INVESTIGATING CONFLICTING FINDINGS: AN EXAMINATION OF THE
RELATIONSHIP BETWEEN PERCEPTION OF SELF AND INFORMATION
SEEKING BEHAVIOR

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SEEKING BEHAVIOR

by

RYAN J. YODER

has been approved for
the Department of Psychology
and the College of Arts and Sciences by

Jeffrey B. Vancouver
Associate Professor of Psychology

Benjamin M. Ogles
Dean, College of Arts and Sciences
Abstract

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INVESTIGATING CONFLICTING FINDINGS: AN EXAMINATION OF THE
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Over the past 20 years, researchers have examined the proactivity of newcomers to become socialized members of their organizations. However, limited attempts have been made in identifying individual difference variables predictive of seeking efforts. One difference variable that has received some attention is the relationship between perceptions of self (i.e., self-esteem and self-efficacy) and subsequent information seeking. However, contemporary researchers have found discrepant results for this relationship. Some have theorized and identified a positive relationship using an ego-based rationale, whereas others have theorized and identified a negative relationship using an uncertainty reduction rationale. In the current study, the researcher seeks to reconcile the conflicting theory and findings by providing support for a discontinuous model that integrates the theoretical rationales for both relationships and produces a nonmonotonic relationship between perception of self and information seeking.

Approved:

Jeffrey B. Vancouver

Associate Professor of Psychology
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Introduction

The process by which an organizational newcomer acquires knowledge related to task performance, socially accepted attitudes, and behaviors necessary for organizational participation is referred to as socialization (Van Maanen, 1976; Van Maanen & Schein, 1979). Through the evolution of socialization theoretical frameworks, researchers have turned their attention from the study of environmental or contextual variables (e.g., organizational socialization tactics) and their impact on subsequent newcomer socialization to the study of newcomers’ own proactive participation toward socialization outcomes (Miller & Jablin, 1991; Morrison, 1993a, 1993b; Reichers, 1987). To this end, researchers have begun placing more stock in the ability of newcomers’ to initiate and actively navigate their own socialization experience. Thus, characteristics of the individual have become increasingly important for understanding how newcomers interact with and become adjusted to their new work environments.

Individual difference characteristics that have considered influential in newcomer proactivity include differences in the perception of self (Ashford, 1986; Brown, Ganesan, & Challagalla, 2001; Fedor, Rensvold, & Adams, 1993; Jones, 1988; Karl & Kopf, 1994; Knight & Nadel, 1986; Levy, Albright, Lawley, & Williams, 1995; Major & Kozlowski, 1997; Northcraft & Ashford, 1990; Weiss & Knight, 1980). Specifically, *self-efficacy*, individuals’ belief that they have the required ability and resources to succeed at a specific task or set of behaviors (Bandura, 1991; 1997), and *self-esteem*, a global feeling of self-worth (Baumeister, 1999), have been empirically studied. In their recent review of the feedback-seeking literature (a type of newcomer proactivity), Ashford, Blatt, and VandeWalle (2003) claim that “findings on self-confidence and self-efficacy are
relatively straightforward; highly self-confident individuals are more willing to seek feedback in performance situations” (p. 779). Indeed, these researchers theorize that the employee’s motivation to defend or enhance their ego and their motivation to develop good impressions among coworkers and supervisors drives a positive relationship between self-efficacy and feedback seeking. Some researchers investigating self-esteem and newcomer proactivity have found similar positive relationships and have developed similar theoretical explanations (Karl & Kopf, 1994; Northcraft & Ashford, 1990).

However, other researchers suggest that the relationship between self-efficacy and newcomer proactivity is negative. According to Major and Kozlowski (1997), “High self-efficacy individuals, because of previous success and acquired confidence, may be more likely to rely on their own resources when encountering new circumstances. Low self-efficacy individuals, on the other hand, may behave more proactively because they have, or at least they believe they have, greater informational deficits to fill” (p.19). Additionally, Weiss and Knight (1980) found that when searching for information to solve a problem task, “low self-esteem subjects acquired more information...than did subjects with high self-esteem” (p. 221). The saliency of high amounts of perceived ambiguity and uncertainty that low self-efficacy and esteem individuals have toward their work environment, coupled with a desire to reduce such uncertainty, drives a negative relationship between newcomer proactivity and self-efficacy/self-esteem.

To date, researchers have produced data supporting both positive (e.g., Ashford, 1986; Karl & Kopf, 1994) and negative (e.g., Jones, 1988; Major & Kozlowski, 1997) relationships between these variables and newcomer proactivities. Additionally, various motivational theories have been evoked to understand the underlying mechanisms driving
each relationship. A question one might ask is which motivational theory and/or proposed relationship is the correct one? Or are these seemingly contradictory findings actually reconcilable through a deeper understanding of the complex construct? The purpose of this study is to investigate inconsistencies and reconcile empirical findings in the literature.

Before delving into distinguishing and analyzing perspectives, I review the socialization literature, beginning with the evolution of socialization research. Following that is a discussion of the negative and positive relationships found between self-efficacy, self-esteem and newcomer proactivity as well as the underlying motivational theories defining each relationship. Finally, I offer a discussion of potential explanations for the discrepant findings and conclude with a study aimed at reconciling the differences.

Newcomer Socialization

Organizational socialization is grounded in traditional models of communication involving the transfer of information from a sender to a receiver (Berlyne, 1960). Early socialization researchers tended to focus on the influence of environmental variables for progressing newcomers’ socialization (Berlew & Hall, 1966; Cogswell, 1968; Gomersall & Meyers, 1966; Van Maanen & Schein, 1979; Wheeler, 1966). In these studies, it was often proposed that the organizational environment determined socialization outcomes, such that the newcomer could be, at best, a reactive participant in the socialization process. Over time, however, socialization theorists began to recognize the role of the newcomer in their own socialization. Reichers (1987) developed a theoretical framework for understanding the socialization process, which detailed that characteristics of the
newcomer (e.g., individual differences) interact with characteristics of the environment to determine the proactivity of the newcomer.

Proactivity represents the active participation of the newcomer in interacting with organizational insiders in an effort to learn job requirements, primarily through engagement of information seeking behaviors (Ashford & Black, 1996; Louis, Posner, & Powell, 1983; Miller & Jablin, 1992; Morrison, 1993a, 1993b, 2002; Ostroff & Kozlowski, 1992). Proactivity allows the newcomer to make sense of their new environment and assists in their adjustment during the transitional time (Louis, 1980). Reicher (1987) proposed that the proactivity of the newcomer was directly related to the rate of socialization as well as subsequent socialization outcomes (e.g., organizational commitment, performance, satisfaction, etc.).

Instead of the organization being fully responsible for the socialization of its members, the new perspective recognized that newcomers seek information in an effort to increase their own knowledge and become socialized organizational members. Indeed, newcomers often do not have and are not provided with sufficient information to perform the duties of their new job (Ashford & Taylor, 1990). Information that is conveyed from the organization’s attempt to socialize the newcomer is often difficult for the newcomer to interpret, thus leading to further informational inadequacies (Jablin, 1987; Salancik & Pfeffer, 1978). To compensate, researchers like Ashford (1986) found that newcomers seek information to become more fully socialized. She also found that proactivity was closely tied to organizational tenure; as the length of an individual’s tenure increased, the amount of information seeking behaviors decreased.
Although Reichers claimed that individual differences play an important role in the proactivity of newcomers, few researchers have tested differences that could influence proactivity. Some of the few individual differences that have received research include: tolerance for ambiguity (Louis, 1990), cognitive complexity (Louis, 1990; Stabell, 1978), desire for control (Ashford & Black, 1996), newcomer goal orientation (VandeWalle & Cummings, 1997), and the personality sub-types extraversion and openness to experience (Wanberg & Kammeyer-Mueller, 2000). However, instead of investigating individual differences for newcomer proactivity, most researchers have focused on understanding other areas of proactivity, such as the type of information sought, whether the information is sought relative to its perceived usefulness for achieving mastery of the new role, from whom the information is sought, and the relationship between information seeking and the subsequent adjustment (e.g., performance, satisfaction, organizational commitment, stress, etc.) of the newcomer (Ashforth & Saks, 1996; Bauer & Green, 1998; Holder, 1996; Morrison, 1993a, 1993b; Morrison & Vancouver, 2000; Ostroff & Kozlowski, 1992; Saks & Ashforth, 1997; Wanberg & Kammeyer-Mueller, 2000).

One individual difference that has received some attention is differences in one’s perception of self. Self-efficacy was developed as an expectancy belief around the notion that people form beliefs about what they are able to do, which in turn guides their motivation and subsequent action toward some anticipated outcome (Bandura, 1991). Specifically, self-efficacy refers to an individual’s belief that they have the required ability and resources to succeed at a specific task or set of behaviors (Bandura, 1991; 1997). Yet, researchers have theorized and supported conflicting relationships between
one’s self-efficacy and various types of information seeking (Ashford, 1986; Brown, Ganesan, & Challagalla, 2001; Jones, 1988; Karl & Kopf, 1994; Major & Kozlowski, 1997). Similar conflicts and theoretical explanations can be found in the literature relating self-esteem (a global evaluation of self-worth) and information seeking. As such, findings from both literatures are presented (see Appendix A for more details about any of the following studies mentioned), as well as the underlying motivational rationale behind each relationship predicted. I begin by examining studies supporting both negative and positive relationships between self-efficacy and information seeking, followed by an examination of studies supporting both negative and positive relationships between self-esteem and information seeking.

**Self-Efficacy and Proactive Information Seeking**

*The negative relationship.* Many studies hypothesizing and supporting a negative relationship between self-efficacy and information seeking describe a motivation to reduce one’s uncertainty as the catalyst for seeking. Upon organizational entry, newcomers experience uncertainty related to the intricacies of the new role they are hired to perform in the organization (Miller & Jablin, 1991). Theories regarding the motivation to reduce this uncertainty rely on information theory (e.g. Shannon & Weaver, 1949). From this perspective, receiving information is only useful to the extent that information is needed to further inform the individual. Thus, uncertainty (either in the form of not knowing all the actions possible, or in the form of not knowing their relative effectiveness) is necessary for information to be of use to the individual.
Although research on newcomer information seeking has not looked directly at the motivating role of uncertainty (Teboul, 1994), the information seeking process is based on uncertainty reduction theory (Berger & Calabrese, 1975), which relies on a discrepancy-reduction control model (Berlyne, 1960). In this model the individual has a level of certainty they desire. The individual creates a perception of their certainty from information in the environment, which if less than their desired level of certainty reflects a discrepancy that the individual is motivated to reduce. The difference between their perception and level of certainty they desire is the amount of uncertainty or ambiguity that they have. If a difference is present, the individual will actively seek information to reduce the uncertainty and ambiguity that they have.

