

Impact of Leadership Style on Performance: A Study of Six Sigma Professionals in Thailand

Saowalux Prasertwattanakul ¹⁾, Peng Chan ²⁾

¹⁾Ramkhamhaeng University, Bangkok, Thailand
(Saowalux.Prasertwattanakul@seagate.com)

²⁾California State University-Fullerton, California, USA
(pengchan@gmail.com)

Abstract

Superior performance requires a fundamental paradigm shift in managerial approach and leadership style to address the impact of rapidly evolving technology accompanied by increasing competition and market globalization. Six Sigma is one of the quality and productivity improvement initiatives employed by many successful enterprises to address these new challenges. Six Sigma requires management attention and clear leadership to provide a highly focused management-sponsored project approach to the rapid improvement and cost control of selected processes. This study sought to examine the leadership styles among Six Sigma professionals and their impact on performance. A total of 146 Six Sigma professionals working in Thailand were surveyed using the Multifactor Leadership Questionnaire (MLQ). The findings reveal that there are significant differences among the transformational, transactional and laissez-faire leadership styles. Among these 3 styles, Six Sigma professionals tend to exhibit the transformational leadership style most of the time. Furthermore, both transformational and transactional leadership styles are found to have a positive impact on follower performance, perception of leader effectiveness and job satisfaction. However, there is a negative relationship between laissez-faire leadership and the performance variables.

1. Introduction

Some would argue that Six Sigma is the best improvement strategy and methodology available today (Snee, 2006). Six Sigma is a comprehensive and flexible methodology aimed at breakthrough improvement to achieve, maximize and sustain business success. This methodology requires the organization to focus on the customer, make data- and fact-driven decisions, focus on processes, manage proactively, collaborate across all functions and drive for perfection to meet internal and external customers' requirement. The Six Sigma methodology is the realization by management that business and manufacturing processes, not the operators, are the keys to breakthrough performance. It is not statistical process control, total quality management (TQM), quality function deployment (QFD), the Malcolm Baldrige Award, benchmarking or poor-quality cost. Rather, Six Sigma combines the use of statistics and the scientific method to deliver breakthrough outcomes. The methodology has been proven successful in improving the operational processes of many companies such as Motorola, GE, Sony and Allied Signal. There is increased interest in Six Sigma implementation in the business process area because many companies have gained long-term profit and advantages from this disciplined approach.

Six Sigma thinking can be a useful guide for leadership, one that is able to confront the challenges of a highly competitive and variable environment. These challenges include the virtually instantaneous and worldwide availability of information to customers, the resulting downward pressure on prices and increase

in profit margin (Yilmaz & Chatterjee, 2000). Six Sigma requires management attention and clear leadership, long term vision, and dedication of resources. The dedication of resources consists of Six Sigma trained staffs in the Six Sigma system such as Hands on Champion, Master Black Belt, Black Belt and Green Belt. The Six Sigma project team is formed for process focus, boundaryless collaboration and drive for perfection as measured by Six Sigma quality level. Six Sigma professionals are the project leaders to drive this change, keep the project in progress and deliver the success from each project team.

Recent studies have looked at Six Sigma as an important leadership development tool (Snee, 2006). These studies emphasize the need to recognize that Six Sigma is as much about developing future leaders as it is about creating improvements. As Jack Welch, ex-CEO of GE, noted, "Perhaps the biggest but most unheralded benefit of Six Sigma is its capacity to develop leaders." However, despite of the importance of leadership in Six Sigma, very few studies have looked at the type of leaders that are produced by a Six Sigma training program. Hence, the primary objective of this study is to explore the type of leaders (categorized by leadership styles) that are created by Six Sigma training. Another objective is to investigate the impact of these leadership styles on the followers.

