Looking through the lens of leadership: a constructive developmental approach

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Abstract

Purpose – The purpose of this paper is to examine the relationships between leadership development level (LDL) and leadership effectiveness utilizing 360-degree feedback scores. Researchers examine raters' ability to recognize effective leadership practices using a constructive developmental framework.

Design/methodology/approach – This approach is quantitative and involved data gathered from subject-object CD interviews and 360-degree feedback scores collected from individuals enrolled in an executive leadership development program.

Findings – The analysis revealed that LDL predicted leadership effectiveness using the 360-degree feedback measure across a number of sources including superiors, subordinates, and peers. In addition, researchers reveal that individuals that lead from higher levels are more effective in a number of leadership competencies (e.g. Leading Change, Managing Performance, Creating a Compelling Vision, etc.). Finally, the research demonstrates that superiors and peers can predict leader effectiveness better than subordinates or oneself.

Research limitations/implications – Implications for integrating constructive developmental theory in both the research and practice of leader selection and development is discussed.

Originality/value – This study is one of the first studies to empirically demonstrate the link between leadership development level and leadership effectiveness using the constructive developmental framework.

Keywords Leadership development, 360-degree feedback, Management effectiveness, Competences

Paper type Research paper

The study of leadership plays an undeniably central role in many disciplines including psychology, management, sociology, public administration, political science, and educational administration. Researchers admit that the increase in publications regarding the subject brings difficulty in integrating prolific yet diverse findings (Church, 1998; Yukl and Van Fleet, 1992). A primary criticism claims existing empirical studies on leadership effectiveness yield contradictory or inconclusive results. Leadership theories often deal only with a partial set of relevant variables (Yukl, 1989). Much confusion results from the disparity of approaches and the absence of broader theories to integrate findings from differing viewpoints (Yukl and Van Fleet, 1992).

Focus on an alternative theory – constructive developmental theory (CD theory) – may help understand how leaders develop over their life span.

Leadership is a process; it is comprised of more than the leader and the situation (Church, 1998). Previous research took an alternative approach to identifying leadership effectiveness by looking at leadership as a social meaning-making process occurring among groups of people engaged in joint activity. This constructivist view challenges the assumptions of more traditional leadership theories, and posits "that it is not the content of a behavior or leadership style that matters, that is what is actually done or believed, but rather how one epistemologically makes sense of the content of the behavior or leadership style that makes a difference" (Eigel, 1998, p. 27). Thus, what you know is as important as how you know. Examining how leaders construct meaning out of particular situations may help elucidate why some leaders are effective while others are not. To date, the lateral (how much you know) approach to leadership study has left researchers and managers questioning how they might predict effectiveness, as well as whom they might select or promote within an organization. This study employs a vertical approach (how you know it, a.k.a. the constructivist approach, or more specifically, constructive developmental (CD) theory), to identify those who might be more effective, and should be selected, promoted, and developed for a particular leadership position.

Constructive developmental theory

Constructive developmental theory is built on the work of Jean Piaget and his focus of the developing child through distinctive stages of growth and transformation of knowledge (Piaget, 1954). Kegan (1980), however, was the first to coin the term "constructive developmental theory" in the field of psychology to refer to a meaning or sense-making process that exists across the lifespan. In developmental psychology, researchers have investigated an individual's capacity to respond, make meaning of a situation, and recognize the demands placed on him or her (Kegan, 1994; Kohlberg, 1981). Rooke and Torbert's (1998) and Kuhnert and Lewis' (1987) research examines a person's capacity to respond effectively to complex situations: constructive/developmental theory. In order to gain a more comprehensive review of constructive developmental theory and its applications we suggest readers consult the review conducted by the Center for Creative Leadership (McCauley et al., 2006).

Kegan (1982, 1994) describes constructive developmental theory as the process by which humans construct a subjective understanding of the world that shapes their experiences, instead of directly experiencing an objective world as theorized by Gibson (1979). People progress in patterns from a simplistic to a more complex mode of understanding. This process expands in adulthood, where people become better able to reflect and understand personal and interpersonal worlds (Kuhnert and Lewis, 1987). The identifiable patterns of meaning making or ways of knowing that people share in common are referred to as stages or levels of development. Levels of development follow an invariant sequence that encompasses all previous levels. The further one develops, the more complex his/her understanding of an experience become. Movement from one developmental level to the next is spurred by limitations in one's current way of constructing or making meaning of the experience; facing complexity requires a more complex way to understand oneself and the world. Therefore, developmental levels influences what an individual is aware of, and subsequently effects what they

can reflect on and change (Cook-Greuter, 2004). Growth from one level of meaning to the next reflects vertical development while an increase in understanding within a level would suggest lateral development. Both are important in understanding how adults develop.

Leadership development level

Eigel and Kuhnert (2005) have applied constructive developmental theory more specifically to the study of leadership. The term leadership development level (LDL) explains the various stages of this model. LDL is the "measurable capacity to understand ourselves, others, and our situations" (Eigel and Kuhnert, 2005, p. 359). Alternating periods of stability within each leadership level and growth toward the next characterize progression through the developmental trajectory. As leaders analyze various experiences, and recognize new experiences may contradict their current understanding of that type of experience, they can utilize such contradictions to fuel development to the next level. Therefore, responses to such contradictions can help individuals find more effective ways of understanding experiences through knowing, processing, deciding, and relating differently at each stage (Eigel and Kuhnert, 2005). To comprehend the difference between each LDL, researchers group characteristics of developmental progression into three domains: intrapersonal, interpersonal, and cognitive (Eigel and Kuhnert, 2005; Kegan, 1982, 1994). Throughout leader development, individuals move from an externally defined to internally defined understanding of themselves in the intrapersonal domain, from self-focus to other-focus in the interpersonal domain, and from simplicity to complexity in the cognitive domain.

