

Transformational Leader as Champion and Techie: Implications for Leadership Educators

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Abstract

The effects of innovation on leadership abilities have not been widely investigated. Although diffusion of innovation theory has existed for some time, there is a need for more research detailing the relationship between innovation and transformational leadership. In a survey of organizational members (N = 294), innovation was significantly related to all subscales of transformational leadership. The relationship between innovation and transactional leadership was generally not significant, and the relationship with laissez-faire leadership was inverse and significant. Implications emerging from the relationship between transformational leadership and innovation are discussed, including the distinction between the champion and “techie” styles of innovation and their basis in leadership activity.

Introduction

Computerization has changed the way people do their jobs and even the way people look at work (Kling & Dunlop, 1993). Technological changes have had a major effect on how business is done and on the managerial utilization of communication. Today’s organization is different in structure and function due to the integration of new technology. This study explores the changes in how

“champions” and “techie”, as the transformational leaders of this new era, view innovation, as well as isolate a few implications for leadership education.

Innovation Theory

Research about innovation assumes that technological innovation occurs within a social context (Goodman, Griffith, & Fenner, 1990; Van de Ven, 1986). New technologies change the organization because of the way people make sense of their surroundings (Weick, 1990). Rogers (1983) suggested that innovation is a communication process about something newer or better. Innovation, like communication, is not a one-way linear event. Rogers further posited innovation is relational and dynamic.

Rogers (1983) defined a range of personal behaviors toward innovation based on a bell-shaped innovation curve. Behavioral categories range from an innovator (at the highly innovative end) to a laggard (at the low innovation end). Rogers (1986) explained that diffusion is the process that communicates an innovation over time among members of a social system. Thus, diffusion of innovation is both a social and individual activity. He theorized that a small number of people innovate very quickly. Next, a substantial number of individuals are early adopters. Early adopters precede the early majority who adopts a little before others in their social network. The next group, on the other side of the mean, is late adopters. Late adopters are still ahead of the final classification, the laggard. Laggards are not interested in integrating new technology. Rogers' theory helps define the range of personal behaviors in relation to innovation. His model is an appropriate foundation for empirical study and gives further basis for the quantification of personal innovativeness.

Historically, innovation research focused more on the process of adoption. More recent research has been centered on the social implications of innovation. Research from authors like Walther (1994), Howell and Higgins (1990a, 1990b, 1990c), and Rice (1987) suggests that the act of innovating has definite social implications in the personal, organizational, and global context. Given the current social influence direction of modern leadership, it seems reasonable that innovation may be related to transformational leadership qualities.

Transformational Leadership Theory

The original formulation of transformational leadership theory comes from Burns (1978). At the core of transformational leadership is the concept of transformation, or change of the organization. Tichy and Devanna (1986a) noted that companies were being asked to make fundamental changes. Transformational leadership best reflects this change (Bass, 1985).

Transformational Leadership Basics

Burns (1978) defined transformational leadership as a process in which “leaders and followers raise one another to higher levels of morality and motivation” (p. 20). A chief element of transformation is the ability to cultivate the needs of the follower in a follower-centered (person-centered) manner. According to Burns, focusing on needs makes leaders accountable to the follower. First, Burns contended that followers are driven by a moral need, the need to champion a cause, or the need to take a higher moral stance on an issue. People like to feel that a higher organizational spiritual mission guides their motives. The second need is a paradoxical drive for consistency and conflict. Transforming leaders must help followers make sense out of inconsistency. Conflict is necessary to create alternatives and to make change possible. The process of transformation is empathy, understanding, insight, and consideration; not manipulation, power wielding, or coercion.

Tichy and Devanna (1986a) defined transformation best, stating “Transformational leadership is about change, innovation, and entrepreneurship” (p. viii). Transformational leadership is a process of micro-level and macro-level influence (Yukl, 1989). At the macro-level, transformational leaders must take charge of the social systems and reform the organization by creating an appropriate power situation. At the micro-level, transformational leaders must attend to the personalities in the organization to facilitate change at an interpersonal level. Tichy and Devanna (1986a) assumed that transformational leaders begin with a social fabric, disrupt that environment, and then recreate the social fabric to better reflect the overall business climate.