The more uncertainty, the more the individual will engage in information seeking behaviors. As uncertainty declines, so does information seeking behaviors (Berger and Calabrese, 1975). Indeed, research on feedback seeking done by Morrison and Cummings (1992) found that the more information was perceived as diagnostic to the organizational member (i.e., reducing any ambiguity they may have relative to their role or performance), the more actively the member sought the information. Other researchers have suggested similar results when the issue is developing task mastery within the job. Specifically, seeking feedback has been shown to be more likely when one is concerned about developing, rather than merely demonstrating competence (VandeWalle & Cummings, 1997; VandeWalle, Ganesan, Challagala, & Brown, 2000). Chan and Schmitt (2000) recently found that information seeking was positively related to feelings that one had not adequately mastered the job, suggesting that newcomers are trying to gain a sense of efficacy and competency around the job. It then follows that the potential role of self-
efficacy is in the perception of information needed to reduce uncertainty. Thus, researchers have hypothesized that those with high self-efficacy perceive that they require little information because they already feel competent in their capabilities (e.g., Major & Kozlowski, 1997). However, those with low self-efficacy perceive that they have large informational deficits to be filled to perform their work well.

Early in socialization research, Jones (1988) hypothesized that high-self efficacy newcomers may take proactive stances toward role performance in an effort to demonstrate their abilities. Specifically, he looked at the type of role orientation newcomers developed when they had high versus low self-efficacy. Utilizing longitudinal data, he found that a positive relationship existed between self-efficacy and the development of innovative role orientations. This meant that as self-efficacy increased, the newcomer was more likely to interpret their organizational role as they saw fit. Specifically, they had higher innovation in creating their job role, which eventually led to more role conflict and ambiguity in environments that were very structured and formal. Those with low self-efficacy were more likely to accept the definitions of their job role that were offered by others within their environment. A possible interpretation of this finding is that those with high self-efficacy engage in less information seeking and rely more on themselves as the locus of control when evaluating situations.

This interpretation seems to be substantiated in findings by Nease, et al. (1999) who found that those high in self-efficacy were less accepting of consistently negative feedback than were low self-efficacy individuals. Additionally, those high in self-efficacy and repeatedly given negative feedback became more and more frustrated with the notion that their efforts to create positive feedback were unsuccessful. Thus, as time progressed,
they became unaccepting and began to discount the negative feedback while those low in self-efficacy remained unchanged in their acceptance of negative feedback. Although neither study is a direct test of the self-efficacy and information seeking relationship, these findings suggest that those with high self-efficacy are more likely to rely on their own perceptions of knowledge and/or performance rather than information or feedback of others, particularly when feedback is negative.

Recent research by Major and Kozlowski (1997) utilized self-report data and a cross-sectional design to determine the relationship between self-efficacy and information seeking. Of interest in their study were the moderating effects of self-efficacy between task interdependency, accessibility, and seeking. Interdependency referred to the extent that an individuals’ performance on their own task was dependent on the performance of other individuals within the organization. This concept of interdependence reflects to the extent to which the newcomer has the perception that his or her performance will influence the performance of others within the organization. Accessibility referred to the degree to which the newcomer had information seeking opportunities accessible to them. Major and Kozlowski found that task dependency translated into greater information seeking. This finding was most pronounced when the individual had low self-efficacy and when information outlets were highly available. These researchers concluded that when one feels pressure to perform, has the opportunity to seek information from others, and has low self-efficacy, then they are most likely to seek information. However, it is important to note that due to the cross-sectional design of this study, direction of causality is impossible to determine. One could also pose the opposite argument that proactivity caused low self-efficacy.
The positive relationship. Studies hypothesizing and supporting a positive relationship between self-efficacy and information seeking describe a motivation to protect one’s ego as an important cost consideration when seeking. The underlying logic of an ego-based motivation is that while the newcomer or organizational member desires to reduce uncertainty, they also desire to maintain or enhance an internal state that represents their conception of him or herself (i.e., self-identity). Thus, the motivation to protect one's ego can also be thought of as a discrepancy-reducing control system, in which the individual desires a level of ego and his or her actions are directed to reduce discrepancies or maintain zero discrepancies between the perception of the current state of the ego and the desired state of the ego. Of importance is the nature of the anticipated sign (either positive or negative) of the inquired information and the potential effect it will have on the ego, which will, in turn, direct whether the newcomer will proactively seek the information.

One of the first studies to empirically examine self-efficacy came from Susan Ashford (1986). In her study she used self-report data and a correlational design to investigate the relationship between “self-confidence” and feedback seeking. She argued that when an individual has high self-confidence, they are more likely to actively seek feedback and/or information (regardless of whether they perceive that the feedback will be positive or negative) because they have an abundance of good feelings about themselves and view the feedback as useful in learning about themselves and their abilities. That is, high self-confident individuals presumably can absorb any potential negative comments without harming the ego while also gaining the potential informational benefits associated with seeking. Conversely, those lacking self-confidence
would likely predict receiving negative feedback and see it as threatening to their ego. Thus, low self-confident individuals would fear negative evaluations and regard the social environments where the seeking takes place as threatening whereas high self-confident individuals would engage in feedback-seeking behaviors.

Her findings only partially supported her hypothesis. She found that one’s level of self-confidence was positively related to seeking feedback via monitoring. Seeking information through monitoring utilizes personal sources, and is manifested through the newcomer attending to situational cues, the behavior of other organizational members, or both (Ashford & Cummings, 1983). However, Ashford (1986) found no relationship between one’s level of self-confidence and seeking feedback via inquiry. Seeking information through inquiry manifests itself through interpersonal contact with organizational members. Many argue that inquiry allows the newcomers’ public image (others’ impressions of the newcomer) to be potentially vulnerable because asking information could make the newcomer appear insecure or incompetent to those from whom they are seeking information (Ashford & Cummings, 1983; Miller & Jablin, 1991).

Yet, a study by Holder (1996) involving women in nontraditional occupations validates the supposition that social costs are associated with seeking via inquiry. In this study, as social costs increased, direct forms of information seeking became less frequent and indirect forms became more frequent (a move from inquiry to monitoring behavior). Unlike inquiry, monitoring poses little potential threat to the public image of the newcomer, but it is not without its limitations. Particularly, monitoring requires the newcomer to interpret the informational cues gleaned (Ashford & Cummings, 1983).
According to Ashford’s argument, it seems as though one would expect individuals high in self-confidence to seek the most feedback via inquiry, because it is less ambiguous and more diagnostic than monitoring (Ashford & Cummings, 1983; Miller & Jablin, 1991). Additionally, she hypothesized that individuals who believed they were performing poorly (i.e., not successfully attaining their goals), and thus would expect to receive negative feedback, would be less likely to seek feedback for the same ego-protection reasons. However, she found that individuals who perceived their performance to be poor did not avoid seeking feedback via monitoring or inquiry, but rather reported more seeking, suggesting another motivation at work (e.g., uncertainty reduction).

Like Ashford’s original hypothesis, other researchers have predicted positive relationships between self-efficacy and seeking information. A recent study by Brown, Ganesan, and Challagalla (2001) surveyed salespeople representing two Fortune 500 companies. They tested the hypothesis that information seeking mediates the relationship between self-efficacy and role clarity (i.e., self-efficacy leads to greater frequency of information seeking, which positively impacts role clarity). However, this hypothesis was not supported. Particularly of interest to the researchers was the moderating effect of self-efficacy between information seeking behavior and subsequent role clarity. The researchers theorized that individuals with low self-efficacy would be less focused and more distracted by performance anxiety than their high self-efficacy counterparts. They found that self-efficacy moderated the relationship such that those with high self-efficacy were able to effectively use inquiry and monitoring to clarify role expectations whereas those with low self-efficacy were not. Unfortunately, the reliance on self-report data from the salespeople limits the conclusions one can draw from the findings. Specifically, it
may be that if one had high self-efficacy, one would also most likely report high role clarity and high performance.

A stronger study, in terms of measurement, was conducted by Karl and Kopf (1994). They investigated the relationship between self-efficacy, self-esteem and information seeking in the context of a public speaking course. In this study students were required to make two presentations during the semester and the presentations were videotaped. Students were given the opportunity to view the videotape and discuss how they did on the first presentation with the instructor before conducting the second presentation. Additionally, participants were told that those who viewed the videotape were more likely to do better on the second presentation. Feedback given to students during the feedback sessions was only constructive and focused attention on the positive aspects of the students’ presentations. Assessments of self-efficacy, self-esteem, and public consciousness were made at the beginning of the course. The researchers found that high performers were more likely to seek feedback than low performers and that the higher a student’s self-efficacy, the more likely they were to seek feedback from the course instructor. However, a potentially confounding third variable in this study is one’s motivation to succeed in the course. Namely, those who desire to succeed may do more to succeed such as seek information. Moreover, they are likely to have higher predicted outcomes, which the self-efficacy measure captures.

Self-Esteem and Proactive Information Seeking

The negative relationship. The theoretical explanations for a negative relationship between self-esteem and information seeking have been more varied than they have been
for self-efficacy and information seeking. Indeed, two primary factions have developed
that predict a negative relationship between the two variables, but as a result of two
different underlying motivational processes. The first explanation developed from the
same vein as the self-efficacy research. That is, some researchers have described the
negative relationship along the lines of a motivation to reduce uncertainty. Specifically,
Weiss has postulated that those with high self-esteem generally have more confidence in
their ability and initial approaches to new problems and thus are likely to seek less
information compared to low self-esteem individuals (Weiss, 1977; 1978). Thus, because
of their deflated self-esteem, individuals must seek information to compensate for their
perception that they are generally unsuccessful in whatever new problems they try and as
such they first obtain an informational advantage so that their probability of failure is
diminished.

In an early investigation, Weiss and Knight (1980) predicted that individuals high
in self-esteem would be less likely to engage in information search when attempting to
solve a problem because of their confidence in their general ability. However, the
particular problem was such that information search was functional for successful
performance and only one optimal solution to the problem existed. Participants were
required to arrange a series of three numbers in order to learn and reproduce to the
experimenter the placement rule of the three numbers. They were able to seek
information, by arranging the numbers and then asking the experimenter if the numbers
were arranged in the appropriate configuration. Consistent with predictions, high self-
esteeem individuals were less likely to engage in information search, and as a result their
performance on the problem-solving task was undermined.
In a related study, Knight and Nadel (1986) observed similar findings when using a plant manager simulation paradigm. In this study, participants had the task of reducing the percentage of defective castings produced in a large manufacturing corporation from 8.5% to 6% (a break-even point for net profit) within a determined time limit. To help reduce this number, the participants were given the recommendation of three policy choices ranked from best to worst in the opinion of a “business consultant” (with equal implementation costs). Although each was rated in terms of effectiveness by the consultant, they were told that the actual implementation effectiveness and rate at which the effectiveness of the policy choice would be realized was difficult to predict. Subjects were given a budget of $10,000 and were told to maintain the budget at a level as high as possible. Additionally, $1,000 was assessed each time a policy choice was changed, $100 was either deducted or credited regularly as long as the defective castings produced exceeded or fell below 6% respectively, and $50 was assessed when participants requested to see how much money was left in the budget. Finally, information search was assessed by requests made for the current budget status and the frequency with which participants wished to view the current defect rate. Results showed negative correlations between self-esteem and both measures of information search. Additionally, a second study made constant a feedback schedule about the defect rate and also found negative correlations between self-esteem and requests about the budget. Taken together, these findings suggest that when individuals with high self-esteem will seek less information as opposed to low self-esteem individuals.

