Industrial and Commercial Training

Effective leadership development in information technology: building transformational and emergent leaders

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Abstract

Purpose – *Effective leadership has been the focus of much research in recent years, but leadership development is still understudied. Information technology (IT) continues to grow in importance due to the industries IT creates, the industries IT disrupts, and the potential IT holds for all companies. Because leadership is highly context bound, the purpose of this paper is to examine leadership development in the IT context to take first steps toward establishing best practices for IT leadership development.*

Design/methodology/approach – *This conceptual paper reviews leadership in general before performing an integrated literature review of leadership as it has been studied in the IT context. Then the paper presents three propositions regarding effective IT leadership development.*

Findings – *IT leadership development should involve formal mentoring, robust feedback that is integrated into the development plan, and should be treated as a core process for long-term success. Emergent and transformational leadership are important for IT.*

Practical implications – *It behooves IT departments to implement the leadership development programs proposed here because leadership has been identified as one of the most difficult skills to find in IT employees. The findings can inform training professionals exploring ways to improve the leadership capacity and leadership development in the IT units of their organizations.*

Originality/value – *The paper's literature review uncovered no quantitative peer-reviewed research on leadership development in the IT context, suggesting an area of need for further empirical studies. Researchers and practitioners alike will benefit from a greater understanding of leadership development in IT.*

Keywords *Leadership, Mentoring, Leadership development, Information technology, Transformational leadership, Emergent leadership*

Paper type *Conceptual paper*

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Introduction

Effective leadership has been identified as important for organizational success by increasing agility (Lewis *et al.*, 2014), change management capability (Kotter, 2013), employee commitment, trust, and job satisfaction (Top *et al.*, 2015), follower willingness to provide extra effort (Benjamin and Flynn, 2006), creative behavior (Zhang and Zhou, 2014), information technology (IT) success via IT-business alignment (Luftman *et al.*, 1999), and IT capability reputation (Lim *et al.*, 2013). 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 (Akdere, 2015a; Avolio, Walumbwa and Weber, 2009; Avolio, Reichard, Hannah, Walumbwa and Chan, 2009; Bono and Judge, 2004; Day *et al.*, 2014). Since leadership is highly context bound (Smaltz *et al.*, 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

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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; Kappelman, Jones, Johnson, McLean and Boonme, 2016). Therefore, this paper investigated the emerging topic of leadership and its development in the IT context via an integrative literature review. The following section first introduces the leadership and leadership development process, paying particular attention to leadership behaviors and styles uncovered in the literature review. This review fills the IT leadership development gap by accomplishing the following: describing effective TL behaviors because it has been studied more than other types of leadership in the IT context and proposing programs for developing leadership skills and sustainable competitive advantage in the IT context.

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 (Northouse, 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 capable of being developed can we expect our workforce to develop into leaders. Trait research continues in skill-based models by correlating personality traits to leadership skills. Extraversion is positively correlated with TL, and overall leadership effectiveness is correlated with 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 findings section. TL is one of the most frequently studied leadership approaches (Akdere, 2015b; Day *et al.*, 2014). TL is defined by the four Is: idealized influence, individualized consideration, intellectual stimulation, and inspirational motivation (Bass and Avolio, 1990). Tendency to investigate TL may be a result of the highly validated Multifactor Leadership Questionnaire (MLQ) (Northouse, 2016). The MLQ measures a continuum of leadership behaviors. Passive-avoidant leadership, comprised of laissez-faire and management by exception-passive behaviors, is furthest from TL on the continuum. Transactional leadership is comprised of management by exception active and contingent reward, in which leaders ensure compliance of followers using both rewards and punishments. TL, on the other hand, includes the four Is 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 *et al.*, 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 (Graen and Uhl-Bien, 1995). Simply, TL leads to highly rated LMX such that "LMX may be transformational, at least at certain times and under certain conditions" (Gerstner and Day, 1997, p. 839), suggesting that TL behaviors positively and consistently impact the relationship between followers and leaders. Therefore, the importance of TL cannot be understated.

Methodology

Relevant peer-reviewed research articles were identified using Google Scholar, EBSCO Business Source Complete, and the University Library using the logical AND with the keywords "information technology" AND "leadership" as well as "information systems" AND "leadership." Additionally, the Association for Information Systems journal database was searched for "leadership." Many articles were discarded for focusing on non-professional settings (such as online communities or undergraduate education), while yet others were discarded for discussing the industry segment "leadership" of organizations. Several articles were also eliminated where leadership was operationalized as support for a particular policy, such as quality management, since supporting policies does not inform about the content of leadership behavior or qualities.

