A MULTI-LEVEL THEORY OF LEADER DEVELOPMENT

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ABSTRACT

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Despite the fact that organizations consistently cite leadership development as a top priority (Colvin, 2006), the scientific community provides limited insight into how individuals develop leadership capacities from their experiences at work (Burke & Day, 1986; Day, 2000). The present research develops a multi-level theory of leader development that specifies how work experiences enhance individuals' leadership capacity. This theory is then empirically tested using both qualitative and quantitative methods. In the qualitative phase of this study, leaders from a variety of different organizations provided examples of discrete work experiences that had occurred over the past 12 months. In the subsequent quantitative phases of this study, leaders and their supervisors rated these experiences on a number of different measures. Results indicate that the characteristics of these experiences shape the development of leadership capacities. Moreover, individual differences and contextual factors moderate the relationship between the characteristics of work experiences and leader development outcomes.

ACKNOWLEDGEMENTS

I expected graduate school to be a period of intense learning and scholarship directed at understanding the management and leadership of organizations. In this sense, graduate school was all that I expected. More importantly, though, I conclude my days as a graduate student having learned more about myself than I could have ever imagined. For this, I must thank a number of people. First, I thank my advisor, mentor and chair, John Hollenbeck, for being a great teacher, motivator, colleague and friend. I thank Fred Morgeson for the opportunity to learn from one of the best. I thank Dan Ilgen for his ever impressive wisdom, guidance, and thought-provoking questions. I thank John Wagner for his insights and guidance on this particular dissertation. I also thank my fellow doctoral students for their camaraderie, support, patience, and ability to make each day at the office something to look forward to. All are good colleagues and great friends. I thank my family—without you all, this would have no meaning. Lastly, I thank Jackson, who has been with me since the start of this journey and is truly man's best friend.

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INTRODUCTION

George Houston (1961; vii) once stated that "...the education and continued development of managers is still a relatively new and uncharted field." In this same text, he challenged all of those in business and education to recognize the vital importance of preparing tomorrow's workforce to accept and fulfill the responsibilities of leadership, to meet and deal with change, and to command the respect and confidence of others. Organizations have accepted this challenge with vigor. In fact, organizations increasingly view leadership capacity as a source of competitive advantage and are investing in its development accordingly (McCall, 1998; Vicere & Fulmer, 1998). One result of this is an emerging interest in understanding how individuals develop leadership capacities from their experiences at work (Dotlich & Noel, 1998; Ohlott, 2004).

Individuals have a variety of formal experiences at work that are designed to enhance leadership capacity, including formal coursework, training, assessment activities, and mentoring or coaching programs (London & Mone, 1999; McCall, Lombardo, & Morrison, 1988; Noe, Wilk, Mullen, & Wanek, 1997). The value of these formal leadership development experiences is estimated at over thirty-seven billion dollars worldwide (Boyatzis, Leonard, Rhee, & Wheeler, 1996), and there is a considerable body of literature focused on the effectiveness of these formal experiences (e.g., Ragins & Cotton, 1999). However, individuals also encounter a variety of informal experiences at work. These work experiences, for example taking on a challenging and unfamiliar project, are often not designed purely for developmental purposes and occur within the context of general work activities. Despite that over 70% of all developmental

experiences occur informally on-the-job (Wick, 1989), very little research has focused on the developmental value and impact of these informal work experiences (Day, 2000; Day & O'Connor, 2003). Thus, research that explains how informal work experiences enhance individuals' capacity for leadership is vital to our understanding of leadership development in organizations.

The present work seeks to address this gap in the literature by developing and testing a multi-level theory of leader development. This theory focuses specifically on how *informal* work experiences promote the development of leadership capacity in individuals. The formal developmental experiences that individuals have at work or any experiences outside of work are beyond the scope of this dissertation. Informal work experience is among the most effective facilitators of learning and development in the workplace (Davies & Easterby-Smith, 1984; McCall et al., 1988; McCauley, Ruderman, Ohlott, & Morrow, 1994; Rogers, 1969; Stewart, 1984). McCall (2004, p. 127) even argues that "the *primary* source of learning to lead, to the extent that leadership can be learned, is experience." Furthermore, organizations are increasingly seeking ways to develop and systematically implement leadership development activities that leverage individuals' informal experiences on the job (Conger, 1993; Day, 2000). However, several fundamental questions remain about how individuals develop leadership capacities via their informal work experiences.

First, how should work experience be conceptualized from a developmental perspective? Specifically, what types of informal work experiences promote leader development and what are the characteristics of these experiences? Second, what leadership capacities are actually developed via these experiences? For instance, do

certain types of experiences promote different types of leadership knowledge or skills? Furthermore, are there leadership capacities beyond just knowledge and skills that are important to consider as outcomes? For example, beliefs such as self-efficacy and identity have been noted as important leadership capacities (Hall, 2004; Paglis & Green, 2002). Third, how do individual differences and contextual factors influence the development process? The present research attempts to address these general questions by constructing a multi-level model of leader development and then empirically testing some of the more basic questions this theory implies.

Overview

Construction of the present theory takes place in four distinct stages. First, I briefly discuss the distinction between management and leadership as it pertains to development. I also discuss the distinction between leader and leadership development. These distinctions are noteworthy because they address common debates in the leadership literature (e.g., Day, 2000; Day & Halpin, 2004; Kotter, 1990; Yukl, 2002) and define the bounds of the present work. Second, I use existing literature to construct an integrative classification of leader development outcomes. This classification system organizes existing literature along four principal leadership capacities: cognitive skills, managerial skills, interpersonal skills, and self-concept beliefs. These leadership capacities serve as the dependent variables in the present study. Third, I develop a conceptual model of developmental experiences by integrating literature on general work experience with existing experience-based models of leader development. To date, these literatures have evolved independently, but their integration is essential for understanding how individuals develop via their experiences at work (Day, 2000). Fourth, I use this

conceptual model as the basis for developing a set of explicit hypotheses that are then empirically tested.

Figure 1 depicts the conceptual model that serves as the backdrop for this dissertation. This model spans across two levels of analysis. The lower unit of analysis is the work experience. Work experiences are defined as "*events that are experienced (and perceived) by an individual that relate to the performance of some job*" (Quinones, Ford, & Teachout, 1995, p. 890). These experiences are nested within individuals such that leaders encounter a number of different experiences in their careers, and these experiences differ in terms of their developmental impact (McCall et al., 1988). At this lower unit of analysis, the model identifies the type of experiences that promote the development of leadership capacity in individuals. At the leader level of analysis, this model specifies how individual differences among leaders and contextual factors moderate the experience—development outcome relationship. In other words, leaders may encounter similar experiences but develop in different ways from these experiences because of select individual differences and contextual factors.

This research contributes to our understanding of leadership development in at least four ways. First, it extends current literature on leader development by specifying at the experience level of analysis how the characteristics of work experiences differentially shape individual leader development. Second, this research places developmental experiences in context by considering the role of individual differences and contextual factors in the development process. Third, it empirically tests the proposed model in a wide range of organizational settings. Fourth, implications for the development and implementation of leadership development systems are reviewed and discussed.

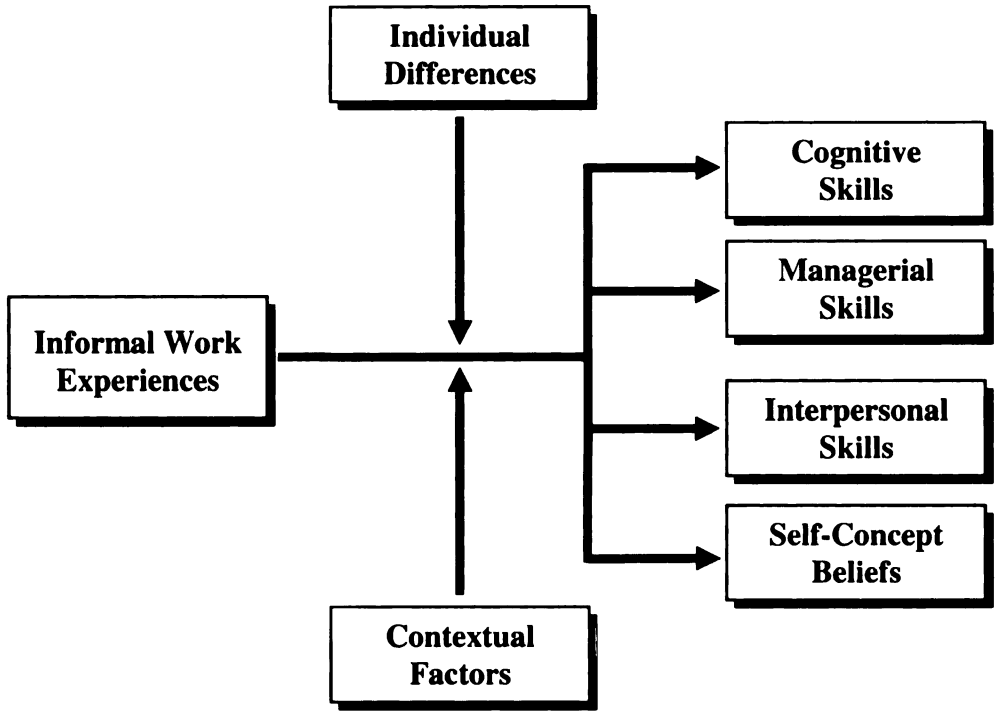

Figure 1 – A Conceptual Model of Leader Development from Informal Work Experiences

Definitions and Distinctions in Leader Development

Several definitions and distinctions are worth noting at the outset of this dissertation. First is the distinction between management and leadership. Second is the distinction between leader development and leadership development. Each is discussed in detail below.

Management and Leadership: The Same or Different?

Yukl (2002) argued that management and leadership are different (yet related) concepts. Management is concerned with the direction of a system of people and technology such that the system runs smoothly. The most important behavioral aspects of management include planning, budgeting, organizing, staffing, controlling, and problem

solving. Leadership, on the other hand, is defined as the roles, behaviors, and processes that facilitate setting direction, creating alignment, and maintaining commitment in groups of people who work together.

Much has been written about the distinctions between management and leadership, and some even argue that an overemphasis on management has left today's organizations with a significant lack of leadership capacity (Kotter, 1990). From a developmental perspective, the important deduction from this debate is that the individual capacities required to perform these two functions may differ. This is consistent with existing skill taxonomies that account for organizational hierarchy, where different sets of skills are required depending on whether one is at higher or lower levels in the organizational hierarchy (Mumford, Campion, & Morgeson, 2007).

However, just because the essential capacities of managers and leaders may differ, models of leader development should not necessarily ignore the capacities associated with management roles. Leadership roles are performed by people at all hierarchical levels, not just those at the top levels (Bowers & Seashore, 1966). As organizations increasingly adopt decentralized structures and encourage employee empowerment, the importance of developing leadership capacities at all levels within an organization becomes ever more important. The present theory is not focused solely on the top executive levels within an organization, where the development of management capacities may be less important. Rather, this theory is designed to be applicable across a variety of hierarchical levels. As such, this theory considers the capacities required for *both* management and leadership. Leadership is not reserved for those that advanced because of good managerial skills. In modern organizational settings, models of leader

development must consider how to develop both management and leadership capacities simultaneously.

Leader Development: Necessary, Not Sufficient for Leadership Development

Day (2000) argued there is a fundamental difference between leader development and leadership development. Leadership is a complex interaction involving leaders, followers, and situations (Hollander, 1978). Thus, leadership is a product of the relationships that are created and maintained with others—the interpersonal or social context. Models of development that focus on the individual, namely models of *leader* development, generally ignore the social environment within which leadership occurs. In contrast, models of *leadership* development attend to the social and interpersonal nature of leadership by focusing on developing the social relations among individuals and the leadership capacity of the group, not the individual.

Despite this distinction between leader development and leadership development, the two concepts are closely related. Developing individual leaders is a critical component of leadership development (Day & Halpin, 2004). If individual leaders are not prepared for the demands and challenges of leadership, effectiveness at all levels (individual, team, organization) will suffer. For the social structures and processes of leadership to be effective, individuals must develop and maintain the knowledge, skills, and abilities that are necessary for executing key leadership functions. In other words, the quality of leadership as a social process is a function of the quality of the individuals participating in the process. Therefore, the primary focus of the present work is on individual *leader development.*

Outcomes of Leader Development

In developing the present model of leader development, I first specify what leader capacities can be developed as a result of informal experiences at work. Ohlott (2004, p. 162) suggests that informal work experiences "teach practical knowledge and skills that enhance and expand the ability to be effective." Others have suggested that an emphasis on knowledge and skills without considering the impact on individuals' beliefs offers an incomplete report of the development process (Gagne, 1984; Kraiger, Ford, & Salas, 1993; Messick, 1984). Although classification systems exist for certain types of development outcomes (e.g., leadership skills; Mumford, Campion, & Morgeson, 2007), none of these classification systems integrate across different types of development outcomes (i.e., skills and beliefs).

In this section, I draw from a variety of literatures (e.g., leader development, general training and development) to construct an integrative classification of leader development outcomes. In this classification, I identify four types of leader capacities: *cognitive skills*, *managerial skills*, *interpersonal skills*, and *self-concept beliefs*. Table 1 provides a description of each leader capacity and maps existing literature onto each dimension. This classification serves two purposes in the present study. First, it specifies the types of skills and beliefs that existing literature has identified as important from a leader development perspective. Second, it organizes these leader capacities in such a way that helps in understanding how different types of informal work experiences promote leader development.

Table 1 – Leadership Capacities

Leadership Capacity	Description	Related Literature
Cognitive skills	• The skills one must possess in order to effectively gather, process, and use complex and ambiguous information	• Cox & Cooper (1989) • Gillen & Carroll (1985) • Graham (1983) • Jacobs & Jaques (1987) • Mumford et al. (2000)
Managerial skills	• The skills that leaders must have in order to effectively manage financial, material, and personnel resources	• Costanza et al. (1999) • Katz (1974) • Luthans et al. (1988) • Mahoney et al. (1965)
Interpersonal skills	• The skills that leaders need in order to effectively interact with and influence other people	• Costanza et al. (1989) • Graham (1983) • Katz (1974) • Mahoney et al. (1965) • Mintzberg (1973)
Self-concept beliefs	• Leaders' self-belief about their own capacity to effectively set direction, gain commitment from others, and overcome obstacles • Leaders' self-identity as a leader	• Erikson (1968) • Hall (2004) • Hill (1992) • Ibarra (2003) • Kegan (1982) • Paglis & Green (2002)

Cognitive Skills

Leaders must be able to take in and process complex information, deal with ambiguity, and understand complex systems of causes and effects. According to Hooijberg, Hunt, and Dodge (1997, p. 379), it is essential that leaders are able "to take information, pick it over, play with it, analyze it, put it together, reorganize it, judge and reason with it, make conclusions, plans, and decisions, and take action." In fact, the collection, processing, and dissemination of complex information is one of the more fundamental things leaders must do (Carroll & Gillen, 1987; Lau & Pavett, 1980;

Mintzberg, 1973). In Fleishman, Mumford, Zaccaro, Levin, Korotkin, and Hein's (1991) taxonomy of leader behaviors, two of the four superordinate dimensions of leader behavior deal with the search for, structuring of, and use of information. Cognitive skills refers to the skills one must possess in order to effectively gather, process, and use complex and ambiguous information.

Looking across the literature on leadership skills, there are a variety of skill dimensions that are particularly important for understanding and developing one's cognitive skills. Two skill sets that seem particularly important are the cognitive and strategic skills identified in Mumford, Campion, and Morgeson's (2007) leadership skills strataplex. Basic cognitive skills include active listening and learning skills, which enable leaders to gather, comprehend, and assess the implications of new information (Graham, 1983; Jacobs & Jaques, 1987). Similarly, critical thinking skills enable leaders to analyze complex and ambiguous information (Gillen & Carroll, 1985). Evidence suggests these basic cognitive skills enhance one's ability to collect, process, and disseminate information (Lau & Pavett, 1980; Mintzberg, 1973) as well as learn on the job (Mahoney, Jerdee, & Carroll, 1965).

Also related to the processing of complex and ambiguous information is Mumford et al.'s (2007) notion of strategic skills. These include systems perception skills, which refer to leaders' capacity for understanding complex information systems, identifying downstream consequences and key causes, and recognizing relationships between problems and opportunities (e.g., Gillen & Carroll, 1985; Mumford, Zaccaro, Harding, Jacobs, & Fleishman, 2000). In addition, problem identification skills are important for processing complex information so that leaders can accurately diagnose and address

organizational problems (Cox & Cooper, 1989). Although Mumford et al. (2007) distinguish between cognitive and strategic leadership skills, from a developmental perspective, informal work experiences that challenge one of these skill sets is assumed to also challenge the other. This is because both skill sets reflect a leader's capacity for gathering information about complex information systems, thinking critically about this information, identifying key causes and effects, and then using this information effectively in his or her leadership role.

Managerial Skills

The management of organizational resources (financial, material, and personnel), including the planning and coordination of these resources, is one of the key functions that leaders fulfill in organizations (Fleishman et al., 1991; Katz, 1974; Mahoney et al., 1965; Stogdill, 1959). Leaders must plan and coordinate work activities within organizations, and then ensure that all of the resources needed to implement these plans and activities are available within the organizational unit. Thus, managerial skills refer to the skills that leaders must have in order to perform these functions effectively. In order to identify specifically which types of skills are essential for performing these functions, I draw from established taxonomies of leadership skills (Mumford, Peterson, & Childs, 1999; Mumford et al., 2007).

These existing taxonomies explicitly identify the business or managerial skills that leaders must possess in order to perform management functions effectively. These include skills involving the management of material and financial resources (Katz, 1974), which are important as leaders make decisions about how best to acquire and use organizational resources. Similarly, leadership skills associated with the management of

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personnel resources (Luthans et al., 1988; Mahoney et al., 1965) are important as leaders attempt to direct and control employee behavior. Mumford et al. (2007) group these leadership skills under a superordinate heading called business skills. Together, these business skills determine individuals' capacity for managing financial, material, and personnel resources in organizations.

Interpersonal Skills

Maxwell (1998, p. 17) once stated that "leadership is influence—nothing more, nothing less." Although I present leadership as broader than just influencing others, it is clear that leaders must interact with and influence other people in a variety of settings. For example, leaders are responsible for facilitating change in organizations. Numerous scholars have argued that one of the most important leadership responsibilities is influencing and shaping the behavior of people within and outside the organization (e.g., House & Mitchell, 1974; Yukl, 2002). Moreover, leaders are increasingly responsible for teams of people in organizations. These team-based work structures further emphasize the need for leaders to be able to work with and influence the people around them (Zaccaro, 2001). In addition, leaders often serve as liaisons between organizational units, external groups, or both (e.g., Ancona, 1990). All of these leadership responsibilities emphasize the importance of a leader's interpersonal skills, namely his or her ability to interact with and influence other people.

In order to effectively influence people in organizations, leaders must possess the interpersonal and social skills necessary to effectively interact with and shape the beliefs and behaviors of others. For instance, social perceptiveness skills are essential for being able to recognize how individuals will react to various situations (Graham, 1983;

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Mintzberg, 1973; Yukl, 2002). Negotiation skills enable managers to reconcile differences among employee perspectives and establish mutually satisfying relationships (Copeman, 1971; Mahoney, Jerdee, & Carroll, 1963, 1965; Mintzberg, 1973). Finally, persuasion skills enable managers to influence others to more effectively accomplish organizational objectives (Katz, 1974; Mintzberg, 1973; Yukl, 2002). These different skills comprise what Mumford et al. (2007) refer to as interpersonal skills.