Another theoretical explanation for the negative relationship between self-esteem and information seeking has also been developed (e.g., Fedor, Rensvold, & Adams 1992;
Levy, Albright, Cawley & Williams, 1995). This second explanation places ego-defense as the primary motivator, contributing to the negative relationship. Indeed, in these studies researchers have articulated that it is the desire to not jeopardize one’s ego (i.e., ego defense) that motivates high self-esteem individuals to not seek information. Conversely, those with low self-esteem are more willing to seek because they have nothing to lose. Fedor, Rensvold, and Adams (1992) investigated, longitudinally, a sample of helicopter pilots. Using survey data, they found that there was a negative relationship between self-esteem and information seeking behavior. They interpreted their findings as support for the notion that high self-esteem individuals are trying to protect their current ego levels, whereas those low in self-esteem have no where to go but up.

In a study conducted by Levy, Albright, Cawley and Williams (1995) ego-protection, impression management, and performance feedback seeking relationships were investigated over time. These researchers explained that studies purporting positive relationships, to be described below, were methodologically flawed because the negative relationship becomes pronounced only through the participants’ reconsideration and modification of intent to seek. They found that uncertainty reduction and other “rational” motives may dispose employees to want to seek feedback, and may affect their intentions to seek feedback, but that concerns about their self-image and potential ego-threat may cause employees to reconsider and modify these intentions such that they do not engage in information seeking behaviors. Individuals with high self-esteem were more likely to reconsider and not seek information when given an opportunity. These researchers concluded that the reason other studies have found positive relationships between self-
esteem and information seeking is because they have not included an opportunity for participants to reconsider the potential threat seeking can have on the ego. However, equally plausible is that high self-esteem individuals reconsider seeking because they realize, through further contemplation, that they really do not need the information and that any costs incurred from seeking are not worth it.

*The positive relationship.* Much like the positive relationship between self-efficacy and information seeking, studies hypothesizing and supporting a positive relationship between self-esteem and information seeking describe a motivation to protect one’s ego as responsible for the relationship. The underlying logic for this ego-based motivation is the same as previously described for the positive relationship between self-efficacy and information seeking. Although newcomers or organizational members may desire to reduce uncertainty, they also desire to maintain or enhance their ego. With respect to ego-protection, research by Baumeister (1999) suggests’ that when individuals are given negative information, that can potentially threaten their self-image, they employ various cognitive mechanisms to either avoid or distort the negative information. Additionally, some have suggested that those with a high self-image are less likely to be as protective as those with a low self-image because they can afford to possibly lose some of their positive feelings of self-worth and still feel good about themselves. For example, Vancouver and Morrison (1995) conducted a study where participants were asked to read vignettes and respond as if the scenario were happening to them. They found that high self-esteem individuals were less likely to be concerned with ego costs when determining their information seeking efforts, however, they did not report the relationship between self-esteem and the likelihood of seeking overall.
As previously mentioned, Karl and Kopf (1994) investigated the relationship between self-efficacy, self-esteem and information seeking in the context of a public speaking course. They found that high performers were more likely to seek feedback than were low performers and that, like self-efficacy, the higher a student’s self-esteem the more likely they were to seek feedback from the course instructor. Also, a significant interaction revealed that self-esteem did not matter, in terms of seeking feedback, when the individual was high in self-consciousness. However, as mentioned before, one problem with their study was the potentially confounding third variable of a student’s motivation to succeed and perform well in the course.

One study that did not suffer from the above limitation was conducted by Northcraft and Ashford (1990) utilizing a stock market simulation paradigm to investigate the relationship between self-esteem and feedback seeking. In this study, participants were asked to complete a brokerage aptitude exam and then were given false feedback to manipulate performance expectations for the task. Participants had two types of feedback that they could seek. The first type, portfolio feedback, gave the participant descriptive information about the current state of their portfolio whereas the second type, social feedback, gave the participant an idea of how well they were performing on the task relative to the other participants in the room. Northcraft and Ashford found that low expectation participants requested less portfolio feedback than high expectation participants. Additionally, high self-esteem participants requested more portfolio feedback than low self-esteem subjects. They interpreted the positive relationship between self-esteem and portfolio feedback using an ego protection motive; individuals
with low self-esteem cannot afford to expose their egos to negative information about the self.

Summary

The literature reviewed suggests that an individual’s self-efficacy and self-esteem beliefs influence the level to which individuals engage in proactive information and feedback seeking behaviors. However, the nature of the relationship remains somewhat elusive. Ashford et al. (2003) claim that the relationship between self-efficacy and seeking performance feedback is positive. Ashford (1986) along with Karl and Kopf (1994), find a positive relationship between information seeking and self-efficacy using an ego-based motivation perspective. Other researchers argue from an uncertainty-reduction perspective that the relationship is negative. Indeed, Chan and Schmitt (2000), Jones (1988), and Nease, et al. (1999) suggest that developing task mastery and competence within the role is the most salient and instrumental motivator to the newcomer, prompting proactive information seeking behavior. Findings by Major and Kozlowski (1997) add that newcomers with low self-efficacy have more informational gaps to fill and the motivation to reduce uncertainty plays a major role in motivating the newcomer to seek information.

What could account for these contradictory findings? Given that mixed relationships have been found for both self-efficacy and self-esteem it is unlikely that this distinction is responsible. According to Judge, Erez, Bono and Thoresen (2002) the difference between self-efficacy (one’s estimate of one’s capabilities of performing) and self-esteem (seeing oneself as capable, successful, and worthy) is subtle. In their meta-
analysis, they reported the correlation between generalized self-efficacy and self-esteem to be $\rho = 0.85$. In the information seeking literature, the findings regarding self-esteem are equally inconsistent as those with self-efficacy and the operationalizations used in the experimental studies on self-esteem, popular a couple of decades ago, are similar with self-efficacy manipulations used today (i.e., manipulating performance expectations). Indeed, like self-efficacy, self-esteem has been found to be both positively related (Ashford, 1986; Karl & Kopf, 1994; Northcraft & Ashford, 1990) as well as negatively related (Fedor, Rensvold, & Adams; 1992; Knight & Nadel, 1986; Weiss & Knight, 1980) to information seeking.

Within the explanations for both positive and negative relationships between self-esteem and information seeking are the ego-defense and uncertainty-reduction arguments found in the explanation of self-efficacy. Positive relationships have been theorized to occur because high self-esteem individuals have extra esteem to buffer negative feedback and potentially bolster current esteem levels. Conversely, negative relationships have been theorized to occur because high self-esteem individuals desire to maintain current esteem levels, whereas those with low self-esteem have nothing to lose, thus they seek. However, the test of this latter hypothesis is only captured with the addition of an opportunity to reconsider and modify intentions to seek on the part of those high in self-esteem (Levy, et al., 1995). Yet, the reason why high self-esteem individuals are more likely to modify intentions remains debatable. None of the studies purporting either view actually test their underlying motivational framework. Although it is reasonable to think that those high in self-esteem need to protect their esteem, unlike those low in self-esteem, it is equally reasonable to think that these individuals reconsider because, upon
further deliberation, they realize they do not need the information (which becomes an uncertainty reduction explanation).

Another distinction that seems unlikely to explain differences is that of different types of information sought and different methods of seeking information. Indeed, Northcraft and Ashford’s (1990) findings that no differences were observed between those high and low in self-esteem and the frequency of social feedback sought (feedback about one’s success on the task relative to the other participants in the room) does not suggest that one group is specifically seeking process feedback whereas the other is seeking outcome feedback. Additionally, one might suggest that those high in self-efficacy/self-esteem are more likely to seek via inquiry because they have a disregard for ego-costs related to seeking whereas those low in self-efficacy/self-esteem are concerned with protecting their ego. Yet, Ashford (1986) found that no differences were present among high and low self-confidence individuals and the amount of information seeking via inquiry, only seeking via monitoring. Thus, this distinction does not likely capture differing findings.

*Integrating the Disparate Findings*

A more likely explanation for the disparate findings involves an examination of multiple processes involved in seeking information. Specifically, three different control processes, or discrepancy reduction systems, are potentially affecting the relationship between self-efficacy/self-esteem and information seeking. Table 1 provides the expected relationship between self-perception (i.e., self-efficacy and self-esteem) and information seeking independently for each of the three control processes (i.e., systems).
<table>
<thead>
<tr>
<th>Control System</th>
<th>Prediction</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Uncertainty Control System</strong></td>
<td>As uncertainty increases, those with higher self-efficacy/esteem will be less likely to seek information (negative relationship)</td>
<td>Self-efficacy/esteem are proxies for one's level of uncertainty with the environment. When uncertainty is low, less information is needed from the environment for action. When uncertainty is high, more information is necessary for action.</td>
</tr>
<tr>
<td><strong>Cost Control System</strong></td>
<td>When the cost of accepting a task is high, then those with higher self-efficacy/esteem will be more likely to accept the task and seek information (positive relationship)</td>
<td>Cost is directly related to uncertainty. The higher the uncertainty, the higher the cost associated with the task. When cost is high, uncertainty must be low (i.e., high self-efficacy/esteem) before task acceptance.</td>
</tr>
<tr>
<td><strong>Utility Control System</strong></td>
<td>For accepted tasks, those with high self-efficacy will be less likely to seek information when costs are high (negative relationship).</td>
<td>Utility helps balance cost with uncertainty. Once a task is accepted, one must balance one's level of uncertainty with the costs associated with seeking. Less/more seeking will occur as utility of seeking decreases/increases.</td>
</tr>
</tbody>
</table>

The first system involves recognizing the amount of uncertainty to be reduced to successfully navigate the task. The second system involves issues of cost. This system anticipates the potential costs that may be accrued from engaging the task (one of which could be ego-related costs or other costs such as those associated with resource allocation decisions). These first two systems work together to assess the potential consequences of participating in or accepting a task (i.e., assessing informational demands needed for the
task and the costs associated with success on the task). However, the third system involves the utility of seeking feedback once engaged in a task. Specifically, this system balances potential costs with the need to reduce uncertainty. The result when all three control systems work collaboratively is a nonmonotonic relationship between self-perception and information seeking. Particularly, this relationship could follow that of a discontinuous model (Kukla, 1972).

Thus, I contend that prior research on self-efficacy and information seeking are potentially oversimplifying dynamics underlying this relationship and that a discontinuous model could help resolve and explain some of the conflicting relationships. The idea behind the discontinuous model (Figure 1) is that information seeking will differentially depend on ones’ level of self-efficacy. For example, when self-efficacy is too low towards a given task, an individual may not even engage the task, thus no seeking would be observed (point A in Figure 1).

