



# Self-leadership skills and innovative behavior at work

Self-leadership  
skills

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## Abstract

**Purpose** – The purpose of this study is to examine the relationship between self-leadership skills and innovative behaviors at work.

**Design/methodology/approach** – The study's participants were employees and their supervisors, working in six organizations in Israel. Data were collected through structured surveys administered to the employees and their supervisors. A total of 175 matched questionnaires were returned. Path analysis, using AMOS program, was conducted to assess the research model.

**Findings** – The results indicate that the three-dimensional scale of self-leadership skills is positively associated with both self and supervisor ratings of innovative behaviors. The findings also show that income and job tenure are significantly related to innovative behaviors at work.

**Practical implications** – Organizations that seek ways in which to foster innovative behaviors in their employees, need to recognize the importance of building up self-leaders who can successfully meet the required expectations and standards of innovative behavior.

**Originality/value** – This research suggests ways for organizations to enhance their innovativeness through employees who possess high self-leadership skills and receive appropriate extrinsic rewards for their leadership skills and innovative behaviors.

**Keywords** Innovation, Shared leadership, Leadership, Employee behaviour, Israel

**Paper type** Research paper

## 1. Introduction

Up until now, leadership scholars and practitioners have mainly focused on the person heading the team or organization, and her or his relationship with followers. This approach emphasizes a vertical influence-related process (i.e. top-down) in which subordinates are controlled, influenced and managed by a single individual leader. Over many decades, this was the prevalent paradigm in the leadership field (Pearce and Conger, 2003, p. 1). An emergent approach suggests that leadership is an activity that can be shared or distributed among members of a group or organization (Pearce and Conger, 2003, p. 2). This opens up new lines of thinking about informal leadership (Fletcher and Käufer, 2003) in organizations where people are empowered to make decisions concerning their own tasks at work and implement them (Conger and Kanungo, 1988).



The authors wish to thank the Editors and the anonymous reviewers of this journal for their helpful comments and suggestions.

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For organizations that compete in turbulent and uncertain environments, innovation – developing, carrying, reacting to, and modifications of ideas (Van de Ven, 1986) – becomes a critical engine for growth, prosperity and viability. Globalization generates intense competition in both resource- and product-market activities. Organizations compete over intangible assets such as human resources (see Gardner, 2005) and advantageous positions in the product market by speeding up the development of new quality (high-performance) products (Brown and Eisenhardt, 1995; Clark and Fujimoto, 1991; Kessler and Chakrabarti, 1996).

Individuals' innovative behaviors in the workplace are the foundation of any high-performance organization; and thus, "the study of what motivates or enables individual innovative behavior is critical" (Scott and Bruce, 1994, p. 580). In this study, we focus on the self-leadership skills that affect innovative behaviors at work. We suggest an avenue that goes beyond variables such as organizational climate and environment (e.g. Amabile *et al.*, 1996), personality attributes, and especially leadership issues (e.g. style and expectations, and influence tactics) (see Amabile and Gyskiewicz, 1989; Mumford *et al.*, 2002; Scott and Bruce, 1994; Tierney *et al.*, 1999), which are frequently referred to in creativity and innovation research. Specifically, we attempt to contribute to an emerging research on informal leadership, which has thus far received insufficient attention. This concept focuses on the skills that the person possesses and can be developed at work. These skills may have a role in contributing to the employee's innovative behavior. In addition, we also examine the importance of the employee's educational level (Mumford and Gustafson, 1988), job tenure (reflects the experience, knowledge and expertise an employee possesses) and income (reflects extrinsic motivation) for innovative behavior at work. Finally, we used both supervisor-rated and self-rated scales to measure individual innovative behaviors at work.

The article is structured as follows. Section 2 focuses on the key constructs in this study – innovative behavior and self-leadership skills, and develops the rationale for the research model and hypotheses. Section 3 provides the method-research population and measurements. The results are presented in Section 4, followed by a discussion, limitations and future research in the last section.