LDL, in adulthood, comprises four levels. Development is unidirectional and invariant; people move from one level to the next without skipping, and cannot regress permanently from a higher level to a lower level. Everyone progresses through the same levels. However, rates of development and locations on the trajectory where development stalls vary from person to person.

LDL is the capacity to understand ones self, others, and the world. It is not simply what we know (lateral), but how we know what we know (vertical) that defines leadership level. To move forward, one must use this "lens" to filter one's experience (Kuhnert and Lewis, 1987; Kuhnert, 1994). How one knows what he or she knows determines at what LDL he or she exists.

Leadership development level characteristics

Level 2. Leaders at LDL 2 occupy the least sophisticated level of development; they understand the world simplistically. At this level, leaders see the world as black and white, win or lose. They cannot recognize shades of gray or the subtleties of most situations. Leaders cannot consider alternatives, nor can they see others' perspectives. Individuals at LDL 2 see different opinions as wrong. Leaders do not integrate differing opinions because they have not developed the ability to weigh the importance of others' opinions against their own. Such leadership might prove extremely detrimental to an organization. Without the ability to integrate the input of followers, a leader is sure to fail. LDL 2 leaders operate by an unbending set of rules they expect others to follow. LDL 2 leaders focus exclusively on their own needs, commit to winning at all costs, and struggle to maintain relationships, due to a lack of trust from their followers. Leaders

at this level prove ineffective, and less than 10 percent of leaders in organizations today operate at this level (Eigel, 1998; Kegan, 1994).

Level 3. At LDL 3, leaders are capable of recognizing others' viewpoints. They recognize the limitations of LDL 2 rationale, because they now have perspective on lower level sense making, as such rationale becomes object. Leaders here are better equipped to see shades of gray and understand it is impossible to always win. They internalize, empathize, and often adopt others' perspectives (Eigel and Kuhnert, 2005). Acknowledging the ideas of others is paramount to increasing success within the organization and makes leaders at this level more effective. This level of development is not without its drawbacks, because leaders still depend on input from outside sources to make decisions. The opinions of others matter more, and leaders risk making decisions by depending on those who may lack the appropriate expertise. Leaders cannot always rely on others' guidance, but must turn within to seek solutions. Leaders remain defined by their relationships, which they must maintain to preserve their identity. They receive external information not only from those in direct contact, but also from a variety of sources, including, but not limited to, periodicals and books prescribing leadership rhetoric, community leaders, politicians, and others portrayed in the media. Leaders at this stage can make decisions, but may not own their decisions like an LDL 4 or LDL 5 leader (Eigel and Kuhnert, 2005). The focus on relationships that defines this level is the lens the leader cannot see; therefore it is the subject of LDL 3.

Level 4. Understanding comes from within at LDL 4. LDL 4 leaders distinguish themselves through independence and their capacity to sever ties with outside sources to make effective decisions. Outside sources merit consideration, but the leader analyzes such information objectively and sees it as only one factor in the decision-making process. Everything subject in lower LDLs has become object. Therefore, an LDL 4 leader can see the lens through which he or she looked while at LDL 3. Leaders can now use the understanding of traditional rules, winning and losing, perspectives of others, and input from outside sources to create a more complex comprehension of the world (Eigel and Kuhnert, 2005). Previous experiences help leaders create their own point of view, which is instrumental in developing a vision for the organization. Researchers suggest leaders here evince a more transformational style of leadership (Kuhnert and Lewis, 1987). LDL 4 is where effective leadership truly begins.

Level 5. The very best leaders occupy LDL 5. Few leaders, however, reach this level. Past research shows approximately 5-8 percent of adults in the general population between the ages of 40 and 60 would be considered LDL 5 leaders (Eigel, 1998; Kegan, 1994). A paradigm shift characterizes this level; leaders demonstrate an entirely new understanding of the world. Leaders stand back, take perspective on, and objectively evaluate the paradigms that defined them at LDL 4. A paradigm at LDL 4 is a leader's stereotypical way of seeing things. At LDL 5, leaders welcome the influence of others' paradigms. They can see into a situation and themselves at the same time. Leaders remain open to internal reports on their performance (i.e. 360-degree feedback), their likes and dislikes, and their impact on followers (Eigel and Kuhnert, 2005). Leaders ground themselves in their values, but stay open to others' opinions and experiences. While guided by a core set of values or principles, leaders integrate their vision with that of others. This ability to "walk in other people's shoes" characterizes LDL 5 leaders, making them the most effective in organizations (Eigel, 1998).

The descriptions above suggest leaders at the highest LDLs are the most effective in complex organizational environments. Knowing themselves, their followers, and their environment at the highest levels should help leaders produce effective solutions (Eigel and Kuhnert, 2005). Although many have published discussions of this theory, a dearth of empirical research on executives persists. Eigel (1998) found the LDL scores of top-level executives were markedly higher than individuals in the normal population. The present study, however, seeks to expand this finding by examining if LDL is predictive of executive performance.