Figure 1
The Discontinuous Model
The system responsible for the decision to engage or accept the task would examine information about the current level of knowledge and skills the individual has. This system would anticipate how much more information would be needed to successfully navigate the task as well as the potential costs associated with seeking that information. When uncertainty is too great and costs are at a premium, then there would be no information seeking because the system would not engage the task. Thus, a new key variable in understanding the relationship between self-efficacy and information seeking lies in task engagement or acceptance. Indeed, it is unlikely that an individual will seek information if they have not already decided to accept or engage in the task laid before them. If individuals low in self-efficacy were not engaging the task, then the relationship between self-efficacy and information seeking would be positive (point A versus point B or C in Figure 1). Thus, I propose that self-efficacy will be positively related to engagement, such that the higher an individual’s self-efficacy the more likely they will engage the task.

**Hypothesis 1: Self-efficacy will be positively related to engagement.**

When an individual with moderate self-efficacy decides to engage in the task, they realize that to perform well they will have to expend much effort in seeking information (point B in Figure 1). The system responsible for determining the utility of engaging the task recognizes that much information will be needed to reduce uncertainty, but engaging the task is worth the relative costs accrued. Meanwhile, those with high self-efficacy maintain that some seeking will be required to perform the task, but because they believe that their capabilities are such that they have will have an adequate handle
on performing the task, they can seek less compared to those with moderate self-efficacy (point C in figure 1). Thus, if the individual has decided to engage the task, then a negative relationship will be observed between self-efficacy and information seeking (point B versus point C in Figure 1).

*Hypothesis 2: The relationship between self-efficacy and information search will be negative for tasks that are engaged in.*

The primary role of costs will occur when the individual is deciding whether or not to engage the task in the first place. If self-efficacy is too low, then the individual recognizes that their ego may be in jeopardy if they accept the task because of the informational deficits they must overcome. However, once individuals have accepted the task, other motivations such as the desire to reduce uncertainty, needed to perform well on the task, may be more relevant. Indeed, this previous statement is exemplified in Major and Kozlowski’s (1997) work, where they found a negative relationship between self-efficacy and information seeking when task interdependence was high. That is, the individuals had accepted the task by virtue of being relied on by their coworkers.

Similar rationale in first hypothesis directs the proposed positive relationship between self-esteem and information seeking. Specifically, the espoused positive relationships result from the idea that individuals want to maintain or enhance their ego. Those with high self-esteem are more likely to engage a task because they perceive that their general ability and approach to problems is such that they will likely succeed on the task thereby not threatening their current ego position, but potentially could bolster their position. Conversely, those with low self-esteem are also trying to protect their fragile ego and are therefore more cautious in the tasks they engage in because they do not want
to jeopardize their current ego position through failure. Again, a system analyzing and weighing the costs associated with engaging a task is specifically concerned with the costs or risks applicable to ego-maintenance or enhancement and this plays a key role in determining whether or not to engage a task. Because of this, high self-esteem individuals with their ego-buffer will be more likely to engage the task. Thus, across participants, the relationship between self-esteem and engagement will be positive, such that the higher one’s self-esteem the more likely one will engage the task.

*Hypothesis 3: Across participants, the relationship between self-esteem and engagement will be positive.*

Similar to the second hypothesis, the espoused negative relationship between self-esteem and information search is predicted to be most pervasive once an individual has committed to engaging in a given task. With respect to the first negative relationship rationale, high self-esteem individuals will most likely not seek as much information because they perceive that their general approach to a problem yields success. However, those lower in self-esteem will likely seek information because they perceive their efforts are not as consistently successful. From the standpoint of the second negative relationship rationale, those with high self-esteem might not seek as much information because they fear the implication seeking has for their ego. Rather, those with low self-esteem have no such constraints on their ego (because it is already low) so they seek as much as they need. However, in the current study, the competing explanations for the negative relationship between self-esteem and information seeking are not explored. Instead we seek to identify the possibility of the monotonically negative relationship as a first step. Thus, whether the relationship is a function of an uncertainty reduction motivation or of
an ego motivation is not explored. Nevertheless, the overarching result remains a negative relationship between self-esteem and information seeking for only tasks engaged in.

**Hypothesis 4**: Across participants, the relationship between self-esteem and information search will be negative for tasks engaged in.

To test the aforementioned relationships, several qualifications of the task must be made. Specifically, the task must allow between as well as within-subject analyses. Specifically, several levels of self-efficacy are manipulated such that discontinuity in information search can be observed if it is present within each participant. Thus, the task afforded participants the opportunity to engage or not in sub-tasks that are easy or hard. Also, the sub-tasks must afford participants the ability to seek information differentially at varying levels of information search with varying costs associated with seeking. Finally, costs that serve as a proxy for negative outcomes associated with information seeking must be incorporated such that they influence engagement (accepting a task) and seeking decisions. One way to associate costs with tasks and seeking is by using a resource allocation paradigm frequently used in judgment and decision making literature (Stevenson, Busemeyer, & Naylor, 1990). The strength of this paradigm is that it affords the participant the opportunity to choose various courses of action in attempts to maximize performance through the consequences of those actions with only a limited number of resources for investment. That is the participant must choose the course of action that will expend the least amount of resources and will most benefit overall performance.
The present study utilizes a resource allocation paradigm where self-efficacy is manipulated and information seeking is operationalized across multiple levels. Specifically, participants will be given the opportunity to engage tasks of varying difficulty with the opportunity to seek information. Both engagement of a task and seeking information will have costs associated with them.

Method

Participants

Participants in this study were 111 students enrolled in introductory psychology courses at a large mid-western university. Of those participating in the study, 56.8% were male and the average age was 19.72 years. Participants were recruited via a web-based experiment management system maintained through the Psychology department. In exchange for participation in the study, students received credit for a course.

Design

Data gathered in this study represent information about participants obtained at both the between-person and within-person levels of analysis. The design of this study is best characterized as having one between variable and one within variable. Specifically, the role of self-esteem in predicting engaging a task and subsequent information search represents the between-person variable. Conversely, the role of self-efficacy in predicting task engagement and the future information search represents the within-person variable. As described below, self-efficacy was manipulated at six levels within each participant throughout the duration of the task.
**Task**

The participants engaged in a computer task called the “Hurricane Game” (Figure 2). This game involved clicking on targets that moved rapidly around a fixed portion of the computer screen. The targets were squares of six different sizes. These targets were initially invisible to the participants, but participants had the opportunity to view the movement of any given target if they decide to seek information about its location. Participants were told that the targets represented “boards” being blown around in a “hurricane” and that their objective was to “nail” down the boards. The task was divided into rounds. A round began with the identification of a target (i.e., board) of a particular size.

Figure 2

*A Screenshot of the Hurricane Game*
Participants were first instructed to determine if they wanted to attempt to nail the highlighted target or not (i.e., engage the task of nailing the board or not). If they decided to pass on nailing a target, then another target would become highlighted and a new round would begin. However, if the participant decided to engage the current target, then they were instructed to select how much information they would like to seek (i.e., the number of seconds the target would be illuminated) about the location of the target. Specifically, participants were able to seek no information (the target remained invisible throughout the duration of the round) or some information in one second increments (the target became illuminated for 1.0, 2.0, 3.0, etc. seconds) through continuous illumination (7.0 seconds). Once the participant had determined how much information they wished to seek, the round began and the target or board began to “blow” around the fixed portion of the computer screen. The round ended after seven seconds or when the participant nailed the target.

A critical component of this game involved how participants invested their resources while playing the game. With each round, participants automatically lost 3 points regardless of attempting to nail the target or not. If the participant decided to seek information, it resulted in a cost of one point for each second of information sought, with a possible cost of one to seven points (a total of seven seconds were in a round). If the participant nailed the target, then they received a score of ten points. Table 2 represents the payoff matrix for each round.
Table 2
Payoff Matrix for a Round of the Hurricane Game

<table>
<thead>
<tr>
<th></th>
<th>Succeed in Nailing the Target</th>
<th>Fail in Nailing the Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information Search</td>
<td>0  1  2  3  4  5  6  7</td>
<td>0  1  2  3  4  5  6  7</td>
</tr>
<tr>
<td>Attempt</td>
<td>+7  +6  +5  +4  +3  +2  +1  0</td>
<td>-3  -4  -5  -6  -7  -8  -9  -10</td>
</tr>
<tr>
<td>Reject</td>
<td>-3  --  --  --  --  --  --  --</td>
<td>-3  --  --  --  --  --  --  --</td>
</tr>
</tbody>
</table>

Manipulations and Measures

Self-efficacy. Self-efficacy was manipulated through the target sizes. The smaller the target, the more difficult it was to hit. Other studies utilizing this type of manipulation of self-efficacy have found it be an effective manipulation (e.g., Vancouver & Scherbaum, 2005). Through the practice round, participants were able to develop their self-efficacy for each target size. To check the manipulation of self-efficacy and to identify changes in self-efficacy it was assessed throughout the course of the experiment. Participants indicated the probability that they would nail the target across each level of information they could potentially seek (Figure 3). This probability rating (self-efficacy strength; Bandura, 1986) was then averaged across the levels of information seeking.
Self-esteem. Self-esteem was measured using the Rosenberg Self-Esteem Inventory (Rosenberg, 1965). This scale has ten four-point Likert items where participants indicate the extent to which they agree with the statements about their self-worth (Appendix B). Correlations from 0.56 to 0.83 have been found between the Rosenberg and other self-esteem scales as well as a two-week test-retest reliability of 0.85 (Robinson & Shaver, 1973).

Information seeking. Participants either passed on a round (i.e., decided to not attempt to nail a target) or accepted the task and engaged in trying to hit the target. A variable called engagement was created to indicate whether participants did (1) or did not (0) accept the task. This variable was used to understand the proposed discontinuity...
between low and higher levels of self-efficacy on task engagement. Additionally, the participant determined how much information they would like to seek concerning the position of the target if the participant accepted the task. The amount of seconds the participant selected to have the target illuminated for accepted goals was the measure of information search.

Performance. Performance was assessed via participant trial scores. Specifically, participant information seeking (via seconds of illumination requested) and their successful nailing of targets each round were used to determine trial score. The trial score began at zero for each participant and was recalculated with each passing round beginning after the practice trials. At the end of a trial, participant scores were recorded and reset to zero for the start of the next trial. As mentioned above, participants had three points deducted from their trial score with each passing round. Additionally, one point was deducted from trial score for each second of information seeking participants engaged in. If the participant successfully nailed a target, then ten points was added to their trial score.

Procedure

The computer provided all instructions to the participants after the study was described and informed consent was obtained. After completing the self-esteem measure, each participant practiced each target size for three five-second rounds with the targets continuously illuminated. Three rounds for each target size constituted 18 rounds, which represented a trial. Next, participants practiced each target size with the opportunity to seek information (i.e., illuminate the target for the number of seconds they decide) for a
seven-second round each. This allowed participants to practice the information seeking aspect of the experiment. During this second practice the self-efficacy measure was given for each target size. That is, participants rated their self-efficacy about hitting the highlighted target across each level of illumination (i.e., for each amount of seconds) before they attempted to nail the highlighted target. Participants then engaged in four trials, with a total of 72 seven-second rounds, after they had practiced both aspects of the task.

