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**Self-leadership and Creativity Differences in Line and Supervisory  
Defense Acquisition Employees**

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**by**

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# Self-leadership and Creativity Differences in Line and Supervisory Defense Acquisition Employees

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## Abstract

This study investigated the relationships between self-leadership and creativity in the context of a defense acquisition organization. More specifically, this study examined differences in self-leadership, creativity and perceived organizational support for creativity between line and supervisory defense acquisition employees. Our analyses suggested that self-leadership was significantly related to creative potential and practiced creativity for both line and supervisory employees, although there were no significant differences in overall levels of self-leadership between the two groups. In addition, we found significant differences in creative potential, practiced creativity, gap scores and perceptions of organizational support for creativity. Specifically, line employees reported significantly lower levels of creative potential, practiced creativity and perceptions of organizational support for creativity along with higher gap scores in comparison to supervisors.

Our findings imply that self-leadership is a primary tool for facilitating creativity at all organizational levels and that active organizational support for creativity may be the key for reducing the gap between creative potential and practiced creativity that represents untapped creative resources. Our results suggest that this gap is much more pronounced among line employees and that line employees generally perceive less organizational support for utilizing their creative resources than supervisors. In response, we make some specific suggestions for organizational interventions designed to increase self-leadership capabilities at all levels and to increase perceptions of organization support for creative practices among line employees in defense acquisitions. A workforce with creative self-



leaders could synergistically assist organizations in maximizing the utility of all organizational resources.

## Introduction

Innovation and creativity are critical for organizations to thrive in the 21<sup>st</sup> century (Kanter, 1983; Tushman & O'Reilly, 1997; Utterback, 1994). Indeed, the Office of Force Transformation (OFT) under the Office of Secretary of Defense (OSD) has placed the leveraging of innovation and creativity among the most effective approaches for creating the transformational changes needed to maintain the Department of Defense's strategic position. Creativity is more likely to occur if an individual has certain characteristics or innate skills and abilities (Tierney & Farmer, 2002; Hinton, 1970; Simonton, 1992; Woodman & Schoenfeldt, 1989) and when the individual perceives that the work environment supports creativity (Amabile, 1996; Cummings, Hinton & Gobdel, 1975; Woodman, Sawyer & Griffen, 1993). Furthermore, the ability to leverage creativity depends largely on effective leadership (Kouzes & Posner, 1995; Manz & Sims, 2001). A common theme in improving leadership effectiveness concerns knowing and leading oneself (Bennis, 1994; Drucker, 1999; Goleman, Boyatzis & McKee, 2002; Senge, 1990; Yukl, 2002). Self-leadership is a concept that focuses on self-reflection and evaluation aimed at improving personal and professional performance.

Although theorists have often suggested relationships between self-leadership and creativity (e.g., Kouzes & Posner, 1995; Manz & Sims, 2001), very little attention has been given to how these relationships may differ across organizational levels. The purpose of the current study is to examine the self-leadership and creativity differences in line and supervisory defense acquisition employees. The differences identified in this research may have important implications for maximizing employee self-direction and for fully utilizing creative resources at all organizational levels.

## Creativity and Self-leadership

Although creativity is a complex concept that is somewhat difficult to define, consistent themes tend to emerge across the various definitions in the creativity literature (e.g., Barron & Harrington, 1981; Guilford, 1950; Martindale, 1989; Sternberg & Lubart, 1999). Based on the common ideas in these definitions, we define creativity as an ability to harvest novel but appropriate ideas in order to maximize efficiencies, solve problems, and increase effectiveness. We further divide the creativity concept into creative potential and practiced creativity (e.g., Hinton, 1968; DiLiello & Houghton, 2006, 2007). In short, if an individual's creativity is attenuated by the environment, then the individual will not utilize his or her full creative potential (Hinton, 1968; George & Zhou, 2001; Scott, 1965).