Self-Concept Beliefs

Kraiger et al. (1993) emphasize the importance of moving beyond just knowledge and skills and considering individuals' reactions to and beliefs about their own development. Developmental work experiences, formal or informal, not only impact individuals' actual capacity to perform (i.e., skills), but these experiences also influence individuals' self-concept beliefs (Sosik, 2000; Tesluk & Jacobs, 1998). In the present study, self-concept refers to individuals' leadership self-efficacy and their identity as a leader—both of which are noted as important outcomes of leader development (Hall, 2004; London, 2002; Paglis & Green, 2002).

Identity as a Leader. With respect to one's identity as a leader, Hall (2004) notes that a major component of leader development is the process of becoming more aware of oneself; in fact, Hall claims that the process of forming an identity as a leader is "probably the most important aspect of leader and career development" (p. 154). Baumeister (1986) defined a person's identity as a way of seeing the self, a personal construction or interpretation of the self. Hall (2004) argued that key experiences in a person's career are fundamental to developing this identity as a leader. This perspective is consistent with existing theory that argues one's identity evolves and develops as

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individuals gain mastery of complex and challenging tasks (Erikson, 1968; Kegan, 1982). As a leader develops his or her capacity to perform complex leadership functions, his or her identity as a leader grows in its capacity to take in additional complexity and challenge – thus creating a positive feedback loop where one's identity as a leader continues to mature as a result of positive and challenging developmental experiences.

The notion that developmental experiences have the ability to alter a person's self-identity, or at least initiate personal exploration that might later lead to identity change, has been supported in several in-depth qualitative studies (Hill, 1992; Ibarra, 2003). This is true of both positive and negative experiences. Whereas performing well at a particular leadership challenge might enhance one's identity as a leader, failures and other career setbacks have a powerful ability to fracture one's leadership identity. This is consistent with other research that suggests challenging experiences are powerful stimuli for triggering self-exploration and learning about the self (Karaevli & Hall, 2003). Thus, it may not simply be the type of experience one encounters, but one's performance in the context of the experience is also important.

Leadership Self-Efficacy. Self-efficacy refers to a "belief in one's capabilities to organize and execute the course of action required to produce given attainments" (Bandura, 1997, p. 3). Leadership self-efficacy is therefore a person's judgment that he or she can successfully lead by setting direction, building relationships with followers, and working with followers to overcome obstacles to change (Paglis & Green, 2002). The most influential source of efficacy information is personal experience (Bandura, 1986). Whereas failures can undermine efficacy beliefs, successful leadership performances should strengthen an individual's belief in his or her leadership capabilities. This is

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especially true when success is associated with highly complex and significant experiences for which the individual has high levels of responsibility (Bandura, 1997; Paglis & Green, 2002; Wood & Bandura, 1989).

In sum, the development of one's identity as a leader and leadership self-efficacy is a function of (a) the type of experience one encounters and (b) his or her performance in that experience. This is an especially important point in the present study. The development of leaders' cognitive, managerial, and interpersonal skills can be independent of one's performance in a given work experience. In other words, leaders can develop leadership skills from work experiences where they perform well or poorly. This is consistent with much of the organizational learning literature, which concludes that both success and failure can promote learning but that too much of either is destructive and impairs learning processes (Cyert & March, 1963; Sitkin, 1992; Starbuck & Hedberg, 2001). With respect to leadership self-efficacy and identity as a leader, however, actual performance in the experience has a direct effect on development. Positive developmental experiences can foster leadership self-efficacy and identity, but negative experience can damage these beliefs (Bandura, 1997; Erikson, 1968). I later expand on this point when constructing hypotheses regarding the development of self-concept beliefs.

A MULTI-LEVEL MODEL OF LEADER DEVELOPMENT

In this section, I develop a multi-level model of leader development where the primary aim is to understand how the characteristics of informal work experiences influence the leader development outcomes identified in the prior section. At the experience level, this model explains how different experience characteristics promote the development of four leadership capacities: cognitive skills, managerial skills, interpersonal skills, and self-concept beliefs. I also integrate individual differences among leaders and contextual factors into the model by explaining how these higher order factors moderate the experience—development outcome relationship. To construct the model, I first explicitly define leader development. Second, I use adult learning and development theories to theoretically establish the importance of challenging work experiences in the leader development process. Third, I integrate literature on general work experience with literature on leader development to create a theory-based conceptualization of developmental experiences. In doing so, I identify a set of characteristics that describe developmental experiences at work, and then discuss these characteristics in terms of their impact on specific development outcomes. Fourth, I discuss how individual differences among leaders and contextual factors can enhance or suppress the extent to which leaders develop from their work experiences.

Defining Leader Development

The literature on individual learning defines development as an enduring change in behavior, or in the capacity to behave in a given fashion, which results from practice or some other form of experience (Shuell, 1986). The notion of a "changed capacity to

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behave in a given fashion" is included in the definition because people often acquire skills, knowledge, and beliefs without overtly demonstrating them at the time learning occurs (Rosenthal & Zimmerman, 1978; Schunk, 1996). Thus, based on traditional learning theory, leader development can be defined as an enduring change in leader behavior, or in the capacity for a leader to behave in a given fashion. In the present research, I focus on leader development in terms of capacity—the development of leaders' cognitive skills, managerial skills, interpersonal skills, and self-concept beliefs.

This definition is consistent with existing literature on leader development. For example, Day (2000) framed leader development in terms of its emphasis on individual-based knowledge and skills. Burgoyne and Hodgson (1983) provided a similar definition by discussing leader development in terms of the practical skills and knowledge that are gleaned from job experiences. Finally, McCall, McCauley, and colleagues (1988, 1994) defined leader development as the expansion of one's capacity for effective managerial action, where capacity refers to the wide range of skills, abilities, and knowledge that enable leaders to be effective.

Challenge: An Essential Ingredient to Leader Development

Learning theories from several different paradigms (cognitive, experiential, motivational) emphasize the importance of challenging individuals' current capacity for action as the primary means to development. I briefly review these theoretical perspectives here with the purpose of gaining insight into why some work experiences promote leader development but other experiences do not. First, from a purely cognitive perspective, the theory of meaningful reception learning (Ausubel, 1968, 1978; Faw & Waller, 1976) suggests that learning occurs by relating new information to knowledge

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Second, experiential learning theories such as those proposed by Dewey (1938), Rogers (1969), Knowles (1975), Kolb (1984), and Marsick and Watkins (1990) suggest that learning occurs as individuals engage first-hand in challenging experiences and then reflect on the actions and outcomes of those experiences. According to this experiential perspective, the development process begins with an experience that offers a challenge or problem to be solved. Through reflection, individuals diagnose or frame the challenging experience and compare it with their prior experiences. This form of sensemaking (Weick, 1979) then leads to a set of choices around alternative actions. Individuals assess the extent to which they can perform each action, as well as the intended and unintended consequences of those actions. Upon choosing and implementing a particular action, the individual assesses the outcomes of that action and the degree to which these outcomes match his or her goals. This step of judging the consequences of any action is what enables the individual to draw lessons from challenging experiences and to use these lessons in planning future actions.

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Third, Kanfer and Ackerman (1989) use both cognitive information-processing and motivational processes to explain why challenging experiences lead to individual development. In this model, individuals make several distal (cognitive) judgments that then influence more proximal choices regarding how much attention and effort is directed at learning. Specifically, individuals determine how much utility is associated with acquiring a specific knowledge or skill. In light of this utility judgment, individuals determine how much effort and attention is needed to acquire the knowledge or skill. Individuals expend maximum attention and effort when the challenge associated with developing a particular knowledge or skill is high and the utility of that knowledge or skill is also high. Learning and development occurs as a result of individuals allocating attention toward the mastering of knowledge and skills that are particularly challenging. Thus, the amount of effort directed at skill acquisition is a function of the utility of the skill and the challenge associated with acquiring the skill.

These three theoretical perspectives offer different explanations for the same conclusion—challenging work experiences promote individual learning and development. Challenging experiences provide a platform for trying new behaviors or reframing old ways of thinking and acting. Challenging experiences put individuals in dynamic settings where they must solve complex problems and make choices under conditions of risk and uncertainty. Finally, challenging experiences provide several sources of motivation for learning and development. Thus, the key element in experience-based perspectives of leader development is challenge (Ohlott, 2004). However, what makes an experience at work challenging? What are the characteristics of work experiences that make experiences more or less challenging from a developmental

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perspective? Current literature does not provide a comprehensive conceptualization of work experience from a developmental perspective (Day, 2000). In the next section, I address this gap in the literature by integrating theory on general work experience with literature on leader development.

Conceptualizing Developmental Experiences

Current theory on general work experience (Quinones et al., 1995; Tesluk & Jacobs, 1998) offers an organizing framework for how general work experiences can be conceptualized. Although this theory was originally discussed as having primarily implications for work performance, the same framework provides a useful starting point for assessing experience from a developmental perspective (Day, 2000). In fact, current literature on leader development complements general theories of work experience by specifying the particular types of experiences that facilitate the development of leadership capacity. In this section, I integrate these two literatures to create a comprehensive conceptualization of developmental experiences.

Quinones et al. (1995) offered the first theoretical conceptualization of work experience by differentiating work experiences based on two dimensions: measurement mode and level of specification. Measurement mode reflects how an experience is measured. For example, most literature measures experience in terms of time working on a task or in a job or organization (e.g., McDaniel, Schmidt, & Hunter, 1988). Level of specification reflects the level of analysis reflected in the experience construct. Quinones et al. (1995) identify three levels of specification: task, job, and organization. For example, some researchers examine the number of times a person has performed a

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particular task (e.g., Lance, Hedge, & Alley, 1989), whereas other researchers examine the number of different jobs a person has held (e.g., Pinder & Schroder, 1987).

Tesluk and Jacobs (1998) extended the work by Quinones et al. (1995) by adding additional facets to the measurement mode and level of specification. Specifically, Tesluk and Jacobs (1998) discuss five different measurement modes (amount, time, density, timing, and type) that are organized along three dimensions: quantitative, interactive, and qualitative. They also distinguish between five levels of specification (task, job, work group, organization, and occupation). In this dissertation, I use Tesluk and Jacobs' (1998) theory of general work experience as the basis for conceptualizing developmental experiences along these same dimensions: level of specification, quantitative, interactive, and qualitative.

Level of specification

The present research focuses on the task level of specification. Individuals differ in terms of the number of times they have performed a particular task, the time they spend on these tasks, and the types of tasks they have performed. For example, whereas some tasks that individuals perform are simple and routine, other tasks are more challenging and critical. The primary purpose of the present research is to examine how the nature of these different task-level work experiences promotes leader development.

I chose to focus on the task level of specification (and not higher order levels of experience) for two reasons. First, empirical research on development has traditionally focused on job level experiences. For example, McCall, McCauley, Ohlott, and colleagues (1988, 1994, 2004) examine developmental experiences as characteristics of jobs, where some jobs are more developmental than other jobs because of the types of

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experiences inherent in the job. Similarly, Jackson and Wall have conducted several studies showing that high levels of job autonomy enhance the amount of knowledge acquisition that occurs in a job (Jackson & Wall, 1991; Wall & Jackson, 1995; Wall, Jackson, & Davids, 1992). Although this job level perspective is valuable, it is limited in that it does not address, for example, the fact that two people in the same job often have different sets of developmental experiences and develop at different rates. Examining developmental experiences at the task level offers one avenue for addressing this limitation. Second, from a practical perspective, organizations are increasingly concerned with how best to design and structure developmental experiences for their employees. A job level approach to developmental experiences informs this process by identifying the types of jobs that are most developmental. Organizations, however, do not always have the freedom to implement job rotation programs or assign people to jobs purely for developmental purposes (Ohlott, 2004). Research at the task level of specification will inform organizations on how best to design and structure developmental experiences *within* jobs.

Quantitative Dimensions

Tesluk and Jacobs' (1998) quantitative component of work experience consists of two measurement modes: time and amount. Most research on general work experience has conceptualized experience in terms of time (e.g., Borman, Hanson, Oppler, Pulakos, & White, 1993; McDaniel, Schmidt, & Hunter, 1988; McEnrue, 1988). At the task level of specification, a time-based measure of experience reflects the length of time an individual spends working on a particular task, or how long the task lasts. Similar time-based distinctions have been made in other literatures as well. For example, in the conflict

management literature, conflict episodes can be described in terms of whether they are short-term or long-term (Olson-Buchanan, Drasgow, Moberg, Mead, Keenan, & Donovan, 1998; Walton, 1969). Similarly, Morgeson and DeRue (2006) described events that occur in team contexts based on their duration and showed that events occurring over longer time periods were more disruptive to team functioning.

In a leader development context, time-based measures of experience are likely to impact the developmental punch of an experience for two reasons. First, experiential learning theories (e.g., Kolb, 1984) suggest that individuals need time to reflect on their experiences and then use what they learn via these reflections to experiment in similar situations. Work experiences that occur for longer periods of time provide individuals with more opportunity to reflect on their actions during the experience, develop insights, and then experiment with what they have learned. Ohlott (2004, p. 180) even states that "to optimize learning, people need to remain in an assignment long enough to be able to see the consequences of their actions and decisions." In contrast, work experiences that occur over very short periods of time do not allow for as much reflection or experimentation during the experience and thus should limit how much development occurs as a result of that experience.

Furthermore, once a set of habits becomes routine in a social system, the behaviors associated with these habits become self-reinforcing and often persist over time—for better or worse (Ancona & Chong, 1996; Gersick & Hackman, 1990). Individuals develop behavioral habits and routines that apply to normal working conditions. As long as these habits and routines continue to be effective, individuals are less likely to challenge existing assumptions and norms, or consider new ways of thinking and acting.

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However, experiences that force individuals to move away from current habits and routines, and develop new ways of thinking and acting, are particularly developmental (Brett, 1984; Louis, 1980). Although at the team level, research shows that experiences occurring over longer time horizons are more disruptive to team functioning (Morgeson & DeRue, 2006). Extending this research to the individual level, I expect work experiences that occur over longer time horizons to be more disruptive to individuals' habits and routines, and as a result, facilitate the development of leaders' cognitive skills, managerial skills, and interpersonal skills. Again, I expect the development of self-concept to be a function of the type of experience and one's performance in the experience; thus, I do not expect duration (and other non-qualitative experience characteristics) to enhance leaders' self-concept.

Hypothesis 1: The duration of an experience will be positively related to the development of leaders' (a) cognitive skills, (b) managerial skills, and (c) interpersonal skills.

The second quantitative dimension in Tesluk and Jacob's (1998) framework is referred to as amount. At the task level of specification, amount reflects the experience one has accumulated over time with similar tasks. In other literatures, including research on leader development (e.g., McCauley et al., 1994), this characteristic of work experience is referred to as familiarity. The familiarity of any single work experience is highest when individuals have encountered many similar experiences in the past, but often times, individuals have experiences at work with which they are unfamiliar. That is, the experience is relatively novel to the individual. Conceptualizing developmental

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experiences based on familiarity is important because it reflects differences in one's opportunity to perform, practice, or use certain leadership skills or knowledge.

The familiarity an individual has with a specific type of experience will influence the developmental impact of that experience. Campbell's (1988) theory of task complexity notes that an individual's familiarity with a particular type of task influences his or her reaction to that task. Specifically, an experience may be objectively complex, but an individual who is highly familiar with this type of task will experience relatively lower levels of complexity and therefore develop less from their experience. Halpern (2004, p. 138) emphasizes this point as follows: "the best predictor of what is learned at the completion of a lesson, course, or informal learning experience is what the learner thinks and knows at the start of the learning experience." At the job level, McCauley et al.'s (1994) analysis of unfamiliar responsibilities showed that jobs which include many unfamiliar responsibilities are particularly developmental. Based on this research, individuals should develop relatively more leadership skills from experiences with which they are unfamiliar.

Hypothesis 2: Unfamiliarity will be positively related to the development of leaders' (a) cognitive skills, (b) managerial skills, and (c) interpersonal skills.

Interactive. Tesluk and Jacobs (1998) identify two dimensions of work experience that they label as interactive. The first is the timing of experiences (e.g., when an experience occurs in a person's career). In this dissertation, I do not consider timing as a characteristic of developmental experiences because all variance related to the timing of experiences is at the individual level, not at the experience level of analysis (all experiences examined in this study occurred in the last 12 months). The second

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interactive dimension of work experience is the density of developmental opportunities in the experience. This characteristic of work experience captures the intensity of an experience. For task-level work experiences, density refers to the number of developmental elements inherent in the task. Tesluk and Jacobs (1998, p. 329) provide the following example to illustrate the developmental impact of density:

> If an individual in a 1-year assignment repeatedly faces a number of challenging situations while another individual in a similar assignment for the same duration is presented with relatively fewer challenging opportunities, the experience described in the first scenario may be characterized as displaying a greater density than the experience in the second scenario.

In the case above, the two individuals have a similar task-level experience (the 1-year assignment), but the density of their experiences differs. Experiences that are characterized as high density will have a positive effect on the development of leadership knowledge and skills because of the number of developmental cycles in the experience. Experiential learning theories (e.g., Kolb, 1984) suggest that individuals need opportunities to apply new knowledge and practice new skills. The more opportunities one has to practice and apply emerging leadership capacities, the more those capacities will develop over time. Work experiences that are highly dense with developmental opportunities provide individuals with more opportunities to practice new skills, reflect on their experiences, develop new knowledge, and then experiment with what they have learned. Accordingly, density should enhance leaders' cognitive, managerial, and interpersonal skills.

Hypothesis 3: Density will be positively related to the development of leaders' cognitive (a) skills, (b) managerial skills, and (c) interpersonal skills.

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The quantitative and interactive dimensions of experience provide only a partial assessment of the experience construct. For example, time and amount do not provide insight into the type of experience an individual encounters (Quinones et al., 1995). To address this limitation, Tesluk and Jacobs (1998) suggest that work experiences also need to be described along qualitative dimensions. However, they also note that the qualitative dimensions of experience are largely domain and context specific. Therefore, to inform which types of experience are important from a leader development perspective, I draw from research by McCall, McCauley, Ohlott and colleagues (1988, 1994, 2004). They provide an empirically validated taxonomy of developmental experiences that leaders have on the job. This taxonomy was developed via interviews and surveys of over 900 mid-level and senior executives across a variety of organizations and industries. McCauley et al. (1994) confirmed the test-retest reliability and validity of this taxonomy.

Table 2 summarizes the nine qualitative experience characteristics identified in this taxonomy. The first three types of experiences (new directions, problems with employees, and inherited problems) force leaders to create change in their organization. The next two experience types (external pressure and influencing without authority) refer to experiences where the leader is forced to manage complex boundaries inside and outside of the organization. Work across cultures and work group diversity both reflect experiences where leaders are forced to deal with diversity issues. The final two experience characteristics (high stakes and scope and scale) indicate high levels of responsibility. I discuss each of these qualitative experience characteristics by (a) defining the characteristic, (b) building a rationale for why experiences of this nature are

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developmental, and (c) then identifying specifically which development outcomes are impacted.

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Table 2 – Qualitative Dimensions of Developmental Experiences

Qualitative Experience Characteristics	Description & Examples
New directions	• Leaders must create and facilitate change in the way business is conducted • e.g., launching a new product or system, developing a new vision for an organizational unit
Problems with employees	• Leaders must create and facilitate change in the behavior of an employee • e.g., resolve employee performance problems, manage conflict between direct reports
Inherited problems	• Leaders are charged with fixing a problem that was preexisting prior to his or her arrival • e.g., morale problems, poor unit performance
External pressure	• Leaders must manage the interface between important constituencies outside the organization • e.g., managing labor unions, customers, vendors, or government agencies
Influencing without authority	• Leaders must influence people within the organization over whom the leader has no direct authority • e.g., peers, persons of high authority
Work across cultures	• Leaders must work with people from different cultures or with organizations in other countries • e.g., geographically-dispersed teams, organizational diversity based on national culture
Work group diversity	• Leaders are responsible for working with people of both genders and different racial or ethnic backgrounds • e.g., racially or ethnically diverse work groups
Scope and scale	• Leaders must manage multiple functions, groups, products, or services • e.g., promotion to a new functional area, taking on a colleague's responsibilities during his or her absence
High stakes	• Leaders are responsible for specific projects or initiatives that are highly significant either to the individual leader or the organization • e.g., securing the financing for a key acquisition, launching a new product, negotiating with a large customer

Note: The original Job Challenge Profile (McCauley et al., 1994; McCauley, Ohlott, & Ruderman, 1999) also included *unfamiliar responsibilities* as an explicit dimension; this dimension is conceptually analogous to the *familiarity (amount)* concept and is thus not included here.