360-degree feedback
Some describe leadership effectiveness as being in the "eyes of the beholder" (Church, 1998, p. 3). Evaluating leadership effectiveness can prove quite difficult due to the complexity of organizational success indicators, difficulty in obtaining such information, and external factors often beyond the leader's control (Church, 1998). Therefore, some suggest a 360-degree feedback can serve as a proxy measure for leadership effectiveness, because it provides us with a well-rounded measure of performance (Hogan *et al.*, 1994). Around 90 percent of *Fortune* 1000 firms use some form of 360-degree feedback. Nearly all *Fortune* 500 companies use or intended to use this type of feedback (London and Smither, 1995). Measurement through multiple sources and perspectives has become vital to assessing performance. The "360-degree" label stems from anonymously collecting ratings from the entire circle of people that work with the individual, including supervisors, subordinates, peers, and customers. A self-rating also is often included in the assessment. Executive, management and leadership development programs frequently use such methods, as do organizations for formal appraisal processes for promotion, compensation, succession planning, and other administrative purposes (Atwater and Waldman, 1998a, b; Borman, 1997; Church and Waclawski, 1998). 360-degree feedback primarily seeks to increase a leader's awareness of him/herself so that he/she may, in a variety of situations, improve how he/she relates to and deals with his/her raters or those individuals that he/she interacts with on a regular basis (Atwater and Waldman, 1998a). Enhancing self-awareness can help individuals focus on their strengths as well as areas that need improvement (Allan *et al.*, 2000). In addition, data gathered from multiple perspectives is considered more comprehensive than data from only one source (Dyer, 2001). This more comprehensive measure more reliably predicts effective leadership, because multiple sources provide the measure of effectiveness. While research indicates leaders at higher LDLs are more effective (usually LDL 4 or LDL 5) due to the positions they hold in their organizations (Eigel, 1998; Eigel and Kuhnert, 2005), researchers have yet to determine which specific LDL best differentiates between higher and lower performers.

   H1. More effective leaders, measured by higher LDLs, exhibit more effective leadership practices evidenced by higher 360-degree feedback ratings across all raters.

The study also would benefit from examining which specific leadership competencies LDL predicts. While no prior research examines the relationship between LDLs and specific leadership competencies, the theory suggests leading from a higher level would prove someone more effective. Prudence, however, dictates specifically looking at a number of leadership competencies to identify where effectiveness increases.

Therefore, we conducted an exploratory investigation as to which specific leadership competencies LDL predicts.

P1. Does a predictive relationship exist between LDL and 360-degree feedback ratings via the eight leadership competencies of Personal Grounding, Contextual Grounding, Creating a Compelling Vision, Inspiring Commitment, Cultivating Talent, Catalyzing Teams, Leading Change, and Managing Performance?

We must not only look at effectiveness ratings in aggregate form (all raters together), but also examine if LDL significantly predicts effectiveness by separating ratings by rater source. The transition from LDL 3 to LDL 4 is considered one of the most significant shifts in development. It is in this transition where the individual moves from an externally defined understanding of themselves to one internally defined in the intrapersonal realm, from self-focus to other-focus in the interpersonal realm, and from simplicity to complexity in the cognitive realm. More importantly, in the transition from LDL 3 to LDL 4 the leader moves from a transactional leadership style to a transformational leadership style (Kuhnert and Lewis, 1987). Therefore, we must examine if differences occur between less effective (LDL 2 and LDL 3) and more effective (LDL 4 and LDL 5) leaders.

H2. More effective leaders, measured by higher LDL, will have higher 360-degree feedback ratings as rated by superiors, peers, subordinates, and themselves.

Use of 360-degree feedback assumes ratings from different organizational levels provide unique perspectives. Researchers suggest a number of reasons why differences may exist among raters. Many are method driven and are more of a concern with those interested in psychometrics. One key statistical discovery, however, finds interrater agreement within organizational levels is higher than agreement across levels (Borman, 1997). Some consistency exists within sources but not across sources, so these differences merit further investigation if organizations continue to use them for both developmental and evaluative purposes. We therefore should study all sources that comprise the 360-degree rating as a proxy for leadership effectiveness.

For this study, informational differences among raters provide the foundation and support the theory that not all rating sources are similar; some may be more effective in representing the construct of leadership effectiveness. Past research investigated how 360-degree feedback surveys were used to predict executive performance (Sala and Dwight, 2002). Raters at different organizational levels experience varying aspects of the leader's performance, so we would expect those with more exposure could and would rate the person more accurately because they acquired more information.

A variety of informational disparities among raters may lead to rating variations. Diverse raters may conceive differently both the ratee's job responsibilities and how the job should be performed (Campbell and Lee, 1988; Harris and Schaunbroeck, 1988). In addition, raters may assign varying levels of importance to the components of the ratee's job (Bretz *et al.*, 1992; Harris and Schaunbroeck, 1988; Schneier, 1977). Finally, the detected disparity between raters reflects the fact that raters observe distinct aspects of performance (Borman, 1974; Borman, 1997). A lack of contact between rater and ratee also can prove a concern (Pollack and Pollack, 1996). Informational variations may indicate different rating sources capture distinct aspects of the ratee's overall

performance, or each rater or aggregated rater group weighs facets of the ratee's performance differently in calculating an overall effectiveness score.

To more specifically understand dissimilarities among raters, we must address distinctions among rating sources. A long history of research demonstrates the problematic nature of self-evaluation. Specifically, self-ratings (of behavior, personality, or skills) suffer from inflation, unreliability, and bias (Yammarino and Atwater, 1997). While such bias might be psychologically healthy, it may not serve as the most accurate representation of leadership effectiveness. In addition, research has shown only moderate correlations between self and supervisor ratings, and between self and peer ratings. Sala (2003) also found that higher-level employees are more likely to have an inflated view of their performance and less congruence with the perceptions of others who work with them. Self-ratings therefore may not be the most accurate method of assessing performance (Harris and Schaunbroeck, 1988). The bulk of the research therefore has examined rater sources that might better predict performance, or in this case, leadership effectiveness.

Sala and Dwight (2002) found that managers' (superiors) and direct reports' (subordinates) feedback most strongly related to job performance. A meta-analysis conducted by Harris and Schaunbroeck (1988) found relatively high correlations between peer and supervisor ratings. Church (2000) found significantly high correlations between supervisor, subordinate, and peer ratings. That is, coworkers (i.e. subordinates and peers) and supervisors rated higher performing managers significantly more positively as compared to lower performing colleagues. Perhaps these individuals are better equipped to assess various competencies related to job performance.

