity. The Inquiry  $\times$  Monitoring interaction was marginally significant,  $\beta = .10, p < .10$ , incremental  $R^2 = .01, F(1, 272) = 2.76, p < .10$ . These results provide qualified support for Hypothesis 1. The results are reported in Table 2.

Even though the strength of the interaction effect was modest, it indicates that the slopes of the relationships of inquiry and monitoring with role clarity varied across levels of the other method of feedback seeking. To explore the form of the interaction, we conducted simple slopes tests as recommended by Aiken and West

(1992). These tests involved estimating the slope of the relationship between inquiry (monitoring) and role clarity at high and low levels (one standard deviation above and below the mean) of monitoring (inquiry). We present the results in Figure 3.

The analyses indicated that monitoring was negatively related to role clarity when inquiry was low ( $\beta = -.29, p < .01$ ) but was not significantly related to role clarity when inquiry was high ( $\beta = -.07, p > .10$ ). These results indicate that use of monitoring is associated with lower role clarity, probably as a result of inferential errors, when inquiry is low but that high levels of inquiry counteract this negative effect. The analyses further indicated that inquiry was negatively related to role clarity ( $\beta = -.18, p < .05$ ) when monitoring was low but was positively related to role clarity ( $\beta = .12, p < .05$ ) when monitoring was high. Surprisingly, these results indicate that inquiry is counterproductive when monitoring is low but beneficial when monitoring is high. As predicted in Hypothesis 2a, we expected that these effects would be qualified by a three-way Self-Efficacy  $\times$  Inquiry  $\times$  Monitoring interaction.

In the third step of the analysis, the main effect of self-efficacy (mean centered), two additional two-way interactions (Self-Efficacy  $\times$  Inquiry and Self-Efficacy  $\times$  Monitoring), and the hypothesized three-way Self-Efficacy  $\times$  Inquiry  $\times$  Monitoring interaction were added to the model tested in Step 2. This model tested the moderating effect of self-efficacy on information-seeking effectiveness. In this analysis, the three-way interaction was statistically significant,  $\beta = .15, p < .05$ , incremental  $R^2 = .03, F(1, 241) = 5.25, p < .05$ . None of the two-way interactions were significant when the three-way interaction was included in the model.

### Form of the Three-Way Interaction

To explore the three-way interaction, we first analyzed the statistical significance of the Inquiry  $\times$  Monitoring interaction at high and low levels of self-efficacy. This analysis revealed a significant Inquiry  $\times$  Monitoring interaction when self-efficacy was high ( $\beta = .18, p < .05$ ) but no interaction when self-efficacy was low ( $\beta = -.06, p > .10$ ). This finding indicates that employees with high self-efficacy effectively use the combination of

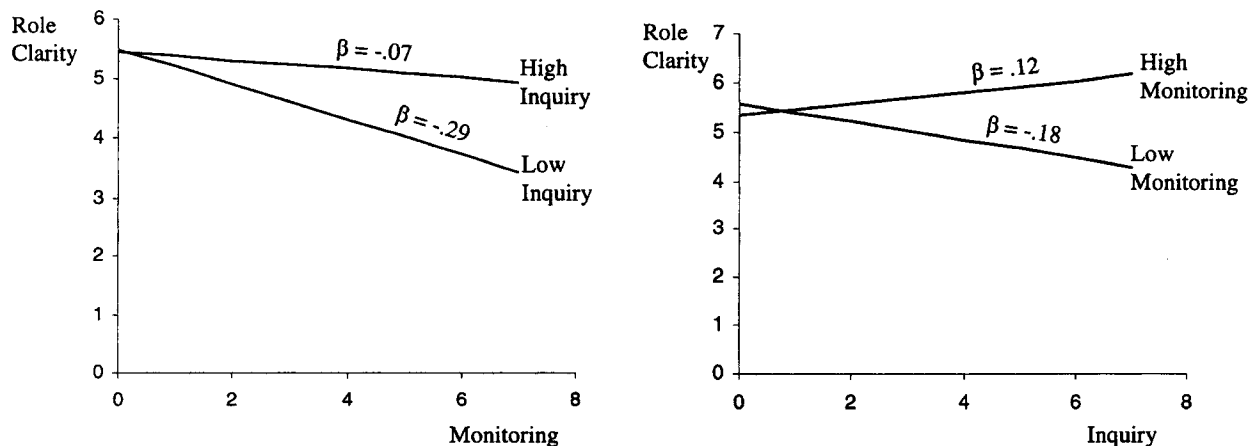


Figure 3. Form of the Inquiry  $\times$  Monitoring interaction with respect to role clarity.

inquiry and monitoring to clarify role expectations, whereas employees with low self-efficacy do not.

The next step was to explore the form of the two-way Inquiry  $\times$  Monitoring interaction for employees with high self-efficacy. The results of these analyses are depicted in Figure 4. They revealed that, for employees with high self-efficacy, inquiry was strongly and positively related to role clarity when monitoring was high ( $\beta = .32, p < .001$ ) but was not significantly related to role clarity when monitoring was low ( $\beta = -.04, p > .25$ ). The analysis further revealed that monitoring had a strong negative relationship with role clarity when inquiry was low ( $\beta = -.48, p < .001$ ) but was not significantly related to role clarity ( $\beta = -.13, p > .10$ ) when inquiry was high.