Throughout the practice and experimental rounds, target sizes were presented using a block randomization procedure so that each target was presented every six rounds. Self-efficacy was assessed periodically throughout the task. Specifically, during rounds 12-18, 30-36, 48-54, and 66-72. At the conclusion of the experiment, participants were asked to answer three 4-point Likert-type items regarding their interest in receiving various types of additional feedback about their performance during the task not already available in the experiment (i.e., feedback other than their nailing the board or trial score). These questions were asked in an exploratory effort to understand the types of feedback/information participants may have desired to seek in this task if given the opportunity. Finally, participants were asked to provide demographic information including their age, sex, class standing, and work history.

Data Analysis

To analyze multilevel data, I used hierarchical linear modeling (Hoffman & Gavin, 1998; Raudenbush & Bryk, 2002). Hierarchical linear modeling (HLM) allows researchers to estimate parameters at two or more levels of data simultaneously.
Additionally, it also estimates errors terms for equations representing effects at both levels. HLM makes it possible for researchers to maintain the structure of naturally nested data when examining effects of independent variables on dependent variables (Raudenbush & Bryk, 2002). As in this case, analysis using ordinary least squares (OLS) regression for the within-participant effects would be inappropriate as this technique assumes that the random errors are independent, normally distributed, and have constant variance. The assumption of independence of observations is violated because these observations are obtained across occasions from the same individuals (Hoffman & Gavin, 1998).

In this application, HLM creates regression equations for each participant in the sample relating self-efficacy, manipulated by board size, to subsequent information search across each trial (the within-person level over time). These resulting regression coefficients are then regressed on other person-level variables, or are averaged across individuals. For the first and second hypotheses the former strategy is employed to assess the role of self-efficacy. However, the latter strategy is employed with respect to the third and fourth hypotheses to assess the role of self-esteem on goal engagement (i.e., adoption) and information seeking behavior at the person-level of analysis. The value of alpha less than 0.05 was used throughout the manuscript to determine significance.

The centering approach taken for all of the hypotheses was raw metric scaling. This option was employed because only the engagement and information seeking effects are of interest, not comparisons made across specific individuals or interpretations about the second level-intercept. Thus, the interpretation of the second-level intercept coefficients remains the expected value of Y when X is zero (Hoffman & Gavin, 1998).
As mentioned, each individual participant played 72 rounds in the Hurricane Game creating a total of 7,992 observations for the within-person analysis.

Results

Participant Performance and Task Descriptives

On average participants “nailed” 5.4 targets (SD = 4.7) per trial during the Hurricane Game. That is, they nailed a target 30% of the time on average. The average trial score was 3.1 points (SD = 20.7). Trial scores significantly increased as the number of trials played increased (r = 0.16, p < 0.01). However, the number of targets participants nailed was unrelated to the trial being played. This suggests that participants improved the way they sought information needed to nail targets during the task and/or engaged less in targets they could not nail.

Table 3 provides some descriptive statistics and probabilities associated with the various target sizes used in the Hurricane Game. Generally, the average probability of nailing a target increased as targets became larger. Also, the probability of nailing a target within the first second of the round became higher as target size increased. These probabilities are based on practice trail performance where targets were presented largest to smallest. The average probability that a participant would nail a target while it was invisible also increased as target size increased. However, these values are relatively small (for the largest target, only a 5% probability) representing a high likelihood that an individual participant would not nail any given board while it was invisible. As target size increased, average self-efficacy also increased as did the probability of engagement.
Conversely, as target size increased, the average amount of seconds of information participants sought to nail targets decreased.

Table 3  
**Target Size Effects**

<table>
<thead>
<tr>
<th>Target Size</th>
<th>Avg. prob. of nail in first sec (^a)</th>
<th>Avg. prob. of nailing target (^a)</th>
<th>Avg. prob of nail while invisible if engaged</th>
<th>Avg. self-efficacy (SD)</th>
<th>Avg. sec allocated if engaged (SD)</th>
<th>Prob. of engagement</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - Smallest</td>
<td>0.001</td>
<td>0.036</td>
<td>0.003</td>
<td>0.95 (1.50)</td>
<td>3.29 (2.89)</td>
<td>0.852</td>
</tr>
<tr>
<td>1</td>
<td>0.005</td>
<td>0.249</td>
<td>0.010</td>
<td>2.19 (1.79)</td>
<td>3.62 (2.42)</td>
<td>0.921</td>
</tr>
<tr>
<td>2</td>
<td>0.019</td>
<td>0.595</td>
<td>0.017</td>
<td>3.95 (2.08)</td>
<td>3.73 (1.93)</td>
<td>0.980</td>
</tr>
<tr>
<td>3</td>
<td>0.046</td>
<td>0.829</td>
<td>0.017</td>
<td>5.26 (2.10)</td>
<td>3.125 (1.71)</td>
<td>1.000</td>
</tr>
<tr>
<td>4</td>
<td>0.055</td>
<td>0.922</td>
<td>0.031</td>
<td>6.89 (2.29)</td>
<td>2.07 (1.64)</td>
<td>1.000</td>
</tr>
<tr>
<td>5 - Largest</td>
<td>0.042</td>
<td>0.922</td>
<td>0.046</td>
<td>7.59 (2.22)</td>
<td>1.57 (1.58)</td>
<td>1.000</td>
</tr>
</tbody>
</table>

\(^a\) Based on practice trial performance

**Reliabilities and Manipulation Check**

Self-efficacy was measured at four intervals during the game. The reliability of the self-efficacy measure was assessed at each interval and values ranged from \(\alpha = 0.96\) to \(\alpha = 0.97\) with an average reliability coefficient of \(\alpha = 0.97\). The average correlation between each of the times of measurement was used to assess the stability of self-efficacy reports throughout the course of the task. Aggregated to the individual level the correlations were significantly related and produced an average correlational coefficient
that was high \( r = 0.89 \). The Rosenberg Self-Esteem Inventory (Rosenberg, 1965) was also highly reliable \( \alpha = 0.90 \).

HLM was used to assess the effectiveness of the target size manipulation of self-efficacy. Specifically, target size (board size) was regressed on the self-report measurements of self-efficacy (SE strength) and was averaged at the person-level. The resulting HLM equation took the following form:

Level-1 Model (round)
\[
\text{Self-Efficacy} = \pi_0 + \pi_1 \times \text{(Target)} + R
\]  

Level-2 Model (individual)
\[
\pi_0 = \beta_{00} + U_0
\]
\[
\pi_1 = \beta_{10} + U_1
\]

where \( R, U_0, \) and \( U_1 \) are error terms. As expected, target size was significantly and positively related to participants reports on the self-efficacy measure with \( \beta_{10} = 1.39 \) (SE = 0.04, \( df = 110, p < 0.01 \)). Additionally, comparison of the full and reduced models revealed that target size explained 76% of the variance in self-efficacy strength. Centered exponential terms were added to the prediction of self-efficacy in the HLM analysis to assess curvilinearity in the relationship. Higher power terms were added to the model until they were no longer significant. Two additional exponential terms were added to the model. For this model the intercept \( \beta_{00} = 0.53 \) (SE = 0.23, \( df = 110, p > 0.05 \)) was not significant, but the target coefficient \( \beta_{10} = 1.64 \) (SE = 0.08, \( df = 110, p < 0.01 \)), the target\(^2\) coefficient \( \beta_{20} = -0.06 \) (SE = 0.02, \( df = 110, p < 0.01 \)), and the target\(^3\) coefficient \( \beta_{30} = -0.05 \) (SE = 0.01, \( df = 110, p < 0.01 \)), were significant. Adding the squared term to the
model increased the amount of variance explained by 0.8%, and adding the cubed term increased amount of variance explained by 0.9% for a total of 77.3% of the variance in target engagement decisions explained by self-efficacy. Figure 4 provides a graphical representation of the relationship.

Figure 4
The Modeled Relationship Between Self-Efficacy and Target Size

Also of interest was the stability of participant allocation decisions. That is, the stability or consistency with which participants sought information (i.e., seconds of initial target illumination) given the various target sizes. The consistency of information seeking
decisions across participants and across the four trials was very high ($\alpha = 0.93$). This analysis was repeated for each participant to index the average consistency of individual’s seeking decisions. Of the 111 participants, only 12 (11%) exhibited low consistency in their information seeking decisions ($\alpha < 0.40$). These low values indicated that these individuals had no stable patterns with which they allocated seconds of illumination for boards. On average though, individual participant stability of seeking decisions remained high (average $\alpha = 0.70$).

*Hypothesis Tests*

With regards to the first hypothesis, we were interested in the effect self-efficacy would have on engaging or passing a given target size. Specifically, as target sizes became smaller (i.e., harder to nail) we expected that participants would be less likely to try and nail the target. As mentioned, descriptive statistics in Table 2 reveal that targets were harder to hit as they became smaller and that aggregated probability of engagement increased as targets became larger. To perform this analysis, a dichotomous dependent variable, engagement (i.e., pass or accept), was created. In the model used to test this hypothesis the dependent variable took on a binomial distribution that employed the Bernoulli model where:

**Level-1 Model (round)**

$$\text{Prob}(Y = 1 | \beta) = \phi$$  \hspace{1cm} (4)

$$\text{Log} [\phi / (1 - \phi)] = \pi_0 + \pi_1 \times \text{(Target)}$$ \hspace{1cm} (5)

**Level-2 Model (individual)**

$$\pi_0 = \beta_{00} + U_0$$ \hspace{1cm} (6)
In this model, $\beta_{10}$ represents the average engagement by target size regression slope across individuals. For this model, the intercept $\beta_{00} = 2.78$, SE = 0.30, $df = 110$, $p < 0.01$, and the target coefficient $\beta_{10} = 1.47$, SE = 0.13, $df = 110$, $p < 0.01$, were both significantly related to the probability of engagement. As expected, target size was found to be positively related to participants’ engaging targets, providing support for Hypothesis 1. Thus, as self-efficacy increased, participants were more likely to engage a target. The percent of variance explained in target engagement by participant self-efficacy was 92%.

Centered exponential terms were added to the prediction of information search in the HLM analysis to assess curvilinearity, specifically a ceiling effect, in the relationship. Higher power terms were added to the model until they were no longer significant. Only one exponential term was added to the model. For this model the intercept $\beta_{00} = -1.23$ (SE = 1.33, $df = 110$, $p > 0.05$) was not significant, but the target coefficient $\beta_{10} = 3.94$ (SE = 0.75, $df = 110$, $p < 0.01$), and the target^2 coefficient $\beta_{20} = 0.64$ (SE = 0.21, $df = 110$, $p < 0.01$), were significant. Adding the squared term to the model increased the amount of variance explained by 6.5%, for a total of 98.5% of the variance in board acceptance decisions explained by target size. Figure 5 graphically represents the modeled relationship when log odds were translated back into probabilities. As evident in this graph, the probability of engagement for the three largest boards was approximately one, suggesting the presence of a ceiling effect. The test of the first hypothesis was also performed after eliminating the 12 individuals that exhibited low stability (i.e., $\alpha < 0.40$)
in their information seeking decisions, but no significant differences in results were present when these individuals were eliminated.