Taking into consideration the empirical research on multi-source ratings, some rater sources may be more capable of predicting LDL than others.

H3. Superiors' and peers' ratings of leader effectiveness are the most predictive of LDL. Subordinates' and one's self-ratings of leader effectiveness will not be predictive of LDL.

This study examines the relationship between constructive developmental theory, as applied to leader development, and an actual measure of leadership effectiveness. An empirical study is vital to maintain that LDL predicts leadership effectiveness as measured by 360-degree feedback.

Methodology
Participants
Data for the following study is based on the LDL and 360-degree feedback scores of management executives in a variety of industries, including telecommunications, finance, and non-profit, who participated in an executive development program run by a consulting firm in the southeast USA. A trained industrial/organizational psychologist conducted multiple sessions focused on increasing self-awareness and overall development in a leadership role. Assessments conducted include the 360-degree feedback appraisal. Executives receive additional, ongoing coaching assessments that include a CD interview and subsequent feedback. It is in this interview where the psychologist determines LDL.

A total of 74 executives participated in this study: 63 percent of participants were male and 37 percent were female. Ages ranged from 34 to 64 with an average of 46 (SD = 7.41). Participants' positions broke down as follows: 12 percent Officers, 4 percent Presidents, 35 percent Directors, 36 percent Vice Presidents, and 13 percent General Managers.

CD interview

The study employed the CD subject-object interview to assess the constructive developmental level of each participant. Each semi-structured interview took approximately one hour. The interviewing psychologist used five index cards with words (success, conflict, change, important, and strong stand/commitment) to elicit experiences upper level executives and other managers might have faced in leading their organizations. The interview's goal was to stimulate ideas and conversations centering on situations encountered in the workplace. Each interview was tape-recorded and transcribed. The interviewer scored responses according to how the leader stated his/her responses, and more specifically what LDL they used. The object was not to score the interview on what the respondent stated, but how he or she had come to understand whatever experience he/she was talking about. The psychologist assigned an overall LDL rating to each subject. Traditionally, such interview scoring utilizes 20 distinct scores (five distinctions for each of the four levels). With a small sample, however, using this process would result in very little variability between levels. Therefore, interviews were scored either as a two/three (often seen as ineffective) or a four/five (often seen as effective) In addition, a second industrial/organizational psychologist, trained in scoring the subject-object interview reviewed the transcripts. This method ensured an acceptable level of interrater reliability which resulted in 91 percent agreement. In order to measure the current development of an individual, Barger (2006) suggests using the subject-object interview technique, in which construct validity has been established (Colby and Kohlberg, 1987; Lahey *et al.*, 1988). This is the same technique employed in the current study and has shown to be valid in a wide variety of settings, populations, and ages.

A consulting group developed a now widely used 360-degree feedback instrument, *360° Multi-Rater Feedback Assessment* (HCG, 2002), specifically for the previously mentioned executive development program. The instrument contains descriptions of 46 behaviors and characteristics considered critical leadership competencies, which fall into eight broader categories or constructs: Personal Grounding, Contextual Grounding, Creating a Compelling Vision, Inspiring Commitment, Catalyzing Teams, Cultivating and Retaining Talent, Leading Change, and Managing Performance. Each manager rated him/herself on each competency using a five-point Likert scale (where five represents outstanding and one represents poor), as did his/her superiors, subordinates, and peers.

Research reports that 360-degree ratings were more lenient, more susceptible to halo, less differentiating, less reliable, and less valid when used for evaluative purposes instead of developmental purposes (Farh *et al.*, 1991). Since this instrument was designed and utilized for developmental purposes, we are confident in the reliability of the instrument. Coefficient alpha for the 360-degree instrument is 0.98 across all raters.

Procedure
We kept responses for the 360-degree feedback instrument confidential and reported
them in aggregate by averaging responses. We collected a minimum of three raters per
rater source (excluding the self rating), the standard practice in both research and
practice (Sederburg and Rogelberg, 1998). There is an exception for superior ratings, as
upper level executives often only have one or two individuals to whom they report.
Many participants therefore had less than three superior raters provide feedback.

While some 360-degree feedback instruments were completed immediately prior to
the CD interview and others were conducted after, at no time did the interviewer have
access to any other performance-related information, including leadership scores
assessed on the 360-feedback instrument. As a result, leadership effectiveness ratings
did not bias the interviewer's ability to score the CD interview transcript.

Analyses
Correlations play an important role in statistical testing and assessing the degree of
particular relationships. Because LDLs are structured in a nonvariant hierarchical
manner, similar to being rank-ordered, we calculated Kendall's tau correlations for
LDLs and 360-degree feedback ratings of leadership effectiveness. This method
maximizes the advantage of a study with a small to moderate sample (Ardnt *et al.*,
1999). We therefore can better justify using the F-distribution in our analysis. We
calculated Kendall's tau correlations to examine not only the relationships between
LDL and 360-degree feedback scores, but also the relationships of different raters'
(e.g. superior, subordinate, peer, and self) assessment of overall leadership
effectiveness.

To assess how well LDL predicts leadership effectiveness, we ran bivariate linear
regressions between LDL and the overall feedback rating for each executive. We
computed reliabilities for the 360-degree feedback form using data from a larger
database of executives ($N = 3,525$). In addition, we ran t-tests to examine the
differences between less effective (LDL 2 and LDL 3) and more effective (LDL 4 and
LDL 5) individuals on each leadership competency subscale. We also ran bivariate
regressions to look at the predictive validity for each leadership competency. In order
to identify which source for rating leadership effectiveness was most predictive of
LDL, we conducted a stepwise hierarchical multiple regression analyses based on CD
theory and previous empirical studies. We also considered the notion that individuals
develop over time, which provides them the opportunity for varied experiences. We
therefore controlled for age in our analyses.