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Work experiences that are characterized as *new directions* require leaders to create and facilitate change in the way business is conducted. This change could be related to a specific project, a particular work group, or an entire business or organization. Examples include launching a new product or system, serving on a reengineering team, or facilitating the development of a new vision or mission statement (Ohlott, 2004). Experiences that entail some form of new direction are challenging for several reasons. First, these experiences are often accompanied by large amounts of uncertainty and ambiguity because the optimal new direction is rarely obvious and often probabilistic. Empirical research shows that problems which are probalistic in nature are often developmental (Fleishman et al., 1991; Mumford & Connelly, 1991; Mumford, Marks, Connelly, Zaccaro, & Reiter-Palmon, 2000). Because the uncertainty and ambiguity force individuals to gather and process large amounts of information, I expect new direction experiences to challenge individuals' cognitive skills. Second, in order to determine the optimal new direction, leaders must identify the underlying problem, interpret a complex system of causes and effects, and develop a new vision. These demands should also challenge leaders' cognitive skills. Finally, experiences that present new directions demand that leaders effectively manage their available resources. For example, in order to identify what changes can be made in a work group or business, one must understand what material, personnel, and financial resources are available and then effectively use those resources to facilitate the change. This particular element of new directions should be particular challenging of leaders' managerial skills.

Hypothesis 4: New directions will be positively related to the development of leader's (a) cognitive skills and (b) managerial skills.

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The next qualitative characteristic of work experience, *dealing with problem employees*, also requires leaders to create or facilitate change. However, the change that is required here is related to a person rather than a work unit or business (McCall et al., 1988). For example, leaders are sometimes required to resolve subordinate performance problems or manage conflict between direct reports. These types of work experiences force leaders to understand what motivates human behavior and what approaches work best at facilitating behavior change. These types of work experiences also force leaders to be aware of how others are feeling, their thought processes, and their methods for prioritizing their interests and concerns. Moreover, leaders must ultimately persuade or negotiate with the problem employee(s) a viable solution to the problem. For these reasons, experiences where leaders must deal with problem employees should be instrumental in developing leaders' interpersonal skills.

Hypothesis 5: Dealing with problem employees will be positively related to the development of leaders' interpersonal skills.

The final experience characteristic that challenges leaders by forcing them to create and facilitate change is *inherited problems*. Experiences marked by this characteristic are those where the leader has to fix problems that were preexisting prior to the leader's arrival (Ohlott, 2004). In these types of experiences, the former leader of the group or unit is often seen as the source of the problem. Example experiences might include widespread morale or unit performance problems that are attributed to actions of the former leader and inherited by the new leader. The unique element of this experience characteristic is that the problem facing the leader is inherited. Because the problem is inherited, the true source of the problem is generally unknown at first (McCall et al.,

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1988). This forces the leader to inquire, actively listen to others and learn, and process a variety of different perspectives regarding the problem. Ultimately, the leader must use his or her critical thinking skills and problem identification skills to identify the source of the problem and develop a solution. It is essential that the leader develop an accurate understanding of the true causes and effects in these experiences, but this is especially challenging given that the problem was inherited. Thus, inherited problems should have the greatest developmental impact on leaders' cognitive skills.

Hypothesis 6: Inherited problems will be positively related to the development of leaders' cognitive skills.

The next set of qualitative experience characteristics, *external pressure* and *influence without authority*, involve situations where leaders must work across lateral boundaries, either externally or within their own organization (Ohlott, 2004). External pressure forces leaders to manage the interface between important constituencies outside the organization that affect the business. Examples might include customers, unions, vendors, joint-venture partners, or government agencies. Influencing without authority, on the other hand, describes work experiences where leaders must influence peers, persons of higher positions, or other people within the organization over whom the leader has no direct authority. In both cases, leaders are forced to work with and influence people over whom they have no authority.

These types of experiences, where leaders must influence others without using formal authority, should be particularly developmental because most leaders are accustomed to managing downward – not laterally or upward. In these types of experiences, leaders must use their influence skills to get peers, supervisors and outsiders to response to

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requests (Dechant, 1990; McCall et al., 1988). As noted by Ohlott (2004, p. 160-161), individuals "learn a great deal about building relationships, handling conflict, and being straightforward with others. To get all parties to work together effectively, leaders have to learn new skills in effective negotiation, communication, and conflict management." Following this same logic, I expect these two experience characteristics to promote the development of leaders' interpersonal skills.

Hypothesis 7: External pressures will be positively related to the development of leader's interpersonal skills.

Hypothesis 8: Influencing without authority will be positively related to the development of leader's interpersonal skills.

The next set of qualitative experience characteristics depict work experiences where leaders are forced to work with diverse groups of people from other backgrounds or cultures. *Work across cultures* describes experiences where leaders must work with people from different cultures or with organizations in other countries. This experience characteristic is focused on differences in national culture. In contrast, *work group diversity* characterizes experiences where leaders are responsible for the work of people of both genders and different racial or ethnic backgrounds. This experience characteristic is different from the former in that it is not focused on differences in national culture but rather differences due to race, gender or ethnicity.

These two experience characteristics are particularly important because organizations are increasingly expanding operations globally, and the forces of globalization require leaders to develop the knowledge and skills necessary for managing diverse groups of people (McCall & Hollenbeck, 2002). From these types of experiences, individuals

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develop their capacity for working with and influencing others for several reasons. First, getting people from different backgrounds to work together challenges leaders' negotiation, communication, and conflict management skills. Leaders must be well equipped to manage differences among people, including different values, experiences and backgrounds, and workplace needs and desires (Ohlott, 2004). Second, these types of experiences force leaders to move beyond their own beliefs and perspectives to understand personal, business, and workplace issues from perspectives that may differ greatly from, and sometimes even conflict with, their own. These challenges will stretch and thus develop leaders' interpersonal skills.

Hypothesis 9: Work across cultures will be positively related to the development of leader's interpersonal skills.

Hypothesis 10: Work group diversity will be positively related to the development of leader's interpersonal skills.

The final set of qualitative experience characteristics, *scope and scale* and *high stakes (significance)*, depict work experiences where individuals have high levels of responsibility. These work experiences tend to have greater breadth, visibility, and complexity than experiences with low levels of responsibility. These experiences also expose individuals to work-related pressure and high-stakes decisions.

Scope and scale refers to work experiences where individuals' responsibilities are large and span across multiple functions, groups, products, or services. McCall et al. (1988, p. 51) describe experiences that entail an increase in scope and scale as moving "from a rowboat to the Queen Mary." Examples include promotions to new functions or areas of the business, managing a project across geographic locations, assuming

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Work experiences characterized by large amounts of scope and scale challenge leaders in several different ways. First, leaders must be able manage complex systems of functions, products, and/or groups—often across geographic boundaries. As a result, leaders are forced to gather and process large amounts of information from a variety of different sources, thus challenging leaders' cognitive skills. Moreover, these types of experiences force leaders to think strategically and understand complex systems of causes and effects. High amounts of scope and scale indicate that the leader is no longer responsible for only one part of a complex puzzle, but rather the leader is responsible for managing the entire puzzle. This aspect of scope and scale also challenges leaders' cognitive skills. Lastly, much of the leader's job in these experiences is "to clear the way so their people (can) get their work done" (McCall et al., 1988, p. 54). This is done by providing, managing, and coordinating the use of key material, financial, and personnel resources. This aspect of scope and scale should challenge leader's managerial skills. In sum, I expect work experiences that entail large amounts of scope and scale to facilitate the development of leaders' cognitive and managerial skills.

Hypothesis 11: Scope and scale will be positively related to the development of leader's (a) cognitive skills and (b) managerial skills.

High stakes reflects the significance of the work experience to the individual leader, his or her work group, or the organization. Work experiences such as specific projects or initiatives vary in their impact on the long-term success of the individual, other people, the unit or the organization. Features of high stake experiences include clear deadlines,

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responsibility for important decisions, and high visibility of results. Furthermore, success or failure in these work experiences is clearly evident (McCall et al., 1988).

Existing research suggests that highly significant work experiences are particularly developmental (McCauley et al., 1994). One reason for this is because of the attention and effort that individuals put into work experiences that are of great significance. However, existing literature does not specify what is actually developed as a result of these experiences. I argue here that whether an experience is highly significant does not impact skill acquisition but is very important for the development of one's self-concept. I do not expect the significance of an experience to impact leaders' cognitive, managerial, or interpersonal skills because significance is independent of what specific skill domain might be challenged or stretched during the experience. In contrast, theory does suggest that the significance of experiences at work has implications on individuals' self-concept (e.g., Bandura, 1997; Erikson, 1968). Herein, I leverage basic theory on identity formation and self-efficacy to examine the implications of significant work experiences on individuals' self-concept.

Erikson's (1968) theory of identity formation provides a theoretical framework for understanding how work experiences might influence one's identity as a leader. A key tenet of this theory is that individuals are predisposed to attempt to gain mastery within a particular social environment, and this drive for mastery provides the stimulus for identity formation. Erikson argued that identity development is a function of two factors: (a) the significance of the task and (b) individuals' ability to master challenging tasks.

The "meaningfulness" or significance of a particular experience influences how much that experience impacts one's identity. Specifically, experiences that are highly

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significant, either to the individual or in a broader social context, are meaningful in the sense that the outcome of the event is of great consequence. Significant experiences tend to impact the well being of the leader, other people, the organization, or other social entities. For example, having to layoff an entire department is quite meaningful in a broader social context and is therefore likely to be perceived as highly significant. On the other hand, planning the office party for the same department is presumably less meaningful than the layoff example because the outcome of this experience is of lesser consequence. In general, the more significant an experience is to the individual, the more the individual's performance in that experience will impact his or her identity. On the other hand, if the experience is not perceived as significant, the individual has difficulty interpreting the experience and thus cannot develop a more elaborate identity schema as a result (Cote & Levine, 2002).

Erikson also notes that one's identity develops and becomes stronger as the individual is able to exhibit increasing levels of mastery. If the individual is prevented from attempting to actively master his or her environment, or if the individual attempts to master levels of experience that are too advanced, the ensuing feelings of failure and frustration can damage one's identity. Because individuals use performance information to deduce their own level of mastery (Bandura, 1997), a leader's performance in a particular experience should be positively related with the development of leadership identity, and this relationship should be moderated by the significance of the experience. Specifically, if a leader performs well in an experience, his or her identity as a leader will be enhanced. Moreover, this positive relationship will be even stronger as the significance of the experience is greater. On the contrary, if a leader performs poorly in

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an experience, the feelings of frustration and failure should damage that individual's leadership identity. This is especially the case if the experience is highly significant.

Hypothesis 12a: Leader performance in an experience will be positively related to that experience's impact on leadership identity.

Hypothesis 12b: The significance (high stakes) of an experience will interact with leader performance in the experience to impact leadership identity such that performance will have a stronger, positive relationship with leadership identity when the experience is highly significant.

In addition to one's identity as a leader, work experiences that are highly significant are particularly instrumental in shaping individuals' leadership self-efficacy. Leadership self-efficacy reflects one's belief in his or her capacity to effectively lead (Paglis & Green, 2002). These efficacy beliefs are developed primarily through one's first-hand experiences, and individual judgments of personal efficacy are a function of (a) one's performance and (b) the nature of his or her experience (Bandura, 1997). To be precise, it is widely accepted that successful past performances generally enhance efficacy beliefs (e.g., Bandura, 1986; Bandura, Adams, & Beyer, 1977; Biran & Wilson, 1981; Feltz, Landers, & Raeder, 1979). Thus, there is a positive main effect of performance on efficacy beliefs. However, the extent to which past performance shapes efficacy beliefs depends on the nature of the experience. In terms of leadership self-efficacy, highly significant experiences where the leader is clearly responsible, success or failure is evident, and a great deal of pressure is put on the leader should have a particularly strong developmental impact—for better or worse. These types of experiences emphasize the importance of leadership, and successful performance in these experiences should

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disproportionately enhance one's leadership self-efficacy. In contrast, poor performance in highly significant experiences should be particularly damaging to one's leadership self-efficacy. Success or failure in experiences that are less significant from a leadership perspective should be generally less influential in shaping these efficacy beliefs. Thus, I expect leader performance to exhibit a main effect on the development of leadership self-efficacy, and the significance of the experience (high stakes) to moderate this relationship.

Hypothesis 13a: Leader performance in an experience will be positively related to that experience's impact on leadership self-efficacy.

Hypothesis 13b: The significance (high stakes) of an experience will interact with leader performance in the experience to impact leadership self-efficacy such that performance will have a stronger, positive relationship with leadership self-efficacy when the experience is highly significant.

A summary of all main effect hypotheses (Hypotheses 1-13) can be found in Appendix A of this document.

Cross-Level Moderation in Leader Development

To fully understand how work experiences promote the development of leadership capacity, one must also consider the context in which experiences occur. The literature on individual learning (Marsick & Watkins, 1990), training (Noe, 1986; Noe et al., 1997) and leader development (Avolio, 2004) recognizes that individual differences among people and contextual factors influence the development process. Similarly, literature on work experience emphasizes the role of individual differences and contextual factors in shaping the effects of experience (Tesluk & Jacobs, 1998). I use this same frame to

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specify several moderators of the experience-development outcome relationship. In terms of individual differences, I focus on individuals' achievement motivation and locus of control. I chose to focus on these two individual differences because of recent meta-analytic evidence in the training literature that emphasizes the importance of these traits in the development process (Colquitt, LePine, & Noe, 2000). Consistent with Noe's (1986) discussion of contextual factors that affect development processes, I focus on the following three attributes of the work context: work constraints, availability of feedback, and social support.

Individual Differences

Most discussions of leader development recognize that leaders differ in their ability and motivation to learn from work experiences (e.g., McCauley & Van Velsor, 2004; Avolio, 2004). However, empirical research on the role of individual differences in the leader development process is largely nonexistent. Fortunately, the training and development literature has a long history of considering the role of individual differences in the development process (e.g., Noe, 1986) and can thus serve as a guide for leader development research. Recent meta-analytic evidence and reviews on training and development highlight two individual differences that influence individuals' ability and motivation to learn, namely achievement motivation and locus of control (Noe et al., 1997; Colquitt et al., 2000).

Achievement motivation is defined as a desire "...to overcome obstacles, to exercise power, to strive to do something difficult as well and as quickly as possible" (Murray, 1938, p. 80-81). This trait is a relatively stable individual attribute that predisposes individuals to approach situations in an achievement-oriented manner. For example, high

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achievement motivation individuals generally prefer more challenging experiences and have a stronger need to succeed in these experiences than do low achievement motivation individuals. In training contexts, research suggests that individuals high in achievement motivation have stronger efficacy beliefs regarding their ability to learn, value learning more, and are generally more motivated to learn. As a result of these motivational mechanisms, high achievement motivation individuals tend to experience greater knowledge and skill acquisition in learning contexts (Mathieu, Martineau, & Tannenbaum, 1993; Colquitt et al., 2000). Extending these findings to leader development, leaders who are high in achievement motivation should acquire more knowledge and skills from developmental experiences than individuals with low achievement motivation.

Hypothesis 14: Achievement motivation has a positive relationship with the development of leaders' (a) cognitive, (b) managerial, and (c) interpersonal skills.

Hypothesis 15: Achievement motivation moderates the relationship between experience characteristics and development outcomes such that the hypothesized relationships between experience characteristics and development outcomes will be more positive for individuals who are high in achievement motivation than individuals who are low in achievement motivation.

(a) Duration ➔ Cognitive, managerial, and interpersonal skills (moderated by achievement motivation)

(b) Unfamiliarity ➔ Cognitive, managerial, and interpersonal skills (moderated by achievement motivation)

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(d) New directions ➔ Cognitive and managerial skills (moderated by achievement motivation)

(e) Dealing with problem employees ➔ Interpersonal skills (moderated by achievement motivation)

(f) Inherited problems ➔ Cognitive skills (moderated by achievement motivation)

(g) External pressures ➔ Interpersonal skills (moderated by achievement motivation)

(h) Influencing without authority ➔ Interpersonal skills (moderated by achievement motivation)

(i) Work across cultures ➔ Interpersonal skills (moderated by achievement motivation)

(j) Work group diversity ➔ Interpersonal skills (moderated by achievement motivation)

(k) Scope and scale ➔ Cognitive and managerial skills (moderated by achievement motivation)

Whereas achievement motivation influences leader development through the value one places on achievement in challenging situations, locus of control refers to the extent to which individuals believe they can control the experiences that affect them (Rotter, 1966). People attribute the cause or control of their experiences either to themselves or to the external environment. Those who ascribe control of experiences to themselves are

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said to have an internal locus of control. People who attribute control to outside forces are said to have an external locus of control. A wide body of research suggests that people with an internal locus of control tend to learn more on the job and perform better in complex, problem solving situations (e.g., DuCette & Wolk, 1973; Ude & Vogler, 1969; Wolk & DuCette, 1974). Because people with an internal locus of control believe they control the outcome of challenging situations, they tend to exert more effort in collecting information, processing that information, and learning what is needed to overcome the challenge (Phares, 1976; Spector, 1982). People with an internal locus of control also tend to show more initiative and independence in challenging situations, which should further enhance the learning that occurs as a result of the experience. Accordingly, individuals with an internal locus of control should develop leadership skills via their informal work experiences more so than individuals with an external locus of control.

Hypothesis 16: Locus of control has a positive relationship with the development of leaders' (a) cognitive, (b) managerial, and (c) interpersonal skills.

Hypothesis 17: Locus of control moderates the relationship between experience characteristics and development outcomes such that the hypothesized relationships between experience characteristics and development outcomes will be more positive for individuals with an internal locus of control than individuals with an external locus of control.

(a) Duration ➔ Cognitive, managerial, and interpersonal skills (moderated by locus of control)

(b) Unfamiliarity ➔ Cognitive, managerial, and interpersonal skills (moderated by locus of control)

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(c) *Density ➔ Cognitive, managerial, and interpersonal skills (moderated by locus of control)*

(d) *New directions ➔ Cognitive and managerial skills (moderated by locus of control)*

(e) *Dealing with problem employees ➔ Interpersonal skills (moderated by locus of control)*

(f) *Inherited problems ➔ Cognitive skills (moderated by locus of control)*

(g) *External pressures ➔ Interpersonal skills (moderated by locus of control)*

(h) *Influencing without authority ➔ Interpersonal skills (moderated by locus of control)*

(i) *Work across cultures ➔ Interpersonal skills (moderated by locus of control)*

(j) *Work group diversity ➔ Interpersonal skills (moderated by locus of control)*

(k) *Scope and scale ➔ Cognitive and managerial skills (moderated by locus of control)*

Contextual factors

Individuals develop in a dynamic, continuous, and reciprocal interaction with their environment (Bandura, 1997). Because of this interaction, the environment or context can significantly impact how and to what extent individuals learn from their work experiences (Morrison & Brantner, 1992). Noe (1986) identified three contextual factors that impact how favorable an organizational environment is for learning and development. These three factors, all of which are conceptualized at the individual leader level, include (a) general work constraints, (b) the availability of feedback, and (c) social support.