The search was performed iteratively, returning to each source more than once in order to confirm no articles were missed. The inclusivity of broad search terms enables the manual identification of articles bearing relevance to the topics at hand. In total, 13 quantitative studies (all cross-sectional, one of which, Katz and Salaway, 2004, was not peer reviewed), five qualitative studies, and five conceptual papers on the topics of leadership and leadership development in the IT context were retained. Due to the scarcity of relevant articles, non-IT leadership development articles were included to develop propositions.

IT Leadership

Within organizations, the IT function is highly specialized, requiring expert knowledge of IT, their organization, and their organization's business industry (Rockart, 1988; Smith and McKeen, 2005). IT leadership, then, is bound up with IT intelligence, which can help shape organizational stability and organizational innovation (Karahanna and Watson, 2006). This paper first reviews the behaviors and competencies identified as effective in the IT context because leadership development can only be effective when the competencies it aims to develop are relevant (Cook, 2006).

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 (Kappelman, Johnson, McLean, and Torres, 2016; Kappelman, Jones, Johnson, McLean and Boonme, 2016). Kappelman, Johnson, McLean, and Torres (2016) and Kappelman, Jones, Johnson, McLean and Boonme (2016) pointed out that while the CIO has been the focus of much research, middle managers have received considerably less attention in IT research. Researchers likely find it much easier to engage a single executive for research at many organizations than to study many people within several organizations, since only the latter is likely to require an established relationship with the focal firms. This shortcoming is problematic because there is an increasing recognition that IT requires pervasive and emergent leadership at all hierarchical levels (Roepke *et al.*, 2000; Smith and McKeen, 2005; Jetu and Riedl, 2012).

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) argued leadership is an important dimension to consider when assessing technical professionals. Leadership for technical employees focuses on interpersonal communication, idea championing, and collaboration. 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 as they are promoted through the hierarchy. No existing leadership development research differentiated between technical and non-technical career paths. Next, 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 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 *et al.*, 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 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 *et al.*, 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 *et al.*, 2006). These characteristics may continue to increase in importance for firms experiencing rapid technological change. Agarwal *et al.* (2011) recognized the importance of TL behaviors in IT context and extended the model of TL by adding a fifth I: IT leadership. IT leadership in Agarwal *et al.*'s (2011) model was comprised of developing the

strategic IT plan, managing business process reengineering, understanding emerging technologies, establishing electronic communication flows throughout the organization, and the development and maintenance of highly skilled IT staff. 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 follower affective commitment and performance (White *et al.*, 2013; Pradhan and Pradhan, 2015). Minorities within the IT context may experience LMX with transformational leaders differently, however. Windeler and Reimenschneider (2016) found LMX to improve organizational commitment for all IT employees, but career mentoring (part of the individualized consideration dimension of TL) 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 *et al.*, 2007).

Leadership in the IT context has to be effective for leading IT employees. However, the work IT does affects non-IT employees. Therefore, it is also important to understand effective leadership for interdepartmental collaboration and change management. Dong *et al.* (2007) found contingent reward and TL by project champions to relate to perceived usefulness but not to perceived ease of use. In their study, direct manager's contingent reward and TL did not relate to perceived usefulness or ease of use, further suggesting IT's importance for change management. Neufeld *et al.* (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) and supported in conceptual development by Jetu and Riedl (2012). Thite (2000) studied leader behavior by comparing successful and less successful project teams. Leaders of more successful teams acted as organizational catalysts, provided intellectual stimulation, were charismatic, and utilized contingent reward. Increasingly, researchers and practitioners are recognizing that leadership must come from a variety of sources because of the diversity of expertise required for IT success (Roepke *et al.*, 2000; Smith and McKeen, 2005; Jetu and Riedl, 2012). 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. Therefore, organizations must continue developing their inexperienced IT employees because the classroom education they received does not complete their development.

Developing IT leadership capabilities

The paucity of IT leadership development research is a reflection of the lack of general leadership development research. The literature review uncovered only three (Applegate and Elam, 1992; Roepke *et al.*, 2000; Smith and McKeen, 2005) peer-reviewed articles discussing IT leadership development. In the previous section, the paper 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 that is linked to the overall business strategy (Roepke *et al.*, 2000; Cook, 2006; Schwartz, 2011), much like IT is expected to align with overall strategy. Meta-analysis has showed that interventions to develop different types of leadership skills have differing impacts depending upon the outcome variables used (Avolio, Walumbwa and Weber, 2009; Avolio, Reichard, Hannah, Walumbwa and 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, 2003), taking a short-term view rather than focusing on emerging organizational challenges. Additionally, formal training is the most expensive component of leadership development and, on its own, formal training is limited in terms of developing TL skills (Smith and McKeen, 2005). Utilizing the most recent leadership trend mirrors a common mistake in technology sourcing: buying a solution without identifying a business problem. IT leaders face complex and ill-defined organizational problems. Complex business problems require long-term leadership development processes (Day *et al.*, 2014).