Creative potential is the creative capacity, skills and abilities that a person possesses (Hinton, 1968, 1970). Creative potential includes the concept of creative self-efficacy, an individual's subjective assessment of their personal ability to be creative (Tierney & Farmer, 2002). Creative self-efficacy involves seeing oneself as being good at creative problem-solving and generating novel ideas. Creative potential also includes having the talent or expertise to do well in one's work and possessing the ability to take risks by trying out new ideas (Amabile, Burnside & Gyskiewicz, 1999).

Practiced creativity, on the other hand, is the perceived opportunity to utilize creativity skills and abilities. Practiced creativity should not be confused with creative



performance, which is an external assessment of products or achievements (Amabile, 1996; Hinton, 1968). Practiced creativity is also different from the concept of organizational support for creativity, which is the extent to which, “an organizational culture [...] encourages creativity through the fair, constructive judgment of ideas, reward and recognition for creative work, mechanisms for developing new ideas, and active flow of ideas, and a shared vision of what the organization is trying to do” (Amabile et al., 1999, p. 15). Employees with strong creative potential are more likely to actually practice creativity when they perceive strong support from the organization (DiLiello & Houghton, 2006); several key conditions must be present within an organization for its work environment to support individual creativity (e.g., Amabile, 1988; Ford, 1996; Mumford & Gustafson, 1988).

The distinction between creative potential and practiced creativity is important because when people perceive themselves as having creative potential but do not perceive the ability to use or practice this potential, they will be less likely to engage in creative behavior. The gap between creative potential and creative practice represents untapped organizational resources. Identifying such untapped resources may be especially important in defense acquisition organizations that are continually being told to “do more with less.”

Self-leadership (e.g., Manz, 1986; Neck & Houghton, 2006; Neck & Manz, 2007) is a self-evaluation and self-influence process through which individuals identify and replace ineffective behaviors and negative thought processes with more effective behaviors and positive thought processes, thereby enhancing personal accountability and improving professional performance. Theorists have long suggested that leaders in organizations should encourage their followers to lead themselves in the workplace (e.g., Manz & Sims, 1980, 2001). Supervisors and work environments only have a limited control over the workers; additional control or work motivation must come from within the individual (Herzberg, Mausner & Snyderman, 2003; Manz & Sims, 1980; Sergiovanni, 1992). When employees are trained and empowered to lead themselves, supervisors can shift their focus from detailed oversight and control to longer-term, big-picture issues.

Founded upon several classic theories of self-influence—including self-regulation (Kanfer, 1970; Carver & Scheier, 1981), self-control (Cautela, 1969; Mahoney & Arnkoff, 1978, 1979; Thoresen & Mahoney, 1974), intrinsic motivation theory (e.g., Deci & Ryan, 1985), and social cognitive theory (e.g., Bandura, 1986)—self-leadership is a normative model that prescribes specific sets of behavioral and cognitive strategies aimed at increasing individual performance. Self-leadership strategies are often divided into three primary categories: Behavior Focused Strategies, Natural Reward Strategies and Constructive Thought Strategies (e.g., Neck & Houghton, 2006).

*Behavior Focused Strategies* involve identifying and replacing ineffective behaviors with more effective ones through a process of self-observation, self-goal setting, self-reward and self-correcting feedback (Neck & Houghton, 2006). Self-observation entails a close examination of one’s own behaviors in order to identify behaviors that should be changed, enhanced or eliminated (Mahoney & Arnkoff, 1978, 1979; Manz & Sims, 1980; Neck & Manz, 2007). Once target behaviors have been identified, individuals can establish goals and associated reward contingencies to energize and direct necessary behaviors (Mahoney & Arnkoff, 1978, 1979; Manz & Sims, 1980; Neck & Manz, 2007). Additionally, self-correcting feedback, consisting of a positively framed reflection on failures and undesirable behaviors, may be quite effective in helping to recast these behaviors in more positive directions (Manz & Sims, 2001).



*Natural Reward Strategies* include the ability of the individual to find pleasure in the work that has to be performed and to focus on the inherently enjoyable aspects of task or activity, leading to increased feelings of competence, self-control and a sense of purpose (Csikszentmihalyi, 1996; Deci & Ryan, 1985; Herzberg, Mausner & Snyderman, 2003). Natural reward strategies include building more pleasant and enjoyable features into a task or activity so that the task itself becomes more intrinsically rewarding, and shifting mental focus to inherently rewarding aspects of the task (Neck & Houghton, 2006; Neck & Manz, 2007).