2. Leadership Theory

Among the various theories of leadership and motivation that relate to effective organizational change management, perhaps the most prominent is the transformational-transactional theory of leadership. Burns (1978) conceptualized two factors to differentiate "ordinary" from "extraordinary" leadership: transactional and transformational leadership. Transactional leadership is based on conventional exchange relationship in which follower compliance (effort, productivity, and loyalty) is exchanged for expected rewards. In contrast, transformational (extraordinary) leaders raise followers' consciousness levels about the importance and value of designated outcomes and ways of achieving them. They also motivate followers to transcend their own immediate self-interest for the sake of the mission and vision of the organization. Such total engagement (emotional, intellectual and moral) encourages followers to develop and perform beyond expectations (Burns, 1978; Bass, 1985). Burns (1978) observed that transformational leadership involves the process of influencing major changes in organizational attitudes in order to achieve the organization's objectives and strategies. Bass (1985) observed that transactional leaders work their organizational cultures following existing rules and procedures, while transformational leaders change their cultures based on a new vision and a revision of shared assumptions, values and norms. When an organization must adapt to changes in technology, its leadership is a critical factor in its successful change. Bass (1985) operationalized the work of Burns (1978) by developing a model of transformational and transactional leadership, referred to in more recent publications as the "full range leadership model" (Bass and Avolio, 1997).

2.1 Transformational Leadership

Transformational leadership is viewed as the most prominent topic in current research and theories of leadership (Bass, 1998, 1999). The difference between transformational and transactional leadership lies in the way of motivating others. A transformational leader's behavior originates in the personal values and beliefs of the leader and motivates subordinates to do more than expected (Bass, 1985). Burns identified transformational leadership as a process where, "one or more persons engage with others in such a way that leaders and followers raise one another to higher levels of motivation and morality" (1978, p. 20).

With a transformational leader, the follower feels trust, admiration, loyalty and respect towards the leader, and he/she is motivated to do more than what he/she was originally expected to do (Bass, 1985; Katz & Kahn, 1978). The transformational leader motivates by making follower more aware of the importance of task outcomes, inducing to transcend their own self-interest for the sake of the organization or team and activating their higher-order needs. The transformational leader encourages followers to think critically and seek new ways to approach their jobs, resulting in intellectual stimulation (Bass, 1995). As a result, there is an increase in their level of performance, satisfaction, and commitment to the goals of their organization (Podsakoff et al, 1996). A leader high in transformational behavior can achieve maximum

performance from his followers because he or she is able to inspire followers to raise their criteria for success and develop innovative problem-solving skills (Bass, 1985; Yammarino & Bass, 1990). The operations from a transformational leader that are considered to be effective in any situation or culture are deeply held personal value systems that include things like justice and integrity. Burns (1978) refer to these as end values that cannot be negotiated or exchanged between individuals.

Support for transformational leadership can also be found in the writings of many of the early management pioneers. Frederick Taylor, known for his system of scientific management, is considered by many to be the antithesis of a transformational leader (Humphreys & Einstein, 2003). Drucker (1976), however, demonstrated that glimpses of transformational leadership factors were beginning to emerge.

2.2 Components of Transformational Leadership

Transformational leadership results in achievement of higher level of performance among followers than previously thought possible. Bass (1990) proposed four behaviors:

- (a) charisma (idealized influence or attributes),
- (b) inspirational motivation,
- (c) intellectual stimulation, and
- (d) individual consideration.

Attaining charisma in the eyes of followers is a critical step in becoming a transformational leader (Bass, 1990). Although ambiguity exists in the use of the term 'charisma' and transformational leadership (Behling & McFillen, 1996), Bass (1985) views charisma as forming part of transformational leadership. Charisma theory was strongly influenced by the ideas of an early sociologist named Max Weber. Weber (1947) described charisma as belonging to extraordinarily gifted people who can gain the respect, pride, trust, and confidence of followers by transmitting a strong sense of vision and mission (Gardner & Avolio, 1998, Yammarino et al, 1997). This charisma, or idealized influence or attributes dimension of transformational leadership, is characterized by providing vision and a sense of mission, instilling pride in and among the group, and gaining respect and trust (Humphreys & Einstein, 2003). Moreover, the charisma behavior also relates to inducing followers to go beyond self-interest for the good of the group, providing reassurance that obstacles will be overcome, and promoting confidence in the achievement and execution of goals and tasks (Bass and Avolio, 1994). Charismatic leaders exert an enormous amount of influence (Conger and Kanungo, 1998; Howell and Frost, 1989) and followers place an inordinate amount of confidence and trust in charismatic leaders (Howell and Avolio, 1992). These leaders are admired, respected, and trusted. Followers identify with and want to emulate their leaders. Among the things the leader does to earn credit with followers is to consider followers' needs over his or her needs. The leader shares risks with followers and is consistent in conduct with underlying ethics, principles, and values (Bass et al, 2003).