Figure 5
*Predicted Probability of Task Engagement by Target Size*

For the second hypothesis we were interested in the effect of self-efficacy (as manipulated by target size) on information sought (i.e., allocation decision) for targets engaged. To test this hypothesis the relationship between target and the subsequent information requested by participants was modeled. Specifically, the data were analyzed at the round (within-person) level of analysis and the resulting coefficients were averaged.
across individuals (between-person). The following models were employed to test this hypothesis:

Level-1 Model (round)

\[ \text{Information Search if Engaged} = \pi_0 + \pi_j \times (\text{Target}) + E \]  

Level-2 Model (individual)

\[ \pi_0 = \beta_{00} + R_0 \]  
\[ \pi_1 = \beta_{10} + R_1 \]

where \( E, R_0, \) and \( R_1 \) are error terms. In this model \( \beta_{00} \) represents the average obtained intercept of the level-1 equations and \( \beta_{10} \) represents the average information search by target size regression coefficient across participants in the task. For this model, the intercept \( \beta_{00} = 3.94 \) (SE = 0.21, \( df = 110, p < 0.01 \)) and the average information search by target size coefficient \( \beta_{10} = -0.44 \) (SE = 0.04, \( df = 110, p < 0.01 \)) were significant.

As expected, target size was found to be negatively related to information search for engaged targets providing support for Hypothesis 2. Thus, as self-efficacy increased, participant information search decreased (via decreased requested seconds of target illumination). The percentage of variance explained in information search by target size was 36.7%.

Centered exponential terms were added to the prediction of information search in the HLM analysis to assess curvilinearity in the relationship. Specifically, higher power terms were added to the model until they were no longer significant. In all, three exponential terms were added to the model. In addition to target in the level-1 equation, the squared, cubed, and quartic equivalents were all found to significantly predict
information search. For this model the intercept $\beta_{00} = 4.99$ (SE = 0.24, $df = 110$, $p < 0.01$), the target coefficient $\beta_{10} = -0.63$ (SE = 0.06, $df = 110$, $p < 0.01$), the target$^2$ coefficient $\beta_{20} = -0.37$ (SE = 0.04, $df = 110$, $p < 0.01$), the target$^3$ coefficient $\beta_{30} = 0.04$ (SE = 0.01, $df = 110$, $p < 0.01$), and the target$^4$ coefficient $\beta_{40} = 0.03$ (SE = 0.01, $df = 110$, $p < 0.01$), were all significant. Adding the three exponential terms improved the overall fit of the model and increased the variance explained in information search by target size. Specifically, adding the squared term increased variance explained by 7.7%, whereas the cubed and quartic terms increased variance explained by 1.3% and 1.1%, respectively. In all, the curvilinear model explained 46.8% of the variance in information search. Figure 6 depicts a graphical representation of the relationship between target size and seconds of information search from this last model. With the exception of the relationship between the smallest and second smallest target sizes, the relationship is generally monotonically decreasing as hypothesized. The test of the second hypothesis was also performed after eliminating the 12 individuals that exhibited low stability (i.e., $\alpha < 0.40$) in their information seeking decisions, but no significant differences in results were present when these individuals were eliminated.
For the final two hypotheses we were interested in the effect self-esteem would have on both target engagement and information-seeking efforts for engaged targets. Specifically, it was proposed that participants would be more likely to attempt nailing a target the higher their self-esteem. Additionally, we predicted self-esteem would negatively relate to seeking information for engaged targets. The models used to test these hypotheses are only slight variations on the two models previously discussed. Indeed, the modification only applies to Equations 6 and 9. Self-esteem is applied in both equations as a between-subjects predictor. As such the investigation of the influence of self-esteem only applies to the level-2 equation for the level-1 intercept. To test
Hypotheses 3 and 4 require the same HLM models used to test Hypotheses 1 and 2 with the modification of this level-2 intercept equation. Both Equations 6 and 9 take the following form in the models testing Hypotheses 2 and 3:

\[ \pi_0 = \beta_{00} + \beta_{01}(\text{Self-Esteem}) + R_0 \] (11)

where the term \( \beta_{01} \) represents the main effect of self-esteem on engaging a target across individuals for Hypothesis 3. Likewise, it represents the main effect of self-esteem on information search across individuals for Hypothesis 4. For Hypothesis 3, the intercept \( \beta_{00} = 1.35 \) (SE = 0.76, \( df = 109 \), \( p > 0.05 \)) was significant, but the main effect of self-esteem \( \beta_{01} = 0.01 \) (SE = 0.04, \( df = 109 \), \( p = 0.87 \)) was not significant. This suggests that self-esteem was unrelated to participants’ decisions to engage boards. Thus, Hypothesis 3 was not supported. For Hypothesis 4, the intercept \( \beta_{00} = 3.45 \) (SE = 0.50, \( df = 109 \), \( p < 0.01 \)) was significant, but the main effect of self-esteem \( \beta_{01} = 0.03 \) (SE = 0.03, \( df = 109 \), \( p = 0.29 \)) was not significant. This suggests that self-esteem was unrelated to participants’ information seeking decisions. Thus, Hypothesis 4 was not supported.

Although Hypotheses 3 and 4 were not supported, I did not want to dismiss the possibility of an interaction between self-esteem and self-efficacy in the prediction of target engagement and the predication of information seeking when engaged. Thus, I also examined the possible interaction effects even though no such effects were hypothesized. The test of this interaction involves a modification of Equations 7 and 10 already described. Much like the test of a main-effect for self-esteem, the test of an interaction involves adding self-esteem as a level-2 predictor only in the equations that estimates
self-efficacy effects. Specifically, Equations 7 and 10 take the following form in the models described that tested self-efficacy effects in Hypotheses 3 and 4:

\[ \pi_1 = \beta_{10} + \beta_{11}(\text{Self} \cdot \text{Esteem}) + R_1 \]  

(12)

where the term \( \beta_{11} \) represents the interaction between self-esteem and self-efficacy on engaging a board across individuals when engagement is the dependent variable. Likewise, it represents the interaction between self-esteem and self-efficacy on information search across individuals when search is the dependent variable. With respect to engaging a board, the intercept \( \beta_{10} = 1.30 \) (SE = 0.58, \( df = 109, p < 0.05 \)) and the interaction between self-esteem and self-efficacy \( \beta_{11} = 0.01 \) (SE = 0.03, \( df = 109, p = 0.77 \)) were not significant. This suggests that self-esteem did not interact with self-efficacy to influence participants’ decisions to engage boards. With respect to information search, the intercept \( \beta_{10} = -0.66 \) (SE = 0.17, \( df = 109, p < 0.01 \)) was significant, but the interaction between self-esteem and self-efficacy \( \beta_{11} = 0.01 \) (SE = 0.01, \( df = 109, p = 0.17 \)) was not significant. This suggests that self-esteem did not interact with self-efficacy to influence participants’ information seeking decisions.

**Exploratory Analyses**

While information search via illuminated targets was the metric of choice for the current study, also of interest are other types of information individuals might seek out. For example, information that is diagnostic for improving performance or information that is evaluative with implications for one’s level of skill. To this end, at the end of the Hurricane Game, participants were given the opportunity to indicate how interested they would be in receiving various types of information/feedback about their performance in
the game. The responses for each question were based on a 4-point numerical rating scale with *not at all interested*, *somewhat interested*, *very interested*, and *extremely interested* as the anchors. Table 4 provides the questions asked and the percentage of participants’ responses for each of the questions.

Table 4
*Percentage of Participants Endorsing Feedback Seeking Questions*

<table>
<thead>
<tr>
<th>Question</th>
<th>Not at all interested</th>
<th>Somewhat interested</th>
<th>Very interested</th>
<th>Extremely interested</th>
</tr>
</thead>
<tbody>
<tr>
<td>How interested would you be in receiving feedback comparing your</td>
<td>10%</td>
<td>44%</td>
<td>32%</td>
<td>14%</td>
</tr>
<tr>
<td>performance to others?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How interested would you be in receiving feedback about your</td>
<td>7%</td>
<td>45%</td>
<td>32%</td>
<td>15%</td>
</tr>
<tr>
<td>overall performance?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How interested would you be in receiving feedback that would help you</td>
<td>20%</td>
<td>39%</td>
<td>30%</td>
<td>11%</td>
</tr>
<tr>
<td>improve your overall performance?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The first question asked participants how interested they would be in receiving feedback comparing their performance in the game to the performance of other participants. The plurality (44.1%) of participants indicated that they would be somewhat interested in receiving this type of feedback. The second question asked participants to identify how interested they would be in receiving feedback about their overall performance during the game. Again, the plurality (45%) of participants indicated that they would be somewhat interested in receiving this type of feedback. Finally, the last
question asked participants to identify how interested they would be in receiving feedback that would help them improve their overall performance in playing the game. The plurality (39%) indicated that they would be somewhat interested.

The questions were all highly correlated with each other, with the lowest correlation being \( r = 0.60 \) and the highest being \( r = 0.75 \). Additionally, the self-esteem measure was not significantly correlated with any of the feedback questions. Indeed, the correlation between self-esteem and the first question was \( r = -0.05, p = 0.62 \), while the correlation with the second question was \( r = -0.04, p = 0.68 \), and the correlation with the last question was \( r = -0.05, p = 0.62 \).

**Discussion**

The purpose of this study was to investigate the relationship between self-perception beliefs (i.e., self-efficacy and self-esteem) and information seeking. Researchers have found inconsistencies in the direction and nature of the relationship between both self-efficacy and self-esteem and newcomer information seeking. Some researchers suggest a negative relationship exists (e.g., Jones, 1988; Major & Kozlowski, 1997; Weiss & Knight, 1980); whereas others have argued for a positive relationship (e.g., Karl & Kopf, 1994; Northcraft & Ashford, 1990). In this paper we have attempted to investigate whether both relationships might coexist via a nonmonotonic discontinuous relationship.

With the nonmonotonic discontinuous model, the underlying logic allows that when self-efficacy is low an individual would be unlikely to even accept or engage in a task. This would be because they perceive their abilities to be too low to accomplish the task before them and/or they perceive the costs (i.e., resource costs) associated with
seeking the information needed to be successful to be higher than they are willing to spend. Non-engagement in the task results in no information seeking on the part of the participant. Indeed, one must first accept the challenges of the task before one would proceed to seek information. Similarly, those with low self-esteem may doubt their ability to successfully navigate a task and that perceive their initial approaches to problems often fail. They see their failure on the task potentially damaging to their feelings of self-worth, thus they also decide to not engage or accept the task.