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Work constraints refer to characteristics of the general work environment (e.g., materials, financial resources) that can facilitate or constrain individuals' motivation and ability to learn. Based on Peters and O'Connor's (1980) taxonomy of work constraints, Noe (1986) identified several constraints that limit individual development, including insufficient job-related information, improper tools and equipment, inadequate budgetary support, insufficient time to meet deadlines, and poor physical working conditions. Empirical evidence suggests these constraining factors decrease individuals' motivation to learn on the job (Facteau, Dobbins, Russell, Ladd, & Kudisch, 1995). Although some of these constraints could be conceptualized at the specific task level, Noe (1986) frames these constraints as general characteristics of one's work environment. Consistent with this approach, I conceptualize these constraints at the individual level of analysis and expect the general work constraints one faces in his or her job or organization to limit how much leader development occurs from task-level work experiences.

Hypothesis 18: Work constraints has a negative relationship with the development of leaders' (a) cognitive, (b) managerial, and (c) interpersonal skills.

Hypothesis 19: Work constraints moderate the relationship between experience characteristics and development outcomes such that the hypothesized relationships between experience characteristics and development outcomes will be more positive for individuals who work in environments with low constraints relative to individuals working in environments with high constraints.

(a) Duration ➔ Cognitive, managerial, and interpersonal skills (moderated by work constraints)

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(b) Unfamiliarity ➔ Cognitive, managerial, and interpersonal skills (moderated by work constraints)

(c) Density ➔ Cognitive, managerial, and interpersonal skills (moderated by work constraints)

(d) New directions ➔ Cognitive and managerial skills (moderated by work constraints)

(e) Dealing with problem employees ➔ Interpersonal skills (moderated by work constraints)

(f) Inherited problems ➔ Cognitive skills (moderated by work constraints)

(g) External pressures ➔ Interpersonal skills (moderated by work constraints)

(h) Influencing without authority ➔ Interpersonal skills (moderated by work constraints)

(i) Work across cultures ➔ Interpersonal skills (moderated by work constraints)

(j) Work group diversity ➔ Interpersonal skills (moderated by work constraints)

(k) Scope and scale ➔ Cognitive and managerial skills (moderated by work constraints)

Systematic and evaluative feedback is essential in the leader development process (Halpern, 2004). In the absence of evaluative feedback, individuals are often poor judges of how well they learn and often make erroneous conclusions from experiences that were meant to be developmental (Maki, 1998). Systematic and evaluative feedback helps facilitate self awareness and increases the accuracy of individuals' accounts of their own competence and performance (e.g., Day, 2000; Hackman & Oldham, 1980; Halpern, 2004; Kluger & Denisi, 1996). This feedback can come from the task itself, supervisors,

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or coworkers. Although empirical research on the effectiveness of feedback is plagued with mixed results (Kluger & Denisi, 1996), learning theories (Kanfer & Ackerman, 1989; Rogers, 1969) and models of leader development (e.g., Avolio, 2004; McCauley & Van Velsor, 2004) stress that evaluative feedback is vital to the leader development process. Thus, I expect the availability of feedback to enhance how much leader development occurs from task-level work experiences.

Hypothesis 20: Availability of feedback has a positive relationship with the development of leaders' (a) cognitive, (b) managerial, and (c) interpersonal skills.

Hypothesis 21: Availability of feedback moderates the relationship between experience characteristics and development outcomes such that the hypothesized relationships between experience characteristics and development outcomes will be more positive for individuals who receive high amounts of feedback relative to individuals who receive low amounts of feedback.

(a) Duration ➔ Cognitive, managerial, and interpersonal skills (moderated by availability of feedback)

(b) Unfamiliarity ➔ Cognitive, managerial, and interpersonal skills (moderated by availability of feedback)

(c) Density ➔ Cognitive, managerial, and interpersonal skills (moderated by availability of feedback)

(d) New directions ➔ Cognitive and managerial skills (moderated by availability of feedback)

(e) Dealing with problem employees ➔ Interpersonal skills (moderated by availability of feedback)

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(h) Influencing without authority → Interpersonal skills (moderated by availability of feedback)

(i) Work across cultures → Interpersonal skills (moderated by availability of feedback)

(j) Work group diversity → Interpersonal skills (moderated by availability of feedback)

(k) Scope and scale → Cognitive and managerial skills (moderated by availability of feedback)

Feedback from supervisors or coworkers is not the only form of support that makes organizational environments conducive to individual learning and development. The availability of peer and supervisor social support is another organizational factor that influences the development process. Social support from supervisors or peers can take on several forms (e.g., permission to fail, collegiality, endorsements from others) and often enhances individual development (Birdi, Allan, & Warr, 1997; McCauley et al., 1994; Morrison, 1992). For example, supervisor support has been shown to positively influence individuals' motivation to learn (Facteau et al.,1995) and on- and off-the-job learning (Birdi et al., 1997). Noe (1986) even argues that the degree of social support in an organization is one indicator of the organization's climate for development. Within the context of leader development, individuals who receive more social support in the organizational environment should be more motivated to learn and willing to take on

challenging assignments. Moreover, these individuals should develop more from their experiences because their supervisors and peers are available to provide guidance and support.

Hypothesis 22: Social support has a positive relationship with the development of leaders' (a) cognitive, (b) managerial, and (c) interpersonal skills.

Hypothesis 23: Social support moderates the relationship between experience characteristics and development outcomes such that the hypothesized relationships between experience characteristics and development outcomes will be more positive for individuals who receive high amounts of social support relative to individuals who receive low amounts of social support.

(a) Duration ➔ Cognitive, managerial, and interpersonal skills (moderated by social support)

(b) Unfamiliarity ➔ Cognitive, managerial, and interpersonal skills (moderated by social support)

(c) Density ➔ Cognitive, managerial, and interpersonal skills (moderated by social support)

(d) New directions ➔ Cognitive and managerial skills (moderated by social support)

(e) Dealing with problem employees ➔ Interpersonal skills (moderated by social support)

(f) Inherited problems ➔ Cognitive skills (moderated by social support)

(g) External pressures ➔ Interpersonal skills (moderated by social support)

(h) Influencing without authority ➔ Interpersonal skills (moderated by social support)

(i) Work across cultures ➔ Interpersonal skills (moderated by social support)

(j) Work group diversity ➔ Interpersonal skills (moderated by social support)

(k) Scope and scale ➔ Cognitive and managerial skills (moderated by social support)

METHOD

Research Setting and Sample

This study was conducted in a field setting with 99 managers from over 80 different organizations. Each participant (a) was employed full-time during the study, (b) had reported to the same supervisor for an average of 1.9 years (SD = 1.7), and (c) had an average of 2.8 direct reports (SD = 4.7). Participants had to be employed full-time so that they had informal job experiences to draw from over the last 12 months. They must have reported to the same supervisor over this time period so that independent ratings of development could be obtained. Finally, to help ensure that all participants had some form of leadership responsibility within their organization, each participant had to actually supervise at least one person in their job. Participants had worked in their respective organizations for an average of 5.4 years (SD = 3.4) and been in their current position for 2.5 years (SD = 1.8). Average age was 33.4 years (SD = 5.5), and 73% were male.

Procedure

This research was conducted in four distinct phases and utilized both survey and interview methodologies. Table 3 summarizes the data collection schedule described here. The first phase of this research used surveys to collect general ratings of individual differences and contextual factors. These surveys were administered at least one month prior to the next phase of data collection, and the entire initial sample returned their surveys.

Table 3 – Data Collection Schedule

	Phase 1	Phase 2	Phase 3	Phase 4
Data Collected	Individual differences and contextual factors	Descriptions of work experiences	Experience characteristics	Development outcomes for each experience
Source	Leader	Leader	Leader	Leader and supervisor
Methodology	Survey	Interview	Survey	Survey

Because this research was concerned with how individuals develop leadership capacities via experiences at work, the second phase began with in-depth, semi-structured interviews with each individual. The purpose of these interviews was to gather examples of task-level work experiences. These interviews lasted for sixty to ninety minutes. The interview form was modeled after the critical incident technique (Flanagan, 1954), which has been used to study topics as diverse as team leadership (Morgeson, 2005), error management (van Dyck, Frese, Baer, Sonnentag, 2005), and learning (Cope, 2003). Specifically, information was gathered on each experience, the context of the experience, the actions that preceded and followed the experience, and the ultimate outcome of the experience.

Individuals were given an overview of the research (in writing; see Appendix B) one week prior to the interview. In this overview, I asked each individual to reflect on his or her work experiences over the past year. Example experiences from the leader development literature (McCall et al., 1988; Ohlott, 2004) were provided in this overview so that participants had a common frame when selecting from their past work experiences. To capture the possible range of experiences from highly developmental to

not developmental at all, each participant was asked to think of two specific experiences that occurred in the past 12 months and "were highly developmental in that they greatly enhanced his/her leadership skills, knowledge, or confidence." Each participant was also asked to think of two experiences that "hurt his/her development as a leader in that they really hurt one's confidence as a leader, impaired his/her career trajectory, or weakened his/her skills or knowledge." Individuals were also asked to consider experiences where they performed well and experiences where they did not perform well. Furthermore, individuals were asked to only consider specific experiences that their supervisor had in-depth knowledge about. Supervisor knowledge of the experience was essential so that the supervisor could provide independent ratings of the amount and type of development associated with each experience. In sum, each individual had a different set of task-level work experiences that ranged from low to high in terms of perceived developmental impact.

During the interview, individuals were asked about these specific work experiences. Follow-up questions were asked to solicit additional details to put the experiences into context. For example, each individual was asked to describe what led up to the actual experience, what happened during the experience, what his or her reaction was to each experience, and the ultimate outcome of the experience. After each interview, a summary of the interview was vetted with the study participant to ensure accuracy. Interviews were conducted with 82 individuals. This process resulted in a total of 320 specific task-level work experiences ($M = 3.9$, $SD = .58$, per individual).

Phase three of the research used surveys to gather additional information on each experience. Approximately three weeks after the interview, individuals rated each work

experience on the quantitative, interactive, and qualitative experience characteristics. Ninety-one percent of the individuals returned their phase three surveys. Phase four of the research, which occurred approximately three weeks after the phase three surveys were returned, collected general ratings from individuals and their supervisors. Specifically, participants completed surveys where they rated each work experience in terms of its impact on their own identity as a leader and leadership self-efficacy. Their supervisors rated each work experience in terms of its impact on the individual's leadership knowledge and skills. The final response rate for participants and their supervisors was 95% and 80% respectively. This resulted in a final sample of 60 leaders and 225 work experiences with complete data. Assuming a moderate effect size (d = .50; Cohen, 1988) based on data from McCauley et al. (1994), moderate effect size variability (Raudenbush & Liu, 2000), coefficient alpha of .05, and four observations (experiences) per individual, the statistical power for this study exceeded .80 (Liu, Spybrook, Congdon, & Raudenbush, 2005). All subsequent analyses presented in this dissertation are based on this final sample, and brief summaries of each work experience used in this study appear in Appendix C.

Measures

There are four broad classes of measures investigated in this study: (a) individual differences, (b) contextual factors, (c) experience characteristics, and (d) development outcomes. Common method variance was mitigated for all hypotheses by having methodological separation in time, by source, or both. Scales, items, means, and reliability estimates for these measures are provided in Table 4. I organize my discussion of these measures by the phase of research in which they were collected.

Table 4 – Scales, Items, and Descriptives

Measure	Mean	Standard Deviation	Internal Consistency
Achievement Motivation 1. I am hesitant about making important decisions. ® 2. I don't work well under pressure. ® 3. I really enjoy an assignment that involves overcoming obstacles. ® 4. I only work as hard as I have to. ® 5. I like situations which don't require me to make risky decisions. ® 6. I more often take on difficult assignments that I am not sure that I can handle, than easier ones that I believe I can do well in easily. 7. I don't like to have the responsibility of handling a difficult situation. ® 8. I prefer my work to be filled with challenging assignments. 9. I would rather do something at which I feel confident and relaxed than something which is challenging and difficult. ® 10. The idea of climbing my way to the top does not appeal to me. ®	3.97	.51	.76
Locus of Control 1. Whether or not I get to be a leader depends mostly on my ability 2. When I make plans, I am almost certain to make them work 3. When I get what I want, it's usually because I'm lucky ® 4. I have often found that what is going to happen will happen ® 5. I can pretty much determine what will happen in my life 6. I am usually able to protect my personal interests 7. When I get what I want, it's usually because I worked hard for it 8. My life is determined by my own actions	3.87	.38	.64

Table 4 (cont.)

Measure	Mean	Standard Deviation	Internal Consistency
Work Constraints			
1. I often must depend on others who are not well trained.			
2. I have not been given enough training to do my job properly.			
3. I am often not provided with the right materials and supplies to do my job.			
4. The tools and equipment I need to do my job are frequently not available.			
5. Lack of time frequently keeps me from getting my job done.			
6. I am frequently given unscheduled activities to work on which keep me from getting my job done.			
7. It is difficult to get others to provide the help required to do my job.			
8. Bad physical conditions (too cold, too bright, etc.) often interfere with getting my work done.	2.42	.51	.81
9. I frequently receive inconsistent policies, procedures and instructions, which makes it difficult to do my job.			
10. Too much `red tape' frequently interferes with getting my work done.			
11. I often have to follow the instructions of others even though I am in a better position to know what should be done.			
12. I often do not have the information I must have to do my job when it is needed.			
13. My department's budget does not allow me to get my job done.			

Table 4 (cont.)

Measure	Mean	Standard Deviation	Internal Consistency
Feedback 1. The work activities themselves provide direct and clear information about the effectiveness (e.g., quality and quantity) of my job performance. 2. The job itself provides feedback on my performance. 3. The job itself provides me with information about my performance. 4. I receive a great deal of information from my manager and co-workers about my job performance. 5. Other people in the organization, such as managers and co-workers, provide information about the effectiveness (e.g., quality and quantity) of my job performance. 6. I receive feedback on my performance from other people in my organization (such as my manager or co-workers).	3.55	.73	.84
Social Support 1. I have the opportunity to develop close friendships in my job. 2. I have the chance in my job to get to know other people. 3. I have the opportunity to meet with others in my work. 4. My supervisor is concerned about the welfare of the people that work for him / her. 5. People I work with take a personal interest in me. 6. People I work with are friendly.	4.09	.47	.71

Table 4 (cont.)

Measure	Mean	Standard Deviation	Internal Consistency
Unfamiliarity 1. Going into this experience, you lacked the experience necessary for carrying out some aspect of the work (e.g., financial or market analysis, negotiation, budgeting). 2. During this experience, you had to manage something (e.g., a function, product, technology, market) with which you were unfamiliar. 3. Others questioned whether you were "ready" for this experience. 4. Compared to others, you didn't have the credentials or background expected for someone in this experience. 5. This experience was no less than a change in your career direction—you were doing a type of work dramatically different from what you've done before.	2.69	.91	.82
Density 1. I experienced a high number of challenging opportunities during this experience. 2. There were a lot of unique opportunities during this experience that challenged my leadership capacity. 3. This experience offered only a limited number of opportunities for personal growth and development. ®	3.49	.91	.83

Table 4 (cont.)

Measure	Mean	Standard Deviation	Internal Consistency
New Directions 1. In this experience, you had to carry out a major reorganization as a result of a merger, acquisition, downsizing, or rapid growth. 2. In this experience, you had to make major strategic changes in the business—its direction, structure, technology systems, or operations. 3. In this experience, you were trying something the organization had never tried before; no one knew for sure how to do it or how it will come out. 4. This experience included launching new organizational ventures, such as new product lines, acquisitions, new functions or groups, new plans or concepts, or new facilities. 5. In this experience, you had to create or establish new policies or procedures.	2.69	1.04	.83
Problems with Employees 1. Your direct reports resisted your initiatives at some point during this experience. 2. During this experience, there was an interpersonal conflict between you and at least one of your key direct reports. 3. In this experience, your employees were used to doing things the way they had always been done and were reluctant to change. 4. In this experience, key members of your staff were incompetent, demotivated, technically obsolete, or otherwise performed poorly. 5. In this experience, some of your key direct reports lacked the experience to do their jobs without close supervision from you.	2.55	.99	.83

Table 4 (cont.)

Measure	Mean	Standard Deviation	Internal Consistency
Inherited Problems 1. As part of this experience, you inherited widespread morale problems. 2. In this experience, you needed to restore the credibility of your unit with the rest of the organization. 3. To succeed in this experience, you had to dismantle the strategy your predecessor had established. 4. Prior to this experience, your business or unit had a record of poor performance. 5. In this experience, you had to solve major problems a redecessor created.	2.45	.97	.85
External Pressure 1. In this experience, the customer base you worked with was extremely varied. 2. To achieve your most important goals in this experience, you had to influence people outside the organizations (for example, clients, suppliers, unions, government agencies). 3. In this experience, you managed relationships with government officials or regulatory agencies. 4. In this experience, you had to deal with diverse clients, customers, or markets. 5. In this experience, you had to carry out formal negotiations with an outside body, such as unions or clients or joint venture partners.	2.60	.82	.66

Table 4 (cont.)

Measure	Mean	Standard Deviation	Internal Consistency
Influencing without Authority 1. In this experience, you had to coordinate action across dispersed sites over which you have no direct authority. 2. To achieve your most important goals in this experience, you had to influence peers at similar levels in other units, functions, divisions, and so forth. 3. Achieving your goals in this experience depended on how well you handled internal politics. 4. To accomplish a major portion of your objectives in this experience, you had to influence and work with executives higher than your immediate boss. 5. In this experience, a great deal of coordination with other organizational units for functions was required.	3.47	.95	.75
Work Across Cultures 1. In this experience, you conducted business with people from different countries. 2. This experience required working in a foreign country where the culture is different from your own. 3. This experience required dealing with foreign companies, agencies, or governments that had a substantial impact on your business. 4. In this experience, you had to manage parts of the business that were scattered across the world. 5. This experience required understanding the traditions and values of people from different cultures.	2.27	1.26	.91

Table 4 (cont.)

Measure	Mean	Standard Deviation	Internal Consistency
Work Group Diversity 1. In this experience, you had a diverse group of direct reports in terms of demographic variables (e.g., age, race). 2. In this experience, you were part of a diverse work group. 3. In terms of demographic variables, you were responsible for developing managers from both genders and different ethnic groups. 4. In this experience, you had to get people from different racial, religious, cultural, or ethnic backgrounds to work together. 5. In terms of demographic variables, you had to make personnel decisions about employees who differ from you in terms of race or gender.	2.83	1.00	.79
Scope and Scale 1. For you, this experience was a dramatic increase in scope (managing significantly more people, dollars, sites, functions, and so forth). 2. This experience was potentially more than even a good delegator can handle. 3. In this experience, you were responsible for numerous different products, technologies, or services. 4. In this experience, you were responsible for multiple functions or groups. 5. This experience put you under constant pressure: there were seldom any periods to "catch your breath."	3.07	.86	.74

Table 4 (cont.)

Measure	Mean	Standard Deviation	Internal Consistency
Significance (high stakes) 1. Your success or failure in this experience was evident to higher management. 2. In this experience, you were responsible for decisive action in a highly charged environment. 3. In this experience, you were being tested by higher management. 4. In this experience, there were clear deadlines by which your key objectives had to be accomplished. 5. In this experience, there was pressure to get a major piece of your job completed fast.	3.75	.73	.67
Leader Performance *Please rate this person's performance in this experience along the following dimensions:* 1. Quantity of performance (i.e., how many things he/she got done) 2. Quality of performance (i.e., the quality of what he/she accomplished) 3. Ability to get along with others 4. Dependability 5. Overall performance	4.07	.73	.90
Leadership Identity 1. To what extent did this experience make you feel intelligent 2. To what extent did this experience make you feel sensitive 3. To what extent did this experience make you feel dedicated 4. To what extent did this experience make you feel dynamic	3.16	1.02	.85

Table 4 (cont.)