Contemporary Research on Transformational Leadership

According to Bass and Avolio (1994), organizational managers should move toward more transformational leadership behaviors to facilitate a culture that is purposeful, interdependent, and beyond self-interest. Leadership style plays a major role in creating and maintaining the culture. Transforming leadership is based on interaction and influence, not directive power acts (Barker, 1994). Leadership is a social process (not linear), ethically constrained, and emerges from crisis. Leaders are interested in collective results not maximum benefit for individual gain; collective action for collective relief. Leadership must forgo emphasizing productivity and performance to embrace a theory of change centered on human potential, common good, and interaction (Barker, 1994).

According to Howell and Avolio (1995), ethical leaders, while striving for success, also focus on the individual. Ethical leaders seek to develop followers, while unethical leaders wish to enslave. DuBrin (1995) contended that transformational leaders might have charismatic attributes. Transformational leaders manage by inspiration while other leaders manage by directive. But, charisma is not a necessary element for transformation. Transactional leaders use

contingent rewards and administrative actions to reinforce positive and reform negative behaviors (Bass, 1985; 1990).

Ray, Ugbah, Brammer, and DeWine (1996) discussed the attributes of maverick leaders: the crucial characteristic was the ability to make change occur. Maverick leaders fight the status quo to test the limits of the environment; helping establish a culture that expects change. Ray et al. (1996) contended that mavericks make innovation occur through several means: total destruction of the old organization, introduce new technology, change the physical structure, restructure departments, or conduct training interventions. Ray et al. concluded that loose-coupled organizations tended to be more tolerant of innovation and maverick leaders. Since they create a culture of change, maverick leaders often groom “maverick apprentices” to take their role as surrogate mavericks when the time comes.

Relationship Between Innovation and Transformational Leadership

Although much is written about organizational innovation, relatively little addresses the influence of leadership on the design and implementation of information technology (Klenke, 1994). Few researchers address the link between innovation and leadership, and even fewer address the relationship between transformational leadership and innovation. Tichy and Devanna (1986b) refer to transformational leaders as change oriented, but they give little attention to the relationship between new technology and transformational leadership. Contractor and Eisenberg (1990) argued that people knowledgeable about the communication network rise faster, but make no mention of the role of innovation and its impact on leadership.

Schein (1994a, 1994b) indicated that cultures could be assessed on their degree of innovativeness. Some cultures are built around information technology. Schein (1994a) hypothesized that organizations innovate to the extent people are proactive, problem oriented, and desire improvement. These characteristics are similar to the attributes of transformational leaders (Tichy & Devanna, 1986b). Schein (1994a) suggested that innovative leaders implement faster under conditions of groupism, collegial or participation, or even authoritarian methods of decision-making. Participative leaders use the innovation more appropriately and sensitively. Schein (1994b) concluded that managers who viewed innovation as a method of transformation, and were positively focused on information technology, had more successful transitions.

According to Klenke (1994), information technology and the actions of leaders create new organizational forms. Leadership is at the center of the interaction between task demands, people, technology, and organization structure. The relationship between innovation and leadership is difficult to articulate given the variety of functional leadership behaviors and the range of information

technologies. Technology and leadership have reciprocal effects on each other; a change in one leads to a change in the other.

Brown (1994) speculated that transformational leadership is needed in an evolving technological society. Society is moving from controlled change to accelerated change nearly beyond control. Both attitude and behavior must be the target of transformational leaders. The primary reason for technological change failure was fear and the role of transformational leaders was to reform fear into motivation. He adopted a framework similar to Schein's (1994a). Transformational leaders must meet market demands faster and better than before, given the increasingly interdependent economy.

A very limited body of research has been built addressing the relationship between innovation and transformational leadership. Howell and Higgins (1990a, 1990b, 1990c) contended that champions of innovation were significantly more transformational than non-champions. Champions operate in three ways: a rational method that promotes sound decision making based on organizational rules and procedures; a participative process, enlisting others' help to gain approval and implementation of the innovation; going outside the formal channels of bureaucratic rules and engaging in a renegade process. Howell and Higgins (1990c) compiled a list of attributes of champions: high self-confidence, persistence, energy, risk taking, credible, and winning. They concluded that champions are found in all organizations and without champions "organizations may have lots of ideas but few tangible innovations" (p. 36). Their research was deficient in the methods used in identifying champion status.