*Constructive Thought Strategies* focus on directing and reshaping various mental processes—including beliefs and assumptions, self-verbalizations (self-talk), and mental imagery—in order to create constructive thought patterns and habitual ways of thinking that may have a positive impact on individual performance (Neck & Houghton, 2006; Neck & Manz, 1992, 1996). For example, individuals can assess their thought patterns in an effort to identify and eliminate dysfunctional beliefs and assumptions with more rational and constructive ones (Burns, 1980; Ellis, 1977; Neck & Manz, 1992). Similarly, self-talk, defined as what we covertly tell ourselves, can be closely examined in order to eliminate undue negativity and pessimism. Research in various fields (sports psychology, clinical psychology, education and communication) supports the use of positive self-talk as an effective way to improve individual performance (e.g., Neck & Manz, 1992). Mental imagery involves symbolically experiencing behavioral outcomes prior to actual performance without overt physical muscular movement (Driskell, Copper, & Moran, 1994; Finke, 1989; Neck & Manz, 1992, 1996). Research suggests that people who visualize successful performance before actually engaging in performance are much more likely to perform successfully when faced with the actual task (Neck & Houghton, 2006). In a meta-analysis of 35 empirical studies, Driskell et al. (1994) reported an overall positive and significant effect for mental imagery on individual performance.

Theorists have often suggested a relationship exists between self-leadership and creativity (e.g., DiLiello & Houghton, 2006; Houghton & Yoho, 2005; Manz & Sims, 2001). The relationship between creativity and self-leadership may be partially founded on the concepts of autonomy and self-determination. Autonomy, a key aspect of creativity (e.g., Amabile, 1996; Barron & Harrington, 1981; Woodman et al., 1993), has been linked to self-determination and intrinsic motivation (Deci & Ryan, 1985). Self-determination is a primary component of self-leadership's natural reward strategies (Neck & Manz, 2007). Indeed, empirical research suggests that an individual's need for autonomy can subsequently influence the extent to which the individual engages in self-leadership (Yun, Cox, & Sims, 2006).

Other relationships between creativity and self-leadership have also been suggested. For example, Houghton and Yoho (2005) have suggested a relationship between individual self-leadership and subsequent levels of individual independence and creativity. In addition, internal locus of control, a theorized component of creativity, has been empirically related to individual self-leadership (Kazan & Earnest, 2000). Finally, an empowering leadership style (leading others to be self-leaders) tends to promote creativity rather than conformity (Manz & Sims, 2001). Indeed, creativity may be one of the most essential aspects of effective organizational leadership (Mumford & Connelly, 1999). Creative thinking and a different style of leadership are necessary to provide flexibility, facilitate change and redesign traditional bureaucratic processes (Katz & Kahn, 1978). Encouraging self-leadership is a relatively new leadership style that may help to promote an organizational climate that supports creativity. Empowering leadership is rapidly becoming a key success strategy in the rapidly changing work environments of the 21<sup>st</sup> century.



The purpose of the current study is to examine the relationships between self-leadership and creativity in the context of a defense acquisition organization. More specifically, we will examine possible differences in self-leadership, creativity and perceived organizational support for creativity between line and supervisory defense acquisition employees. The present study will contribute to the self-leadership and creativity literature in a number of important ways. First, this study will take an empirical step toward understanding the nature of the relationship between self-leadership and creativity. This study will also examine the role of organizational support in facilitating practiced creativity among organizational members. Most importantly, this study is among the first to examine differences in self-leadership, creativity and perceptions of support between line and supervisory employees. Understanding these differences may be a critical for reducing the gap between creative potential and practiced creativity in organizations. Finally, this study makes a unique contribution to our knowledge of creativity and self-leadership in the context of defense acquisitions. The differences examined here may have important implications for creating a defense acquisitions workforce with strong self-leaders working in environments that support creativity. Creative self-leaders could synergistically assist the DoD in maintaining an all-important competitive advantage in the face of a wide range of 21<sup>st</sup>-century challenges.

