Strategic leadership for exploration and exploitation: The moderating role of environmental dynamism

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A R T I C L E   I N F O

A B S T R A C T

This study advances prior theoretical research by linking transformational and transactional behaviors of strategic leaders to two critical outputs of organizational learning: exploratory and exploitative innovation. Findings indicate that transformational leadership behaviors contribute significantly to adopting generative thinking and pursuing exploratory innovation. Transactional leadership behaviors, on the other hand, facilitate improving and extending existing knowledge and are associated with exploitative innovation. In addition, we argue that environmental dynamism needs to be taken into account to fully understand the effectiveness of strategic leaders. Our study provides new insights that misfits rather than fits between leadership behaviors and innovative outcomes matter in dynamic environments. Hence, we contribute to the debate on the role of strategic leaders in managing exploration and exploitation, not only by examining how specific leadership behaviors impact innovative outcomes, but also by revealing how the impact of leadership is contingent upon dynamic environmental conditions.

Researchers have argued that sustained organizational performance is rooted in exploiting existing competences and exploring new opportunities (He & Wong, 2004; Gibson & Birkinshaw, 2004). The notion of exploration and exploitation (March, 1991) or exploratory and exploitative innovation (Benner & Tushman, 2003) has increasingly come to dominate theories on organizational learning, technological innovation, and organizational adaptation (e.g., Benner & Tushman, 2003; Holmqvist, 2004; Lee, Lee, & Lee, 2003). Organizations that engage in exploratory innovation pursue new knowledge and develop products and services for emerging customers and markets. Organizations pursuing exploitative innovation, on the other hand, build on existing knowledge resources and extend existing products and services for current markets (Benner & Tushman, 2003; Jansen, Van den Bosch, & Volberda, 2006).

Although the importance of strategic leadership in pursuing exploration and exploitation has often been highlighted (i.e. Tushman & O'Reilly, 1996; Smith & Tushman, 2005), the specific means through which leaders influence organizational learning and innovation are still under-developed (Berson, Nemanich, Waldman, Galvin, & Keller, 2006). We contribute to this emergent dialogue in two ways. First, there is little systematic evidence of how transformational and transactional leadership (Bass, 1985, 1998) affect exploratory and exploitative innovation at the organizational level (Berson et al., 2006). Though studies are beginning to come to light (i.e. Waldman, Siegel, & Javidan, 2006), Yukl (1999) evaluated the conceptual weaknesses of transformational and charismatic leadership theories and noted that insufficient attention has been given to organizational processes. Similarly, although previous research has asserted that leadership may differentially affect both types of learning (e.g. Vera & Crossan, 2004), empirical studies examining such relationships

are sparse. While some evidence exists at the individual- and team-level of analysis (e.g. Pirola-Merlo, Härtel, Mann, & Hirst, 2002), the impact of strategic leadership on organizational learning and innovation is still unclear (Hambrick and Mason, 1984). Moreover, prior research has tended to focus on the more creative processes of exploration and radical innovation, thereby ignoring exploitation and incremental innovation and underestimating the organizational challenge of replicating and refining learning, and making existing knowledge sources accessible and applicable (Berson et al., 2006; Hannah and Lester, 2009-this issue). By addressing these gaps, this study provides new theoretical and empirical insights linking strategic leadership to exploratory and exploitative innovation at the firm level.

Second, we consider the potential moderating effect of environmental dynamism on the effectiveness of leadership behaviors in relation to organizational learning and innovation. Ensley, Pearce, & Hmieleski (2006) found that the effectiveness of transformational and transactional behaviors on new venture performance varies with levels of environmental dynamism. In addition, Waldman, Ramirez, House, & Puraman (2001) showed how the impact of transactional and charismatic leadership on firm performance is contingent upon perceived environmental uncertainty and volatility. Less well documented is the contingency perspective we propose, which underscores the effectiveness of transformational and transactional leadership to pursuing exploratory and exploitative innovation under different contextual conditions.

