6-2017

Development of Effective IT Leadership Behaviors: A Review

Louis Hickman
Purdue University, lchickma@purdue.edu

Mesut Akdere
Purdue University, makdere@purdue.edu

Development of Effective IT Leadership Behaviors: A Review

Louis Hickman
Purdue University
lchickma@purdue.edu

Mesut Akdere
Purdue University
makdere@purdue.edu

ABSTRACT

The field of leadership has received increasing attention in the past few decades. Information Technology (IT) leadership has been identified as important for IT-business alignment and many other organizational and follower outcomes. The highly contextualized nature of IT leadership requires detailed inquiry into how leadership differs for IT. Leadership literature has established many effective behaviors but has had much less success defining effective leadership development. As such, this article first introduces leadership and transformational leadership. We contextualize leadership in the IT context by reviewing leadership literature for different levels of IT managers. Then, we describe leadership development research and develop propositions related to leadership development programs in IT. Finally, we provide suggestions for further research and discuss the implications for IT managers.

Keywords (Required)

Information technology, leadership, leadership development, transformational leadership

INTRODUCTION

Effective leadership has been identified as important for organizational success by increasing agility (Lewis, Adriopoulos, and Smith, 2014), change management capability (Kotter, 2013), employee commitment, trust, and job satisfaction (Top, Akdere, and Tarcan, 2015), follower willingness to provide extra effort (Benjamin and Flynn, 2006), creative behavior (Zhang and Zhou, 2014), IT success via IT-business alignment (Luftman, Papp, and Brier 1999), and IT capability reputation (Lim, Stratopoulos, and Wirjanto, 2013). Social capital is an important construct for IT, and the interrelationship between social capital and leadership needs clarification (Wagner, Beimborn, and Weitzel, 2014). IT continues to increase in importance as a context for organizational behavior research as IT firms establish large industries as well as accounting for significant recurring and discretionary expenditure in other organizations.

Theories of effective leadership behaviors, such as transformational leadership (TL), have been well established. However, we currently lack an understanding of how to develop effective leadership skills (Avolio, Walumbwa, and Weber, 2009; Bono and Judge, 2004; Day, Fleenor, Atwater, Sturm, and McKee, 2014). Since leadership is highly context-bound (Smaltz, Sambamurthy, and Agarwal, 2006), leadership and its development should be examined in a highly contextualized setting. Little to no research has examined leadership development in the IT context. Additionally, a recent survey of Society for Information Management members, including 485 Chief Information Officers (CIOs), indicated that leadership is the most important soft skill for IT employees and the second hardest soft skill to find among them (Kappelman, Johnson, McLean, and Torres, 2016). Therefore, this review fills the IT leadership development gap by accomplishing the following: (1) describing the leadership behaviors identified as effective in IT, paying special attention to TL because it has been studied more than other types of leadership in the IT context and (2) proposing programs for developing leadership skills and sustainable competitive advantage in the IT context. First examining what has been identified as effective IT leadership helps lay a foundation for IT leadership development research which, so far, has received scant empirical attention.

LEADERSHIP

Contemporary leadership studies have described both trait- and skill-based models of effective leadership. Traits are inherent and difficult to change, while skills are capable of being developed over time (Northhouse, 2016). For the field of Human Resource Development, the value of skill-based leadership models is clear as it relates to training as well as talent development. Only if leadership is something capable of being developed can we expect our workforce to develop over time into leaders. Trait research continues in skill-based models by correlating personality traits to leadership skills. Extraversion is positively related to TL, and overall leadership effectiveness is related to conscientiousness (Day et al., 2014). Considering the weak relationships between other personality traits and TL, it is essential that we learn how to develop leadership behaviors (Bono and Judge, 2004).

Studies of IT workers have focused extensively on the effects of TL, as will be evident from the next section. TL is one of the most frequently studied leadership approaches (Day et al., 2014). TL is defined by the four I's: idealized influence, individualized consideration, intellectual stimulation, and inspirational motivation (Avolio and Bass, 1990). Tendency to investigate TL may be a result of the Multifactor Leadership Questionnaire (MLQ), a highly validated measurement instrument (Northhouse, 2016). The MLQ measures a continuum of leadership behaviors. The least transformational behavior is passive-avoidant leadership, which is comprised of laissez-faire and management by exception-passive behaviors. Transactional leadership is comprised of management by exception active and contingent reward, which involve supervision, organization, and performance in which leaders ensure compliance of followers using both rewards and punishments. TL, on the other hand, includes the four I's to enhance and engage follower motivation and commitment by guiding them toward a shared vision.