Results
Table I presents a table of sub-scale reliabilities with example items for the 360-degree
feedback measure. Table II presents the intercorrelations between leadership
competencies. Table III presents the significant differences (*t*-tests) between less
effective and more effective leaders across the eight leadership competencies. We found
significant differences with a large effect between less effective leaders (LDL 2 and
LDL 3) and more effective leaders (LDL 4 and LDL 5) across all eight leadership
competencies. We calculated effect sizes using the Hedges' $\hat{g}$ statistic to account for
unequal sample sizes (Hedges and Olkin, 1985). We conducted a bivariate regression
that provided support for *H1*. LDL Level significantly predicted leadership

Leadership competency	Sub-scale reliability	Definition
Managing performance (n = 7 items)	α = 0.86	Establishes clear goals and priorities. Creates project plans and processes to achieve results. Is dependable and decisive. Monitors progress and addresses setbacks. Holds people accountable for outcomes
Leading change (n = 7 items)	α = 0.88	Takes initiative to challenge the status quo and supports organizational innovation. Is adaptable
Catalyzing teams (n = 6 items)	α = 0.82	Fosters communication, cooperation, and trust. Supports teamwork by facilitating conflict resolution and negotiating winning outcomes. Is approachable. Works effectively with people of diverse backgrounds and different areas of the organization
Cultivating and retaining talent (n = 6 items)	α = 0.78	Identifies and develops the talent of the organization by providing challenging and empowering work opportunities; coaches others to improve performance; supports others in achieving high standards. Treats others with respect
Inspiring commitment (n = 5 items)	α = 0.79	Effects support for organizational goals through high standards of personal conduct. Demonstrates dedication and enthusiasm. Creates a positive and inspiring impression. Places organizational activities into a broader context
Creating a compelling vision (n = 4 items)	α = 0.80	Thinks strategically about the future. Provides an appealing, credible image of the workgroup/organization's direction. Effectively communicates the desired future state and generates support for its implementation
Cultivating and retaining talent (n = 6 items)	α = 0.78	Identifies and develops the talent of the organization by providing challenging and empowering work opportunities; coaches others to improve performance; supports others in achieving high standards. Treats others with respect
Contextual grounding (n = 4 items)	α = 0.74	Maintains an accurate and realistic awareness of events and trends inside the organization and within the larger context in which it operates. Is open to receiving new information and shares information with others
Personal grounding (n = 7 items)	α = 0.81	Maintains emotional balance and realistic positive perspective. Is confident, genuine, and appropriately assertive. Copes well with stress and is resilient in the face of challenges

Note: Cronbach α levels based on $n = 3,525$

Table I.
Leadership competency definitions and reliabilities

effectiveness (across all raters), after controlling for age $F(2, 72) = 15.12$, $p < 0.001$. In addition we examined, via bivariate linear regression, the predictive relationships between LDL and 360-degree feedback ratings separated by competency (subscale) in an exploratory manner. Table IV illustrates the Kendall tau correlations between LDL level and leadership competencies, as well as the predictive validity of LDL with all eight leadership competencies, providing a response and support for our first proposition. LDL significantly predicted effectiveness related to managing

performance, leading change, catalyzing teams, cultivating talent, inspiring commitment, creating vision, contextual grounding, and personal grounding.

In addition, Table V shows the correlations among mean ratings from different rater sources. Superior ratings were related to subordinate ratings ($r = 0.33$, $p < 0.01$), peer ratings ($r = 0.29$, $p < 0.001$), and self ratings ($r = 0.16$, $p < 0.05$). Subordinate ratings were related to peer ratings ($r = 0.22$, $p < 0.01$) but not self ratings ($r = 0.08$, $p =$ n.s.). Peer ratings were not significantly related to self ratings ($r = 0.08$, $p =$ n.s.). Correlations between rater sources, including the lower correlations between self ratings and ratings from other sources, all mirrored Conway and Huffcut's meta-analytic results (Conway and Huffcut, 1997).

In order to assess whether LDL is predictive of leadership effectiveness across particular rating sources, we also conducted separate bivariate linear regressions for each rater source, controlling for age. Table VI provides a comparison of rater sources indicating that LDL significantly predicted leadership effectiveness via superior $F(2,72) = 16.52$, $p < 0.001$, peer $F(2,72) = 7.55$, $p < 0.01$, and subordinate $F(2,72) = 7.00$, $p < 0.01$ ratings. Self ratings were not found to be significant

Variable	M	SD	1	2	3	4	5	6	7	8
1. Managing performance	3.87	0.44	–							
2. Leading change	3.78	0.40	0.86*	–						
3. Catalyzing teams	3.70	0.49	0.67*	0.88*	–					
4. Cultivating and retaining talent	3.75	0.41	0.82*	0.89*	0.87*	–				
5. Inspiring commitment	3.97	0.36	0.82*	0.84*	0.73*	0.79*	–			
6. Creating a compelling vision	3.90	0.42	0.81*	0.79*	0.57*	0.71*	0.82*	–		
7. Contextual grounding	3.82	0.37	0.73*	0.81*	0.84*	0.85*	0.73*	0.69*	–	
8. Personal grounding	3.92	0.42	0.77*	0.90*	0.89*	0.86*	0.78*	0.71*	0.88*	–

Note: *$p = 0.01$

Table II.
Kendall's Tau intercorrelations among leadership competencies ($n = 74$)