Hypothesis and Model Formation

In attempting to understand the fuller relationship between innovation and leadership one might posit the following hypotheses:

- H₁: Innovation will be positively related to person-centered leadership.
- H_{1a}: The technological component of innovation will be positively related to transformational leadership.
- H_{1b}: The technological component of innovation will not be related to transactional leadership.
- H_{1c}: The technological component of innovation will not be related to laissez-faire leadership.
- H_{1d}: The influence component of innovation will be positively related to transformational leadership.
- H_{1e}: The influence component of innovation will not be related to transactional leadership.
- H_{1f}: The influence component of innovation will not be related to laissez-faire leadership.

Methods

Subjects

Subjects (N = 294) came from five organizational sources. The organizations have differing primary missions: an educational organization, medical organization, manufacturing organization, automobile sales and service organization, and utility organization. The median age range was 30 to 39. The sample consisted of 167 females (61.9%) and 103 male respondents (38.1%). Nearly 50% of the sample had some college education. Respondents were asked if they had a computer at work and home, the number of hours spent using their home and work computer, and if they had a recent technological innovation in the workplace. In terms of recent innovation, 161 subjects (60.1%) claimed they recently encountered an innovation (within the last six months) while 107 subjects (39.6%) did not. Sixty-eight percent have workplace computers, and 61% have them at home. Seventy percent used computers more than “rarely” in the workplace while only 50% used a computer more than “rarely” at home.

Procedure

Organizations with diverse missions were contacted and approval was received before procedural steps involving subjects were taken. Once contacted, organizational liaisons were informed about the instrument, confidentiality, and results of the instrument. They were given a copy of the instruments. Following the meeting, the liaison contacted the researcher with a timetable for convenient implementation.

Once the subjects were selected (in those organizations not doing a full sampling) the survey battery was administered either personally or in small group sessions. Subjects were informed about the experimental nature of the instrument and informed consent was acquired from every subject. Training and simple directions were given for each instrument. Subjects were instructed to answer every question as completely as possible. Subjects were given ample time to complete the survey. Upon completion, those subjects that desired were debriefed about the study and their contribution to the study. Following administration of the instrument battery, data analysis was performed.

Instrumentation

Two assessment instruments and limited demographic questions were administered. The first part of the survey battery was the Acceptance of Technological Innovation instrument reported in the Crawford and Strohkirch (1996, 1997) studies. This instrument consists of 30 items dealing with the adoption of innovative technologies as rated on a five-point Likert scale ranging from strongly agree to strongly disagree. Several items were also reverse coded. Prior research found the measure to be reliable and validity emerged from

significant correlation to actual media use. A pilot test of the actual 30-item report was conducted (N = 100) on an unrelated sample finding a strong level of reliability as well ($\alpha = .93$). For the final project (n = 276) the alpha coefficient of the overall instrument showed it highly reliable ($\alpha = .92$). The instrument included two six-item subscales: one for technological orientation and one considering the ability to influence others about technology. The subscales were also analyzed for reliability with both the technology subscale ($\alpha = .77$) and the influence subscale ($\alpha = .75$) showing modest reliability. A factor analysis of the 12 items was performed to check the stability of the factor structure, but the results did not confirm the expected factor structure. One item from each of the subscales was dropped based on alpha reliability analysis. The remaining items were loaded on a second factor analysis, and the results confirmed the factor structure (Eigen values of 5.06 and 1.00). The reliability of the revised technology subscale was an improved $\alpha = .82$, and for the revised influence subscale $\alpha = .83$.

The second instrument, the Multifactor Leadership Questionnaire (MLQ) (Version 5-S) created by Bass (1985), is a 70-item survey consisting of four subscales of transformational leadership acts (charisma, individual consideration, intellectual stimulation, and inspiration); two subscales of transactional leadership acts (contingent reward and management by exception); and, one scale measuring laissez-faire leadership. Subject's self-reported specific leadership attributes using five-point Likert scales ranging from strongly agree to strongly disagree. The MLQ has been found to be very reliable (Howell & Higgins, 1990a) as both a self-report measure or as a measure of a superior's performance. In the present application the MLQ was used as a self-report of transformational, transactional, and laissez-faire leadership attributes and had an $\alpha = .89$ reliability score which was consistent with prior research. Subscale reliabilities ranged from a score of $\alpha = .89$ to $\alpha = .60$. Analysis based on the subscales was deemed appropriate given the much higher reliabilities generated in prior research.