Inspirational motivation is usually a companion of charisma and concerned with a leader setting higher standards, thus becoming a sign of reference. According to Bass (1985), followers look up to their inspirational leader as one providing emotional appeal to increase awareness and understanding of mutually desirable goals. This is characterized by the communication of high expectations, using symbols to focus efforts, and expressing important purpose in simple ways. The leader always behave talking optimistically about the future, articulating a compelling vision for the future and providing an exciting image of organizational change (Bass and Avolio, 1994). The motivation occurs by providing meaning and challenge to the follower's work. Individual and team spirit are aroused. Enthusiasm and optimism are displayed. The leader encourages followers to envision attractive future states, which they can ultimately envision for themselves (Bass et al, 2003).

Intellectual stimulation provides followers with challenging new ideas and encourages them to break away from the old ways of thinking (Bass, 1985). The leader is characterized as one promoting

intelligence, rationality, logical thinking, and careful problem solving. Behaviors related to intellectual stimulation include seeking differing perspectives when solving problems, suggesting new ways of examining how to complete assignments and encouraging re-thinking of ideas that have not been questioned in the past (Bass and Avolio, 1994). The leader encourages the followers to be innovative and creative by questioning assumptions, reframing problems, and approaching old situations in new ways. There is no ridicule or public criticism of individual member's mistakes. New ideas and creative solutions to problems are solicited from followers, who are included in the process of addressing problems and finding solutions (Bass et al, 2003).

Finally, the fourth dimension of transformational leadership is "individual consideration" which is concerned with developing followers by coaching and mentoring (Bass, 1985; Bass & Avolio, 1990). The leader will pay close attention to the inter-individual differences among the followers and act as mentor to the follower. The leader will be involved in coaching and advising followers with individual personal attention. Related behaviors include teaching, helping others develop their strengths and listening attentively to others' concerns (Bass and Avolio, 1994). Followers are treated individually in order to raise their levels of maturity and to enhance effective ways of addressing their goals and challenges (Bass, 1985). Leaders pay attention to each individual's need for achievement and growth by acting as a coach or mentor. Followers are developed to successively higher levels of potential. New learning opportunities are created along with a supportive climate in which to grow. Individual differences in terms of needs and desires are recognized (Bass et al, 2003).

2.3 Transactional Leadership

Prior to the introduction of charismatic-transformational leadership theory into the literature, many researchers refer to transactional contingent reinforcement as the core component of effective leadership behavior in organizations. Studies usually contrast transformational with transactional leadership styles. However, this comparison does not imply that the two leadership styles are unrelated (Hater & Bass, 1988). Yukl (2002) shows that transactional leadership motivates followers by appealing to their self-interest. This may involve values, but they are values relevant to the exchange process.

Transactional leadership involves an exchange process that results in follower compliance with leader request but not likely to generate enthusiasm and commitment to task objective. Based on transactional leadership theory, a leader focuses on having internal actors perform the tasks required for the organization to reach its desired goals (Boehnke et al, 2003). In doing this, the objective of the transactional leader is to ensure that the path to goal attainment is clearly understood by the internal actors, to remove potential barrier within the system, and to motivate the actors to achieve the predetermined goals (House, 1971).

2.4 Components of Transactional Leadership

Transactional leaders display behaviors associated with both constructive and corrective aspects. The constructive behavior style is labeled contingent reward and the corrective style is labeled management-by-exception. Contingent reward involves the clarification of the work required to obtain rewards and the use of incentives and contingent reward to exert influence. It considers follower expectations and offers recognition when goals are achieved. The clarification of goals and objectives and providing of recognition once goals are achieved should result in individuals and groups achieving expected levels of performance (Bass, 1985). Active management by exception refers to the leader setting the standards for compliance as well as for what constitutes ineffective performance, and may include punishing followers for being out of compliance with those standards. This style of leadership implies close monitoring for deviances, mistakes, and errors and then taking corrective action as quickly as possible when they occur.

2.5 Leadership Style and Leader Outcomes

Many studies have examined the relationship between transformational and transactional leadership and satisfaction, extra effort and effectiveness. Most of these studies have looked at the educational field. Small (2003) shows a significant relationship between leadership style and satisfaction, effectiveness and willingness to exert extra effort in the public school system. Some of the studies use culture as a mediator between leadership style and performance. In studying three developing economies, China, India and Kenya, Walumbwa (2002) indicated the effects of cultural orientation as a moderator in the relationship between leadership style and outcome variables. Pounder (2001) examined the relationship between transformational-transactional leadership style and university organizational effectiveness. The study indicates possible modifications to the original conceptualization of transformational leadership.