Variable	Less effective leaders $n = 29$		More effective leaders $n = 45$		t	Effect ($ĝ$)
	M	SD	M	SD		
Managing performance	3.65	0.42	4.00	0.40	3.57*	0.85
Leading change	3.51	0.37	3.95	0.32	5.36*	1.27
Catalyzing teams	3.43	0.37	3.87	0.43	4.58*	1.08
Cultivating and retaining talent	3.48	0.34	3.92	0.35	5.27*	1.25
Inspiring commitment	3.72	0.26	4.13	0.32	5.78*	1.37
Creating a compelling vision	3.62	0.35	4.08	0.36	5.38*	1.27
Contextual grounding	3.64	0.31	3.94	0.36	3.75*	0.87
Personal grounding	3.66	0.44	4.09	0.32	4.85*	1.15

Notes: *$p < 0.001$ (two-tailed)

Table III.
Means, standard deviations, and t-test comparison of leadership effectiveness by leadership competency

Leadership effectiveness dimension	τ	B	SE B	β	ΔR^2	F	$f2$
Managing performance $R^2 = 0.16$	0.35**	0.33	0.10	0.37	0.13	6.65**	0.16
Leading change $R^2 = 0.29$	0.47**	0.41	0.08	0.50	0.24	14.84***	0.34
Catalyzing teams $R^2 = 0.26$	0.42**	0.40	0.10	0.43	0.18	12.30***	0.23
Cultivating and retaining talent $R^2 = 0.30$	0.46**	0.40	0.08	0.49	0.22	15.05***	0.32
Inspiring commitment $R^2 = 0.32$	0.53**	0.40	0.07	0.56	0.30	16.58***	0.43
Creating a compelling vision $R^2 = 0.29$	0.49**	0.46	0.09	0.55	0.28	14.63***	0.40
Contextual grounding $R^2 = 0.18$	0.39**	0.28	0.08	0.37	0.13	7.70**	0.16
Personal grounding $R^2 = 0.26$	0.47**	0.39	0.09	0.46	0.20	12.56***	0.27

Note: $^*p < 0.01$, $^{**}p < 0.001$ (one-tailed). All analyses control for age

$F(2,72) = 2.09$, $p = 0.13$. *H2*, therefore, found only partial support. While we expected that LDL would predict leadership effectiveness using superior, subordinate, peer, and self-rating, all but self ratings were significant.

Finally, we ran a hierarchical multiple regression analysis entering age at step 1, superior ratings at step 2, peer ratings at step 3, subordinate ratings at step 4, and self-ratings at step 5. Table VII shows that superior and peer ratings significantly added incremental validity to the model. Subordinate and self-effectiveness ratings do not significantly account for any predictive validity beyond superior and peer ratings. Worth note, however, the overall model with all four rating sources (step 5) was significant $F(5, 69) = 6.37$, $p < 0.01$, providing partial support for *H3*.

Discussion

Prior to the current study, the research applying constructive-developmental theory to the study of leadership was rich in theory-laden qualitative studies, but lacking in empirical based research. We have now answered researchers' calls to examine the relationship between LDL and behavioral measures of performance, via 360-degree feedback ratings (Eigel and Kuhnert, 2005) as well use the constructive developmental framework to advance the understanding of leadership (McCauley *et al.*, 2006). We set out not only to examine the relationship between LDL and leadership effectiveness, but also to identify which rater's assessment of leadership effectiveness most likely differentiates low performers from high performers, and most strongly predicts LDL.

A strong positive relationship exists not only between LDL and overall leadership effectiveness ratings, but also between LDL and effectiveness as rated by specific rater sources, including superior, peer, and subordinate. While LDL did not significantly predict effectiveness as measured by self ratings, we did identify that the mean self-rated feedback scores were lower than all other raters. This finding contradicts previous research regarding inflated self-ratings of effectiveness (Yammarino and Atwater, 1997). Sala (2003) provides one explanation: that self-awareness positively

Variable	N	M	Min	Max	SD	1	2	3	4	5	6	7
1. LDL	74	3.60	3.0	4.0	0.49	–						
2. Age	63	46.05	34	64	6.79	0.19*	–					
3. All	75	3.83	2.63	4.46	0.37	0.50***	0.20*	–				
4. Superior	70	3.94	1.76	4.87	0.57	0.33***	0.01	0.54***	–			
5. Subordinate	74	3.85	2.30	4.51	0.49	0.36***	0.07	0.67***	0.33**	–		
6. Peer	70	3.78	3.0	4.57	0.33	0.35***	0.24**	0.45***	0.29***	0.22**	–	
7. Self	67	3.61	2.26	4.72	0.42	0.01	0.24**	0.16*	0.16*	0.08	0.08	–

Notes: *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$ one-tailed

Table V.
Means, standard deviations, and Kendall's Tau intercorrelations among LDL and mean 360-degree feedback scores by rater source

associates with managerial performance. Higher-level managers therefore may possess better self-understanding. Also, the individuals who participated in this executive development program may be described as a sample of those trying to be better leaders, and therefore not willing to inflate their scores. Lower self ratings of our sample (leaders enrolled in a leadership development program), however, should not be equated with accurate perception or mis-perception of leadership effectiveness. A clearer understanding of these differences, therefore, could be garnered by identifying the difference in self/other ratings in predicting leadership effectiveness.