## Method

### Sample and Procedure

Primary data were collected from the Army Contracting Agency (ACA) as part of a larger study that examined a number of performance-related issues. Approximately 37% of the total ACA workforce of approximately 1900 people chose to complete the online survey, a fairly high response rate when compared to the response rates for other federal employee surveys and to response rates for e-mail surveys in general (Sheehan, 2001). Listwise deletion for missing data resulted in a final overall sample of 654. This sample was subsequently divided into two subsamples (i.e., supervisory employees, N=215; and line employees, N=439) for further analysis. The average age of the respondents was approximately 46, and the average job tenure was approximately 12 years. Sixty percent of the respondents were female. The online survey was activated in accordance with the tailored design method (Dillman, 2000). An initial e-mail was sent to ACA workforce members that included an Informed Consent Notification, the purpose of the study, the approval and sponsorship of the study, a confidentiality statement and a link to the online survey. A subsequent follow-up e-mail summarized the first message, added a personal note and provided a four-day extension, along with a link to the online survey.

### Measures

Thirteen items from the Revised Self-leadership Questionnaire (Houghton & Neck, 2002) were used to measure self-leadership. Twelve items were utilized to measure creativity: six items assessing creative potential and six items representing practiced creativity. These items have demonstrated fairly good reliability and validity for measuring creative potential and practiced creativity (DiLiello & Houghton, 2007). Perceived organizational support was measured with six items from "Keys: Assessing the Climate for Creativity," used with the permission of the Center for Creative Leadership (Amabile et al., 1999). All items were measured utilizing a five-point Likert-type scale ranging from Strongly Agree to Strongly Disagree.



## Analyses

Mean differences between supervisory and line employees for self-leadership, creative potential, practiced creativity, a gap score (i.e., the difference between creative potential and practiced creativity that represents untapped creative potential), and perceptions of organizational support for creativity were examined using a series of t-tests. In addition, a series of regression analyses were conducted to examine the effects of self-leadership, perceived organizational support for creativity and organizational level (line vs. supervisory) on creative potential, practiced creativity and gap scores, respectively, along with the effects of organizational level (line vs. supervisory) on perceived organizational support for creativity.

## Results

Means and standard deviations for both supervisory and line employees for self-leadership, creative potential, practiced creativity, gap scores and perceived organizational support for creativity are shown in Table 1. The analysis indicated no mean difference between groups for self-leadership,  $t(507) = 1.16, p = .247$ . In contrast, analyses showed significant mean differences between the two groups for creative potential,  $t(652) = 3.30, p = .001$ ; practiced creativity,  $t(469) = 7.48, p = .000$ ; gap scores,  $t(471) = -5.03, p = .000$ ; and perceived organizational support for creativity,  $t(652) = 3.21, p = .001$ .

**Table 1. Means and Standard Deviations (in parentheses)**

	SL	CP	PC	GS	OS
<b>Supervisors</b>	49.55	25.47	23.58	1.89	20.00
<b>N = 215</b>	(6.10)	(2.98)	(4.04)	(4.10)	(5.40)
<b>Line Employees</b>	48.92	24.65	20.97	3.68	18.54
<b>N = 439</b>	(7.43)	(3.03)	(4.51)	(4.60)	(5.46)

Note: SL=Self-Leadership, CP=Creative Potential, PC=Practiced Creativity, GS=Gap Score, OS=Perceived Organizational Support.

Four separate regression analyses were conducted. Model 1 examined the effects of the independent variables self-leadership and organizational level (1=supervisor - 0=line, using dummy variable coding) on the dependent variable creative potential. Model 2 examined the effects of self-leadership, perceived organizational support for creativity, and organizational level on the dependent variable practiced creativity. Model 3 examined the relationships between the three independent variables and gap scores. Finally, Model 4 explored the effects of organizational level on perceptions of organizational support for creativity. A summary of the results of these analyses is presented in Table 2.