## 2. Theory and hypotheses

### 2.1 Self-leadership skills

Self-leadership skills are a construct that has generated considerable research efforts over the past decade (e.g. Manz, 1992; Manz and Neck, 1999; Manz and Sims, 2001). Self-leadership is an influence-related process through which individuals (and working groups) navigate, motivate and lead themselves towards achieving desired behaviors and outcomes (Manz, 1992). Its roots can be traced back to theories on self-influence, which emphasize concepts of self-navigation (Carver and Scheier, 1981; Kanfer, 1970), self-control (Mahoney and Arnkoff, 1978) and self-management (Andrasik and Heimberg, 1982; Luthans and Davis, 1979; Manz and Sims, 1980). As a broader construct, self-leadership encompasses a set of three complementary cognitive and behavioral strategies, which impact subsequent outcomes. These are:

- (1) behavior-focused strategies;
- (2) natural reward strategies; and
- (3) constructive thought pattern strategies.

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Behavior-focused strategies are directed towards enhancing the self-consciousness and the management of essential, sometimes unpleasant, behaviors (Manz, 1992; Manz and Neck, 1999). These strategies include self-observation, self-goal setting, self-motivation, positive self-feedback and reward, and self-coaching. Self-observation enables an individual to identify specific behaviors that need to be changed, enhanced or terminated (Manz and Neck, 1999; Manz and Sims, 1980; Mahoney and Arnkoff, 1978). Setting challenging goals guides and motivates an individual to accomplish tasks (Locke and Latham, 1990). Compared to self-criticism, self-reward, whether real or abstract, as well as positive self-corrective feedback, have positive effects on employee motivation. Finally, fostering those desired behaviors prior to their actual execution would enable an employee to avoid mistakes and correct them as they occur (Manz, 1992; Manz and Neck, 1999; Manz and Sims, 1980).

Natural reward strategies focus on the positive experience associated with a task and the process through which it is achieved. The work itself is valuable, rewarding and motivating (Furnham, 1990; Vroom, 1964) as they find aspects in the assigned work valuable, rewarding and motivating. Individuals should view work practices as pleasant, rewarding and enjoyable, because such an approach augments a sense of capability, competency and self-control, which eventually increases performance (Manz, 1986, 1992; Manz and Neck, 1999).

Constructive thought pattern strategies refer to those thought patterns that are constructive in nature. Thought patterns are integrative and repetitive. Individuals can adapt constructive or destructive thought patterns, which affect their emotional and behavioral state and reactions (Manz, 1992; Neck and Manz, 1992). For instance, individuals may alter their thought patterns to focus on potentially available opportunities in times of difficulties, rather than thinking about the difficulties as obstacles. These individuals use optimistic thought patterns to create opportunities so that they can better cope with difficulties that may impede them from attaining their desired ends. The nature of an individual's thought pattern affects her or his behaviors and outcomes (Neck and Manz, 1992). Seligman (1991) argued that individuals tend to develop either optimistic or pessimistic thoughts. When a problem occurs, the optimist views it as a challenge and strives to solve it, while the pessimist believes that this problem will endure and be disruptive or create conflict. Non-constructive thoughts are viewed as being dysfunctional. Burns (1980) argued that an individual should cope with such dysfunctional thoughts, which are derived from predispositions shaped by stressful and problematic events (Burns, 1980; Ellis, 1977). Thus, individuals should transform their dysfunctional thoughts into functional ones through a self-assessment process that would enable the substitution of non-rational beliefs with more rational ones. In addition, self-talk, which is defined as what we say to ourselves rather secretly (Ellis, 1962), may facilitate self-influence and direct self-efficacy (Prussia *et al.*, 1998). Employees can alter their negative self-talk into a more positive type of self-talk, which may result, for example, in more generally positive thoughts and behaviors, even during times of change and difficulty. Finally, evidence shows that mental imagery of positive moves and performance enhances the likelihood that an individual will perform more successfully (see Driskell *et al.*, 1994). Mental imagery refers to a process by which individuals can symbolically make and experience virtual behaviors, which are similar to real ones. Individuals who use mental imagery are able to experience the outcomes of their behavior prior to their appearance in real life and; thus, strengthen

their confidence in their abilities (Prussia *et al.*, 1998) and enhance their subsequent performance (Manz and Neck, 1999).