Leadership styles may be link to three follower outcomes such as students' willingness to exert extra effort to meet course objectives, perceptions of instructor effectiveness, and satisfaction with instructor (Walumbwa et al, 2004). Empirical evidence indicates that transformational leadership behavior is positively associated with follower motivation, satisfaction, willingness to exert extra effort, and perception of leader effectiveness (Dvir et al, 2002). On the other hand, studies on the effect of transactional leadership behaviors on follower outcomes have obtained mixed results (Howell and Hall-Merenda, 1999; Lowe et al, 1996). Some studies indicated a positive relationship between contingent reward and active management-by-exception leadership style and outcome (Dubinsky et al, 1995), while others have reported a negative relationship, particularly with passive management-by-exception (Howell and Avolio, 1993; Walumbwa and Lawler, 2003; Yammarino and Bass, 1990). These conflicting results are not surprising given the fact that contingent rewards and active and passive management-by-exemption represent different types of transactions.

Bass (1990) suggested that a favorable association between employees and supervisors is one factor that contributes to employees' satisfaction. Studies further indicate that not only do leaders affect subordinate satisfaction and performance; they also can have an effect on organizational success. Kessler (1993) examined the relationship between transformational leadership and job satisfaction in a research environment. This study indicates that transformational leadership behaviors were particularly adaptable to a research environment. This was attributed to transformational leaders facilitating and promoting the intellectual stimulation of their subordinates. Transformational leaders are perceived by their followers as innovators who frequently take alternative courses of action that justifiably break away from established concepts and procedure. In contrast, transactional leaders were less likely to stimulate subordinates' feelings associated with overall job satisfaction, work-environment satisfaction, or satisfaction with supervision. Also, the findings confirmed that while transactional leadership is important, even greater satisfaction is possible when transactional and transformational leadership attributes are combined.

In 1996, Russell studied workers in a financial institution and a medical center and found that transformational leadership was negatively related to employee intention to terminate employment at that particular institution. Similarly, the higher the level of contingent reward by the manager, the lower the intention to leave. However, intent to leave was positively related to passive management by exception. Data from this study suggest that management style influences employee turnover.

Catalano (2001), in studying the aerospace environment, found that transactional leadership was not positively related to job satisfaction with the following exception: contingent reward was significantly and positively related to satisfaction with supervision. On the other hand, transformational leadership was related to job satisfaction in the following ways: satisfaction with the job in general was weakly correlated with intellectual stimulation; satisfaction with supervision was moderately-to-strongly correlated with all three variables of transformational leadership; satisfaction with work was weakly related to intellectual stimulation and individual consideration.

Much of the research on leadership style has used the MLQ (Multifactor Leadership Questionnaire) as a survey instrument. MLQ also provides for a third leadership style called laissez-faire. This style actually represents the absence of leadership. A laissez-faire leader does not enter into either corrective or constructive transactions with followers. Also, there is no attempt to engage, motivate or recognize their needs. Studies have shown that laissez-faire leadership is negatively related to outcome variables (Avolio and Bass, 1998).

3. Variables and Hypotheses

This study seeks to answer the following questions: (1) Is there a difference between transformational, transactional and laissez faire leadership styles among Six Sigma professionals?, and (2) What is the impact of the various leadership styles (transformational, transactional and Laissez-Faire) on performance? Based on the first research question, the first hypothesis is generated as follows:

H1: There is a significant difference between the transformational, transactional and laissez-faire leadership styles.

Based on the prior literature, the following hypotheses are generated for the second research question:

H2: There is a positive relationship between transformational leadership and satisfaction.

H3: There is a positive relationship between transformational leadership and extra effort.

H4: There is a positive relationship between transformational leadership and effectiveness.

H5: There is a positive relationship between transactional leadership and satisfaction.

H6: There is a positive relationship between transactional leadership and extra effort.

H7: There is a positive relationship between transactional leadership and effectiveness.

H8: There is a negative relationship between laissez-faire leadership and satisfaction.

H9: There is a negative relationship between laissez-faire leadership and extra effort.