Results

Tables 1 shows the mean, standard deviation, range, minimum, maximum, and valid number of responses for the variables emerging from the innovation and leadership measures.

Table 1. Descriptive Statistics for Innovation and Leadership Scales and Subscales

Variable	Mean	St. Dev.	Range	Min	Max
Innovation – Categorical	1.98	.802	2.00	1.00	3.00
Innovation Scale	97.13	15.33	92.00	49.00	141.00
Influence Subscale	17.57	3.41	18.00	7.00	25.00
Technology Subscale	15.77	3.97	20.00	5.00	25.00
Transformational Scale	3.63	.38	2.75	2.20	4.95
Inspiration Subscale	3.21	.47	3.14	1.86	5.00
Charisma Subscale	3.63	.47	3.00	2.00	5.00
Intellectual Stimulation Subscale	3.74	.43	2.80	2.20	5.00
Individual Consideration Subscale	3.89	.41	2.90	2.10	5.00
Transactional Scale	3.20	.34	2.75	2.10	4.85
Contingent Reward Subscale	3.47	.47	2.90	2.10	5.00
Management by Exception Subscale	2.93	.42	3.20	1.60	4.80
Laissez-faire Subscale	2.15	.52	3.80	1.10	4.90

Table 2 displays the correlations for the scales and subscales of innovation and leadership ability.

Table 2. Correlation Between Innovation and Leadership Abilities Scales

Leadership Variable	Innovation Scale	Influence Subscale	Technology Subscale
Transformational Scale	* $r = .48, p = .001$	* $r = .55, p = .001$	* $r = .43, p = .001$
Charisma Subscale	* $r = .34, p = .001$	* $r = .44, p = .001$	* $r = .35, p = .001$
Individual Consideration Subscale	* $r = .34, p = .001$	* $r = .42, p = .001$	* $r = .29, p = .001$
Intellectual Stimulation Subscale	* $r = .43, p = .001$	* $r = .46, p = .001$	* $r = .37, p = .001$
Inspiration Subscale	* $r = .36, p = .001$	* $r = .41, p = .001$	* $r = .36, p = .001$
Transactional Scale	$r = .11, p = .150$	$r = .14, p = .055$	* $r = .16, p = .025$
Contingent Reward Subscale	* $r = .30, p = .001$	* $r = .32, p = .001$	* $r = .28, p = .001$
Management by Exception Subscale	* $r = -.15, p = .026$	* $r = -.14, p = .04$	$r = -.05, p = .479$
Laissez-faire Scale	* $r = -.25, p = .001$	* $r = -.22, p = .001$	* $r = -.18, p = .005$

* indicates significance at standard criterion level for two-tailed test

The correlation matrix displayed in Table 2 suggests that there is a strong relationship between transformational leadership (and subscales) and innovation generally, the technical aspect of innovation, as well as the influence aspect of innovation. The correlation between the overall transformational leadership scale and innovation is a highly significant $r = .48$, for the technology subscale the correlation is a strong $r = .43$, and for the technology subscale the correlation is highly significant with a $r = .55$ value. All of the correlations were positive providing support for H_1 , H_{1a} , and H_{1d} . Furthermore, the relationship between the transactional leadership scale and innovation can be understood in light of the correlations listed in Table 2.

Transactional leadership was not related to the overall measure of innovation or the influence subscale, but was unexpectedly related to the technology subscale. This finding is further complicated by the fact that the contingent reward factor was correlated, fairly significantly, to all three innovation variables. Management by exception was correlated to both the innovation scale as well as the influence subscale. These findings provided little support for retaining H_{1b} and H_{1e} . Finally, the relationship between the laissez-faire leadership scale and innovation was significantly negative as evidenced by the negative correlations ranging from $r = -.25$ ($p = .001$) to $r = -.18$ ($p = .005$). These findings provide support for the assumption that the innovators do not demonstrate a lack of leadership. H_{1c} and H_{1f} should be retained given these findings.