One way of propagating existing effective leadership is through mentorship (Kappelman, Johnson, McLean, and Torres, 2016; Kappelman, Jones, Johnson, McLean and Boonme, 2016). Ineffective mentorship can inhibit broader leadership development efforts (Roepke *et al.*, 2000), but effective mentoring relationships 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 Riemenschneider, 2016) which correlates highly with TL (Gerstner and Day, 1997). Individualized consideration, one of the four Is of TL, includes mentoring followers (Eom, 2015). If mentorship is not formalized, the mentorship that does occur may have negative effects for the organization, such as nepotism in mentoring selection (Hammett, 2008). Formal mentoring is a cost-effective (Corner, 2014) first step in leadership development:

P1. IT units with formal mentorship programs will be 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° feedback can improve leader self-awareness (Day *et al.*, 2014; Quatro *et al.*, 2007). In fact, organizations identified as outperforming others in leadership development use robust feedback to determine development and coaching needs (Fulmer *et al.*, 2000). Making feedback effective requires documenting and articulating needed and desired competencies so coaching and development plans can focus on those competencies (Smith and McKeen, 2005). Cannon (2011) suggested extending feedback beyond 360°-720°, bringing in family and personal perspectives to ensure development is holistic and keeps the developing leader both mentally and physically healthy. Feedback is necessary for leader awareness and subsequent development:

P2. Leadership development programs utilizing robust feedback (e.g. 360° feedback) and link the feedback to development and coaching plans will result in better program outcomes.

Due to the various developmental needs in creating leaders, discrete, intermittent training programs are inadequate for leadership development (Roepke *et al.*, 2000; Quatro *et al.*, 2007). In IT, long-term leadership development efforts include investments of time and money to cross-fertilize IT employee skills by providing business training (Applegate and Elam, 1992) and interdisciplinary job assignments (Smith and McKeen, 2005). Similarly, 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 individual leadership capabilities starting from date of hire. Leadership development in the IT context should be treated similarly to supply chain management or Lean Six Sigma – as core organizational processes that are necessary for long-term success (Cook, 2006; Fulmer *et al.*, 2000; Ready and Conger, 2003; Schwartz, 2011):

P3. Leadership development treated as a core business process rather than a series of isolated events will result in improved program outcomes.

Conclusion

Leadership development in IT has received very 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, both with subordinates and non-IT employees undergoing change caused by IT. However, most leadership research in the IT context is cross-sectional, a major shortcoming to advance the field. The propositions included in this paper are that formal mentorship programs, robust feedback, and a long-term process view will improve leadership development program outcomes, which are consistent with Day's (2001) conclusions. The next steps in this research vein include identifying IT units with leadership development programs and longitudinally comparing the outcomes of their programs. Furthermore, training professionals can utilize the study findings to examine if their organizations are making systematic efforts that create a leadership pipeline for their organization. Furthermore, given concerns around lack of diversity in IT sector in general and at the leadership levels in particular, such a pipeline is critical for long-term success. IT continues to increase in importance as it enables disruptive startups to enter industries, so organizations who do not exploit IT as a resource risk obsolescence. Thus, effective IT leadership is vital both for the survival and the success of the organization.

Related to leadership development in IT units, several articles (Roepke *et al.*, 2000; Smith and McKeen, 2005; Jetu and Riedl, 2012) proposed the idea of emergent leadership. Emergent leadership has received increased attention in recent years due to its importance for global virtual teams (Carte *et al.*, 2006; Yoo and Alavi, 2004), and it may present new underpinnings for project development in the IT context. Emergent leaders provide structure to the activities of virtual teams, ensuring that the team's efforts remain goal directed and organized in the absence of formal leadership (Carte *et al.*, 2006; Yoo and Alavi, 2004). Acting as the authority and organizer of the work group can be a difficult situation in which to succeed without the necessary leadership skills, especially given that the emergent leader's emotional response to events may drive the team affect (Pescosolido, 2002). Future empirical research is needed to investigate how emergent and TL may operationalize together within IT to answer the following questions:

RQ1. Can emergent leadership be transformational?

RQ2. How do emergent and transformational leaders interact within teams with assigned leaders?

RQ3. Does LMX matter for emergent leadership?

RQ4. How can emergent leadership be developed and nurtured (in other words, does it require separate interventions or can it be a part of larger leadership development efforts)?

These research questions relating to leadership and its development are critical as IT departments face shortages of both soft and technical skills. Effective leadership development programs should help solve the soft skills shortage in addition to decreasing turnover, increasing commitment, improving change management outcomes, and team member satisfaction. IT must find ways to improve and maintain its leadership capabilities to be the strategic partner needed for organizational success in today's global marketplace.

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