H10: There is a negative relationship between laissez-faire leadership and effectiveness.

The independent variables in this study are the 3 different leadership styles, while the dependent variables consist of follower outcomes, namely extra effort, effectiveness and satisfaction. MLQ provides measures to all these variables.

4. Methodology

This research follows a survey design. The survey instrument used is the MLQ developed by Bass (1985). MLQ is by far the most widely used instrument for measuring transactional, transformational and laissez-faire leadership. It comes in several different versions. In this study, the popular MLQ Form 5x-Short is used to assess leadership style (transformational, transactional and laissez-faire) and the outcome or dependent variables (extra effort, effectiveness and satisfaction). In the MLQ, each independent variable is given equal weighting. Each question has five potential answers, ranging from “not at all to” to “frequently, if not always” and is weighted from 0 to 4. Hypothesis 1 relates to the leadership style of Six Sigma professionals, while Hypotheses 2 to 10 address the relationships between the 3 leadership styles and follower performance (extra effort, effectiveness and satisfaction).

One of the researchers is a Six Sigma Black Belt holder working with a multinational company in Thailand. Based on her own experience and connections, a total of 20 companies were identified to have implemented Six Sigma in Thailand. The survey questionnaire was distributed to Six Sigma professionals working in these companies. These professionals have all completed a Six Sigma training program within the period of a year. Altogether 160 survey forms were distributed. A total of 146 were returned, giving a return rate of 91%. The reason for the high return rate was that the researcher personally visited the sites and distributed the survey forms to ensure that the questionnaire is given to people who have completed Six Sigma training and are actively working on Six Sigma projects according to the information obtained.

Another advantage of the personal visit is that the researcher could ensure an adequate sample size since the participants at this level are extremely busy people and, thus, one could not expect to get a high response rate if a mail survey was used.

Participants were given the survey in both English and Thai. However, after reading through both versions, all participants preferred to use the English version because they felt that it was straight-forward, clear, well-constructed and simpler to understand than the Thai version.

From the 20 companies studied, 10 companies had implemented Six Sigma for 4 years and above. Within these 10 companies, 9 companies implemented Six Sigma due to headquarter directive, while the remaining ones implemented because of suppliers. For the rest of the companies that have implemented Six Sigma for 2 to 3 years, half of them implemented Six Sigma due to headquarter directive, while the other half implemented Six Sigma due to customer pressures. Of the 20 companies, 14 were in the "Electronics" business, 3 came from the "Automobile" business, while the remaining 3 companies came from "Service", "Gas" and "Sanitary Ware" respectively. The researcher selected all the companies that have implemented Six Sigma for at least 2 years. This is to follow the guideline of the Six Sigma assignment period for full-time Black Belts who are working on active Six Sigma projects in many companies.

Descriptive statistics, correlations and partial least squares regression were used to analyze the data set. Because the data set was not normally distributed, the nonparametric Mann-Whitney Test was used to examine whether transformational score is greater than transactional score as well as whether transactional score is greater than laissez-faire score. Variance tests (Bartlett's and Levene's tests) were used to test for equality or homogeneity of variance. The nonparametric Mood Median Test was used to test the equality of medians from two or more populations.

The hypotheses regarding the relationship between dependent and independent variables were analyzed using correlations and partial least squares regression (PLS). PLS is used to perform biased, non-least squares regression with one or more responses and particularly useful when the predictors are highly collinear or there are more predictors than observations and ordinary least squares regression either fails or produces coefficients with high standard errors. PLS reduces the number of predictors to a set of uncorrelated components and performs least squares regression on these components. PLS fits multiple response variables in a single model because PLS models the responses in a multivariate way; thus, the results may differ significantly from those calculated for the responses individually.

5. Results and Discussion

With respect to the first hypothesis, the results show the following:

1. The Levene's test shows that at least one leadership style had a different variance ($p < .05$).
2. The Mood Median test shows that at least one leadership style (transformation, transactional and Laissez-Faire leadership) had a different median ($p < .05$).
3. The Mann-Whitney test shows that there is a significant difference between transformational and transactional leadership and that transformational score is greater than transactional score ($p < .05$).
4. The Mann-Whitney test shows that there is a significant difference between transactional and laissez-faire leadership and that transactional score is greater than laissez-faire score ($p < .05$).