Meta-analysis of TL shows it to be highly related to follower job satisfaction, follower satisfaction with leader, ratings of leadership effectiveness (Banks, McCauley, Gardner, and Guler, 2016), and follower motivation (Judge and Piccolo, 2004). Additionally, TL is highly related to leader-member exchange (LMX) through their shared reliance on development of respect, trust, setting clear role expectations, and a democratic approach to work issue resolution, such that "LMX may be transformational, at least at certain times and under certain conditions" (Gerstner and Day, 1997, p. 839). Therefore, the importance of TL cannot be understated. The next section describes IT context leadership research which has focused primarily on aspects of TL.

IT Leadership

Within organizations, the IT function is highly specialized, requiring expert knowledge both of IT and of the business industry of their organization (Rockart, 1988). IT leadership, then, is bound up with IT intelligence, which can help shape organizational stability and organizational innovation (Karahanna and Watson, 2006). Only by knowing the effective behaviors in the IT profession can we propose methods for leadership development within the IT context.

The study of leadership must differentiate between different levels in the organizational hierarchy. Within IT, low-level employees require technical knowledge, then collaboration becomes increasingly important for middle managers, and CIOs (or the highest-ranking IT employee) require leadership and people management skills (Kappelmann, Jones, Johnson, McLean, and Boonme, 2016). Kappelmann et al. (2016) pointed out that while the CIO has been the focus of much research, middle managers have received considerably less attention in IT research.

The distinct role of leadership is especially important in IT contexts where dual career paths (cf. Hill, 1992; King, 2004) are offered for technical IT employees to advance their career in a parallel manner to managers. Dual career paths allow technical IT employees to receive the same increases in title and income that managers receive while keeping their focus on technical problems, rather than managing people. Hill (1992) even argued leadership is an important dimension to consider when assessing technical professionals. Within IT, then, it may be necessary to differentiate effective leadership behaviors not just for different levels of the hierarchy but also for technical and non-technical employees. We did not find any research which differentiated between technical and non-technical career paths. In this section, we describe relevant research results for the CIO before moving down the hierarchy all the way to software development team leads. Most of the research we uncovered used cross-sectional data collection, a major shortcoming of the body of knowledge because it does not allow inference about causality.

CIO behaviors have been studied extensively in the alignment literature (cf. Luftman, Papp, and Brier, 1999). Alignment is not the focus here, although effective leadership is accepted as necessary for alignment. Trust is extremely important for the CIO to establish with the top management team (TMT) because it enables relationship building, and CIOs must have communication skills, political skills, and knowledge of both IT and the business to be effective (Smaltz, Sambamurthy, and Agarwal, 2006). CIOs in Singaporean organizations who have high education levels, high extraversion (which, as mentioned above, is related to TL), and high openness to experience have been shown to increase innovative use of IT (Li, Tan, Teo, and Tan, 2006). These characteristics may continue to increase in importance for firms experiencing rapid technological change. McLean and Smits (2014) argued that effective CIOs utilize TL because it enables organizational transformation, improving the return on IT investment.

The IT context results for middle managers have been supportive of findings elsewhere, showing that TL relates to affective commitment and performance (Pradhan & Pradhan, 2015). Minorities within the IT context may experience LMX differently, however. Windeler (2016) found LMX to improve organizational commitment for all IT employees, but career mentoring did not increase commitment among minority workers while psychosocial mentoring related to increased merit pay only for minorities.

Measuring leadership behaviors via the Transformational Leadership Behavior Inventory, Eom (2015) found identifying and articulating a vision and fostering group goals to increase IT personnel's intention to stay. Providing a model which, presumably, reduces autonomy, was negatively related to intention to stay. Burnout is related to turnover, and TL was found to be negatively related to burnout (Hetland, 2007). IT leadership is important for technology adoption as well. Neufeld (2007) found idealized influence and inspirational motivation (often described together as charismatic leadership) to positively relate to both intentions to use and actual use of new technology.