### *2.2 Employee's innovative behavior*

Research and practitioners alike often talk about “creativity” and “innovation” interchangeably (Scott and Bruce, 1994). Though related, these constructs offer some distinct emphases. Creativity has received many definitions in the literature. A common link for most of them is the generation of new or novel ideas that are useful. Amabile (1983), Mumford and Gustafson (1988), for instance, refer to creativity as the generation of novel and useful ideas. In addition, when using the term “creativity”, researchers often refer to something that has been done for the first time (Woodman *et al.*, 1993). Innovation emphasizes a more complex process (see Janssen *et al.*, 2004). It refers to an activity whose aim is to develop, carry, react to, and modify ideas (Van de Ven, 1986). Similarly, others have emphasized that innovation has to do not only with the intentional act of generating new ideas, but also with the introduction and application of new ideas, all aimed at improving organizational performance (Janssen *et al.*, 2004; Kanter, 1988; West and Farr, 1989; Scott and Bruce, 1994).

As such, individual innovation in the workplace has been conceived as complex behavior consisting of a three-stage process (Scott and Bruce, 1994). In the first stage of innovative behavior, an individual recognizes a problem and comes up with new solutions and ideas, either novel or adopted. Next, an individual seeks ways to promote her or his solutions and ideas, and build legitimacy and support both inside and outside the organization. In the final stage of the innovation process, an individual, who exhibits innovative behavior, realizes the idea or solution by producing a prototype or model of the innovation that can be experienced, applied and used within a work role, a group, or the organization as a whole (Kanter, 1988).

Based on the above literature, innovative behavior is defined here as a multiple-stage process in which an individual recognizes a problem for which she or he generates new (novel or adopted) ideas and solutions, works to promote and build support for them, and produces an applicable prototype or model for the use and benefit of the organization or parts within it.

### *2.3 Self-leadership skills and innovative behavior*

A growing body of evidence shows a positive connection between self-leadership and work outcome. Despite this evidence, the relationship between self-leadership and innovative behavior needs further investigation. To the best of our knowledge, only Phelan and Young (2003) specifically talked about creative self-leadership, which refers to a reflective internal process by which an individual consciously and constructively navigates her or his thoughts and intentions towards the creation of desired changes, improvements and innovations. Creative self-leadership involves three strategies:

- (1) renewed cognitive construction of assumptions, beliefs, perceptions and ways of thinking;
- (2) creative mental imagery that is manifested by dilemmas involving creative behaviors; and
- (3) creative self-talk involving internal dialog and feedback that enhance an individual's ability to achieve desired ends (Phelan and Young, 2003).

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Phelan and Young (2003) found a significant relationship between creative self-leadership and creativity. However, as Phelan acknowledges, this is only an initial effort that requires further examination.

Innovation in the workplace – recognizing problems, generating new ideas and solutions, promoting and building coalitions of supporters, and producing productive applicable models (Scott and Bruce, 1994) – is a complex process that often entails difficulties, obstacles and frustration. Not only does the innovative individual face a demanding situation in which substantial efforts are required to complete all stages of the innovation process, she or he may also face resistance regarding their efforts and actions. This is because people tend to embrace stability and resist the insecurity and uncertainty that is correspondent with the changes the innovation process entails. Recent studies report the importance of organizational fairness and justice (see Janssen, 2004; Tepper, 2001) in reducing stress in employees facing new circumstances.

Self-leadership is a process through which employees motivate and navigate themselves to attain desired behaviors and ends. Although individuals are motivated to accomplish tasks, not everyone is capable of displaying innovative behavior, because of the absence of self-navigation, a key element in the concept of self-leadership (Latham and Locke, 1991). People who possess good self-leadership qualities know how to achieve high levels of self-direction and self-motivation (Houghton *et al.*, 2003; Manz, 1986; Manz and Neck, 1999). During this process, people learn to lead themselves. For instance, constructive thought patterns become essential during the first stage of the innovation process - recognizing a problem and generating new ideas and solutions. Unlike dysfunctional thought patterns, through constructive thoughts an individual is able to tackle a problem and suggest solutions more effectively.