Based on these results, H1 is supported. Furthermore, the findings reveal that, among all the 3 leadership styles, Six Sigma professionals tend to exhibit the transformational leadership style the most.

The analysis using Pearson Correlations produces the following results:

1. There is a significant positive relationship between transformational leadership and satisfaction ($p < 0.00$), extra effort ($p < 0.00$) and effectiveness ($p < 0.00$). Hence, H2, H3 and H4 are supported.

2. There is a significant positive relationship between transactional leadership and satisfaction ($p < 0.00$), extra effort ($p < 0.00$) and effectiveness ($p < 0.00$). Hence, H5, H6 and H7 are supported.
3. There is a significant negative relationship between laissez-faire leadership and satisfaction ($p < 0.00$), extra effort ($p < 0.00$) and effectiveness ($p < 0.00$). Hence, H8, H9 and H10 are supported.

In order to determine the impact of the specific type of behavior under each leadership style, partial least squares regression (PLS) was used. PLS is appropriate for measuring the relationship between individual behaviors and each outcome. The PLS results reveal the following:

1. The factors that have the biggest impact on Effectiveness (EFF) are IC, CR, IIA and IIB. The factors IIA, IIB, IM, IS, IC, CR and MBE(A) are positively related to Effectiveness (EFF), while MBE(P) and LF are negatively related.
2. The factors that have the biggest impact on Extra Effort (EE) are IC, MBE(A), IM, CR and IS. The factors IM, IS, IC, CR, MBE(A) and LF are positively related to Extra Effort (EE), while IIA, IIB, MBE(P) are negatively related.
3. The factors that have the biggest impact on Satisfaction (SA) are IS, IIA, IIB, CR, MBE(A) and MBE(P). The factors IIA, IIB, IM, IS, IC, CR and MBE(A) are positively related to Satisfaction (SA) while MBE(P) and LF are negatively related.

The following discussion summarizes the relationship between leadership behavior and organizational outcomes:

Idealized Influence (IIA, IIB): Transformational leaders behave in ways that result in their being role models for their followers. The leaders are admired, respected, and trusted. Followers identify with the leaders and want to emulate them. The leaders are willing to take risks and are consistent rather than arbitrary. They can be effective in representing others to higher authority (effectiveness) and work with others in a satisfactory manner (satisfaction). IIA and IIB have very few or no impact to increase others' willingness to try harder (extra effort).

Inspirational Motivation (IM): Transformational leaders behave in ways that motivate and inspire those around them by providing meaning and challenge to their followers' work. Team spirit is aroused. Enthusiasm and optimism are displayed. Leaders get followers involved in envisioning attractive future states; they create clearly communicated expectations that followers want to meet. They have significant impact on others' willingness to try harder (extra effort) as well as work with others in a satisfactory manner (satisfaction) IM can be slightly effective in representing the others to higher authority (effectiveness). Idealized influence leadership and inspirational motivation usually form a combined single factor of charismatic-inspirational leadership.

Intellectual Stimulation (IS): Transformational leaders stimulate their followers' efforts to be innovative and creative by questioning assumptions, reframing problems, and approaching old situations in new ways. Creativity is encouraged. There is no public criticism of individual members' mistakes. New ideas and creative problem solutions are solicited from followers, who are included in the process of addressing problems and finding solutions. They have significant impact to work with others in a satisfactory manner (satisfaction) as well as increase others' willingness to try harder (extra effort). IS can be effective in representing the others to higher authority (effectiveness).

Individualized Consideration (IC): Transformational leaders pay special attention to each individual follower's needs for achievement and growth by acting as coach or mentor. Followers and colleagues are developed to successively higher levels of potential. Individualized consideration is practiced when new learning opportunities are created along with a supportive climate. Individual differences in terms of needs and desires are recognized. The leader's behavior demonstrates acceptance of individual. A two-way exchange in communication is encouraged. Interactions with followers are personalized. The individually considerate leader listens effectively. The leader delegates tasks as a means of developing followers and can significantly increase others' willingness to try harder (extra effort) as well as be highly effective in representing the others to higher authority (effectiveness). IC has a slight impact on working with others in a satisfactory manner (satisfaction).