Few recent studies have examined leadership in the developer and analyst context (Faraj and Sambamurthy, 2006), but the importance of leaders for job satisfaction among programmers and analysts was demonstrated by Goldstein and Rockart (1984). Thite (2006) found many differences in leader behavior when comparing successful and less successful project teams. More successful teams had leaders who acted as organizational catalysts, provided intellectual stimulation, were charismatic, and utilized contingent reward. Faraj and Sambamurthy (2006) found empowering leadership's relationship to team performance to be moderated by experience and task uncertainty, with high experience and high task uncertainty both contributing to the positive effects of empowering experience, suggesting that younger technical team members will need guidance before being given autonomy.

DEVELOPING IT LEADERSHIP CAPABILITIES

The paucity of IT leadership development research reflects the lack of general leadership development research. Our literature review was unable to uncover any peer-reviewed articles on IT leadership development. In the previous section, we detailed transformational and transactional leadership behaviors that are important for the IT context. The next step is to identify effective methods of developing these leadership behaviors.

Leadership development must be a purposeful process. Meta-analysis has showed that interventions to develop different types of leadership skills have differing impacts depending upon the outcome variables used (Avolio, Reichard, Hannah, Walumbwa, & Chan, 2009). Therefore, it is important to understand which particular leadership behaviors affect particular follow outcomes. Leadership development is intended to improve follower and, thereby, group and organizational performance. As discussed, effective leaders improve follower and team outcomes. The specific follower behaviors to be improved must be identified for leadership development to be effective.

Many organizations have wasted money on leadership development by following the suggestions in the most recent best-seller on leadership (Ready and Conger, 2004), taking a short-term view rather than focusing on emerging organizational challenges. IT leaders face complex and ill-defined organizational problems which require long-term leadership development processes (Day et al., 2014).

One way of propagating existing effective leadership is through mentorship (Kappelman et al., 2016). Obviously, mentorship will fail if current leadership is failing, but for firms who have effective leaders, mentorship can be a sustained source of competitive advantage by improving IT employee commitment to the organization (Katz and Salaway, 2004). Mentoring is an important part of LMX (Windeler and Reimenschneider, 2016), which correlates highly with TL (Gerstner and Day, 1997). Individualized support, a TL behavior, includes mentoring followers (Eom, 2015). Formal mentoring is a first step in leadership development in the IT context since employees will gain first-hand knowledge of leadership.

Proposition 1: IT units with formal mentorship programs better positioned to fill leadership positions with internal candidates.

Leaders have many organizational members relying on their decisions, capabilities, and vision. Especially in IT, leadership behaviors affect not just their followers but also the various organizational stakeholders who are affected by IT services. Feedback from many sources is important to identify shortcomings in leader behavior, and 360-degree feedback can improve leader self-awareness (Day et al., 2014; Quatro, Waldman, and Galvin, 2007). In fact, organizations identified as outperforming others in leadership development use robust feedback to determine development and coaching needs (Fulmer, Gibbs, and Goldsmith, 2000). Feedback is necessary for leader awareness and subsequent development.

Proposition 2: Leadership development programs utilizing robust feedback (e.g. 360-degree feedback) and link the feedback to development and coaching plans will result in better program outcomes than those that do not.

Due to the various developmental needs in creating leaders, discrete, intermittent training programs are inadequate for leadership development (Quatro et al., 2007). In fact, Day et al. (2014) argued that a full understanding of leadership development is impossible without lifetime length longitudinal research. Organizations cannot examine individual development over their lifetime, but organizations can examine the development of leadership capabilities starting from date of hire. Leadership development should be treated similarly to Supply Chain Management or Lean Six Sigma—as organizational processes that are necessary for long-term success (Ready and Conger, 2003; Fulmer, Gibbs, and Goldsmith, 2000).

Proposition 3: Leadership development treated as a core business process rather than a series of one-off events will result in improved program outcomes.