In addition, the three self-leadership categories are supposed to enhance self-efficacy, which in turn results in higher performance levels (Houghton *et al.*, 2003; Prussia *et al.*, 1998). Self-efficacy refers to beliefs in one's capabilities to organize and execute the courses of action required to produce desired results (Bandura, 1997, p. 3). It is not about the number of skills that one has, but rather refers to an individual's beliefs about what she or he can do with what she or he has under a variety of circumstances (Bandura, 1997). Prussia *et al.* (1998) found that self-efficacy mediates the relationship between self-leadership and performance outcomes, including creative performance.

Self-leadership is about people who learn to lead themselves and others. In the innovation process, it is clear that self-leadership skills are critical for displaying innovative behaviors. However, the innovative process also entails the leading of others. For instance, the second stage of the innovation process is concerned with the individual's effort and ability to promote her or his new solutions and ideas, as well as the creation of legitimacy and support both inside and outside the organization. To this end, individuals with high levels of self-leadership can lead others to support their new ideas and solutions.

Recently, Howell (2005) provided a similar explanation regarding the importance of innovative behaviors of individuals in the work place. She indicated that the success of innovative ideas is based upon "champions": "individuals who informally emerge to promote the idea with conviction, persistence, and energy, and willingly risk their position and reputation to ensure the innovation's success" (p. 108). She found key

differences between effective champions and ineffective ones in their personal characteristics and behaviors. In essence, champions are likely to use self-leadership strategies in the innovation process (e.g. leading key stakeholders to support their ideas; showing confidence, enthusiasm and persistence).[1] On the basis of this rationale, we suggest the following hypotheses:

- H1a.* There is a positive relationship between self-leadership skills and supervisors' ratings of her/his employee's innovative behavior at work.
- H1b.* There is a positive relationship between self-leadership skills and employee self- assessment of her/his innovative behavior at work.

We also examine other factors that were found to influence innovative behavior at work. These variables are income and tenure in the current job. Income reflects extrinsic motivation. In a recent interview that Amabile (2005) gave to *The Harvard Gazette*, she indicated that an analysis of over 12,000 electronic diaries submitted by workers in seven companies revealed that money does not foster creativity, noting that people doing creative, innovative work do not focus daily on salary or a potential bonus. Tenure in the current job (i.e. job tenure) serves here as a proxy of expertise, which is another component of Amabile's (1996, 1997) theory of individual creativity expertise. People, who work for a longer period in their current job, are likely to develop skills that are relevant and specific to the domain, thereby, tackling problems in a more focused and relevant way.

To summarize, this study suggests that people with high self-leadership skills will exhibit better performance, even if these control variables have been accounted for. This is because self-leaders know how to navigate and manage themselves in a relatively wide variety of circumstances. Hence, the following hypothesis is suggested:

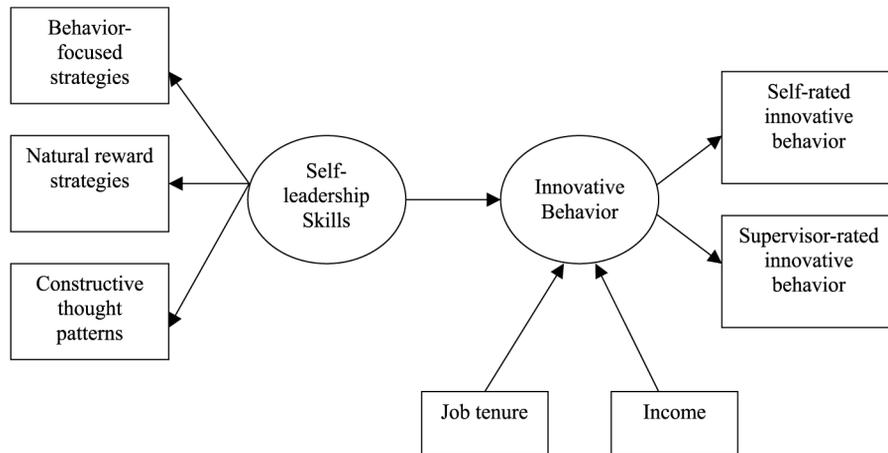
- H2a.* Self-leadership skills will have a significant positive influence on innovative behaviors (as assessed by the direct supervisor), after the effects of the control variables (income and job tenure) have been accounted for.
- H2b.* Self-leadership skills will have a significant positive influence on innovative behaviors (as assessed by the employee), after the effects of the control variables (income and job tenure) have been accounted for.