Measure	Mean	Standard Deviation	Internal Consistency
Leadership Self-Efficacy *To what extent did this experience increase your confidence in your own ability to...?* 1. Identify critical areas for making improvements in your unit's effectiveness 2. Develop plans for change that take your unit in important new directions 3. Develop trusting relationships with others such that they will embrace change 4. Obtain the genuine support of others for new initiatives 5. Figure out ways for overcoming resistance to change 6. Obtain senior management's support for change	2.97	1.04	.88

Table 4 (cont.)

Measure	Mean	Standard Deviation	Internal Consistency
Cognitive Skills *To what extent did this experience enhance the following competencies...?* 1. Comprehension of complex written documents 2. Active listening and questioning (i.e., listening to others and asking questions as appropriate) 3. Critical thinking (i.e., using logic and analysis to identify the strengths and weaknesses of different approaches) 4. Active learning (i.e., working with new information to grasp its implications) 5. Information gathering and comprehension (i.e., acquiring and comprehending new information) 6. Visioning (i.e., developing an image of how things should work under ideal conditions) 7. Judgment and decision making (i.e., evaluating costs and benefits of potential actions) 8. Systems perception (i.e., determining when important changes have occurred in a system or are likely to occur) 9. System evaluation (i.e., evaluating indicators of system performance) 10. Identification of downstream consequences (i.e., determining the long-term outcomes of a change in operations) 11. Identification of key causes (i.e., identifying the things that must be changed to achieve a goal) 12. Problem identification / diagnosis (i.e., identifying the nature of problems) 13. Solution appraisal (i.e., evaluating the outcomes of problem solutions and identifying lessons learned) 14. Operations analysis	3.40	.78	.92

Table 4 (cont.)

Measure	Mean	Standard Deviation	Internal Consistency
Managerial Skills *To what extent did this experience enhance the following competencies...?* 1. Management of financial resources 2. Management of material resources (e.g., equipment, facilities) 3. Management of personnel resources (i.e., motivating, developing, directing people) 4. Coordination (i.e., adjusting actions in relation to others' actions) 5. Time management (i.e., managing his/her time and the time of others) 6. Monitoring the performance of him/herself and others to make improvements 7. Instructing (i.e., teaching others how to do something) 8. Complex problem solving skills	3.04	.86	.87
Interpersonal Skills *To what extent did this experience enhance the following competencies...?* 1. Communicating information effectively (i.e., speaking, writing) 2. Social perceptiveness (i.e., being aware of others' reactions) 3. Persuasion (i.e., persuading others to change their minds or behavior) 4. Negotiation (i.e., bringing others together to reconcile differences) 5. Knowledge of human behavior (i.e., understanding people and the drivers of human performance)	3.47	.85	.87

Phase One

In phase one of the data collection, I gathered data on individual differences (achievement motivation, locus of control) and contextual factors (work constraints, feedback, social support). For all measures collected in phase one, participants provided self-ratings of their agreement with each item using a 5-point agreement scale (1 = strongly disagree; 5 = strongly agree). See Appendix D for copies of all survey instruments.

Achievement motivation was assessed using a 10-item scale adapted from Mehrabian and Banks (1978). Six items on this scale are worded negatively, and were reverse-coded prior to analyses. This scale has previously demonstrated acceptable reliability and predictive validity in the training and development literature (Mathieu et al., 1993). The scale measures the extent to which individuals (a) prefer challenging situations, (b) are comfortable making decisions or being in high-pressure situations, and (c) would prefer to work hard rather than take it easy. Due to poor internal consistency reliability, one item was dropped from the scale, leaving nine items with an internal consistency reliability of .76.

Locus of control was measured using the internality subscale of Levenson's (1981) Internal, Powerful Others, and Chance (IPC) Scale. Levenson's measure had previously exhibited moderate reliability and been used in a wide variety of organizational settings (e.g., Judge, Erez, Bono, & Thoresen, 2003; Levenson, 1981). Example items included "My life is determined by my own actions" and "When I get what I want, it's usually because I worked hard for it." All items were coded such that a high score indicated more

of an internal locus of control whereas a low score indicated more of an external locus of control. Internal consistency reliability for this particular study was .64.

Work constraints was assessed with Fox and Spector's (1999) 13-item scale. This scale was developed specifically as a measure of Peters and O'Connor's (1980) taxonomy of work constraints. Example items included "I am not provided with the right materials and supplies to do my job" and "Lack of time frequently keeps me from getting my job done." Internal consistency reliability was .81.

Feedback can come from multiple sources, including the actual job or task itself, supervisors, peers, and subordinates. To capture the range of possible feedback sources, I assessed participants' perceptions of the availability of feedback in their organizations using 6 items from Morgeson and Humphrey's (2006) Work Design Questionnaire (WDQ). These items capture feedback from one's job or tasks as well as feedback from other people (e.g., supervisor, peers). Example items included "The job itself provides me with information about my performance" and "I receive feedback on my performance from other people in my organization (such as my manager or co-worker)." Internal consistency reliability was .84.

Social support was assessed using 6 items from Morgeson and Humphrey's (2006) WDQ. These items reflect the degree to which participants receive advice, assistance, and support from others in their organization. This includes Karasek's (Karasek, 1979; Karasek, Brisson, Kawakami, Houtman, Bongers, & Amick, 1998) notion of supervisor and coworker support, as well as Sims, Szilagyi, and Keller's (1976) idea of friendship opportunities at work. Example items included "My supervisor is concerned about the

welfare of the people that work for him / her" and "People I work with take a personal interest in me." Internal consistency reliability was .71.

Phase Two

Phase two consisted of in-depth, one-on-one interviews. No quantitative measures were collected during this phase of the study. The interview protocol used during this phase of the research can be found in Appendix E.

Phase Three

In phase three, participants rated each task-level work experience on a total of nine experience characteristics: duration (time), unfamiliarity (amount), density, new directions, inherited problems, problems with employees, external pressure, influencing without authority, work across cultures, work group diversity, scope and scale, and significance (high stakes). Excluding the measure for duration (time) and density, all measures of the experience characteristics were adapted from McCauley, Ohlott, and Ruderman's (1999) Job Challenge Profile. I adapted these items by changing the referent from one's job to the task-level experience. Unless otherwise noted, study participants rated the extent to which they agreed with each item using a 1 to 5 agreement scale (1 = strongly disagree; 5 = strongly agree).

Duration was measured using one item that asked: "From start to finish, how long did this particular experience last?" Study participants responded to this item by indicating precisely how long the experience lasted (e.g., minutes, hours, days, weeks, months, years). All responses were transformed into units reflecting the number of days an experience lasted.

Unfamiliarity was measured using 5 items. Example items include "Going into this experience, you lacked the experience necessary for carrying out some aspect of the work" and "During this experience, you had to manage something (e.g., a function, product, technology, market) with which you were unfamiliar." Internal consistency reliability was .82.

Density was measured using 3 items created for this study because no existing measure of density exists in the literature. These items were created using Tesluk and Jacobs' (1998) description of the density concept. Items include "I experienced a high number of challenging opportunities during this experience," "There were a lot of unique opportunities during this experience that challenged my leadership capacity," and "This experience offered only a limited number of opportunities for personal growth and development (reverse coded)." Internal consistency reliability was .83.

New directions was measured using 5 items. Example items include "In this experience, you were trying something the organization had never tried before; no one knew for sure how to do it or how it would come out" and "As part of this experience, you had to make a major strategic change in the business or your work group – its direction, structure, technology system, or operations." Internal consistency reliability was .83.

Problems with employees was measured using 5 items. Example items include "Your direct reports resisted your initiatives at some point during this experience" and "In this experience, some of your direct reports lacked the experience necessary to do their jobs without close supervision from you." Internal consistency reliability was .83.

Inherited problems was measured using 5 items. Example items include "As part of this experience, you inherited widespread morale problems" and "In this experience, you had to solve a major problem that your predecessor created." Internal consistency reliability was .85.

External pressure was measured using 5 items. Example items include "To achieve your most important goals in this experience, you had to influence people outside your organization (e.g., clients, suppliers, unions, government agencies)" and "In this experience, you had to deal with diverse clients, customers, or markets." Internal consistency reliability was .66.

Influencing without authority was measured using 5 items. Example items include "Achieving your goals in this experience depended on how well you handled internal politics" and "To accomplish a major portion of your objectives in this experience, you had to influence and work with people at higher levels in the organization than your immediate boss." Internal consistency reliability was .75.

Work across cultures was measured using 5 items. Example items include "In this experience, you had to conduct business with people from different countries" and "This experience required working in a foreign country where the culture is different from your own." Internal consistency reliability was .91.

Work group diversity was measured using 5 items. Example items include "In this experience, you were part of a diverse work group" and "In this experience, you had to get people from different racial, religious, cultural, or ethnic backgrounds to work together." Internal consistency reliability was .79.

Significance of the experience was measured using the 5 "high stakes" items. Example items include "Your success or failure in this experience was evident to higher management" and "In this experience, you were responsible for decisive action in a highly charged environment." Internal consistency reliability was .67.

Scope and scale was measured using 5 items. Example items include "For you, this experience was a dramatic increase in scope (i.e., managing significantly more people, dollars, sites, functions)" and "In this experience, you were responsible for numerous different products, technologies, or services." Internal consistency reliability was .74.

Phase Four

In phase four of this study, participants provided self-ratings of how much each work experience contributed to the development of self-concept beliefs, namely his or her own (a) identity as a leader and (b) leadership self-efficacy. Specifically, individuals rated the extent to which each discrete experience enhanced his or her leadership identity and self-efficacy; these ratings were provided using a 1 to 5 extent scale (1 = not at all; 5 = to a very large extent).

In the social psychological literature, role identities are measured by determining the attributes people associate with a particular role (e.g., gender) and then asking individuals to rate the degree to which they see themselves possessing these prototypical attributes (e.g., Burke & Tully, 1977; Burke & Reitzes, 1981). For purposes of the present research, I measured *leadership identity* using the same approach. Research on implicit leadership theory (e.g., Lord, 1985; Epitropaki & Martin, 2004) has empirically identified four basic attributes that people associate with protypical leaders (sensitive, intelligent, dedicated, and dynamic). I combined ratings on these four attributes into a single scale that assesses

the impact of specific work experiences on individuals' leadership identity. Specifically, participants rated the extent to which each work experience made he or she perceive oneself as exhibiting these attributes. Example items included "To what extent did this experience make you feel intelligent?" Internal consistency reliability was .85.

Leadership self-efficacy was assessed using 6 items from Paglis and Green's (2002) original 12-item scale. The number of items in the original scale had to be reduced due to survey length. To reduce the number of items, I selected 2 items from each of Paglis and Green's (2002) three dimensions of leadership self-efficacy (direction-setting, gaining commitment, and overcoming obstacles). These items were selected based on how closely they reflected the content of each dimension. Example items included "To what extent did this experience increase your confidence in your own ability to develop plans for change that take your unit in important new directions" and "To what extent did this experience increase your confidence in your own ability to develop trusting relationships with others such that they will embrace change." Internal consistency reliability was .88.

In addition, supervisors rated (a) the participant's overall performance in each task-level work experience and (b) the extent to which each work experience contributed to the development of participants' cognitive, managerial, and interpersonal skills. Leader performance for each work experience was measured using 5 items adapted from Wellbourne, Johnson, and Erez's (1998) measure of job performance. Example items included "Please rate this person's performance in this experience in terms of the quantity of performance (i.e., how many things he or she got done)." Additional items examined other dimensions of performance, including the quality of performance, the individual's ability to get along with others, and his or her dependability. Supervisors provided these

ratings using a 1 to 5 scale (1 = very low; 5 = very high). Internal consistency reliability was .90.

Supervisors also rated the extent to which each work experience enhanced participants' cognitive, managerial, and interpersonal skills. Items for each skill dimension are from Mumford et al.'s (2007) leadership skills strataplex; these skill dimensions were originally adapted from the basic and cross-functional skills taxonomy of the Occupational Information Network (*O*NET*; Mumford, Peterson, & Childs, 1999). Supervisors provided these ratings using a 1 to 5 extent scale (1 = not at all; 5 = to a very large extent). Each item was preceded by the following: "To what extent did this experience enhance the following competencies..." In the event supervisors were not comfortable rating the developmental impact of an experience, a "do not know" option was included in the scale; these data were coded as missing data in the final sample.

Cognitive skills was measured using 14 items. Example items included "active listening and questioning (i.e., listening to others and asking questions as appropriate)," "critical thinking (i.e., using logic and analysis to identify the strengths and weaknesses of different approaches)," and "systems perception (i.e., determining when important changes have occurred in a system or are likely to occur)." Internal consistency reliability was .92.

Managerial skills was measured using 8 items. Example items included "coordination (i.e., adjusting actions in relation to others' actions)," "monitoring the performance of him/herself and others to make improvements," and "instructing (i.e., teaching others how to do something)." Internal consistency reliability was .87.

Interpersonal skills was measured using 5 items. Example items included "social perceptiveness (i.e., being aware of others' reactions)," "persuasion (i.e., persuading others to change their minds or behavior)," and "negotiation (i.e., bringing others together to reconcile differences)." Internal consistency reliability was .87.

Control variables. Several demographic and work-related variables were measured and then used as control variables in all analyses. These included general cognitive ability as measured by individuals' scores on the Graduate Management Admissions Test (GMAT). Other control variables included gender, ethnicity, and organizational tenure.

Data Analysis

To test the hypotheses proposed in this study, I used hierarchical linear modeling (HLM; Bryk & Raudenbush, 2001). HLM allows one to analyze variables at multiple levels of analysis in a series of regression equations. In this dissertation, the first level of analysis was the experience level and included all experience characteristics and outcomes. The second level of analysis was the individual leader level and included the measure of individual differences and contextual factors. Thus, the level-1 variables (work experiences) were nested within the level-2 variables (individuals). The level-1 variables were at the within-individual level of analysis, whereas the level-2 variables were at the between-individual level of analysis.

Before proceeding with the tests of the hypotheses, I first investigated whether systematic within- and between-individual variance exists in the development outcomes. To do so, I estimated a null model that calculated the within- and between-individual variance across the leader development outcomes. The equations for the null model, as well as for the models estimated to test hypotheses, are presented in Appendix F.

Provided that the test of the null model reveals that there is substantial within- and between-individual variance in the criterion, tests of the other HLM models can be conducted.

To interpret the estimates as representing strictly within-individual effects, I centered all level-1 predictor variables to each individual's mean (Hofmann, Griffin, & Gavin, 2000). This form of centering removes any between-individual variance in estimates of within-individual relations among the variables. This procedure ensures that any relations among the level-1 variables are unconfounded by between-person differences. I used HLM 6.0 to analyze all of the hierarchical models.

RESULTS

Table 5 contains the means, standard deviations, and intercorrelations among the level-1 study variables. Among these level-1 variables, many of the experience characteristics were modestly correlated; the bivariate correlations among experience characteristics ranged from .02 to .59. The experience characteristics were generally not related to leader performance but were in many cases positively related to the leader development outcomes, with bivariate correlations ranging from .02 to .49. These correlations provide initial evidence that at least some of the quantitative and qualitative characteristics of work experiences are related to the development of leadership skills and self-concept beliefs. Leader performance was found to be positively related to the development of leaders' identity and self-efficacy beliefs, thus offering initial evidence that one's performance on the job is also a meaningful predictor of leader development. Finally, the leader development outcomes were correlated. In particular, the development of leadership identity and self-efficacy were correlated at .77 ($p < .01$), and the three skill dimensions were correlated between .66 and .73 ($p < .01$). I return to the implications of these correlations among the outcomes in my discussion of the results.

Table 5 – Descriptive Statistics and Intercorrelations Among Level-1 Variables

	Variable	*M*	*SD*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*
1.	Duration	189.11	234.09	–																	
2.	Unfamiliarity	2.68	.91	.09	(.82)																
3.	Density	3.50	.91	.24*	.59*	(.83)															
4.	New directions	2.70	1.04	.15*	.37**	.38**	(.83)														
5.	Dealing with problem employees	2.56	.99	.17*	.32**	.35**	.45**	(.83)													
6.	Inherited problems	2.47	.97	.11	.24**	.31**	.46**	.59**	(.85)												
7.	External pressures	2.60	.82	.36**	.22**	.32**	.39**	.17*	.16*	(.66)											
8.	Influencing without authority	3.47	.95	.25**	.17*	.38**	.51**	.26**	.32**	.51**	(.75)										
9.	Work across cultures	2.33	1.26	.27**	.14*	.27**	.15*	.14*	.13	.33**	.35**	(.91)									
10.	Work group diversity	2.84	1.00	.19**	.23**	.35**	.31**	.35**	.23**	.27**	.39**	.45**	(.79)								
11.	Scope and scale	3.07	.86	.09	.38**	.63**	.51**	.31**	.38**	.43**	.52**	.26**	.44*	(.74)							
12.	Significance	3.75	.73	.02	.24**	.46**	.35**	.19**	.19**	.34**	.42**	.12	.28**	.49**	(.67)						
13.	Leader performance	4.09	.73	.21**	-.02	.10	.07	-.05	.00	.18**	.19**	.09	.07	.12	.10	(.90)					
14.	Identity	3.16	1.02	.02	.16*	.27**	.44**	.10	.26**	.32**	.39**	.13*	.29**	.45**	.44**	.25**	(.85)				
15.	LSE	2.98	1.04	.10	.24**	.35**	.55**	.29**	.32**	.42**	.46**	.19**	.37**	.43**	.49**	.14*	.77**	(.88)			
16.	Cognitive skills	3.41	.78	.17*	.18**	.32**	.24**	.08	.12	.20**	.25**	.05	.02	.27**	.23**	.60**	.27**	.30**	(.92)		
17.	Managerial skills	3.05	.86	.16*	.20**	.26**	.27**	.18**	.17*	.22**	.27**	.10	.14*	.30**	.22**	.57**	.27**	.29**	.73**	(.87)	
18.	Interpersonal skills	3.48	.85	.15*	.14*	.27**	.05	.08	.05	.15*	.14*	.06	.07	.13	.16*	.50**	.14*	.17**	.66**	.66**	(.87)

* $p < .05$, two-tailed. ** $p < .01$, two-tailed.

Note: N = 206-225. Intraclass correlation coefficients for each variable are included in the parentheses.

Table 6 – Descriptive Statistics and Intercorrelations Among Level-2 Variables

Variable	*M*	*SD*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
1. Age	32.9	5.31	–									
2. Ethnicity	.63	.49	-.28*	–								
3. Gender	.75	.44	.09	-.04	–							
4. Cognitive ability	553.04	64.04	.04	-.09	.13	–						
5. Organizational tenure	5.31	2.89	.33*	.04	-.03	.17	–					
6. Achievement motivation	3.97	.51	-.05	-.20	.28*	.03	-.15	(.76)				
7. Locus of control	3.87	.38	-.21	.14	.04	.07	-.15	.29*	(.64)			
8. Work constraints	2.42	.51	-.19	.15	.10	.19	-.02	-.11	-.11	(.81)		
9. Feedback	3.55	.73	.12	-.13	-.31*	-.18	.17	-.10	-.06	-.24	(.84)	
10. Social support	4.09	.47	.05	-.10	-.14	.00	-.02	-.02	.26*	-.21	.23	(.71)

* $p < .05$, two-tailed. ** $p < .01$, two-tailed.
Note: N = 60. Ethnicity is coded such that Caucasian equals 1 and all other ethnicities equal 0. Gender is coded such that male equals 1. Intraclass correlation coefficients for select variables are included in the parentheses.