CONCLUSION

Leadership development in IT has received too little attention in research so far, a symptom of the paucity of leadership development research in general. TL has been studied more than other leadership styles in the IT context and has shown positive follower outcomes. However, most leadership research in the IT context is cross-sectional, a shortcoming. We argue that formal mentorship programs, robust feedback, and a long-term, process view will improve leadership development program outcomes. Additionally, the extent of IT expenditure and lack of IT leadership development research suggests this is an area ripe for future work. The next steps in this research vein include identifying IT units with leadership development programs and longitudinally comparing the outcomes of their programs. IT departments face shortages of both soft and hard skills, but more effective leadership development programs should help solve the soft skills shortage in addition to increasing commitment, team member satisfaction, and decreasing turnover.

REFERENCES

1. Avolio, B. J., Reichard, R. J., Hannah, S. T., Walumbwa, F. O., and Chan, A. (2009) A meta-analytic review of leadership impact research: Experimental and quasi-experimental studies, *The Leadership Quarterly*, 20, 4, 764-784. doi: 10.1016/j.leaqua.2009.06.006
2. Avolio, B. J., Walumbwa, F. O., and Weber, T. J. (2009) Leadership: Current theories, research, and future directions *Annual Review of Psychology*, 60, 421-449. doi: 10.1146/annurev.psych.60.110707.163621
3. Banks, G. C., McCauley, K. D., Gardner, W. L., and Guler, C. E. (2016) A meta-analytic review of authentic and transformational leadership: A test for redundancy, *The Leadership Quarterly*, 27, 4, 634-652. doi: 10.1016/j.leaqua.2016.02.006
4. Bass, B. M. and Avolio, B. J. (1990) Developing transformational leadership: 1992 and beyond, *Journal of European Industrial Training*, 14, 5, 21-27. doi:10.1108/03090599010135122
5. Benjamin, L. and Flynn, F. J. (2006) Leadership style and regulatory mode: Value from fit? *Organizational Behavior and Human Performance*, 100, 2, 216-230. doi: 10.1016/j.obhdp.2006.01.008
6. Bono, J. E. and Judge, T. A. (2004) Personality and transformational and transactional leadership: A meta-analysis, *Journal of Applied Psychology*, 89, 5, 901-910. doi: 10.1037/0021-9010.89.5.901
7. Day, D. V., Fleenor, J. W., Atwater, L. E., Sturm, R. E., and McKee, R. A. (2014) Advances in leader and leadership development: A review of 25 years of research and theory. *The Leadership Quarterly*, 25, 1, 63-82. doi: 10.1016/j.leaqua.2013.11.004
8. Eom, M. T. (2015) How can organization retain IT personnel? Impact of IT manager's leadership on IT personnel's intention to stay, *Information Systems Management*, 32, 4, 316-330. doi: 10.1080/10580530.2015.1080001
9. Faraj, S. and Sambamurthy, V. (2006) Leadership of information systems development projects, *IEEE Transactions on Engineering Management*, 53, 2, 238-249. doi: 10.1109/TEM.2006.872245
10. Fulmer, R. M., Gibbs, P. A., and Goldsmith, M. (2000) Developing leaders: How winning companies keep on winning, *MITSloan Management Review,* 42, 1, 49-59.
11. Gerstner, C. R. and Day, D. V. (1997) Meta-analytic review of leader-member exchange theory: Correlates and construct issues, *Journal of Applied Psychology*, 82, 6, 827-844.
12. Goldstein, D. K. and Rockart, J. F. (1984) An examination of work-related correlates of job satisfaction in programmer/analysts, *MIS Quarterly*, 8, 2, 103-115.
13. Hetland, H., Sandal, G. M., and Johnson, T. B. (2007) Burnout in the information technology sector: Does leadership matter? *European Journal of Work and Organizational Psychology*, 16, 1, 58-75. doi: 10.1080/13594320601084558
14. Hill, R. B. (1992) Dual career paths: Recognizing the technical contributor, *Journal of Compensation and Benefits*, 4, 10-16.
15. Judge, T. A. and Piccolo, R. F. (2004) Transformational and transactional leadership: A meta-analytic test of their relative validity, *Journal of Applied Psychology*, 89, 5, 755-768. doi: 10.1037/0021-9010.89.5.755