The overall research model is presented in Figure 1. In this figure, the ovals represent latent variables, whereas the boxes represent their indicators. Innovative behavior is affected by one latent variable representing self-leadership skills, and two observed variables representing job income and tenure.

### 3. Method

#### 3.1 Respondents and data collection

The respondents for this study were randomly drawn from six organizations in Israel. The participants in this study were employees working in two public sector organizations (a governmental agency and an educational institution) and four for-profit organizations (finance, construction, computer, and a consulting firm). We were guided by two main criteria in selecting this particular population. First, from our conversations with the senior executives of these organizations, we learned that they value innovativeness at work. From the preliminary interviews with these



**Figure 1.**  
The research model

organization leaders (CEO and/or HRM), we also learned that they view innovative behaviors as being a key element in their organization's viability and growth. Seeking ways to foster innovativeness in their organizations, their leaders were willing to collaborate with us on this research. Moreover, choosing employees, who work for organizations from various diverse industries, increases the generalizability of the study's results.

A pilot study was first conducted among 100 employees from one organization, which views creativity as a core element of its system. The pilot study was conducted in an attempt to verify the reliability and validity of the research measures, which are all based on well-established literature as described below. In accordance with the common wisdom of wording and translation (Brislin, 1986), the measures were translated into Hebrew, and retranslated back into English by three professional copy editors. The results of the pilot study showed high clarity and reliability (Cronbach's alphas were all above 0.70) regarding the research measures. The sample of the pilot study was not incorporated in the present study.

To increase the response rate and ensure the participants complete confidentiality, one of the authors personally administered structured questionnaires and collected them on site. Two structured questionnaires were administered; one survey was administered to the employees and the other to their direct supervisors. Data about the measures – self-leadership skills, self-rated innovative behavior, job tenure, age, education, and income – were obtained by the survey directed at the employees. Data about the employees' innovative behavior at work (supervisor ratings of employees' innovative behavior) were obtained through the survey directed at their supervisors. There was a time lag of at least two weeks between the two surveys. We received responses from 175 employees (a response rate of 87 percent) out of 250 employees who were randomly selected to participate in this study. The respondents' average age was 36.3 years (SD 11.05); 118 were women. Of those who reported their education level, 47 percent held a high school degree or a diploma, 16 percent held a Bachelors degree, and the remaining 30 percent held a Masters degree or above. Their average job tenure was 6.32 (SD 7.38).

*3.1.1 Innovative behavior.* This measure was evaluated by a six-item scale developed by Scott and Bruce (1994). We asked supervisors to rate the extent to which their employees display innovative behavior, while employees were asked to rate the extent to which they feel they exhibit innovative behavior at work. Sample items were:

- (name of the employee) seeks out new technologies, processes, techniques, and/or product ideas; and
- (name of the employee) generates creative ideas.

Responses were made on a five-point Likert-type scale ranging from 1 = “not at all” to 5 = “to an exceptional degree”. We ran a factor analysis on the 12 items of innovative behavior (as assessed by the employees and their supervisors). The results produced a two-factor solution. The first factor, labeled as “supervisor rating of employee innovative behavior” had loadings ranging from 0.70 to 0.79 with an Eigenvalue of 4.27. The second factor, labeled as “self-rating of innovative behavior” had loadings ranging from 0.81 to 0.86 with an Eigenvalue of 3.49. The two factors explained 35.61 and 29.09 percent of the item variance, respectively. The Cronbach’s alphas for “supervisor rating of employee innovative behavior” and “self-rating innovative behavior” were 0.87 and 0.86, respectively. This reliability is similar to the Cronbach’s alpha of 0.89 reported by Scott and Bruce (1994).