The regression equation for Model 1 suggested that both self-leadership and organizational level were significantly related to creative potential, with self-leadership as the stronger predictor of the two (Standardized  $\beta = .356, p = .000$ ). The equation for Model 2 indicated that self-leadership, perceived organizational support for creativity and organizational level were all significant predictors of practiced creativity, accounting for approximately 42.6% of its variance. Of the three variables, perceived organizational support was the stronger predictor of practiced creativity (Standardized  $\beta = .563, p = .000$ ). The Model 3 analysis found that perceived organizational support and organizational level

were significantly and negatively related to gap scores, explaining approximately 33.1% of the observed variance. The regression equation suggested a strong negative effect for perceived organizational support (Standardized  $\beta = -.551, p = .000$ ), indicating that lower perceptions of organizational support for creativity will result in larger gaps between individuals' creative potential and their practiced creativity. In addition, the equation suggests that gap scores will be significantly greater for line employees than for supervisors (Organizational Level: Standardized  $\beta = -.117, p = .000$ ). Finally, the regression analysis for Model 4 implied that supervisors tend to have more positive perceptions of organizational support for creativity than line employees

(Organizational Level: Standardized  $\beta = .125, p = .001$ )

**Table 2. Summary of Regression Analyses Results**

Independent Variables	Model 1: $\beta$	Creative Potential $p$ - value	Model 2: $\beta$	Practiced Creativity $p$ - value	Model 3: $\beta$	Gap Score $p$ - value	Model 4: $\beta$	Organizational Support $p$ - value
Self-leadership	.356	.000	.158	.000				
Perceived Organizational Support			.563	.000	-.551	.000		
Organizational Level	.113	.002	.195	.000	-.117	.000	.125	.001
Adjusted R <sup>2</sup>		.140		.426		.331		.014
F Statistic		54.25		162.84		162.53		10.32
$p$ - value		.000		.000		.000		.001

## Discussion

This study revealed a number of significant differences between line and supervisory acquisition employees. Our analyses suggested that self-leadership was significantly related to creative potential and practiced creativity for both line and supervisory employees, with no significant differences in overall levels of self-leadership between the two groups. In contrast, we found significant differences between line and supervisory employees in creative potential, practiced creativity, gap scores and perceptions of organizational support for creativity. Specifically, line employees reported significantly lower levels of creative potential, practiced creativity and perceptions of organizational support for creativity, along with higher gap scores in comparison to supervisors.

Our analyses further suggested that although supervisors tend to have more creative potential than line employees, self-leadership appears to be the more important concept in determining an individual's creative potential. Likewise, although self-leadership and organizational level are both important determinants of practiced creativity, employee perceptions of organizational support for creativity seem to be far more crucial. Similarly, perceived organizational support for creativity appears to be more important than

organizational level in predicting creativity gaps in acquisition employees. In other words, employees who feel that the organization supports their creative efforts will be much more likely to practice creative behaviors, thus, lowering the gap between their potential and practiced creativity. Finally, organizational level was a significant determinant of perceptions of organizational support for creativity—with supervisory employees holding significantly more positive perceptions of support than line employees. In summation, our analyses suggest that self-leadership may be a key determinant of creative potential and practice among defense acquisition employees and that perceptions of organizational support for creativity, which tend to be weaker in non-supervisory employees, are critical in determining whether creative potential will be realized or whether a gap between potential and practice will result.

The results of this study have important theoretical, empirical and practical applications. This study adds to our understanding of the nature of the relationship between self-leadership, creativity and organizational support for creative practices at both the supervisory and non-supervisory levels. Our findings imply that self-leadership is a primary tool for facilitating creativity at all organizational levels and that active organizational support for creativity may be the key for reducing the gap between creative potential and practiced creativity that represents untapped creative resources. Our results also suggest that this gap is much more pronounced among line employees and that line employees generally perceive less organizational support for utilizing their creative resources than supervisors. In order to address this situation, an organizational intervention designed to increase self-leadership capabilities at all levels and to increase perceptions of organization support for creative practices among line employees in defense acquisitions would be well advised. More specifically, a structured self-leadership training program similar to those reported elsewhere in the literature (e.g., Neck & Manz, 1996; Stewart, Carson, & Cardy, 1996) could be conducted for acquisition employees. Such a training program could have the dual effect of increasing self-leading behaviors and, thus, creative potential while also strongly signaling organizational support for creative behaviors.