Researchers have also cited a number of influences to self ratings which include biodata, individual characteristics, job-relevant experiences, cognitive procceses, and

Rater source	B	SE B	β	ΔR^2	F	f^2
All	0.38	0.08	0.51	0.24	15.12**	0.35
$R^2 = 0.30$						
Superior	0.49	0.12	0.44	0.19	16.52**	0.23
$R^2 = 0.19$						
Subordinate	0.39	0.11	0.40	0.15	7.00*	0.18
$R^2 = 0.16$						
Peer	0.21	0.07	0.37	0.11	7.55*	0.13
$R^2 = 0.17$						
Self	−0.25	0.09	−0.03	0.001	2.09	0.13
$R^2 = 0.23$						

Table VI.
Bivariate regression analyses of LDL predicting leadership effectiveness across rater sources ($n = 74$)

Notes: *$p < 0.01$, **$p < 0.001$ (one-tailed). All analyses control for age

Predictor	B	SE B	β	t	F	f^2
Step 1: $R^2 = 0.05$*					3.93*	0.05
Age	0.02	0.01	0.23*	1.98		
Step 2: $\Delta R^2 = 0.18$**					10.64**	0.23
Age	0.02	0.01	0.19	1.85		
Superior	0.38	0.09	0.42**	4.07		
Step 3: $\Delta R^2 = 0.05$*					9.02**	0.07
Age	0.01	0.01	0.14	1.31		
Superior	0.32	0.10	0.36**	3.38		
Peer	0.37	0.17	0.24*	2.16		
Step 4: $\Delta R^2 = 0.03$					7.61**	0.03
Age	0.01	0.01	0.13	1.24		
Superior	0.23	0.11	0.26*	2.11		
Peer	0.35	0.17	0.22*	2.03		
Subordinate	0.20	0.12	0.20	1.65		
Step 5: $\Delta R^2 = 0.01$					6.37**	0.03
Age	0.01	0.01	0.15	1.45		
Superior	0.25	0.11	0.27*	2.24		
Peer	0.35	0.17	0.22*	2.05		
Subordinate	0.21	0.12	0.20	1.69		
Self	−0.15	0.13	−0.12	−1.13		

Table VII.
Summary of hierarchical regression analyses predicting LDL ($n = 74$)

Notes: *$p < 0.05$, **$p < 0.01$

context or situation (Yammarino and Atwater, 1997). In the context of the constructive developmental framework, it may be that individuals with more cognitive complexity are more capable of accurately rating their performance. It would be of interest then, to identify rater accuracy (looking at self/other agreement) to determine if it is positively correlated with LDL.

In addition, LDL predicted leadership effectiveness as measured by a number of leadership competencies, including those that are more concrete, such as managing performance, cultivating and retaining talent, inspiring commitment, and catalyzing teams. More promising, however, is LDL's ability to predict such competencies as leading change, creating a compelling vision, and personal grounding. Leading change encompasses the ability to challenge the status quo, and higher-level leaders do not define themselves by how others see them. Effective leaders acquire their source of understanding from within, that is, who they are and can relinquish ties with outside sources to make effective decisions. The ability to overcome challenges, obstacles, or dissent, to change the organization for the better, therefore more likely appears in leaders at LDL 4 and 5. The fact that LDL predicted effectiveness related to emotional balance and resilience in the face of challenge associated with Personal Grounding (Hagberg, 2002) squares with the fact that higher level leaders do not define themselves by relationships that often create emotional upheaval. In addition, resilience is extremely important in a time where organizations are constantly evolving. Leaders at higher levels can deal with conflict more comfortably and handle people's resistance to change more effectively (Rooke and Torbert, 2005). The implication is that these individuals serve as effective change agents. Rooke and Torbert's (1998) research confirms that leaders at such high levels have succeeded in generating one or more organizational transformations, improving their companies' profitability, market share, and reputation. Equally important, we found LDL predictive of a leader's ability to create a compelling vision, thinking strategically about the future. Such leaders exhibit the capacity to attend to immediate and pressing issues while not being overwhelmed by them. Thus, higher-level leaders can also envision long-term goals (Rooke and Torbert, 2005). LDL also significantly predicted effectiveness as measured by Contextual Grounding, or the ability to understand the organization within a broader context. This finding is not surprising given that those high in Contextual Grounding maintain a realistic awareness of the organization and tend to share information with others. These leaders remain open to understanding multiple paradigms that only develop through open information-sharing. While acknowledging that bivariate regressions were used to conduct the analyses, preliminary findings suggest that the CD interview maybe promising for selecting executives and potentially could be integrated into organizations' succession planning or talent management systems.

In addition, only superior and peer ratings added incremental validity in predicting LDL, confirming our hypothesis that superiors are capable of predicting LDL best due to age and experience, and peers' evaluations add information distinct from superiors' in painting a picture of an effective leader. In addition, these individuals have greater "vertical" access to effectively evaluate the leader's performance. Subordinates often have less experience than superiors and peers and therefore their level of development may be below that of the individual they rate. Higher-level individuals may come off as

wishy-washy to those at lower levels, and subordinates may not understand nor be able to evaluate leaders that self-author their way of understanding.

The implications for leader development are far reaching. Perhaps the most effective leaders organize their experiences at a level of complexity and depth far greater than that of their subordinates. We cannot forget that leaders at the highest levels can still relate to others by employing former, lower-level methods of organizing their experiences. To develop leaders, we should educate them on how to communicate effectively with individuals at their level and at levels below them. Thus, it becomes important for leaders to learn to communicate where others are, not just where they are, in the developmental continuum.

Effective leaders must provide the appropriate context for all interested parties, including the leader, where all may collectively uphold a vision, mission, and purpose (Kegan, 1994). Followers may not understand an individual's approach to leading, as they may have a different construction of what a leader should be or do. A person at LDL 3 will appreciate the leader who constantly provides praise, because it will make the LDL 3 feel good about him/herself. That same LDL 3 may not understand or appreciate the individual who leads at LDL 4 or LDL 5. Although such leaders value relationships, they look beyond the outside to create meaning within. They are focused on achieving something greater for themselves, the organization, and society as a whole. Because followers may not be capable of understanding LDL 4 and LDL 5 leaders, they may rate them lower in various leadership competencies.

This study is one of the first to provide a framework for understanding leader development from the leader's perspective, rather than defining leadership by a leader's traits, behaviors, abilities, or their situation. More importantly, this study demonstrated the essential link between developmental levels and leader effectiveness. We have only begun to understand the link between LDL and effectiveness from the individual's perspective. Diverse opportunities for continued research persist, as much past research focused on traits, competencies, and the situational determinants of effectiveness (Leonard, 2003), or what we previously described as "content", all the while neglecting the meaning making process or "construct" of leader development and effectiveness.