Regression analyses were performed to determine levels of shared variance between innovation and leadership. The influence and technology subscales were entered into a regression model to measure their effects on transformational leadership. The innovation and technology factors of innovation accounted for a highly significant 30.8% of the variance of transformational leadership ($F = 43.75$, $df = 2$, 196 ; $p = .0001$). The overall innovation measure was also entered into a regression model finding that 23% of the variance of transformational leadership was explained ($F = 55.50$, $df = 1$, 188 , $p = .0001$).

In terms of the shared variance with transactional leadership, neither the overall innovation measure ($F = 2.09$, ns) or the influence and technology subscales ($F = 2.69$, ns) were predictive. For laissez-faire leadership, the overall innovation measure was significantly predictive ($F = 14.45$; $df = 1$, 220 ; $p = .0002$) accounting for 6% of the variance of laissez-faire leadership. The influence and technology subscales were also significantly predictive of laissez-faire leadership ($F = 6.31$; $df = 2$, 231 ; $p = .002$) accounting for over 5.2% of the variance of laissez-faire leadership. The negative correlation indicates that as innovation goes up, the level of laissez-faire leadership diminishes providing support for H_1 (innovation is positively related to transformational leadership abilities). H_{1a} , H_{1b} , and H_{1c} should be retained given the strong positive relationship between the technology component and transformational leadership and the lack of positive relationship with transactional and laissez-faire leadership. Furthermore, H_{1d} , H_{1e} , and H_{1f} should also be retained given similar findings. Overall, these results demonstrate a link between innovation and transformational leadership abilities.

Discussion

The most notable finding regarding innovation centers on the relationship between innovation and transformational leadership. These results demonstrate a strong relationship between transformational leadership and innovation. In addition, the technology and influence subscales were strongly related to transformational leadership suggesting that transformation has both elements as well as the gestalt of innovation. Furthermore, transactional leadership was not significantly related to innovation, though the contingent reward element was significant across both innovation subscales as well as the overall measure. Finally, the laissez-faire subscale had a significant negative relationship to innovation. Among the most striking of the results is that 30% of the variance of transformational leadership was accounted for by the technology and influence subscale; 23% was accounted for by the overall innovation measure. For laissez-faire leadership, 6% of the variance was accounted for by the overall innovation measure and, 4% by the technology and influence subscales. These findings are significant and provide a solid basis for further conclusions to be drawn on the relationship between leadership and innovation.

Prior research has established the link between transformation and champions of innovation (Howell & Higgins, 1990a, 1990b, 1990c), but little research focused

on either the non-champion technocrat or the innovator without an upper-level organizational title. There is good reason for the relationship between transformational leadership and innovation. Innovation shares one major characteristic with transformational leadership - change. The basic concept that underlies transformational leadership is the ability to change the current - transcend the present - to achieve a higher plane of leadership. The concept of transformation is very similar to innovation, although change is largely assumed in the innovation and technology literature. Innovation is the process of adaptation to the changing technical environment. This also requires change. Thus, the relationship between these elements is not accidental or contrived. Innovators at all levels are interested in change.

The negative relationship between laissez-faire leadership and innovation is also parsimonious. Laissez-faire leaders, as the opposite of transformational leaders in Bass' (1985) definition, are stuck in the status quo. Laissez-faire means literally "leave it be", and these leaders resist change as a threat to status quo homeostasis. Given that innovation seeks to change the current state, it makes sense that there would be either no relationship or a negative relationship with laissez-faire leadership. This study found that laissez-faire leadership is negatively associated with innovation. If managers are laissez-faire then they are not interested in bringing innovation into the organizational context.

Transactional leadership, which was not significantly associated with innovation or the two subscales, is the quest for mediocrity through management. A key element of transactional leadership is the *quid pro quo* mentality (i.e., if the workers produce then they will be rewarded, if they do not then rewards will be less). Transactional leadership produces a less enlightened organization; members worry about how others can benefit them rather than how they can benefit the organization and achieve better results. Bass (1985) and Burns (1978) argued that the transactional state of leadership is immature and should be pushed aside. Other methods (transformational leadership) produce more effective results. In this study, there was no link between innovation and transactional leadership as expected, but there was a correlation with contingent reward, one aspect of transactional leadership. Contingent reward is strikingly similar to the reward, punishment, and manipulation influence method isolated by Crawford and Strohkirch (1997). Innovators use this "less than mature" form of leadership to elicit action on the part of others. The longer the innovation takes the further behind the organization will be. Perhaps the perception is that a more direct method (like contingent reward or reward/punishment /manipulation influence) will produce results faster. A second alternative is that direct methods are fallback positions. Perhaps innovators feel pressure to use methods that are proven though less effective. Whatever the motive, innovators have a "dark side" when it comes to influencing others. This non-person centered, non-transformational side should be more thoroughly investigated.