Table 6 contains the means, standard deviations, and intercorrelations among the level-2 study variables. Among these level-2 variables, several noteworthy relationships emerged. For instance, achievement motivation and locus of control were found to be positively related ($r = .29$, $p < .05$); locus of control was also positively related to the level of social support one had in his or her workplace ($r = .26$; $p < .05$). The control variables (cognitive ability, gender, ethnicity and organizational tenure) demonstrated small to modest relationships to the study variables, with some achieving statistical significance. Because the standard deviation is larger than the mean for both duration (level-1) and the number of direct reports (level-2), a histogram of the frequency distribution for these variables is provided in Appendix G. In both cases, the data is positively skewed.

Table 7 presents parameter values and variance components for the null model. The null model analyses indicated that there was significant between-individual variance in both experience characteristics and leader development outcomes (with the exception of the variables density and leader identity). These analyses also indicated that there was substantial within-individual variance in both experience characteristics and leader development outcomes. These data provide compelling evidence that individuals and their supervisors discriminated among work experiences when rating those experiences in terms of their characteristics and outcomes. These results suggest that hierarchical modeling of the data was appropriate.

Table 7 – Parameter Estimates and Variance Components for the Null Model

Variable	Mean (γ_{00})	Within-Individual Variance (σ^2)	Between-Individual Variance (π_{00})
Duration	189.11	39175.89	16340.29**
Unfamiliarity	2.68	.76	.07*
Density	3.50	.82	.01
New directions	2.70	.76	.35**
Dealing with problem employees	2.56	.60	.37**
Inherited problems	2.47	.62	.33**
External pressures	2.60	.49	.18**
Influencing without authority	3.47	.68	.22**
Work across cultures	2.33	.63	1.00**
Work group diversity	2.84	.38	.64**
Scope and scale	3.07	.53	.21**
Significance	3.75	.43	.09**
Leader performance	4.09	.28	.24**
Identity	3.16	.97	.07
LSE	2.98	.83	.25**
Cognitive capacity	3.41	.36	.26**
Managerial capacity	3.05	.46	.27**
Interpersonal capacity	3.48	.52	.21**

* $p < .05$, two-tailed. ** $p < .01$, two-tailed.
Note: N = 206-225 (level-1); 60 (level-2).

Interestingly, these results also reveal something about the nature of experiences and leader development outcomes. For one, individuals are different in the degree to which they encounter certain types of experiences at work. As an example, experiences that require individuals to work across cultures or with work group diversity had more between-individual variance than within-individual variance; this is an indication that some people have more of these experiences than other people (at least based on the experiences discussed in this study). These data also reveal that the development of leader identity is more a function of the experience than the person (i.e., significantly more within-individual variance than between-individual variance). This is in contrast to other leader development outcomes that were a function of both the experience and the person (i.e., across all experiences, some people developed more leadership self efficacy, cognitive capacity, managerial capacity, and interpersonal capacity than other people).

Table 8 shows the results for all level-1 main effect hypotheses associated with the development of cognitive, managerial and interpersonal skills. Across all three skill dimensions, organizational tenure was the only control variable that had a meaningful impact on the outcome. Hypothesis 1 predicted that duration would be positively related to the development of cognitive, managerial, and interpersonal skills. After accounting for the control variables, results suggest that duration has a positive effect on the development of leaders' cognitive skills ($\gamma_{10} = .0006, p < .05, \triangle R^2 = .04$) but not the development of managerial or interpersonal skills. Variance explained ($\triangle R^2$) was computed as follows: [(unrestricted within-person variance – restricted within-person variance) / unrestricted within-person variance] (Kreft & de Leeuw, 1998; Singer, 1998).

Thus, Hypothesis 1a was supported but Hypotheses 1b and 1c were not supported with the current data.

Table 8 – Effects of Experience Characteristics on the Development of Cognitive, Managerial and Interpersonal Capacity

	Cognitive Capacity		Managerial Capacity		Interpersonal Capacity	
Predictor	Coefficient	SE	Coefficient	SE	Coefficient	SE
Intercept (γ_{00})	3.44**	.07	3.06**	.08	3.52**	.07
Gender (γ_{01})	-.22	.17	-.37	.20	-.24	.13
Ethnicity (γ_{02})	-.06	.15	.04	.14	.05	.12
Cognitive ability (γ_{03})	.00	.00	.00	.00	.00	.00
Organizational tenure (γ_{04})	.07**	.03	.07*	.03	.08**	.02
Hypothesis 1: Duration						
Duration (γ_{10})	.0006*	.00	.00	.00	.00	.00
Hypothesis 2: Unfamiliarity						
Unfamiliarity (γ_{10})	.16**	.05	.14*	.06	.21**	.06
Hypothesis 3: Density						
Density (γ_{10})	.26**	.04	.21**	.05	.26**	.06
Hypothesis 4: New directions						
New directions (γ_{10})	.36**	.05	.34**	.06		
Hypothesis 5: Dealing with problem employees						
Dealing with problem employees (γ_{10})					.20**	.07
Hypothesis 6: Inherited problems						
Inherited problems (γ_{10})	.14*	.06				
Hypothesis 7: External pressure						
External pressure (γ_{10})					.25**	.08
Hypothesis 8: Influencing without authority						
Influencing without authority (γ_{10})					.22**	.08
Hypothesis 9: Work across cultures						
Work across cultures (γ_{10})					.18**	.07
Hypothesis 10: Work group diversity						
Work group diversity (γ_{10})					.38**	.10
Hypothesis 11: Scope and scale						
Scope and scale (γ_{10})	.41**	.05	.41**	.07		

* $p < .05$, one-tailed. ** $p < .01$, one-tailed. Note: N = 206-225 (level-1); 60 (level-2). Gender (Male = 1). Ethnicity (Caucasian = 1). The intercept and control variable parameters presented here were calculated for Hypothesis 1. These parameter estimates change slightly for each hypothesis, but the general pattern and interpretation of the values is consistent across all hypotheses.

Similarly, I also predicted that unfamiliarity (Hypothesis 2) and density (Hypothesis 3) would be positively related to the development of (a) cognitive, (b) managerial, and (c) interpersonal skills. After accounting for the control variables, results suggest that unfamiliarity has a positive effect on the development of leaders' cognitive ($\gamma_{10} = .16, p < .01, \triangle R^2 = .09$), managerial ($\gamma_{10} = .14, p < .05, \triangle R^2 = .06$), and interpersonal skills ($\gamma_{10} = .21, p < .01, \triangle R^2 = .09$). Results also suggest that density has a positive effect on leaders' cognitive ($\gamma_{10} = .26, p < .01, \triangle R^2 = .16$), managerial ($\gamma_{10} = .21, p < .01, \triangle R^2 = .08$), and interpersonal skills ($\gamma_{10} = .26, p < .01, \triangle R^2 = .14$). Thus, Hypotheses 2a-2c and Hypotheses 3a-3c were supported with the current data.

Hypothesis 4 predicted that experiences which require a leader to take his or her group or organization in a new direction would be positively related to the development of leaders' cognitive and managerial skills. After accounting for the control variables, results suggest that new directions has a positive effect on the development leaders' cognitive ($\gamma_{10} = .36, p < .01, \triangle R^2 = .30$) and managerial skills ($\gamma_{10} = .34, p < .01, \triangle R^2 = .20$). Thus, Hypothesis 4a and 4b were supported.

Hypothesis 5 suggested that dealing with problem employees would promote the development of leaders' interpersonal capacity. After accounting for the control variables, results suggest that dealing with problem employees has a positive effect on leaders' interpersonal capacity ($\gamma_{10} = .20, p < .01, \triangle R^2 = .06$). Hypothesis 6 predicted that experiences which require leaders to inherit problems would be positively related to the development of leader's cognitive skills. Results suggest that inherited problems has a positive effect on leaders' cognitive skills ($\gamma_{10} = .14, p < .05, \triangle R^2 = .06$). Thus, Hypotheses 5 and 6 were both supported with the current data.

Hypotheses 7, 8, 9, and 10 predicted, respectively, that external pressure, influencing without authority, work across cultures, and work group diversity would be positively related to the development of leaders' interpersonal capacity. After accounting for the control variables, results suggest that external pressure ($\gamma_{10} = .25, p < .01, \triangle R^2 = .08$), influencing without authority ($\gamma_{10} = .22, p < .01, \triangle R^2 = .15$), work across cultures ($\gamma_{10} = .18, p < .01, \triangle R^2 = .03$), and work group diversity ($\gamma_{10} = .38, p < .01, \triangle R^2 = .13$) all have a positive effect on the development of leaders' interpersonal skills. Thus, Hypotheses 7-10 were all supported.

Hypothesis 11 predicted that the scope and scale of an experience would be positively related to the development of leaders' (a) cognitive and (b) managerial skills. After accounting for the control variables, results suggest that scope and scale has a positive effect on leaders' cognitive ($\gamma_{10} = .41, p < .01, \triangle R^2 = .28$) and managerial skills ($\gamma_{10} = .41, p < .01, \triangle R^2 = .22$). Thus, Hypothesis 11a and 11b were supported with the current data.

Hypotheses 12a and 13a predicted, respectively, that a leader's performance in any single experience would be positively related to the development of his or her leadership identity and self-efficacy. As shown in Table 9, after accounting for the control variables, results suggest that leader performance has a positive effect on individuals' leadership identity ($\gamma_{10} = .63, p < .01, \triangle R^2 = .15$) and leadership self-efficacy ($\gamma_{10} = .43, p < .01, \triangle R^2 = .07$). Thus, Hypotheses 12a and 13a were both supported with the current data. Hypotheses 12b and 13b predicted, respectively, that the significance of individuals' work experiences would moderate the relationship between leader performance in the experience and the development of leadership identity and self-efficacy. However, in

both cases, the significance of the experience did not moderate the relationship between leader performance and leadership identity (see Table 10). Thus, Hypotheses 12b and 13b were not supported.

Table 9 – Effects of Leader Performance on the Development of Leadership Identity and Leadership Self-Efficacy

	Leadership Identity		Leadership Self-Efficacy	
Predictor	Coefficient	SE	Coefficient	SE
Intercept (γ_{00})	3.17**	.07	3.00**	.08
Gender (γ_{01})	.03	.13	-.03	.17
Ethnicity (γ_{02})	-.02	.14	-.29	.19
Cognitive ability (γ_{03})	.00	.00	.00	.00
Organizational tenure (γ_{04})	-.06*	.02	-.06*	.03
Hypotheses 12a and 13a				
Leader performance (γ_{10})	.63**	.12	.43**	.11

* $p < .05$, one-tailed. ** $p < .01$, one-tailed.
Note: N = 225 (level-1); 60 (level-2). Gender (Male = 1). Ethnicity (Caucasian = 1).

Table 10 – Effects of Leader Performance and Significance on the Development of Leadership Identity and Leadership Self-Efficacy

	Leadership Identity		Leadership Self-Efficacy	
Predictor	Coefficient	SE	Coefficient	SE
Intercept (γ_{00})	3.18**	.08	3.00**	.08
Gender (γ_{01})	.06	.13	-.01	.17
Ethnicity (γ_{02})	-.03	.14	-.27	.19
Cognitive ability (γ_{03})	.00	.00	.00	.00
Organizational tenure (γ_{04})	-.06*	.02	-.06*	.03
Hypotheses 12b and 13b				
Leader performance (γ_{10})	.48	.61	.27	.43
Significance (γ_{20})	.67	.57	.72	.41
Performance X Significance (γ_{30})	-.02	.15	-.01	.11

* $p < .05$, one-tailed. ** $p < .01$, one-tailed.
Note: N = 225 (level-1); 60 (level-2). Gender (Male = 1). Ethnicity (Caucasian = 1).

The cross-level hypotheses in this study predicted that individual differences and contextual factors would (a) have a main effect on leader skill development and (b) moderate the relationship between experience characteristics and leader development outcomes. Specifically, two individual differences (achievement motivation and locus of control) and two contextual factors (social support and feedback) were expected to enhance how much learning occurred as a result of informal experiences at work. A third contextual factor, work constraints, was expected to limit how much leaders developed from their informal experiences at work. Tables 11-15 provide the results associated with these cross-level hypotheses.

Contrary to Hypothesis 14, achievement motivation did not have a main effect on the development of leaders' cognitive, managerial or interpersonal skills (see Table 11). As predicted, however, achievement motivation ($\gamma_{11} = .001, p < .01$) did moderate the relationship between the duration of an experience and the development of leaders' cognitive skills. This relationship is illustrated in Figure 2. All other cross-level moderation hypotheses associated with achievement motivation did not reach statistical significance with the current data and thus were not supported. In sum, Hypothesis 15a was partially supported, but Hypotheses 14 and 15b-15k were not supported.

Table 11 – Effects of Achievement Motivation on Leader Skill Development

	Cognitive Capacity		Managerial Capacity		Interpersonal Capacity	
Predictor	Coefficient	SE	Coefficient	SE	Coefficient	SE
Intercept (γ_{00})	3.44**	.07	3.06**	.07	3.52**	.07
Gender (γ_{01})	-.20	.16	-.32	.20	-.20	.13
Ethnicity (γ_{02})	-.09	.13	.01	.14	.01	.13
Cognitive ability (γ_{03})	.00	.00	.00	.00	.00	.00
Organizational tenure (γ_{04})	.07**	.02	.07*	.03	.08**	.02
Achievement motivation (γ_{05})	-.10	.12	-.16	.11	-.17	.13
Hypothesis 15a: Duration						
Duration (γ_{10})	.0006**	.00	.00	.00	.00	.00
Achievement motivation (γ_{11})	.001**	.00	.00	.00	.00	.00
Hypothesis 15b: Unfamiliarity						
Unfamiliarity (γ_{10})	.16**	.05	.14*	.06	.21**	.06
Achievement motivation (γ_{11})	.00	.10	.01	.12	-.07	.14
Hypothesis 15c: Density						
Density (γ_{10})	.26**	.04	.21**	.05	.26**	.05
Achievement motivation (γ_{11})	.07	.07	.09	.11	.00	.11
Hypothesis 15d: New directions						
New directions (γ_{10})	.35**	.05	.33**	.05		
Achievement motivation (γ_{11})	.17	.09	.14	.11		
Hypothesis 15e: Dealing with problem employees						
Dealing with problem employees (γ_{10})	.15*	.06	.13*	.06		
Achievement motivation (γ_{11})	.15	.12	.12	.11		
Hypothesis 15f: Inherited problems						
Inherited problems (γ_{10})	.14*	.06				
Achievement motivation (γ_{11})	.05	.14				

* $p < .05$, one-tailed. ** $p < .01$, one-tailed. Note: N = 206-225 (level-1); 60 (level-2). Gender (Male = 1). Ethnicity (Caucasian = 1). The intercept and control variable parameters presented here were calculated for Hypothesis 14a. These parameter estimates change slightly for each hypothesis, but the general pattern and interpretation of the values is consistent across all hypotheses.

Table 11 (cont.)

Predictor	Cognitive Capacity		Managerial Capacity		Interpersonal Capacity	
	Coefficient	SE	Coefficient	SE	Coefficient	SE
Intercept (γ_{00})	3.44**	.07	3.06**	.07	3.52**	.07
Gender (γ_{01})	-.20	.16	-.32	.20	-.20	.13
Ethnicity (γ_{02})	-.09	.13	.01	.14	.01	.13
Cognitive ability (γ_{03})	.00	.00	.00	.00	.00	.00
Organizational tenure (γ_{04})	.07**	.02	.07*	.03	.08**	.02
Achievement motivation (γ_{05})	-.10	.12	-.16	.11	-.17	.13
Hypothesis 15g: External pressure						
External pressure (γ_{10})					.25**	.08
Achievement motivation (γ_{11})					.00	.15
Hypothesis 15h: Influencing without authority						
Influencing without authority (γ_{10})					.22**	.08
Achievement motivation (γ_{11})					.05	.14
Hypothesis 15i: Work across cultures						
Work across cultures (γ_{10})					.18**	.07
Achievement motivation (γ_{11})					.01	.12
Hypothesis 15j: Work group diversity						
Work group diversity (γ_{10})					.40**	.11
Achievement motivation (γ_{11})					.30	.23
Hypothesis 15k: Scope and scale						
Scope and scale (γ_{10})	.40**	.05	.41**	.07		
Achievement motivation (γ_{11})	.05	.09	.00	.17		

* $p < .05$, one-tailed. ** $p < .01$, one-tailed. Note: N = 206-225 (level-1); 60 (level-2). Gender (Male = 1). Ethnicity (Caucasian = 1). The intercept and control variable parameters presented here were calculated for Hypothesis 14a. These parameter estimates change slightly for each hypothesis, but the general pattern and interpretation of the values is consistent across all hypotheses.

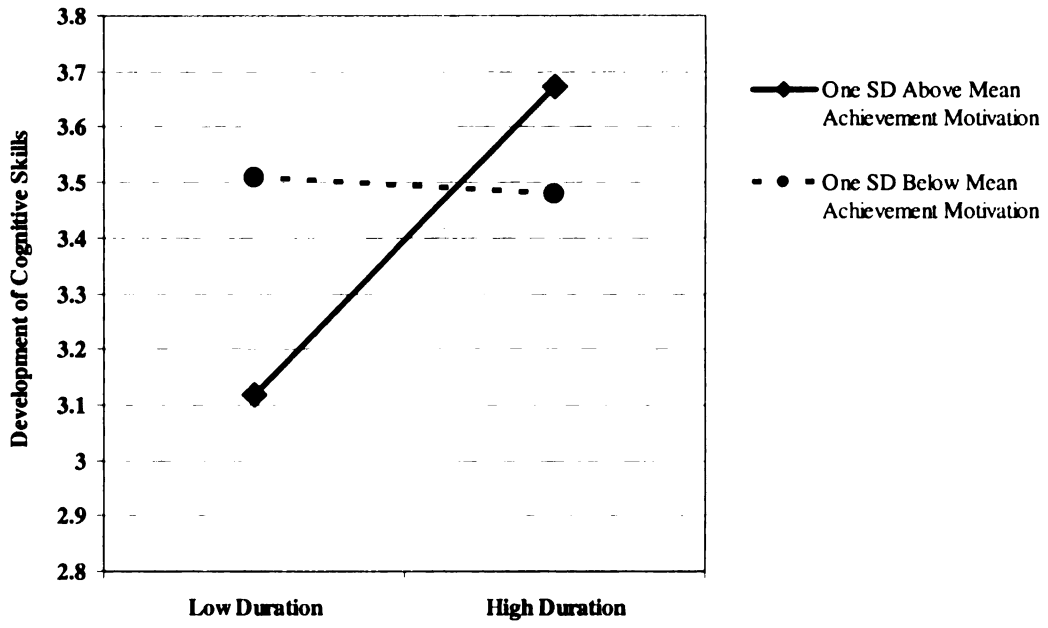


Figure 2 – Effects of Duration and Achievement Motivation on the Development of Cognitive Skills

Hypothesis 16 predicted that locus of control would have a positive main effect on leader skill development. Contrary to this prediction, locus of control actually had a negative main effect on the development of leaders' interpersonal skills (γ_{05} = -.36, p < .05, $\triangle R^2$ = .12). This same pattern was observed for cognitive and managerial skills, but these results did not reach statistical significance (see Table 12). The observed negative relationship between locus of control and skill development is contrary to existing theory, which suggests that an internal locus of control should facilitate rather than hinder development (DuCette & Wolk, 1973; Phares, 1976; Spector, 1982). In terms of cross-level moderation effects, Hypotheses 17a-17k predicted that locus of control would moderate the relationship between experience characteristics and leader development outcomes. Results suggest this is the case at least for some experience characteristics, but

the pattern of results for these experience characteristics was unexpected. As illustrated in Figures 3 through 8, an internal locus of control did not enhance leader skill development from experiences. Rather, an internal locus of control reduced the developmental value of experiences that were low on the following dimensions: density, new directions, dealing with problem employees, influencing without authority, and scope and scale. In other words, an internal locus of control amplified the lack of developmental value in these less challenging experiences. These cross-level moderation effects explained between 28% and 92% of the level-2 variance in the slope coefficients for the experience characteristic—outcome relationships. In sum, despite the fact that moderation was found in support of Hypotheses 17c, 17d, 17e, 17h, and 17k, the form of these interactions was not exactly as predicted.