Implications for future research and practice

Future research should focus on examining the incremental validity of LDL beyond cognitive and personality traits linked to successful leadership, such as cognitive ability, activity level, initiative, assertiveness, aggressiveness, competitiveness, dominance, ascendance, emotional balance, tolerance for stress, self-control, self-efficacy, enthusiasm, and extraversion (Lord *et al.*, 1986).

In addition, we cannot neglect the effects of environment or leadership context in understanding effectiveness. Perhaps we should not focus our investigation so much on the effects of leadership and environment, but rather on how different people may derive distinct meaning from the same environment. One group perceives opportunity and the other sees failure. It is important, however, to identify environments that promote development, as effectiveness in particular environments may be dependent on the individual's LDL. Eigel and Kuhnert (2005) suggest that each individual at a particular LDL will be effective in a particular environment according to the manner in which they make meaning of situations. LDL 2s are not very effective in general;

LDL 3s are effective in routine, low stress environments. LDL 4s are probably most effective in novel environments, while LDL 5s may be most likely to excel in dynamic, fast-paced environments. Based on such information, it may be worthwhile to further investigate the moderating role environment or organizational culture plays in predicting effectiveness. Furthermore, the suggestion that individuals might be more effective in a particular environment begs the question: What happens if leaders make the transition from one level to the next, but the organization or environment remains the same? The leader then may be capable of constructing meaning that is more advanced than many others working in the organization. The overall environment also may be structured to inhibit individual development. Therefore, it remains critical to think of leader development not only from an individual perspective, but also from an organizational perspective. This may be accomplished by involving more than just a couple of high potentials in the leadership development process. Improving how an organization functions by involving individuals from throughout a cross-section of the organization may both further develop individuals and lead to a larger organizational transformation (Leonard and Goff, 2003). While this study's participants are employed at multiple organizations, it may prove interesting to examine the effects of individuals undergoing the CD interview and feedback process, along with a 360-degree feedback measure, within one organization, and the significant positive impact the process may have on the organization as a whole. Leonard and Goff (2003) determined the impact of a leadership development program by assessing change within one organization using a pre-test, post-test design, which measured the organization's functioning in a number of areas, including strategy, innovation and risk taking, and adaptation to change.

Additional issues associated with a 360-degree feedback measure to consider include the fact that informational differences are most likely to occur among varying rater sources. Therefore, more specifically identifying information to which each rater has closer access may prove worthwhile. Borman (1974) found that different sources generate distinct dimensions in job analysis, also suggesting that behavior on some dimensions is observed by some sources but not by others. Other researchers have argued the need for further research examining what types of dimensions are best rated by each source, to understand why rater sources provide a level of incremental validity in the first place (Conway *et al.*, 2001).

Since each executive manages others, their subordinates and supervisors might be the best source of information regarding delegation, communication, and leadership skills. Peers, on the other hand, may be in the best position to evaluate such skills as teamwork, decision-making, and technical capability. Finally, researchers suggest that customers are the best source of input on quality of work and service orientation (Pollack and Pollack, 1996). Research specifically examining the types of leadership competencies raters might be most capable of evaluating is limited. Future research therefore should aim at identifying the relationship between LDL and leadership effectiveness, as measured by 360-degree feedback ratings, by looking more specifically at each rater's capacity to evaluate particular leadership competencies. Researchers should also focus on investigating the relationship between LDL of the follower and the LDL of the leader, and the composition of different LDLs and their effect on team functioning. This issue increases in significance as many organizations become much flatter in their organizational structure. A critical next step, however, is to obtain other performance measures such as individual, team, and overall firm

performance. Examining the relationship between LDL and more objective measures of performance will only help to extend the already promising research in this area.

Limitations

Several limitations of this study must be addressed to improve research involving an executive sample and the measures for validating the emerging theory of LDL. A fairly small sample caused us to dichotomize LDL as either LDL 2/3s (ineffective) or LDL 4/5s (effective), when in reality the constructive developmental trajectory is a continuum of development. In effect, we have characterized the effectiveness of individuals that are stable at LDL 2/3 or LDL 4/5, when many are actually in a transitional state where they might use both methodologies to make meaning of their world. Artificially dichotomizing variables may also attenuate correlations with their true value, thereby causing a downward distortion in the mean correlation (Cohen, 1983). Increasing the sample size so that we increase variability across levels should remedy this problem.

Also, by examining Table II, one may notice the high correlations between leadership competencies. Due to the strong relationships between each leadership competency, we may suggest considering the effects of leadership level and raters' ability to assess effectiveness on a global measure of leadership effectiveness.

Conclusion

We have demonstrated the utility of the CD interview, as we are now able to see the link between LDL and executive effectiveness. The key to making this process valuable, however, is not simply assigning individuals an LDL score, but making them aware of how they see the world. Leader development efforts should be established in organizations to help individuals handle a high level of complexity (Day and Halpin, 2004). While researchers are not exactly sure what "triggers" the move from one level to the next, we can only hope that awareness of the meaning-making process will aid in development. Eigel and Kuhnert (2005) believe the triggers for development are those with meaning from that person's LDL, and the transition from level to level depends on the individual's readiness and willingness to develop. Establishing opportunities for growth and specifically challenging individuals at each level to strive toward particular goals also may serve as a "trigger". LDL 2s should be challenged to discover generosity. LDL 3s should be challenged to discover themselves. Finally, LDL 4s should be challenged to discover how to make a difference (Eigel and Kuhnert, 2005). Only when we are able to develop leaders to these higher levels, will we see true change in individuals, teams, organizations, and society.

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