Given the strength of correlation between innovation and transformational leadership, there is ample evidence to suggest that innovation and transformation share common features. Though not the same, transformational individuals are likely to also be innovative. This study also provides basis for the conclusion that many innovators may be highly transformational (champions), but some may not be, and may still be effective (techies). This finding has serious implications for modern organizations as innovation and transformation are elements they might want to encourage. In the computer age, many organizations probably want to lead the innovation curve, or at least, not be lagging on the innovation cycle. Transformational leadership should be the path utilized for innovative results. If organizations want to be on the slower end of the innovation curve, then leaders that are highly transformational may not fit the culture since they may force innovation. A similar implication results from the interrelationship between transactional and laissez-faire leadership and innovation. Given that laissez-faire leadership and innovation are moderately negatively correlated, then innovative organizational cultures should avoid laissez-faire leadership. Furthermore, since transactional leadership was not related to innovation then innovation effects stemming from transactional leadership have not been sufficiently documented. Contingent reward behaviors and innovation, however, were moderately correlated. One may expect innovators to use transformational leadership behaviors as well as contingent reward behaviors to achieve results.

Application of Current Findings to Innovation Research

First, this research extended the work of innovation researchers like Rogers (1983, 1986) and Giacuinta, Bauer, and Levin (1993), producing needed empirical evidence that diffusion of innovation is a real phenomenon. Furthermore, this research contextualized innovation within organizations. Little empirical organizational research delineates the process of innovation in organizations, let alone the personal differences that make innovation possible or unlikely. This research also supports the research of Rice (1987), Fulk (1993), and Markus, Bikson, El-Shinnawy, and Soe (1992) who suggested that innovation is a function of the social network. They noted technology is simply interjected, but the change comes from the adaption to technology. It is important to consider that innovators use different leadership methods, which implies using different methods to influence others (Crawford & Strohkirch; 1996, 1997).

A caution seem necessary. First, those “with” advanced leadership skills innovate; those “without” are relegated to a secondary status in the acquisition and use of technology. Some are limited by their ability to purchase and use technology. People who do not see the need for the application of technology for whatever reason or those who are not able to acquire and hone their leadership skills, suffer. As a social condition, there must be more discussion over the process of innovation and how or why people are left out of the innovation process.

Profiles of Innovators: “Champions” and “Techies”

The two innovation subscales were included to determine if “people higher in technological focus” or “more able to influence others about innovation” were different. When significant findings for the main innovation measure occurred, they also did for the subscales. The results can potentially support that these are discrete innovator profile types, and some conclusions regarding each type of innovator can be advanced.

The *champion* of innovation, as described by Howell and Higgins (1990a, 1990b, 1990c), is transformational in nature and seeks to innovate through the infusion of new technology. The champion uses direct means of influence, but is transformative, not manipulative or transactional. Behaviors of the champion make this person very similar to the Ray et al. (1996) maverick leader. The maverick leader seeks to tear down the old structure and rebuild with innovation. The defining part of mavericks is the ability to innovate and to change the organization. This research study supports the findings of Howell and Higgins (1990a, 1990b, 1990c) as well as Ray et al. (1996) in suggesting that champions, or mavericks, exist. The influence subscale captures the essence of what makes champions and mavericks successful - influence. These types succeed only because of the change they promote in an organization. This change or transformation occurs because the influence innovator has the ability to make people understand that they can overcome the inertia of the status quo.

The *techie* innovator, as measured through a subscale of the innovation measure, was envisioned as a person that understands more about technology than the average person. Although contemporary wisdom suggests that this personality type exists, we were not able to detect much difference between the techie and the innovator. There is a part of the techie innovator that uses the reward, punishment, and manipulation influence strategies. It should be expected that the techie would use less person-centered means to influence change. The use of direct means is not uncommon and has been found before. Whether this direct and impersonal influence method is an absolute indicator and predictor of being a techie, unfortunately, is beyond the scope of this research.