Table 12 – Effects of Locus of Control on Leader Skill Development

	Cognitive Capacity		Managerial Capacity		Interpersonal Capacity	
Predictor	Coefficient	SE	Coefficient	SE	Coefficient	SE
Intercept (γ_{00})	3.44**	.07	3.06**	.07	3.52**	.07
Gender (γ_{01})	-.21	.16	-.36	.20	-.24	.13
Ethnicity (γ_{02})	-.03	.13	.07	.14	.10	.12
Cognitive ability (γ_{03})	.00	.00	.00	.00	.00	.00
Organizational tenure (γ_{04})	.07*	.02	.07*	.03	.07**	.01
Locus of control (γ_{05})	-.26	.14	-.25	.14	-.36*	.17
Hypothesis 17a: Duration						
Duration (γ_{10})	.0006**	.00	.00	.00	.00	.00
Locus of control (γ_{11})	.00	.00	.00	.00	.00	.00
Hypothesis 17b: Unfamiliarity						
Unfamiliarity (γ_{10})	.17**	.05	.13*	.05	.21**	.06
Locus of control (γ_{11})	-.08	.12	.14	.13	.05	.14
Hypothesis 17c: Density						
Density (γ_{10})	.26**	.04	.20**	.05	.26**	.05
Locus of control (γ_{11})	.07	.10	.28*	.12	.28**	.12
Hypothesis 17d: New directions						
New directions (γ_{10})	.36**	.05	.32**	.05		
Locus of control (γ_{11})	.02	.15	.28*	.12		
Hypothesis 17e: Dealing with problem employees						
Dealing with problem employees (γ_{10})					.19*	.08
Locus of control (γ_{11})					.31*	.13
Hypothesis 17f: Inherited problems						
Inherited problems (γ_{10})	.15*	.06				
Locus of control (γ_{11})	-.10	.15				

* $p < .05$, one-tailed. ** $p < .01$, one-tailed. Note: N = 206-225 (level-1); 60 (level-2). Gender (Male = 1). Ethnicity (Caucasian = 1). The intercept and control variable parameters presented here were calculated for Hypothesis 15a. These parameter estimates change slightly for each hypothesis, but the general pattern and interpretation of the values is consistent across all hypotheses.

Table 12 (cont.)

Predictor	Cognitive Capacity		Managerial Capacity		Interpersonal Capacity	
	Coefficient	SE	Coefficient	SE	Coefficient	SE
Intercept (γ_{00})	3.44**	.07	3.06**	.07	3.52**	.07
Gender (γ_{01})	-.21	.16	-.36	.20	-.24	.13
Ethnicity (γ_{02})	-.03	.13	.07	.14	.10	.12
Cognitive ability (γ_{03})	.00	.00	.00	.00	.00	.00
Organizational tenure (γ_{04})	.07*	.02	.07*	.03	.07**	.01
Locus of control (γ_{05})	-.26	.14	-.25	.14	-.36*	.17
Hypothesis 17g: External pressure						
External pressure (γ_{10})					.23**	.08
Locus of control (γ_{11})					.22	.19
Hypothesis 17h: Influencing without authority						
Influencing without authority (γ_{10})					.25**	.07
Locus of control (γ_{11})					.52**	.16
Hypothesis 17i: Work across cultures						
Work across cultures (γ_{10})					.15**	.06
Locus of control (γ_{11})					.33	.17
Hypothesis 17j: Work group diversity						
Work group diversity (γ_{10})					.38**	.10
Locus of control (γ_{11})					.16	.30
Hypothesis 17k: Scope and scale						
Scope and scale (γ_{10})	.40**	.05	.37**	.06		
Locus of control (γ_{11})	.09	.11	.44**	.11		

* $p < .05$, one-tailed. ** $p < .01$, one-tailed. Note: N = 206-225 (level-1); 60 (level-2). Gender (Male = 1). Ethnicity (Caucasian = 1). The intercept and control variable parameters presented here were calculated for Hypothesis 15a. These parameter estimates change slightly for each hypothesis, but the general pattern and interpretation of the values is consistent across all hypotheses.

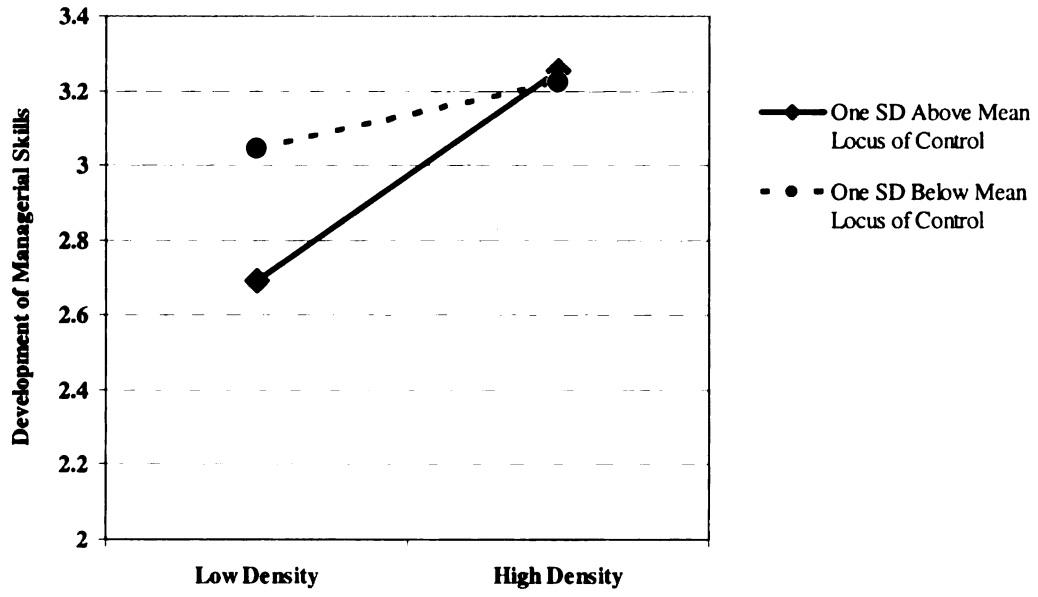


Figure 3 – Effects of Density and Locus of Control on the Development of Managerial Skills

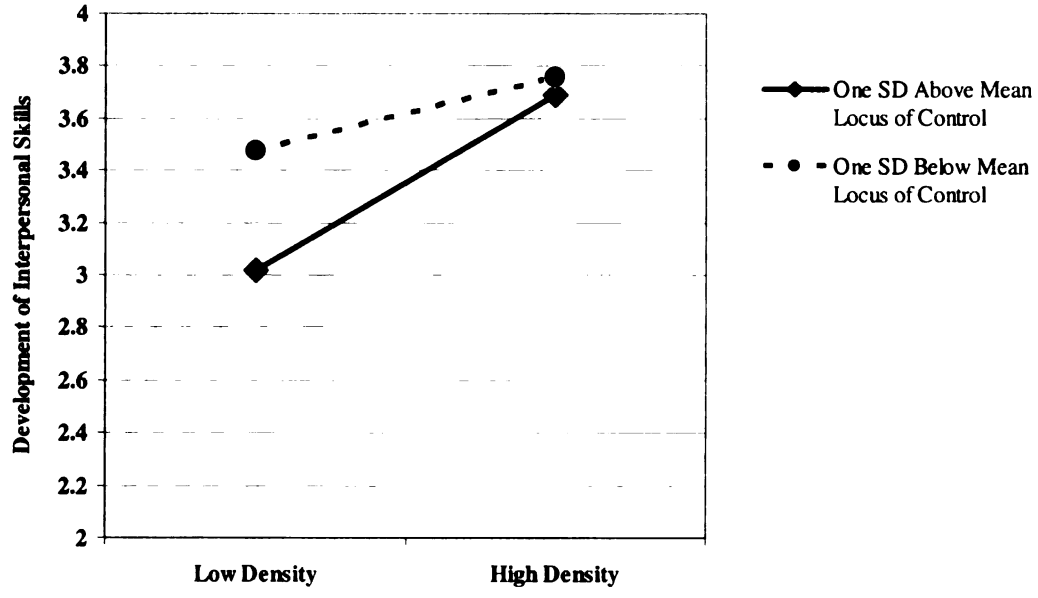


Figure 4 – Effects of Density and Locus of Control on the Development of Interpersonal Skills

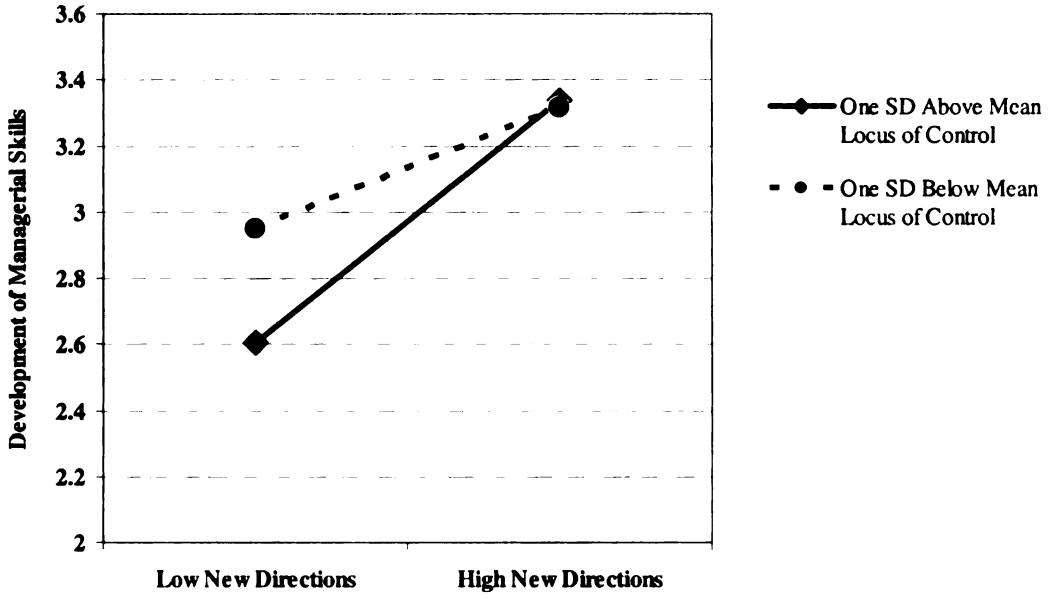


Figure 5 – Effects of New Directions and Locus of Control on the Development of Managerial Skills

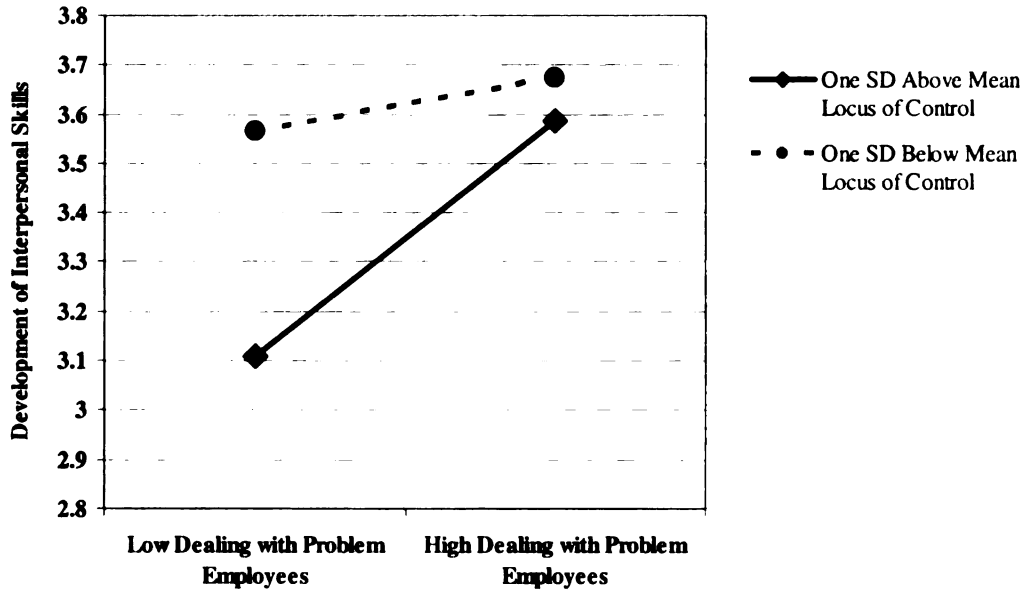


Figure 6 –Effects of Dealing with Problem Employees and Locus of Control on the Development of Interpersonal Skills

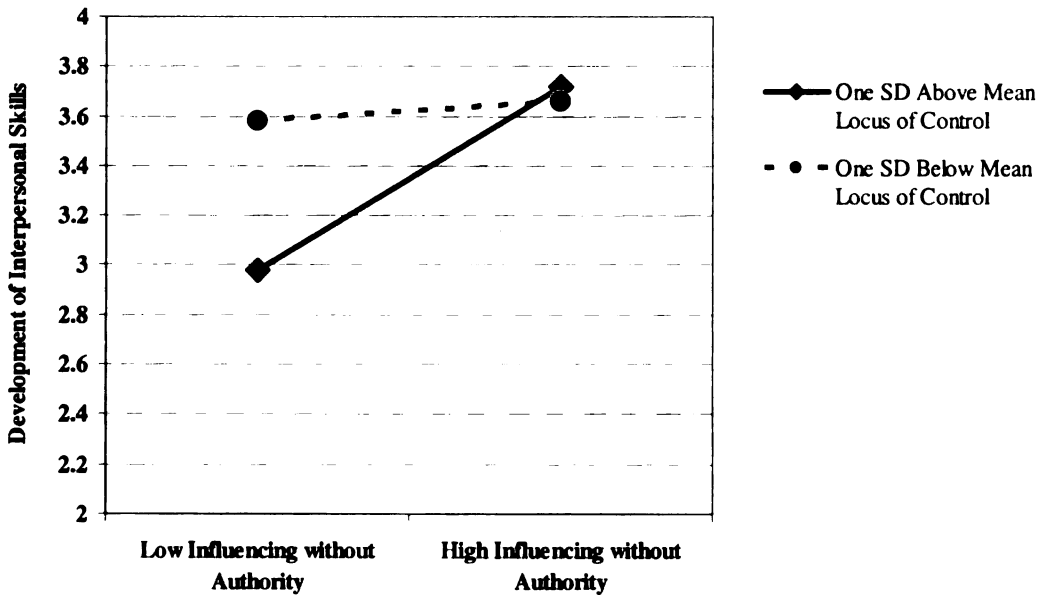


Figure 7 – Effects of Influencing without Authority and Locus of Control on the Development of Interpersonal Skills

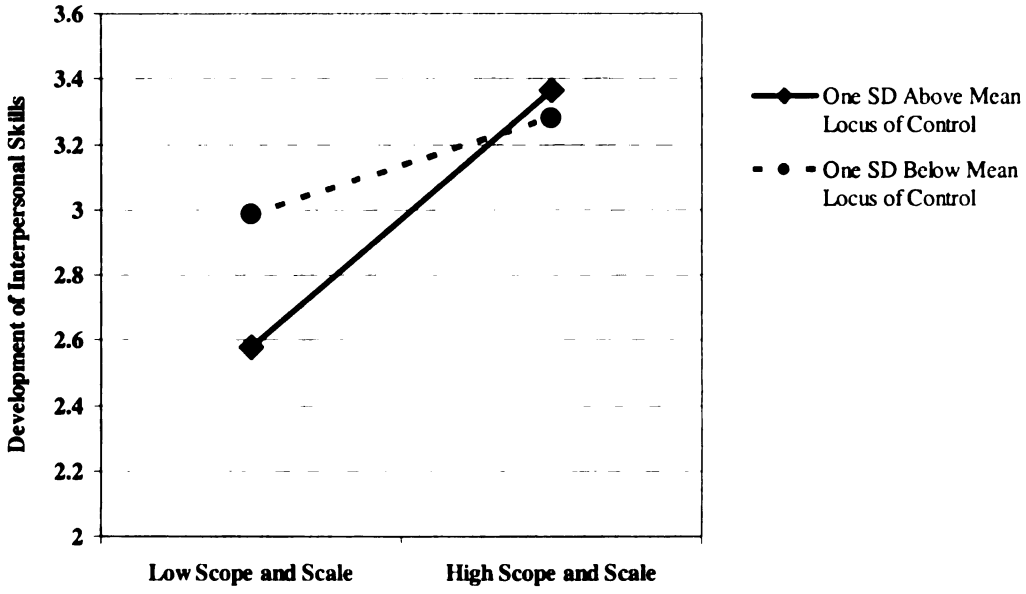


Figure 8 – Effects of Scope and Scale and Locus of Control on the Development of Interpersonal Skills

Hypothesis 18 predicted that work constraints would have a negative main effect on leader skill development, and Hypotheses 19a-19k predicted that work constraints would restrict the positive relationship between experience characteristics and leader skill development. Contrary to Hypothesis 18, work constraints did not have a main effect on the development of leaders' cognitive, managerial or interpersonal skills (see Table 13). As predicted, work constraints moderated the relationship between the duration of an experience and the development of leaders' managerial skills, thus providing support for Hypothesis 19a. Contrary to Hypothesis 19j, work constraints moderated the relationship between work group diversity and leaders' interpersonal skills but in an unintended direction. Specifically, experiences that required individuals to deal with diversity were most developmental when work constraints were high. See Figures 9 and 10 for illustrations of both cross-level interactions. In sum, these results offer partial support for Hypotheses 19a and suggest that future research should seek to understand why work constraints might enhance the skill development value of experiences that require individuals to deal with diversity. All other cross-level moderation hypotheses associated with work constraints did not reach statistical significance with the current data, and thus those hypotheses were not supported.

Table 13 – Effects of Work Constraints on Leader Skill Development

	Cognitive Capacity		Managerial Capacity		Interpersonal Capacity	
Predictor	Coefficient	SE	Coefficient	SE	Coefficient	SE
Intercept (γ_{00})	3.44**	.07	3.06**	.07	3.52**	.07
Gender (γ_{01})	-.18	.16	-.35	.20	-.21	.14
Ethnicity (γ_{02})	-.02	.14	.05	.14	.08	.12
Cognitive ability (γ_{03})	.00	.00	.00	.00	.00	.00
Organizational tenure (γ_{04})	.07*	.03	.07*	.03	.08**	.02
Work constraints (γ_{05})	-.11	.12	-.02	.13	-.09	.12
Hypothesis 19a: Duration						
Duration (γ_{10})	.0006*	.00	.0004*	.00	.0004*	.00
Work constraints (γ_{11})	.00	.00	-.0009**	.00	.00	.00
Hypothesis 19b: Unfamiliarity						
Unfamiliarity (γ_{10})	.15**	.06	.14*	.06	.21**	.06
Work constraints (γ_{11})	.12	.12	.01	.11	-.03	.17
Hypothesis 19c: Density						
Density (γ_{10})	.26**	.04	.21**	.06	.26**	.06
Work constraints (γ_{11})	.04	.07	-.04	.08	.03	.08
Hypothesis 19d: New directions						
New directions (γ_{10})	.36**	.05	.35**	.06		
Work constraints (γ_{11})	-.06	.12	-.11	.11		
Hypothesis 19e: Dealing with problem employees						
Dealing with problem employees (γ_{10})					.23**	.06
Work constraints (γ_{11})					-.25	.15
Hypothesis 19f: Inherited problems						
Inherited problems (γ_{10})	.15*	.06				
Work constraints (γ_{11})	-.07	.14				

* $p < .05$, one-tailed. ** $p < .01$, one-tailed. Note: N = 206-225 (level-1); 60 (level-2). Gender (Male = 1). Ethnicity (Caucasian = 1). The intercept and control variable parameters presented here were calculated for Hypothesis 16a. These parameter estimates change slightly for each hypothesis, but the general pattern and interpretation of the values is consistent across all hypotheses.