Drawing from theories of leadership, organizational learning and innovation, this study finds that different leadership behaviors are necessary to support exploratory and exploitative innovation and that *misfits* rather than *fits* between leadership style and innovative outcomes matter in dynamic environments. Through this richer explanation and empirical assessment, we contribute to greater clarity of how strategic leaders may contribute to successfully developing exploratory and exploitative innovation. In the next section, we present the literature review and hypotheses. After describing our research method, we present the empirical findings using data from 305 senior team members and 89 executive directors at autonomous branches of a financial services firm. We conclude with a discussion of the results, implications, and issues for future research.

1. Strategic leadership and organizational learning

Research on strategic leadership focuses on executives who have overall responsibility for an organization (Hambrick & Mason, 1984), based on the principle that "ultimately, they account for what happens to the organization" (Hambrick, 1989, p.5). In its origins transformational leadership was primarily focused on the micro-level relationship between leaders and their immediate followers. It is relatively recently that Bass's (1985, 1998) framework of transformational and transactional leadership (T/T leadership) behaviors has been used to describe top executives (e.g., Elenkov, Judge, & Wright, 2005; Ensley, Hmieleski, & Pearce, 2006; Jung, Chow, & Wu, 2003; Waldman et al., 2006; Zhu, Chew, & Spangler, 2005) and extended to address organizational-level variables such as structure, culture, learning, and innovation (e.g., Elenkov et al., 2005; Pawar & Eastman, 1997; Vera & Crossan, 2004).

Transformational leadership embodies four dimensions: intellectual stimulation, individualized consideration, idealized influence, and inspirational motivation (Avolio, Bass, & Jung, 1999). Intellectual stimulation is defined as the degree to which leaders stimulate their followers' effort to be innovative and creative by questioning assumptions, reframing problems, and approaching old situations in new ways (Bass, Avolio, Jung, & Berson, 2003). Individualized consideration captures the degree to which leaders pay attention to each individual's need for achievement and growth by acting as a coach or mentor. Idealized influence represents the degree to which leaders are admired, respected, and trusted. This dimension includes charismatic behavior that causes followers to identify with the leader. Inspirational motivation is defined as the degree to which leaders articulate an appealing vision and behave in ways that motivate those around them by providing meaning and challenge to their followers' work (Bass et al., 2003). In the case of transactional leadership, it embodies two behaviors: contingent reward and active management by exception. Through contingent reward, transactional leadership clarifies to followers what the follower needs to do to be rewarded for the effort. Through active management by exception, leaders monitor the followers' performance and take remedial actions when needed (Avolio et al., 1999).

In their theoretical work, Vera & Crossan (2004) linked the T/T leadership style of top managers to the learning elements incorporated in the 4I framework of organizational learning proposed by Crossan, Lane, & White (1999). The 4I framework consists of four learning processes (intuiting, interpreting, integrating and institutionalizing) across three levels (individual, group and organization). Mintzberg, Ahlstrand, & Lampel (1998, p. 212) summarize the learning processes embedded in the 4I framework as follows:

> *Intuiting* is a subconscious process that occurs at the level of the individual. It is the start of learning and must happen in a single mind. *Interpreting* then picks up on the conscious elements of this individual learning and shares it at the group level. *Integrating* follows to change collective understanding at the group level and bridges to the level of the whole organization. Finally, *institutionalizing* incorporates that learning across the organization by imbedding it in its systems, structures, routines, and practices.

The 4I framework also distinguishes between the stocks of learning at each level (individual, group and organization) and the flows of learning between levels (feed-forward from individuals and groups to the organization; feedback from the organization to groups and individuals) (Bontis, Crossan, & Hulland, 2002). The two learning flows highlight the tension between exploration and exploitation (Crossan & Berdrow, 2003), where exploration involves search, variation, risk taking, and experimentation and exploitation includes refinement, selection, efficiency, and execution (March, 1991).

Vera & Crossan's (2004) fundamental premise was that different leadership behaviors support different aspects of organizational learning. They proposed that transformational leadership would foster both feed-forward and feedback learning that challenged the current institutionalized learning, whereas transactional leadership would foster feed-forward and feedback learning that