Implications for Leadership Educators

Leadership education continues its evolution toward a mainstream liberal art. As the theoretical base of leadership continues to grow, leadership educators must be ever mindful of the social events that always mediate the gap between theory and practice. This study represents one way in which research can give theory more currency, but the rate of innovation makes any scientific conclusions suspect in the future. Nonetheless, some basic implications for leadership educators become obvious.

First, the findings here support the basic idea that innovation and transformation leadership are related – strongly related. The shared variance between transformational leadership and both the techie innovation and the influence innovation types (31% shared variance, $F = 43.75$, $df = 2, 196$, $p = .0001$) were highly significant indicating a very strong convergence between the two variables. On the other hand, the relationship between transactional leadership and innovation are not as clear. These conclusions warrant a basic implication: if leadership educators want to prepare students for the rapidly innovating world they would be well advised to position a discussion of innovation around the concept of transformational leadership.

Second, leadership educators must prepare to discuss the effect of innovation on leadership. As society moves into an era where computerization is ubiquitous, the ability to innovate is assumed. It is inevitable that innovation will exist in the modern workplace, and it is equally inevitable that the leadership relationship will be significantly impacted by rapid innovation. Leadership educators must prepare students to be able to understand the challenges brought on by rapid innovation and the changes in relationships (really the people) that will obviously occur when technology is advanced.

Third, even though much of the process of innovation is influence based, there is an aspect of innovation that is purely centered around technology. In this study, some effort to separate the technical aspects and influence aspects was done in an effort to demonstrate the separateness of the two personality characteristics. The techie leader must find ways to add value to the modern organization through more influence, that is, person-centered ways. Given the strong correlation between the techie type and the use of contingent rewards and punishments, leadership educators must be vigilant in making sure that effective influence skills are taught to those in greatest need – the techie. If educators fail in this endeavor, the ability to manage innovation will be seriously hampered by the inability of some to move a vision and agenda forward. Innovation, and hence, the modern organization, will be hurt by this lack of influence ultimately if leadership educators cannot find ways to help the technically strong become more like their champion counterparts.

Fourth, given the negative relationship between laissez-faire leadership and innovation, it seems advisable that leadership educators approach the issue of supervision of innovative followers very carefully. The laissez-faire indicator, as measured by the MLQ, focuses specifically on the lack of initiative to lead others as well as an apathetic approach toward followers. In many organizations, there may be a real temptation to leave the innovators under conditions of self-supervision. Given the negative relationship between laissez-faire leadership and innovation, leaders should perhaps be more direct in their approach otherwise a lack of direct supervision may be seen as a sign of disinterest and apathy.

Finally, leadership educators must recognize the important contribution that the leader – champion makes in the process of delivering innovation into the leadership relationship. The champion, though not as technically competent as the techie leader, plays perhaps a more central role in building a strong vision-based future for an organization. As such, leadership educators must study this phenomenon and teach students about the importance of the use of influence in building a stronger organization. No longer is innovation just the backdrop for leadership in the future organization, it is now center stage and leadership educators need to be preparing students to assume leading roles in this new production.

References

- Barker, R. A. (1994). The rethinking of leadership. *Journal of Leadership Studies*, 1 (2), 46-54.
- Bass, B. M. (1985). *Leadership and performance beyond expectations*. New York: Free Press.
- Bass, B. M. (1990). From transactional to transformational leadership: Learning to share the vision. *Organizational Dynamics*, 18, 19-31.
- Bass, B. M., & Avolio, B. J. (1994). Transformational leadership and organizational culture. *International Journal of Public Administration*, 17 (3), 541-554.
- Brown, A. D. (1994). Transformational leadership in tackling technical change. *Journal of General Management*, 19 (4), 1-12.
- Burns, J. M. (1978). *Leadership*. New York: Harper and Row.
- Contractor, N. S. & Eisenberg, E. M. (1990). Communication networks and new media in organizations. In J. Fulk and C. Steinfield (Eds.), *Organizations and communication technology*. Newbury Park: CA: Sage.
- Crawford, C. B., & Strohkirch, C. S. (1996). Cognitive differentiation and influence tactics of technological innovators: Preliminary findings. A Paper Presented to the Speech Communication Association - Puerto Rico Annual Convention, San Juan, PR.
- Crawford, C. B., & Strohkirch, C. S. (1997). Influence tactics and technological innovation: Technocrats and champions. *Journal of Leadership Studies*, 4 (2), 43-54.
- DuBrin, A. J. (1995). *Leadership: Research findings, practice, and skills*. Boston: Houghton Mifflin.