These results indicate that the synergy between inquiry and monitoring is strong for employees with high self-efficacy and pertains only to them. For employees with high self-efficacy, inquiry has a strong positive effect on role clarity when monitoring is high but no effect when monitoring is low. These findings also indicate that monitoring alone leads to faulty inferences regarding the meaning and significance of feedback information but that high levels of inquiry and self-efficacy together counteract this negative effect. Overall, the results indicate that, for employees with high self-efficacy, both inquiry and monitoring are more effective when the other is high. Information seeking did not improve role clarity for employees with low self-efficacy.

#### *Hypothesis 2b: Self-Efficacy $\rightarrow$ Information Seeking $\rightarrow$ Role Clarity*

Regression analyses as well as inspection of the correlations reported in Table 1 indicated that self-efficacy was not significantly related to any of the information-seeking variables (inquiry, monitoring, or the Inquiry  $\times$  Monitoring interaction), nor was self-efficacy directly related to role clarity. These findings indicate that information seeking does not mediate a relationship between self-efficacy and role clarity as predicted in Hypothesis 2b (Baron & Kenny, 1986). They indicate that differences in self-regulatory capabilities between employees with high and low self-efficacy do not result from differences in the overall amount of information sought or the amount of information sought using a particular method.

#### *Hypothesis 3: Mediating Effects of Role Clarity*

To assess whether role clarity mediates the joint effects of inquiry and monitoring on performance, we estimated a regression model that omitted role clarity and assessed the direct effects of the two- and three-way interactions on performance. Estimating a model that omits role clarity (the proposed mediator) allowed us to assess whether information seeking was significantly related to performance in the absence of the proposed mediator. Then, comparison of these results with those reported previously allowed us to assess whether the direct relationships between information seeking and performance became smaller or nonsignificant when role clarity was added to the model (Baron & Kenny, 1986).

The results, reported in Table 3, showed that only the individual effect of self-efficacy was significantly related to performance when role clarity was not included in the performance model ( $\beta = .19, p < .01$ ). However, the individual effect of monitoring ( $\beta = -.12, p < .10$ ), the Inquiry  $\times$  Monitoring interaction ( $\beta = .12, p < .10$ ), the Self-Efficacy  $\times$  Monitoring interaction ( $\beta = -.13, p < .10$ ), and the three-way Self-Efficacy  $\times$  Inquiry  $\times$  Monitoring interaction ( $\beta = .12, p < .10$ ) were all marginally related to performance in the model that omitted role clarity. The three-way Self-Efficacy  $\times$  Inquiry  $\times$  Monitoring interaction qualified the lower order effects. The form of this interaction was virtually identical to that of the three-way interaction with respect to role clarity that was tested in Hypothesis 2a and plotted in Figure 4. When role clarity was inserted into the performance model, all of the effects of information seeking except the individual effect of monitoring dropped to nonsignificance, indicating that role clarity mediated these effects in a manner consistent with Hypothesis 3.

#### Discussion and Conclusion

Our study integrated concepts from the information-seeking and self-efficacy literatures to identify previously unexplored self-regulatory processes. The results extend the literature on information seeking by showing that inquiry and monitoring are contingently, rather than independently, related to role clarity. Moreover, they demonstrate that employees with high self-efficacy effectively seek, integrate, and use information to increase role clarity and performance, whereas employees with low self-efficacy do not.

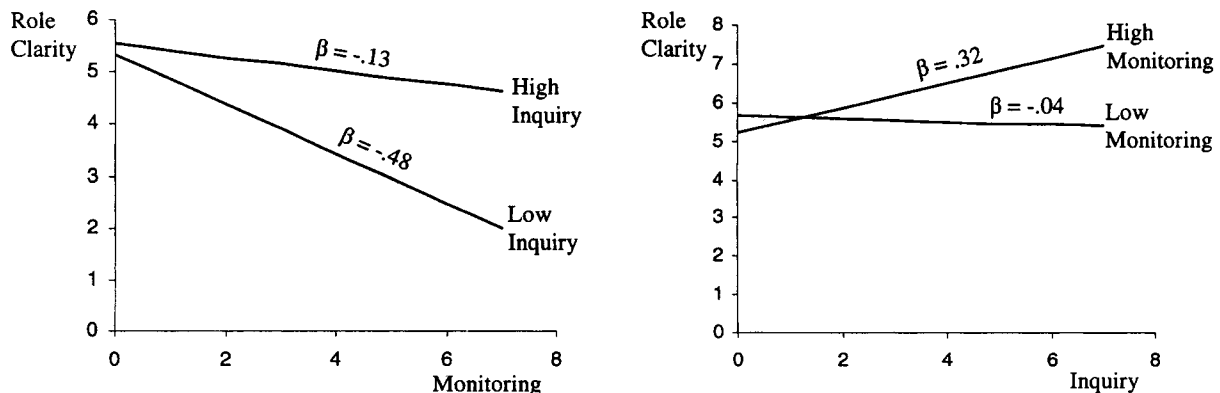


Figure 4. Form of the Inquiry  $\times$  Monitoring interaction with respect to role clarity for salespeople with high self-efficacy.