Contingent Reward (CR): This factor has been found to be reasonably effective, although not as much as any of the transformational components in motivating others to achieve higher levels of development and performance. With this method, the leader assigns or gets agreement on what needs to be done and promises rewards or actually rewards others in exchange for satisfactorily carrying out the assignment. CR has been found to be reasonably effective and to have a significant impact on all three organizational outcomes; satisfaction, extra effort and effectiveness. Hamamoto (2002) indicated that CR showed the positive affect on three outcomes variables as transformational factors.

Management-by-Exception (MBE): The corrective transaction may be active MBE(A) or passive MBE(P). MBE(A) arranges to actively monitor deviances from standards, mistakes, and errors in the follower's assignments and to take corrective action. MBE(A) increases others' willingness to try harder (extra effort) but slightly impact working with others in a satisfactory manner (satisfaction) and also slightly effective in representing others to higher authority (effectiveness). MBE(P) implies waiting passively for deviances, mistakes, and errors to occur and then taking corrective action. MBE(P) has a negative impact on all three outcome variables. Active MBE(P) may be required and effective in some situations such as when safety is of paramount importance. However, this type of corrective transaction tends to be more ineffective than contingent reward.

Laissez-Faire Leadership (LF): This is the avoidance or absence of leadership and is, by definition, most inactive, as well as most ineffective according to almost all research on leadership style. Necessary decisions are not made. Actions are delayed. Responsibilities of leadership are ignored. LF has a negative to low impact on all outcome variables.

6. Conclusion and Implications

This study has important implications for research in leadership styles of Six Sigma professionals. First of all, there is strong evidence in this study to show that the transformational leadership style is the most effective of all the leadership styles. This finding is supported by many prior studies on leadership. Hence, organizations should pay more attention to transformational leadership variables in Six Sigma training programs. Executives who show transactional leadership should be trained to be more transformational while the non-leadership laissez-faire style should be minimized or eliminated.

The findings of this study should be viewed in the light of some limitations. In this research, great pains have been undertaken to identify both the companies that have implemented Six Sigma in Thailand as well as the executives that have undergone Six Sigma training in these companies. Nonetheless, because Six Sigma is still in its infancy in Thailand, the final sample size in this study was somewhat limited. Therefore, as the field evolves and as more companies adopt Six Sigma in Thailand, the researcher hopes that future studies can include a bigger sample of companies across a wider range of industries to see whether the findings of this study can be generalized.

Another limitation of this study is its cross-sectional nature. Participants in this study were confined to those who have already completed Six Sigma training. It would be interesting to find out whether and, if so how, Six Sigma training has changed the leadership style of the participants. In other words, some kind of "before and after" study would be useful to shed more light into the value of the Six Sigma program as a leadership training program.

References

- [1] Avolio, B. J. (1999). *Full range leadership*. Thousand Oaks, CA: Sage.
- [2] Avolio, B. J., & Bass, B. (1998). Transformational leadership, charisma, and beyond. In J. G. Hunt, B. R. Baliga, H. P. Dachler, & C. A. Schriesheim (Eds.), *Emerging leadership vistas*. Lexington, MA: Lexington Books.
- [3] Bass, B. M. (1985). *Leadership and performance beyond expectations*. New York: Free Press.
- [4] Bass, B. M. (1988). Evolving perspectives on charismatic leadership. In J. A. Conger, R. N. Kanungo, & Associates (Eds.), *Charismatic leadership: The elusive factor in organizational effectiveness* (pp. 40-77). San Francisco: Jossey-Boss.
- [5] Bass, B. M. (1989). The two faces of charismatic leadership. *Leaders Magazine*, 12(4), 44-45.
- [6] Bass, B. M. (1990). *Bass and Stogdill's handbook of leadership: Theory, research, and managerial applications* (3rd ed.). New York: Free Press.
- [7] Bass, B. M., & Avolio, B. J. (1994). *Improving organizational effectiveness through transformational leadership*. Thousand Oaks, CA: Sage.
- [8] Bass, B. M., & Avolio, B. J. (1997). *Full range leadership: Manual for the multifactor leadership questionnaire*. Palo Alto, CA: Mind Garden.
- [9] Bass, B. M., Avolio B. J., Jung D. I., & Berson, Y. (2003). Predicting unit performance by assessing transformational and transactional leadership. *Journal of Applied Psychology*, 88(2), 207-218.
- [10] Behling, O., & McFillen, J. M. (1996). A syncretical model of charismatic/transformational leadership. *Group and Organizational Management*, 21(2), 163-191.
- [11] Boehnke, K., Bontis, N., Distefano, J., & Distefano, A. (2003). Transformational leadership: An examination of cross-national differences and similarities. *Leadership and Organization Development Journal*, 24(1/2), 5-17.
- [12] Burns, J. M. (1978). *Leadership*. New York: Harper & Row.
- [13] Catalano, P. (2001). *The relationship between transformational and transactional leadership and job satisfaction in an aerospace environment*. Dissertation Abstracts International, 63, 2612. (UMI No. 3059410)
- [14] Conger, J. A., & Kanungo, R. N. (1998). *Charismatic leadership in organizations*. Thousand Oaks, CA: Sage.
- [15] Drucker, P. F. (1976). *The unseen revolution: How pension fund socialism came to America*. New York: Harper and Row.
- [16] Dubinsky, A. J., Yammarino, F. J., Jolson, M. A., & Spangler, W. D. (1995). Transformational leadership: An initial investigation in salesperson performance. *Journal of Personal Selling & Sales Management*, 15(2), 17-31.
- [16] Dvir, T., Eden, D., Avolio, B. J., & Shamir, B. (2002). Impact of transformational leadership on follower development and performance: A field experiment. *Journal of Leadership Studies*, 45(4), 735-744.
- [17] Gardner, W. L., & Avolio, B. J. (1998). The charismatic relationship: A dramaturgical perspective.