- Fulk, J. (1993). Social construction of communication technology. *Academy of Management Journal*, 36 (5), 921-950.
- Giacquinta, J. B., Bauer, J., & Lewin, J. E. (1993). *Beyond technology's promise: An examination of children's educational computing at home*. New York: Cambridge University Press.
- Goodman, P. S., Griffith, T. L., & Fenner, D. B. (1990). Understanding technology and the individual in an organizational context. In P. S. Goodman, L. S. Sproull, and Associates (Eds.), *Technology and organizations*. San Francisco, CA: Jossey-Bass.
- Howell, J. M., & Avolio, B. J. (1995). Charismatic leadership: Submission or liberation? *Business Quarterly*, 60 (1), 62-70.
- Howell, J. M., & Higgins, C. A. (1990a). Champions of technological innovation. *Administrative Science Quarterly*, 35, 317-341.
- Howell, J. M., & Higgins, C. A. (1990b). Champions of change: Identifying, understanding, and supporting champions of technological innovation. *Organizational Dynamics*, 19, 40 - 55.
- Howell, J. M., & Higgins, C. A. (1990c). Champions of change. *Business Quarterly*, 54 (4), 31-36.
- Klenke, K. (1994). Information technologies as drivers of emergent organizational forms: A leadership perspective. In R. Baskerville, S. Smithson, O. Ngwenyama, and J.I. DeGross (Eds.) *Transforming organizations with information technology*. North Holland: Elsevier Science B. V.
- Kling, R., & Dunlop, C. (1993). Controversies about computerization and the character of white collar worklife. *The Information Society*, 9, 1-29.
- Marcus, M. L., Bikson, T. K., El-Shinnawy, M., & Soe, L. L. (1992). Fragments of your communication: Email, vmail, and fax. *The Information Society*, 8, 207-226.
- Ray, R. G., Ugbah, S. D., Brammer, C., & DeWine, S. (1996). Communication behaviors, innovation, and the maverick leader. *Journal of Leadership Studies*, 3 (3), 20-30.
- Rice, R. E. (1987). Computer-mediated communication and organizational innovation. *Journal of Communication*, 37 (4), 65-94.
- Rogers, E. M. (1983). *Diffusion of innovations*. New York: Free Press.

- Rogers, E. M. (1986). *Communication technology: The new media in society*. New York: Free Press.
- Schein, E. H. (1994a). Innovative cultures and organizations. In T. J. Allen & M. S. Morton (Eds.) *Information technologies and the corporation of the 1990s: Research studies*. New York: Oxford University Press.
- Schein, E. H. (1994b). The role of the CEO in the management of change: The case of information technology. In T. J. Allen & M. S. Morton (Eds.) *Information technologies and the corporation of the 1990s: Research studies*. New York: Oxford University Press.
- Tichy, N. M., & Devanna, M. A. (1986a). *The transformational leader*. New York: John Wiley and Sons.
- Tichy, N. M., & Devanna, M. A. (1986b). The transformational leader. *Training and Development Journal*, 40 (7), 27-32.
- Van de Ven, A. (1986). Central problems in the management of innovation. *Management Science*, 32 (5), 590-607.
- Walther, J. B. (1994). Anticipated ongoing interaction versus channel effects on relational communication in computer-mediated communication. *Human Communication Research*, 20 (4), 473-501.
- Weick, K. E. (1990). Technology as equivoque: Sensemaking in new technologies. In P. S. Goodman, L. S. Sproull, and Associates (Eds.). *Technology and organizations*. San Francisco, CA: Jossey-Bass.
- Yukl, G. A. (1989). *Leadership in organizations*. Englewood Cliffs, NJ: Prentice Hall.