Although our findings suggest exciting avenues toward increasing self-leadership and unleashing creative resources at all organizational levels, our study is bound by certain limitations. First, the present sample was relatively homogeneous, consisting entirely of members of the Army Contracting Agency. As we have suggested, such a sample is especially appropriate for creativity research because the Department of Defense has taken a keen interest in tapping all creative resources available in order to sustain a competitive advantage. However, it is uncertain as to whether the results reported here would generalize to other samples of interest. Second, all items were self-reported and collected utilizing a single survey at a single point in time, thus raising concerns regarding measurement issues such as response set and social desirability biases. Given these potential problems, our findings should be viewed with some degree of caution. On the other hand, despite such inherent limitations, the use of self-reported items collected in a single administration is common practice in many aspects of social science research.

Future research should continue to examine the relationships between self-leadership, creative potential, practiced creativity, organizational level and organizational support for creativity. Specifically, future research should more closely examine the role of organizational support as a moderator of the relationship between creative potential and practiced creativity and as a key mechanism for reducing the gap between these concepts in organizations. In addition, perceptions of support for creativity might be further subdivided from the organizational level to the work group and supervisory levels in order to



provide additional insights (DiLiello & Houghton, 2006). Similarly, future research could continue to examine the differences between line and supervisory employees in terms of creativity and perceptions of support for creative practices, with an eye toward identifying ways to increase creativity at all organizational levels. In closing, our findings and suggestions have significant practical application in the context of the transformational efforts in the Department of Defense in support of warfighter readiness. An acquisition workforce of creative self-leaders could synergistically assist the organization in maximizing the utility of all organizational resources.

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## 2003 - 2006 Sponsored Acquisition Research Topics

### Acquisition Management

- Software Requirements for OA
- Managing Services Supply Chain
- Acquiring Combat Capability via Public-Private Partnerships (PPPs)
- Knowledge Value Added (KVA) + Real Options (RO) Applied to Shipyard Planning Processes
- Portfolio Optimization via KVA + RO
- MOSA Contracting Implications
- Strategy for Defense Acquisition Research
- Spiral Development
- BCA: Contractor vs. Organic Growth

### Contract Management

- USAF IT Commodity Council
- Contractors in 21st Century Combat Zone
- Joint Contingency Contracting
- Navy Contract Writing Guide
- Commodity Sourcing Strategies
- Past Performance in Source Selection
- USMC Contingency Contracting
- Transforming DoD Contract Closeout
- Model for Optimizing Contingency Contracting Planning and Execution

### Financial Management

- PPPs and Government Financing
- Energy Saving Contracts/DoD Mobile Assets
- Capital Budgeting for DoD
- Financing DoD Budget via PPPs
- ROI of Information Warfare Systems
- Acquisitions via leasing: MPS case
- Special Termination Liability in MDAPs

### Logistics Management

- R-TOC Aegis Microwave Power Tubes
- Privatization-NOSL/NAWCI
- Army LOG MOD
- PBL (4)



- Contractors Supporting Military Operations
- RFID (4)
- Strategic Sourcing
- ASDS Product Support Analysis
- Analysis of LAV Depot Maintenance
- Diffusion/Variability on Vendor Performance Evaluation
- Optimizing CIWS Lifecycle Support (LCS)

### **Program Management**

- Building Collaborative Capacity
- Knowledge, Responsibilities and Decision Rights in MDAPs
- KVA Applied to Aegis and SSDS
- Business Process Reengineering (BPR) for LCS Mission Module Acquisition
- Terminating Your Own Program
- Collaborative IT Tools Leveraging Competence

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