Once self-efficacy is high enough that the benefits of engaging a task outweigh the costs of not engaging a task, then additional variance on self-efficacy would result in a negative relationship. In particular, when ones’ self-efficacy toward a task was high, one would be less likely to seek information related to the task than when self-efficacy was only moderately high. In this latter instance the individual recognizes the need to expend effort in proactivity, such as information seeking, to successfully navigate the task. Similarly, those high in self-esteem would be less likely to seek information for engaged tasks because they have confidence in their general approach to problems. Those lower in self-esteem, once committed to the task, would be more likely to seek information because they perceive that their initial approach to problems is often not successful and as such recognize that they need to seek information to successfully navigate the task.

With respect to self-efficacy, the positive relationship resulted primarily as a function of crossing the point of discontinuity where the individual either did not engage the task, thus not seeking, to a point of engaging the task, which may or may not have require some seeking. Likewise, the negative relationship between self-efficacy and
information seeking results as a function of the instrumental motive or motivation to reduce uncertainty to achieve the best possible outcomes through performance.

Results from this study provide some initial support for the nonmonotonic discontinuous explanation. Specifically, a positive relationship between self-efficacy and task engagement (i.e., accepting a task) was found. As expected, higher levels of self-efficacy toward tasks led to a higher probability of task engagement than lower levels of self-efficacy. When self-efficacy was too low toward tasks, individuals were likely to not even attempt to engage or try the task of nailing targets. Conversely, when individuals had higher levels of self-efficacy toward tasks they were much more likely to engage the task. Of course, if participants did not engage, they asked for no information. Almost all of the variance in task engagement was explainable by self-efficacy level.

With respect to the second hypothesis, the relationship between self-efficacy and information search for accepted or engaged targets was examined. As expected, self-efficacy was found to be negatively related to information seeking. Although not as strongly explanatory as the engagement relationship, almost half of the variance in information seeking was explainable by self-efficacy level. Although the relationship observed was generally negative, there was indication of curvilinearity in the relationship. Specifically, the relationship between the two smallest targets was positive whereas the relationship was negative for the subsequent larger targets (Figure 6). Perhaps a possible explanation for the positive effect resides in the fact that it cost nothing for participants to try and nail the smallest target. Indeed, regardless of trying to nail the target or not, participants were deducted three points from their trial score. It seems logical then to try and nail the target while it is invisible the entire round or even
apply only one second of information seeking to the round on the off chance that one might nail it in the first second. Much like the lottery, it is improbable that one would win, but it is impossible for one to win without first purchasing a ticket. In this fashion it seems that utility exists for attempting, though at the least cost possible, to try and nail the target (i.e., win the lottery). To understand this positive effect, we examined the frequency of seconds of illumination requested by participants for the smallest target, when they engaged the board. What was found was a bimodal distribution where participants tended to illuminate the board for zero seconds or illuminate the board for seven seconds. Thus, half of the participants allocated resources in the hypothesized fashion (the highest number of seconds of illumination possible) whereas the other half of participants allocated in accordance with the utility explanation given above.

Nonetheless, on the whole, the findings with regard to self-efficacy supported the proposed nonmonotonically discontinuous prediction.

This study’s theoretical contribution and findings complement nicely the underlying argument that Major and Kozlowski (1997) articulated regarding when a newcomer will most likely be proactive. They proposed that low self-efficacy individuals should seek more information to overcome informational deficits that they have regarding completing a task. However, they acknowledge that those with higher levels of self-efficacy could potentially be more likely to seek information because those with low self-efficacy may be resistant to seeking because of the potential associated costs. As mentioned before, they found that when other coworkers’ success was dependent on the success of the newcomer and the newcomer had information sources accessible, then low self-efficacy individuals were more likely to seek information than those with higher
levels of self-efficacy. That is, when the benefits associated with seeking (i.e., obtaining information needed to not disappoint coworkers) outweighed the costs of seeking, the point of discontinuity was crossed. Once this point was crossed, low self-efficacy newcomers are more likely to seek information than high self-efficacy newcomers. This relationship highlights the uncertainty reduction motive.

Unlike the findings with regards to self-efficacy, the findings with regards to self-esteem were for no relationships at all. Additionally, the search for any interactional effects proved ineffectual. The lack of support for self-esteem is somewhat surprising given the results of the Weiss and Knight (1980) study. This study utilized a similar type of experimental task where information search was necessary for success at the task. Additionally, they measured self-esteem using the same measure employed in this study yet found a significant negative relationship. However, one difference between the two studies was the nature of the task employed. Unlike the Weiss and Knight study, this study utilized a speed and accuracy task that relied on a resource allocation paradigm, whereas their study employed a puzzle solving paradigm. The differences in the ability of these two approaches to engage feelings of ego involvement may account for the different findings. That, is the failure to replicate their results may be because of the participants’ lack of ego involvement in the present study. When a task relies on puzzle solving, participants are potentially more likely to accept the results of their participation as meaningful evidence of their cognitive ability, thus increasing the amount of ego involvement toward the task. If they are able to correctly solve the puzzle, then the implication is that they were smart enough to figure it out. However, in the present task accepting the challenge of trying to nail a target and the subsequent amount of seconds
selected for the target to be visible have no apparent relationship with something as ego-related as cognitive ability. If the participant is able to nail the target, then it potentially has relevance for their manual dexterity, psychomotor ability, or the speed and accuracy of their reflexes, which may be important to someone who is an avid computer gamer, but not to most participants. Indeed, in this study it is most likely that the experience gained with playing the task completely overwhelmed the necessity of relying on a general belief in one’s ability.

The supposition that ego involvement was at a low in this study seems somewhat exemplified in the questions concerning participant desires for feedback about their performance at the end of the task. An examination of participant responses about feedback comparing their performance to the performance of others revealed most participants were indifferent to the idea of receiving the feedback. Indeed, uniformly participants did not express high enthusiasm for feedback concerning their overall performance or information about how to improve their performance.

Another possibility is that self-esteem is a generalized belief in the generalized skills like problem solving, but not specific psychomotor skills. Thus, the self-esteem beliefs might be used to estimate uncertainty in Weiss and Knight’s (1980) task, but not in the Hurricane game.

**Limitations and Future Directions**

An improvement in the current study over some of the other studies attempting to untangle these relationships was the manipulation of several levels of self-efficacy. By manipulating self-efficacy we were able to identify task engagement and subsequently
discontinuity. Doing so allowed us to examine the relationship between self-efficacy and information seeking only when the benefits of engaging the task had outweighed the costs of not engaging the task. Another improvement was the movement beyond a cross-sectional data collection strategy, which has been employed by the vast majority of the studies interested in the topic of socialization and information seeking. Furthermore, data in this study were collected experimentally, thus increasing the strength of the inference that can be made concerning the relationships of interest.

However, despite the aforementioned improvements, several limitations to the current study exist. One limitation of the study involves the amount and type of information participants were able to seek. The participants in this study played a computer-based game where information seeking was relegated to requesting the visibility of the boards when they decided to engage the task. In an organizational context individuals are able to seek information from many different sources with varying levels of effectiveness (Miller & Jablin, 1991; Morrison, 2002). One could seek from personal or impersonal sources using the methods of monitoring or inquiry. By allowing participants to only seek information from the computer we were eliminating the reciprocal human aspect of the information seeking process. Additionally, participants had only a fixed level of information that they could seek for any particular board size which is probably unrealistic for most tasks individuals in organizations face.

Another limitation of the design of the study involves the ability to differentiate competing motivations for the negative relationship. Indeed, the purpose of the study was only to determine the potential nonmonotonicity of the self-efficacy/self-esteem and information seeking relationship. Given the results of the study, it seems most reasonable
to argue that the motivation to reduce uncertainty stands as the best explanation for the negative effect found between self-efficacy and information seeking. Also, because self-esteem turned out to be unrelated to either engagement or information seeking, the uncertainty reduction hypothesis stands as the only viable explanation for the negative relationship. However, had self-esteem been significant and negatively related to information seeking in this study it would have been impossible to identify the instrumental motivation driving the relationship. According to Weiss and Knight (1980) the negative relationship would result as a motivation to reduce uncertainty whereas Levy et al. (1995) might argue that those high in self-esteem are trying to protect their egos.

Future studies could further examine the negative relationship with tasks that better induce feelings of ego-involvement among participants. For example, creating a task like the Weiss and Knight (1980) study that potentially implicates one’s cognitive ability could induce ego-involvement. Similarly, a task where participants would have to seek information needed to navigate the task interpersonally from referent others might also create feelings of ego-protection or enhancement. A potential improvement on the current paradigm could include providing normative data to research participants with a cover story explaining the relationship between success on psychomotor tasks and future job success. Giving participants normative standards that provide information about the effectiveness of their performance could induce ego-involvement. However, to test the competing motivations for the negative relationship (i.e., uncertainty reduction v. ego-defense) we might vary the degree of ego-involvement in the task (e.g., have groups receiving low, medium, or high normative standards) and see if differences are more
pronounced under different conditions. By doing so we could potentially dissect the influence of the uncertainty reduction motive over the ego-defense motive or vice versa.

It is also possible that self-esteem, as an indicator of one’s likelihood of information seeking, may be too broad of a construct. Instead, using factors that uniquely contribute to one’s global self-esteem may prove more beneficial and cleaner constructs. For example, research by Pelham and Swann (1989) identified three such factors that comprise global self-esteem. Specifically, they found that self-esteem was made of affective components (i.e., individuals tendencies to experience positive and negative affective states), specific self-conceptions (i.e., conceptions of one’s strengths and weaknesses), and framing factors (i.e., the way individuals frame, or give meaning to, self-views). With respect to framing, they investigated importance, certainty, and self-ideal discrepancy in self-views. Understanding the individual underlying components of self-esteem could aid in the understanding of what about self-esteem is important for information seeking choices.

Knowledge of the relationships involving information seeking and psychological variables such as self-efficacy and self-esteem are important given the applicability to many problems facing organizational members in their socialization. Future research should extend the findings from this study to other tasks that are generalizable to organizational settings. Laboratory studies tend to call into question issues of external validity and generalizability to organizational settings. Although researchers have argued that findings from laboratory studies tend to overlap with findings in applied settings (Locke, 1986) the fact remains that participants in this study were college undergraduates and that their task was a contrived problem. The population of interest is newcomers
being socialized in a new organization and how they seek information in that context. Although the task employs information seeking as the metric of study, the actual contrived problem utilized in this study is only somewhat difficult to generalize to our larger problem (i.e., newcomer proactivity). Often employees are faced with these types of resource allocation decisions in the workplace. For example, a lawyer, although specializing in a specific type of law, still must engage in this type of cost/benefit analysis when taking on new clients. In this example, uncertainty may lie in developing an understanding of case law not directly known to the lawyer as well as predicting the feasibility of success on a case. Differences in the difficulty of 1) understanding the knowledge necessary to take on the case and 2) the possibility of success will direct whether a lawyer with low self-efficacy will not take on a case whereas one with higher self-efficacy might. Yet, once engaged, the lawyers’ levels of self-efficacy could direct the amount of work they will do in order to win the case.