*3.1.2 Self-leadership skills.* Employee’s self-leadership skills were assessed by the 35-item measure developed by Houghton and Neck (2002), who have drawn on the theoretical category foundations established by Manz (1986, 1992), and subsequent empirical assessments (e.g. Prussia *et al.*, 1998). The employees were asked to assess on a five-point scale, ranging from 1 = strongly disagree to 5 = strongly agree, their self-leadership in regard to three core strategies:

- (1) behavior-focused strategies (e.g. “When I’m in a difficult situation I will sometimes talk to myself (out loud or in my head) to help me get through it”; “I write specific goals for my own performance”);
- (2) natural reward-focused strategies (e.g. “When I have successfully completed a task, I often reward myself with something I like”; “I focus my thinking on the pleasant rather than the unpleasant aspects of my job activities”); and
- (3) constructive thought-focused strategies (e.g. “I think about my own beliefs and assumptions whenever I encounter a difficult situation”; “I openly articulate and evaluate my own assumptions when I have a disagreement with someone else”).

The relevant items for each one of the three dimensions of self-leadership skills were averaged. We also averaged all items to create what we label as general self-leadership skills. The Cronbach’s alphas for these scales (behavior-focused strategies, natural reward-focused strategies, constructive thought-focused strategies, and general self-leadership skills) were 0.85, 0.52, 0.83, and 0.92, respectively.

### *3.2 Control variables*

Consistent with previous research, we controlled for job tenure and educational level (see Tierney and Farmer, 2002). Job tenure was measured in years, income, and educational level were measured on a 4-point scale (1 = up to a 12-year education, 2 = between a 12- to 14-year education, 3 = between a 14- to 15-year education, and

above a 15-year education. Gender (1 = Female, 0 = Male) was also controlled for, because previous research indicates some differences between males and females regarding their levels of creativity. For instance, Amabile *et al.* (2003) reported that peers rated females lower than males in displaying creativity behavior ( $r = -0.16$ ). We also controlled for respondent's age as a potential alternative predictor of creativity (Janssen, 2001).

#### 4. Results

Table I presents the means, standard deviations, and correlations among the research variables. As expected, both the general self-leadership measure and its three forms were significantly correlated to both the supervisor rating and self-rating of innovative behavior at work. The general self-leadership overall measure was significantly and positively related to the supervisor rating of her/his employee's innovative behavior ( $r = 0.25, p < 0.01$ ), as well as to employee's self-rating of her/his innovative behavior ( $r = 0.54, p < 0.01$ ), supporting both *H1a* and *H1b*.

Two forms of self-leadership skills (behavior-focused strategies, and constructive thought-focused strategies) were significantly and positively associated with supervisor's rating of her/his employee's innovative behavior ( $r = 0.23, p < 0.01$ ;  $r = 0.29, p < 0.01$ , respectively). Another form, natural reward-focused strategies, were not significantly correlated with supervisor's rating of her/his employee's innovative behavior ( $r = 0.11, p = ns$ ). All three forms of self-leadership skills (behavior-focused strategies, natural reward-focused strategies, and constructive thought-focused strategies) were found to be significantly and positively related to employees' self-rating of her/his innovative behavior ( $r = 0.48, p < 0.01$ ;  $r = 0.36, p < 0.01$ ;  $r = 0.60, p < 0.01$ , respectively).