Table 3  
Standardized Parameter Estimates for Performance Models

Predictor	Without role clarity	With role clarity
<b>Control variables</b>		
Supervisor-initiated feedback	-.10	-.10
Supervisor consideration	-.02	-.02
Initiation of structure	-.07	-.07
Self-generated feedback	.26**	.26**
Job tenure	.00	.04
Organizational membership	.10	.10
<b>Focal variables</b>		
Inquiry	.05	.02
Monitoring	-.12†	-.13†
Self-efficacy	.19**	.19*
Role clarity		.11†
Inquiry × Monitoring	.12†	.09
Self-Efficacy × Inquiry	.07	.04
Self-Efficacy × Monitoring	-.13†	.06
Self-Efficacy × Inquiry × Monitoring	.12†	.06
<i>R</i> <sup>2</sup>	.10	.11

†  $p < .10$ . \*  $p < .05$ . \*\*  $p < .01$ .

The results for employees with high self-efficacy suggest that inquiry and monitoring are synergistic and work best when used together. Neither inquiry nor monitoring alone is sufficient to improve role clarity, even for employees with high self-efficacy. The negative relationship between monitoring and role clarity when inquiry is low suggests that both employees with high self-efficacy and employees with low self-efficacy make faulty inferences regarding the meaning and significance of information obtained by monitoring when they do not also use inquiry. In a similar manner, the nonsignificant relationship between inquiry and role clarity when monitoring is low suggests that information obtained by inquiry alone is insufficient to improve role clarity. Information seeking is positively related to role clarity only when both inquiry and monitoring are high.

The results indicate that employees with high self-efficacy seek, integrate, and use information more effectively than employees with low self-efficacy do. Employees with low self-efficacy appear less capable of integrating information obtained through different methods and using it effectively to improve role clarity. These results imply that employees who are already likely to perform well (those with high self-efficacy) will increase their advantage over time by effectively integrating and interpreting role-clarifying information and using it to enhance their performance, whereas employees with low self-efficacy ineffectively seek and use information.

### Limitations

In interpreting the results, it is important to note the limitations of the method we used. All of the measures we used were included on a single instrument, raising a possible concern over common method bias in the estimation of the hypothesized relationships. However, this concern is mitigated to some degree by the fact that the primary hypothesized relationships involved complex interaction effects that could not easily be explained by common method

bias. Also, results of the hypothesis tests that did not involve interaction effects (i.e., Hypotheses 2b and 3) revealed very modest or nonsignificant main effect relationships that suggest that common method bias had little, if any, effect on the results.

### Research Directions

Our findings suggest that focusing on the main effects of inquiry and monitoring may yield only a partial picture of their effects on work outcomes. It is not clear whether previously reported main effects of inquiry and monitoring may be qualified by interactions similar to those we obtained.

It would be interesting to assess the divergence over time between the performance of employees with high and low self-efficacy. Differences in self-regulation abilities between employees with high and low self-efficacy could lead to large performance differences, as well as to differences in other work behaviors and attitudes. It would be interesting to assess whether supervisor-initiated feedback can compensate for the apparent inability of employees with low self-efficacy to effectively self-regulate goal-directed behavior.

We have speculated that employees with high (vs. low) self-efficacy integrate and interpret information better because they are more task-focused, less distracted by cognitive interference, and less likely to distort information (Bandura, 1997). Research designed specifically to test these differences in cognitive processing between groups could shed further light on the differences in self-regulation capabilities between employees with high and low self-efficacy.

Assessing other individual differences as moderators of the effectiveness of information seeking would also be worthwhile. Identification of moderators can help differentiate between individuals who would benefit from greater or lesser amounts of self-direction on the one hand and directive leadership on the other.

In conclusion, our study constitutes a step toward understanding how employees acquire the information necessary to work intelligently and effectively. It demonstrates that (a) self-efficacy moderates the role-clarifying effects of inquiry and monitoring such that employees with high self-efficacy effectively use the combination of feedback-seeking strategies, whereas employees with low self-efficacy do not; (b) for employees with high self-efficacy, inquiry and monitoring are not independent, and each is more beneficial when used in conjunction with the other; (c) the difference in self-regulatory capabilities between self-efficacy groups is not based on differences in the frequency of information seeking; and (d) role clarity mediates the joint effects of self-efficacy, inquiry, and monitoring on work performance. These findings suggest that the main effects of information-seeking methods tell only a partial story and that analysis of contingency effects may add important qualifications. They also suggest that employees with high self-efficacy effectively self-regulate goal-directed behavior through proactive feedback seeking, whereas employees with low self-efficacy do not. These processes are likely to lead to a continuous increase in the performance advantage of employees with high self-efficacy. For organizations attempting to build a competitive advantage through a highly capable, self-directed workforce, both self-efficacy and an information-rich internal environment appear to be critical.



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