Future research should examine information seeking efforts beyond the domain of task mastery. According to Morrison (1993b) there are three other types of tasks that constitute the socialization domain. Specifically, the task of clarifying one’s role deals with developing an understanding of one’s function in the organization. The task of acculturation deals with learning about and adjusting to the overall culture of the organization. Finally, become socially integrated into the organization deals with developing relationships with coworkers and other organizational members. Little to no research has investigated the relationship between self-efficacy and self-esteem and information search on these other tasks. To have a complete picture of newcomer
Practical Applications and Conclusion

To the extent that newcomer proactivity leads to positive outcomes in organizational settings, the present study’s findings can be applied to encourage information seeking efforts among organizational members. Specifically, it becomes a balancing act for the organization to bolster feelings of self-efficacy enough to encourage task engagement, but not so much that organizational members feel that they have enough competence or mastery that they do not require the assistance of any other organizational member. Rampant bolstering of self-efficacy on the part of the organization could have negative effects for those who do not actually possess the skill to achieve task goals.

In Reichers (1987) interactionist model, she proposed that the rate of proactivity was directly related to the rate of socialization. This study’s findings indicate that those with lower self-efficacy (once engaged in a task) should seek more information than those with higher self-efficacy, which could lead to a faster rate of socialization to the organization. Indeed, this was the observation of Jones (1988) when he found that lower self-efficacy individuals tended to develop custodial role orientations in the organization whereas those with higher self-efficacy developed innovative role orientations. Depending on the job within the organization the fostering of these different types of role orientations through bolstering self-efficacy may be useful. That is when the organization is interested in having organizational members that do not fit any particular mold, but are...
innovative in the development of their role in the organization or the development of new products for the organization it could be useful to enhance self-efficacy.

There is obviously much more work that needs to be done to understand the socialization process. By looking at self-efficacy and self-esteem and information seeking we have only begun to explore the depth of research surrounding this complex topic. The findings and theoretical contributions of this study provide socialization researchers with a new way to marry competing motivations and relationships into a more parsimonious understanding of information seeking.
References


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Appendix A

<table>
<thead>
<tr>
<th>Study</th>
<th>Sample</th>
<th>Design</th>
<th>IV</th>
<th>DV</th>
<th>Major findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weiss &amp; Knight (1980)</td>
<td>41 male undergraduates</td>
<td>Correlational</td>
<td>Self-esteem (measured by Rosenberg’s Self Esteem Inventory, 1965)</td>
<td>Information search (measured by the amount of information sought before the first problem solution was offered and the amount of information sought per problem solution offered)</td>
<td>They found that individuals with high self-esteem engaged in less information search than low self-esteem individuals (negative relationship between self-esteem and information search) and, because of the nature of the task, under performed relative to low self-esteem individuals.</td>
</tr>
<tr>
<td>Ashford (1986)</td>
<td>331 employees in a marketing department of a Midwestern public utility company</td>
<td>Correlational questionnaire research</td>
<td>Self-confidence</td>
<td>Frequency of monitoring and frequency of inquiry about performance behaviors.</td>
<td>Individuals high in self-confidence reported monitoring for feedback more frequently (positive relationship). However, respondent’s self-confidence was not related to frequency of inquiry for feedback about performance.</td>
</tr>
<tr>
<td>Knight &amp; Nadel (1986)</td>
<td>74 undergraduates</td>
<td>Correlational</td>
<td>Self-esteem (measured by Rosenberg’s Self Esteem Inventory, 1965)</td>
<td>Information search (measured by the number of requests for performance feedback and the number of times the subject requested the operating budget balance) Consistency (measured as the number of weeks before the initial policy was abandoned and the number of times the subject changed policies)</td>
<td>They found significant negative correlations between self-esteem and both measures of information search. Also, high self-esteem subjects changed policies less frequently, while allowing their first policy to operate longer, compared to low self-esteem subjects.</td>
</tr>
<tr>
<td>Study</td>
<td>Sample</td>
<td>Design</td>
<td>IV</td>
<td>DV</td>
<td>Major findings</td>
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<tr>
<td>Study 2</td>
<td>53 undergraduates</td>
<td>Correlational</td>
<td>Same as above</td>
<td>Same as above except all subjects are given feedback every three weeks, thus there was only one measure of information search</td>
<td>Self-esteem was negatively correlated with the number of requests for the operating budget balance. Also, self-esteem was negatively correlated with the number of times a subject changed policies and positively correlated with the duration of the first policy.</td>
</tr>
<tr>
<td>Jones (1988)</td>
<td>102 MBA students entering the workforce</td>
<td>Correlational longitudinal questionnaire research</td>
<td>Self-efficacy (measured in terms of people’s expectations that “they can successfully execute the behavior required to produce the outcome”)</td>
<td>Role orientation (high scores indicate innovative orientation where the newcomer attempts to alter procedures for performing a role while low scores indicate custodial orientations where the newcomer accepts the prescribe limits of a role in the organization)</td>
<td>Found that role orientation was positively related to self-efficacy. Newcomers high in self-efficacy tend to define situations themselves even when their roles or progressions in organizations are prescribed. This could imply that those with high self-efficacy engage in less information search and rely more on the self as the locus of control when evaluating situations.</td>
</tr>
<tr>
<td>Northcraft &amp; Ashford (1990)</td>
<td>78 undergraduates</td>
<td>Between subjects factorial design</td>
<td>Performance expectations (manipulated via a “Brokerage Aptitude Exam”) Feedback context (requests for feedback were either public or private as was the delivery of feedback) Self-esteem</td>
<td>Subjects could request portfolio feedback, social feedback, or both.</td>
<td>Found that low expectation subjects requested less portfolio feedback than high expectation subjects. Subjects with low expectations were less likely to request feedback when the delivery was public. High self-esteem subjects requested more portfolio feedback than low self-esteem subjects. Results didn’t suggest that low self-esteem reduced the likelihood of seeking feedback when expectations were low.</td>
</tr>
<tr>
<td>Study</td>
<td>Sample</td>
<td>Design</td>
<td>IV</td>
<td>DV</td>
<td>Major findings</td>
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<tr>
<td>Fedor, Rensvold, &amp; Adams (1992)</td>
<td>137 helicopter pilot trainees</td>
<td>Correlational longitudinal questionnaire research</td>
<td>Self-esteem (measured by Rosenberg’s Self Esteem Inventory, 1965)</td>
<td>Feedback eliciting (inquiry) and feedback monitoring</td>
<td>Zero-order correlations were not significant. However, regression analyses indicated that self-esteem was negatively related to inquiry when feedback uncertainty, seeking costs, credibility, tolerance for ambiguity, external propensity, and performance were in the model.</td>
</tr>
<tr>
<td>Karl &amp; Kopf (1994)</td>
<td>90 undergraduates</td>
<td>Correlational questionnaire research</td>
<td>Self-esteem (measured using the Janis-Field Feelings of Inadequacy Scale; Eagley, 1967) Self-efficacy (measured with a guttman scale, summing the individual’s confidence ratings for achieving various levels of performance) Public self-consciousness (measured using a scale developed by Fenigstein et al, 1973)</td>
<td>Feedback seeking (coded 0, did not review the videotape and 1, did review the videotape)</td>
<td>Found high performers were more likely to seek feedback compared to low performers. Participants with high self-esteem or high self-efficacy were more likely to seek videotape feedback compared to low self-esteem or self-efficacy. A significant interaction revealed that self-esteem did not matter, in terms of seeking feedback, when the individual was high in self-consciousness.</td>
</tr>
<tr>
<td>Levy, Albright, Lawley, &amp; Williams (1995)</td>
<td>192 undergraduates</td>
<td>Correlational</td>
<td>Self-esteem (measured by Rosenberg’s Self Esteem Inventory, 1965)</td>
<td>Feedback seeking behavior and intentions to seek (measured by whether the individual sought feedback, demonstrated initial intentions to seek feedback but modified the intention, bypassed feedback altogether)</td>
<td>Seeking was less frequent the more public the context. The more public the context, the more likely the subject was to reconsider seeking feedback. Individuals high in self-esteem were more likely to reconsider seeking than low self-esteem.</td>
</tr>
<tr>
<td>Study</td>
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<td>Major &amp; Kozlowski (1997)</td>
<td>421 Co-op students</td>
<td>Correlational questionnaire research</td>
<td>Self-efficacy</td>
<td>Information seeking</td>
<td>Found that individuals engage in more information seeking when the tasks are highly interdependent. Self-efficacy was negatively related to information seeking when task interdependence and accessibility were high.</td>
</tr>
<tr>
<td>Nease, Mudgett, &amp; Quinones (1999)</td>
<td>80 undergraduates</td>
<td>Mixed factor design with two between and one within factors</td>
<td>Self-efficacy</td>
<td>Feedback acceptance</td>
<td>Individuals with high self-efficacy are less accepting of consistently negative feedback than are low self-efficacy individuals, who do not appear to differ in their acceptance of repeated negative feedback.</td>
</tr>
<tr>
<td>Brown, Ganesan &amp; Challagalla, (2001)</td>
<td>279 salespeople of Fortune 500 companies</td>
<td>Correlational questionnaire research</td>
<td>Self-efficacy Information seeking (measured as both inquiry and monitoring about four types of information; appraisal, social, referent, and technical information)</td>
<td>Role clarity Performance</td>
<td>Inquiry and monitoring interact such that role clarity is increases as the combination of inquiry and monitoring increases. Self-efficacy moderated the relationship between information seeking and role clarity such that those with high self-efficacy were able to effectively use the combination of inquiry and monitoring to clarify role expectations, whereas those with low self-efficacy were not.</td>
</tr>
</tbody>
</table>
Appendix B

Self-Esteem Scale

“Positive” responses indicate low self-esteem.

1. I feel that I’m a person of worth, at least on an equal plane with others.
   1____Strongly agree
   2____Agree
   3____Disagree
   4____Strongly disagree

2. I feel that I have a number of good qualities.
   1____Strongly agree
   2____Agree
   3____Disagree
   4____Strongly disagree

3. All in all, I am inclined to feel that I am a failure.
   1____Strongly agree
   2____Agree
   3____Disagree
   4____Strongly disagree

4. I am able to do things as well as most other people.
   1____Strongly agree
   2____Agree
   3____Disagree
   4____Strongly disagree

5. I feel I do not have much to be proud of.
   1____Strongly agree
   2____Agree
   3____Disagree
   4____Strongly disagree

6. I take a positive attitude toward myself.
   1____Strongly agree
   2____Agree
   3____Disagree
   4____Strongly disagree
7. On the whole, I am satisfied with myself.
   1_____Strongly agree
   2_____Agree
   3_____Disagree
   4_____Strongly disagree

8. I wish I could have more respect for myself.
   1_____Strongly agree
   2_____Agree
   3_____Disagree
   4_____Strongly disagree

9. I certainly feel useless at times.
   1_____Strongly agree
   2_____Agree
   3_____Disagree
   4_____Strongly disagree

10. At times I think I am no good at all.
    1_____Strongly agree
    2_____Agree
    3_____Disagree
    4_____Strongly disagree