Next, we estimated the research model, displayed in Figure 1, using structural equation modeling (SEM) and AMOS 5 (Arbuckle and Wothke, 2003; Byrne, 2001). Because no single index has been demonstrated as superior in the structural equation modeling (Medsker *et al.*, 1994), we used multiple goodness-of-fit indices in assessing the fit of the research model in Figure 1 (Joreskog and Sorbom, 1993; Kline, 1998). These fit indices include the Chi-Square statistics divided by the degree of freedom ( $\chi^2/df$ ); Relative Fit Index (RFI), Normed Fit Index (NFI), Comparative Fit Index (CFI), Tucker-Lewis coefficient (TLI), and Root Mean Square Error of Approximation (RMSEA). As suggested in the literature (Joreskog and Sorbom, 1993; Kline, 1998), the following criteria of goodness-of-fit indices were used to assess the model-fitting:  $\chi^2/df$  ratio is recommended to be less than 3; the values of RFI, NFI, CFI, and TLI are recommended to be greater than 0.90; RMSEA is recommended to be up to 0.05, and acceptable up to 0.08. A chi-square of 15.55 on 11 degrees of freedom, and other goodness-of-fit statistics (CFI = 0.98; NFI = 0.96; RFI = 0.91; TLI = 0.97; RMSEA = 0.04) indicate that the model fits the data well.

All paths and their significance levels are presented in Table II. As can be seen, the path between the latent variables self-leadership skills and innovative behavior was significant ( $p < 0.001$ ), in support of both Hypotheses 1a and 1b. In addition, there was a marginal significant relationship between job tenure and innovative behavior ( $p < 0.08$ ), whereas income was significantly related to innovative behavior ( $p < 0.001$ ). The squared multiple correlations for supervisor-rated innovative

**Table I.**  
Means, standard  
deviations, and  
correlations

	Mean	SD	1	2	3	4	5	6	7	8	9	10
1. Gender (1 = female)	—	—										
2. Age	36.27	11.05	0.02									
3. Education	2.52	1.24	0.03	0.015								
4. Job tenure	6.32	7.38	0.00	0.59**	0.30**							
5. Income	1.23	0.51	0.28**	0.10	0.24**	0.21*						
6. General self-leadership	3.77	0.51	-0.02	-0.05	0.15*	0.06	0.01					
7. Self-leadership (behavior-focused strategies)	3.70	0.56	0.01	-0.08	0.17*	0.04	0.05	0.96**				
8. Self-leadership (natural reward-focused strategies)	3.70	0.56	-0.06	-0.14	0.17*	0.01	-0.06	0.76**	0.69**			
9. Self-leadership (constructive thought-focused strategies)	3.89	0.53	-0.04	0.04	0.08	0.09	-0.03	0.92**	0.82**	0.62**		
10. Supervisor-rated innovative behavior	3.50	0.79	-0.04	-0.03	0.10	0.13	0.12	0.25**	0.23*	0.11	0.29**	
11. Self-rated innovative behavior	3.62	0.74	0.12	0.12	0.10	0.20*	0.22**	0.54**	0.48**	0.36**	0.60**	0.39**

**Notes:** \* $p < 0.05$ , \*\* $p < 0.01$

Paths	Standardized estimates (standardized regression weights)	Estimates (regression weights)	<i>P</i>
Self-leadership skills → Innovative behavior	0.96	2.00	0.001
Job tenure → Innovative behavior	0.12	0.01	0.08
Income → Innovative behavior	0.24	0.31	0.001
Behavior-focused strategies → Self-leadership skills	0.55	1.00	0.001
Natural reward-focused strategies → Self-leadership skills	0.44	0.80	0.001
Constructive thought-focused strategies → Self-leadership skills	0.71	1.23	0.001
Supervisor-rated innovative behavior → Innovative behavior	0.87	1.00	0.001
Self-rated innovative behavior → Innovative behavior	0.45	0.55	0.001

Note:  $n = 175$

**Table II.**  
Path analysis results for the research model

behavior and self-rated innovative behavior were 0.20 and 0.77, respectively. The standardized total effect of self-leadership skills on innovative behavior was 0.96.