16. Kappelman, L., Johnson, V., McLean, E., and Torres, R. (2016) The 2015 SI IT issues and trends study, *MIS Quarterly Executive,* 15, 1, 55-83.
17. Kappelman, L., Jones, M. C., Johnson, V., McLean, E. R., and Boonme, K. (2016) Skills for success at different stages of an IT professional's career, *Communications of the ACM*, 59, 8, 64-70. doi: 10.1145/2888391
18. Karahanna, E. and Watson, R. T. (2006) Information systems leadership, *IEEE Transactions on Engineering Management*, 53, 2, 171-176. doi: 10.1109/TEM.2006.872247
19. Katz, R. N. and Salaway, G. (2004) Information technology leadership in higher education: The condition of the community, *EDUCAUSE Center for Applied Research* (White Paper).
20. King, J. (2004) Tuning UP Tech Careers, *Computerworld*, 38, 21, 39-40.
21. Kotter, J. (2013) Leading change, *Leadership Excellence*, 30, 2, 6.
22. Lewis, M. W., Adriopoulos, C., and Smith, W. K. (2014) Paradoxical leadership to enable strategic agility, *California Management Review*, 56, 3, 58-77. doi: 10.1525/cmr.2014.56.3.58
23. Li, Y., Tan, C., Teo, H., and Tan, B. C. (2006) Innovative usage of information technology in Singapore organizations: Do CIO characteristics make a difference? *IEEE Transactions on Engineering Management*, 53, 2, 177-190.
24. Lim, J., Stratopoulos, T. C., and Wirjanto, T. S. (2013) Sustainability of a firm's reputation for information technology capability: The role of senior IT executives, *Journal of Management Information Systems*, 30, 1, 57-96. doi: 10.2753/MIS0742-1222300102
25. Luftman, J. N., Papp, R., and Brier, T. (1999) Enablers and inhibitors of IT-business alignment, *Communications of the Association for Information Systems*, 1, 1, 1-32.
26. McLean, E. R. and Smits, S. J. (2014) Management, leadership, and the roles of the CIO, *International Leadership Journal*, 6, 1, 3-22.
27. Neufeld, D. J., Dong, L., and Higgins, C. (2007) Charismatic leadership and user acceptance of information technology, *European Journal of Information Systems*, 16, 2, 494-510. doi: 10.1057/palgrave.ejis.3000682
28. Northhouse, P. G. (2016) Leadership: Theory and Practice, 7th Edition, Sage, London.
29. Pradhan, S. and Pradhan, R. K. (2015), An empirical investigation of relationship among transformational leadership, affective organizational commitment and contextual performance, *Vision*, 19, 3, 227-235. doi: 10.1177/0972262915597089
30. Quatro, S. A., Waldman, D. A., and Galvin, B. M. (2007) Developing holistic leaders: Four domains for leadership development and practice. *Human Resource Management Review,* 17, 3, 427-441. doi: 10.1016/j.hrmr.2007.08.003
31. Ready, D. A. and Conger, J. A. (2003) Why leadership-development efforts fail, *MITSloan Management Review,* 44, 3, 83-88.
32. Smaltz, D. H., Sambamurthy, V., and Agarwal, R. (2006) The antecedents of role effectiveness in organizations: An empirical study in the healthcare sector, *IEEE Transactions on Engineering Management*, 53, 2, 207-222. doi: 10.1109/TEM.2006.872248
33. Thite, M. (2000) Leadership styles in information technology projects, *International Journal of Project Management*, 18, 1, 235-241.
34. Top, M., Akdere, M., & Tarcan, M. (2015). Transformational leadership, job satisfaction, organizational commitment, organizational trust in Turkish public hospitals: Public servants versus private sector employees. International Journal of Human Resource Management, 26(9), 1259-1282.
35. Wagner, H., Beimborn, D., and Weitzel, T. (2014) How social capital among information technology and business units drives operational alignment and IT business value. *Journal of Management Information Systems*, 31, 1, 241-271. doi: 10.2753/MIS0742-1222310110
36. Windeler, J. B. and Riemenschneider, C. K. (2016) The influence of ethnicity on organizational commitment and merit pay of IT workers: The role of leader support, *Information Systems Journal*, 26, 1, 157-190. doi: 10.1111/isj.12058
37. Zhang, X. and Zhou, J. (2014) Empowering leadership, uncertainty avoidance, trust, and employee creativity: Interaction effects and a mediating mechanism, *Organizational Behavior and Human Decision Processes*, 124, 2, 150-164.