Academy of Management Review, 23(1), 32-58.

- [18] Hater, J. J., & Bass, B. M. (1988). Superiors' evaluation and subordinates' perceptions of transformational and transactional leadership. *Journal of Applied Psychology*, 73(4), 695-702.
- [19] House, R. J. (1971). A path-goal theory of leadership. *Administrative Science Quarterly*, 16, 321-338.
- [20] Howell, J. M., & Avolio, B. J. (1992). Transformational leadership, transactional leadership, locus of control, and support for innovation: Key predictors of consolidated-business-unit performance. *Journal of Applied Psychology*, 78, 891-902.
- [21] Howell, J., & Frost, P. (1989). A laboratory study of charismatic leadership. *Organizational Behavior and Human Decision Processes*, 43, 243-269.
- [22] Howell, J. N., & Hall-Merenda, K. E. (1999). The ties that bind: The impact of leader-member exchange, transformational leadership and transactional leadership, and distance on predicting follower performance. *Journal of Applied Psychology*, 84(5), 680-694.
- [23] Humphreys, J. H., & Einstein, W. O. (2003). Nothing new under the sun: Transformational leadership from a historical perspective. *Management Decision*, 41(1/2), 85-95.
- [24] Katz, D., & St. Kahn, R. L. (1978). *The social psychology of organization* (2nd ed.). New York: Wiley.
- [25] Kessler, T. G. (1993). *The relationship between transformational, transactional, and laissez-faire leadership behaviors and job satisfaction in a research environment*. Unpublished doctoral dissertation, Nova University.
- [26] Lowe, K. B., Kroeck, K. G., & Sivasabramaniam, N. (1996). Effectiveness correlates of transformational and transactional leadership: A meta-analysis review of the MLQ literature. *Leadership Quarterly*, 7(3), 385-425.
- [27] Podsakoff, P. M., McKenzie, S. B., & Bommer, W. H. (1996). Transformational leader behavior and substitutes for leadership as determinants of employee satisfaction, commitment, trust, and organizational citizenship behaviors. *Journal of Management*, 22(2), 259-298.
- [28] Pounder, J. S. (2001). New Leadership and university organizational effectiveness: Exploring the relationship. *Journal of Leadership and Organization Development*, 22(5/6), 281-291.
- [29] Russell, R. G. (1996). The relationship between transformational and transactional leadership styles and employee turnover intentions. *Dissertation Abstracts International*, 57, 1735. (UMI No. 9625384).
- [30] Snee, R. (2006). What can improve Six Sigma's effectiveness? *ASQ Six Sigma Forum Magazine*, 5(2), 12-14.
- [31] Yilmaz, M. R., & Chatterjee, S. (2000). Deming and the quality of software development. *Quality Management Journal*, 40(6), 51-58.
- [32] Yukl, G. (2002). *Leadership in organizations* (5th ed.). Upper Saddle River, NJ: Prentice-Hall.