To further test *H2a* and *H2b*, we ran two separate hierarchical regressions in which we first entered the control variables, followed by the variable – general self-leadership skills. The results showed that the control variables contributed 8 percent ( $R^2 = 0.08$ ,  $F = 2.46$ ,  $p = 0.026$ ), and that general self-leadership skills contributed an additional 30 percent ( $\Delta R^2 = 0.30$ ,  $F$  for  $\Delta R^2 = 83.25$ ,  $p < 0.001$ ) of the variance in innovative behavior as assessed by the employee. This supports *H2a*. The results also showed that the control variables contributed 5.6 percent ( $R^2 = 0.056$ ,  $F = 1.68$ ,  $p = 0.051$ ), and that general self-leadership skills contributed an additional 5.2 percent ( $\Delta R^2 = 0.056$ ,  $F$  for  $\Delta R^2 = 9.99$ ,  $p = 0.002$ ) of the variance in innovative behavior as assessed by the employees' immediate supervisors. This supports *H2b*.

## 5. Discussion

The present study proposed and tested a model that links three forms of self-leadership skills and employees' innovative behavior as assessed by both the employee herself/himself and by her/his immediate supervisor.

The findings of this study lend support to the role of self-leadership skills in fostering innovative behavior at work. The literature suggests that people can be trained to adapt and enhance their self-leadership skills and thereby improve their work outcomes (Neck and Manz, 1996). Hence, organizations need to invest efforts in developing self-leaders to improve the overall functioning of the organization. This study contributes to the literature by showing that self-leaders display relatively high innovative behavior. This finding is crucial because innovation in organizations is the basis for competitiveness in a knowledge-based society. As we have noted, self-leadership is conceived as being a key ingredient of shared leadership. In organizations that emphasize innovation, shared leadership is needed because of the complex nature of this process, especially at group and organizational levels.

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This study also offered insights into the theory of individual innovation. The results of this study suggest that innovative behavior can be fostered through efforts directed toward augmenting behavior-focus, natural reward, and constructive thought strategies in organizational members. The study illuminates another source of innovative behaviors at work related to the individual. Previous studies mainly focused on such attributes as intuitive problem-solving styles (Scott and Bruce, 1994). These attributes are relatively difficult to change, thus limiting the ability of organizations to implement practices that will change individual innovative behaviors in the work place. In addition, we found that income is positively associated with innovative behavior. This finding is inconsistent with previous research on creativity that emphasizes the importance of intrinsic motivation. Clearly, the particular work setting and the culture imbedded within it may account for this result. However, it seems that because of the complexity of the innovation process, employees expect to be economically rewarded by the organization. Hence, an adequate wage system might lead employees to invest more creativity and efforts in their work. Perhaps employees should have the understanding that they will be duly compensated for displaying increased innovative behavior.

Job tenure, as employed in this study, is more sensitive and representative of the firm-specific experience suggested by Becker's (1975) human capital theory. In this study, experience was measured by tenure in the current job and not by an employee's total work experience in the labor market. It appears that on-the-job specific experience may marginally increase employees' innovative behavior, probably due to employees' knowledge of general, but mainly specific explicit and tacit work.

Are the subjective assessments of work outcomes made by employees in agreement with their supervisors' objective assessments? This question is constantly being raised. In this study, we found a significant connection ( $r = 0.39, p < 0.001$ ). This suggests a moderate relationship between the assessments made employees and the evaluations made by their supervisors. The hypotheses of our research model, in general, were supported regarding the investigation of both subjective- and -objective performance. We believe it is important for future research to employ both self- and supervisor-based assessments in order to provide further evidence regarding these relationships.

## 6. Limitations and future research directions

This study contains several limitations and can be further developed in future research. We discuss both the limitations and some possible avenues for future research simultaneously. One cannot substantiate a causal relationship in an initial exploration, using a cross-sectional design. Clearly, a longitudinal design is needed even though this would not completely resolve the difficulty of substantiating causality. We also have not examined the managerial practices by which self-leadership skills may be enhanced, especially those that are specific for displaying innovative behaviors. Future research might benefit from refining our measurement to create innovative self-leadership skills, similar to the approach applied by Phelan and Young (2003) on creativity.

We examined only innovative behavior. Clearly, work outcome at the individual level is a multidimensional construct, and future studies may benefit from the incorporation of other descriptors of work outcome, such as task performance. It would also be interesting to extend the study to different work settings at both cultural and industry levels.

1. It should be noted that Howell (2005) did not use the construct “self-leadership”.

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