Table 13 (cont.)

Predictor	Cognitive Capacity		Managerial Capacity		Interpersonal Capacity	
	Coefficient	SE	Coefficient	SE	Coefficient	SE
Intercept (γ_{00})	3.44**	.07	3.06**	.07	3.52**	.07
Gender (γ_{01})	-.18	.16	-.35	.20	-.21	.14
Ethnicity (γ_{02})	-.02	.14	.05	.14	.08	.12
Cognitive ability (γ_{03})	.00	.00	.00	.00	.00	.00
Organizational tenure (γ_{04})	.07*	.03	.07*	.03	.08**	.02
Work constraints (γ_{05})	-.11	.12	-.02	.13	-.09	.12
Hypothesis 19g: External pressure						
External pressure (γ_{10})					.25**	.08
Work constraints (γ_{11})					-.01	.14
Hypothesis 19h: Influencing without authority						
Influencing without authority (γ_{10})					.22*	.08
Work constraints (γ_{11})					.05	.15
Hypothesis 19i: Work across cultures						
Work across cultures (γ_{10})					.18**	.07
Work constraints (γ_{11})					.09	.14
Hypothesis 19j: Work group diversity						
Work group diversity (γ_{10})					.36**	.11
Work constraints (γ_{11})					.37*	.18
Hypothesis 19k: Scope and scale						
Scope and scale (γ_{10})	.41**	.05	.42**	.07		
Work constraints (γ_{11})	-.02	.08	-.07	.14		

* $p < .05$, one-tailed. ** $p < .01$, one-tailed. Note: N = 206-225 (level-1); 60 (level-2). Gender (Male = 1). Ethnicity (Caucasian = 1). The intercept and control variable parameters presented here were calculated for Hypothesis 16a. These parameter estimates change slightly for each hypothesis, but the general pattern and interpretation of the values is consistent across all hypotheses.

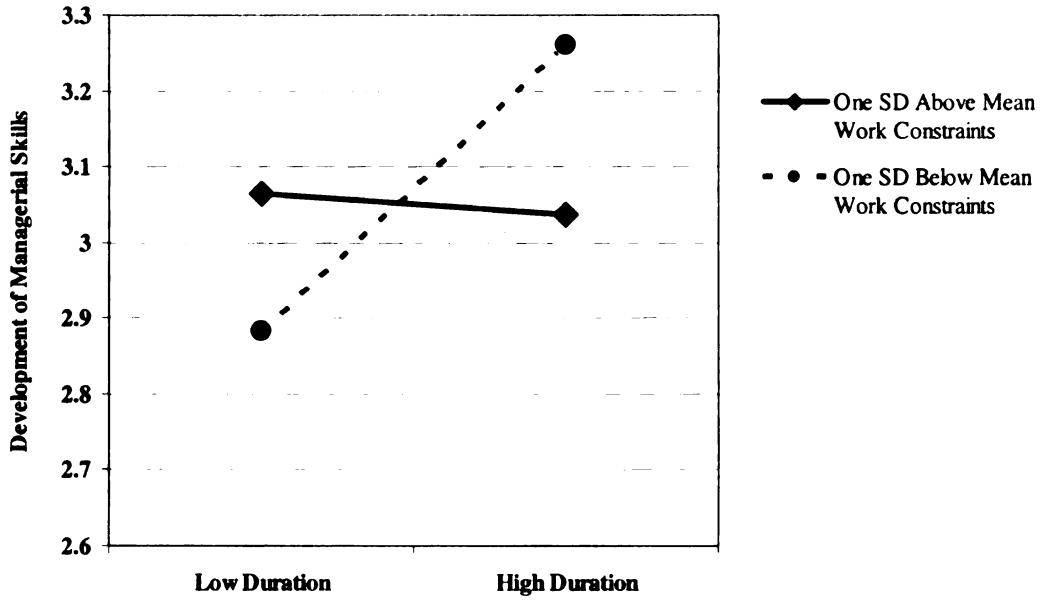


Figure 9 – Effects of Duration and Work Constraints on the Development of Managerial Skills

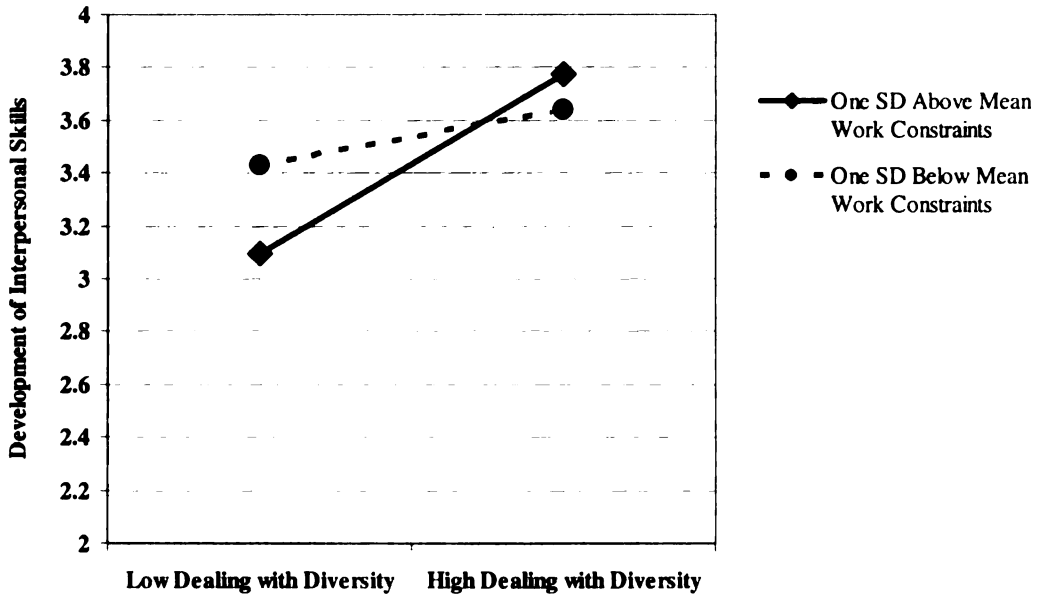


Figure 10 – Effects of Dealing with Diversity and Work Constraints on the Development of Interpersonal Skills

Hypothesis 20 predicted that the availability of feedback would be positively related to leader skill development, and Hypotheses 21a-21k expected feedback availability to enhance the relationship between experience characteristics and leader skill development. As indicated in Table 14, feedback did have a positive main effect on the development of leaders' managerial skills. The main effect of feedback on cognitive and interpersonal skills was positive but did not reach statistical significance. These data provide at least partial support for Hypothesis 20. Regarding Hypothesis 21, feedback did enhance the relationship between leader skill development and the following experience characteristics: duration, new directions, dealing with problem employees, and scope and scale. These data explain between 7% and 40% of the level-2 variance in the slope coefficients for the experience characteristic—outcome relationships, thus providing partial or full support for Hypotheses 21a, 21d, 21e, and 21k. Illustrations of these cross-level interactions are presented in Figures 11-15. All other cross-level moderation hypotheses associated with feedback did not reach statistical significance with the current data and thus were not supported.

Table 14 – Effects of Feedback on Leader Skill Development

	Cognitive Capacity		Managerial Capacity		Interpersonal Capacity	
Predictor	Coefficient	SE	Coefficient	SE	Coefficient	SE
Intercept (γ_{00})	3.44**	.07	3.06**	.07	3.52**	.07
Gender (γ_{01})	-.14	.16	-.27	.20	-.18	.15
Ethnicity (γ_{02})	-.01	.14	.10	.15	.10	.14
Cognitive ability (γ_{03})	.00	.00	.00	.00	.00	.00
Organizational tenure (γ_{04})	.06*	.03	.06*	.03	.07**	.02
Feedback (γ_{05})	.13	.09	.18*	.09	.07	.11
Hypothesis 21a: Duration						
Duration (γ_{10})	.00	.00	.00	.00	.00	.00
Feedback (γ_{11})	.00	.00	.0007*	.00	.001**	.00
Hypothesis 21b: Unfamiliarity						
Unfamiliarity (γ_{10})	.17**	.06	.13*	.06	.20**	.06
Feedback (γ_{11})	-.06	.08	.04	.09	.07	.11
Hypothesis 21c: Density						
Density (γ_{10})	.26**	.04	.21**	.05	.26**	.05
Feedback (γ_{11})	-.04	.08	.04	.09	.00	.10
Hypothesis 21d: New directions						
New directions (γ_{10})	.40**	.05	.33**	.06		
Feedback (γ_{11})	-.17**	.06	.02	.12		
Hypothesis 21e: Dealing with problem employees						
Dealing with problem employees (γ_{10})					.23**	.06
Feedback (γ_{11})					.23*	.11
Hypothesis 21f: Inherited problems						
Inherited problems (γ_{10})	.14*	.06				
Feedback (γ_{11})	.07	.08				

* $p < .05$, one-tailed. ** $p < .01$, one-tailed. Note: N = 206-225 (level-1); 60 (level-2). Gender (Male = 1). Ethnicity (Caucasian = 1). The intercept and control variable parameters presented here were calculated for Hypothesis 17a. These parameter estimates change slightly for each hypothesis, but the general pattern and interpretation of the values is consistent across all hypotheses.

Table 14 (cont.)

Predictor	Cognitive Capacity		Managerial Capacity		Interpersonal Capacity	
	Coefficient	SE	Coefficient	SE	Coefficient	SE
Intercept (γ_{00})	3.44**	.07	3.06**	.07	3.52**	.07
Gender (γ_{01})	-.14	.16	-.27	.20	-.18	.15
Ethnicity (γ_{02})	-.01	.14	.10	.15	.10	.14
Cognitive ability (γ_{03})	.00	.00	.00	.00	.00	.00
Organizational tenure (γ_{04})	.06*	.03	.06*	.03	.07**	.02
Feedback (γ_{05})	.13	.09	.18*	.09	.07	.11
Hypothesis 21g: External pressure						
External pressure (γ_{10})					.24**	.07
Feedback (γ_{11})					.07	.10
Hypothesis 21h: Influencing without authority						
Influencing without authority (γ_{10})					.22**	.08
Feedback (γ_{11})					.01	.11
Hypothesis 21i: Work across cultures						
Work across cultures (γ_{10})					.19**	.07
Feedback (γ_{11})					-.06	.14
Hypothesis 21j: Work group diversity						
Work group diversity (γ_{10})					.38**	.10
Feedback (γ_{11})					-.02	.13
Hypothesis 21k: Scope and scale						
Scope and scale (γ_{10})	.41**	.04	.42**	.07		
Feedback (γ_{11})	-.13**	.05	-.15	.09		

* $p < .05$, one-tailed. ** $p < .01$, one-tailed. Note: N = 206-225 (level-1); 60 (level-2). Gender (Male = 1). Ethnicity (Caucasian = 1). The intercept and control variable parameters presented here were calculated for Hypothesis 17a. These parameter estimates change slightly for each hypothesis, but the general pattern and interpretation of the values is consistent across all hypotheses.

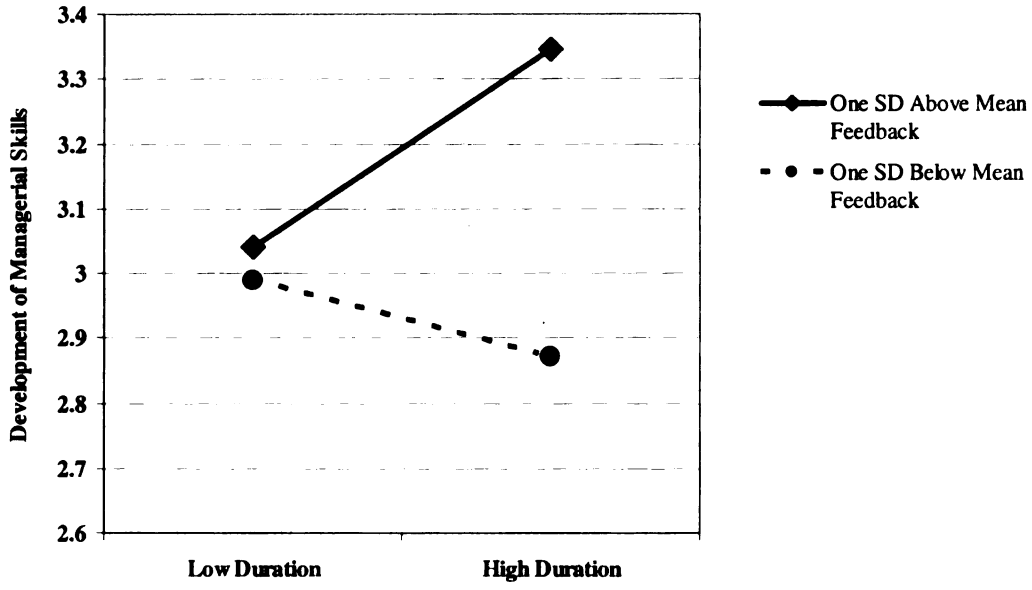


Figure 11 – Effects of Duration and Feedback on the Development of Managerial Skills

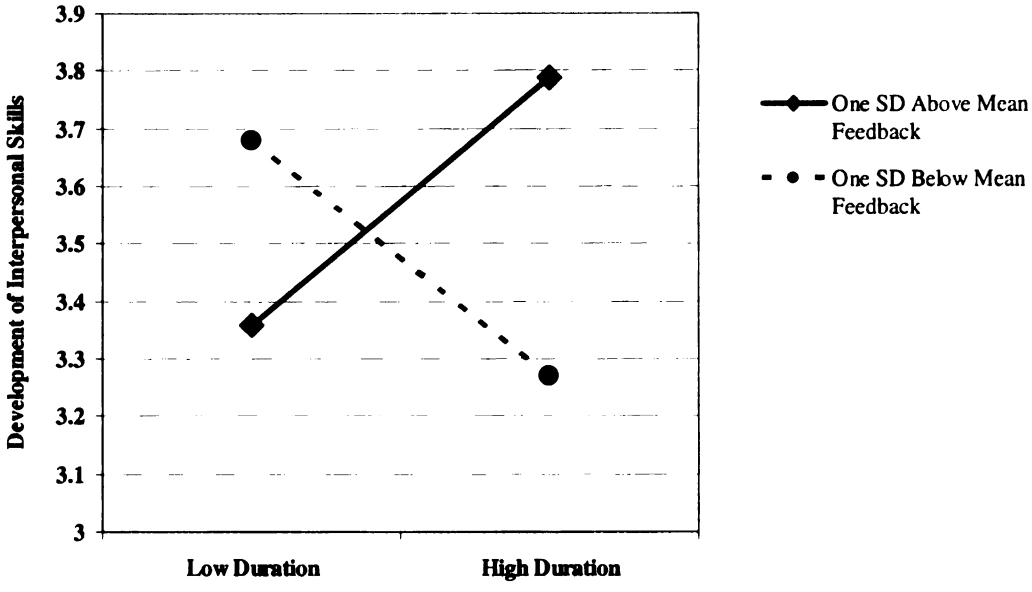


Figure 12 – Effects of Duration and Feedback on the Development of Interpersonal Skills

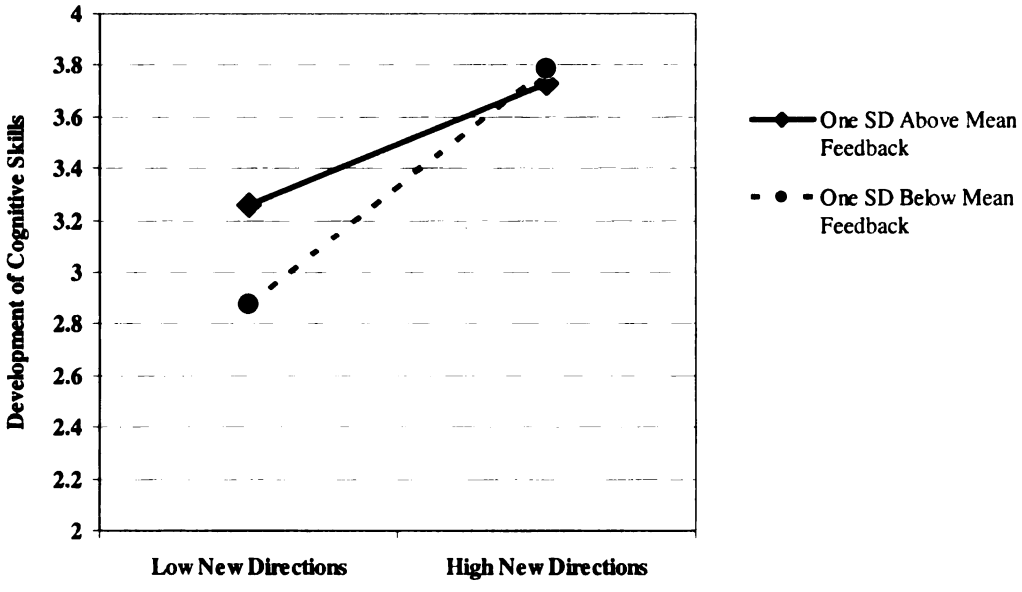


Figure 13 – Effects of New Directions and Feedback on the Development of Cognitive Skills

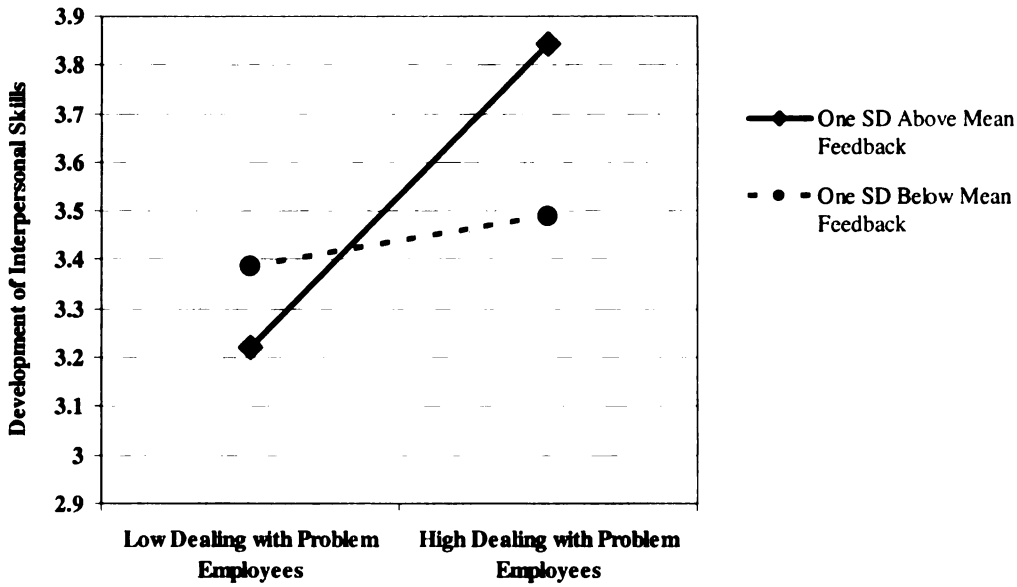


Figure 14 – Effects of Dealing with Problem Employees and Feedback on the Development of Interpersonal Skills

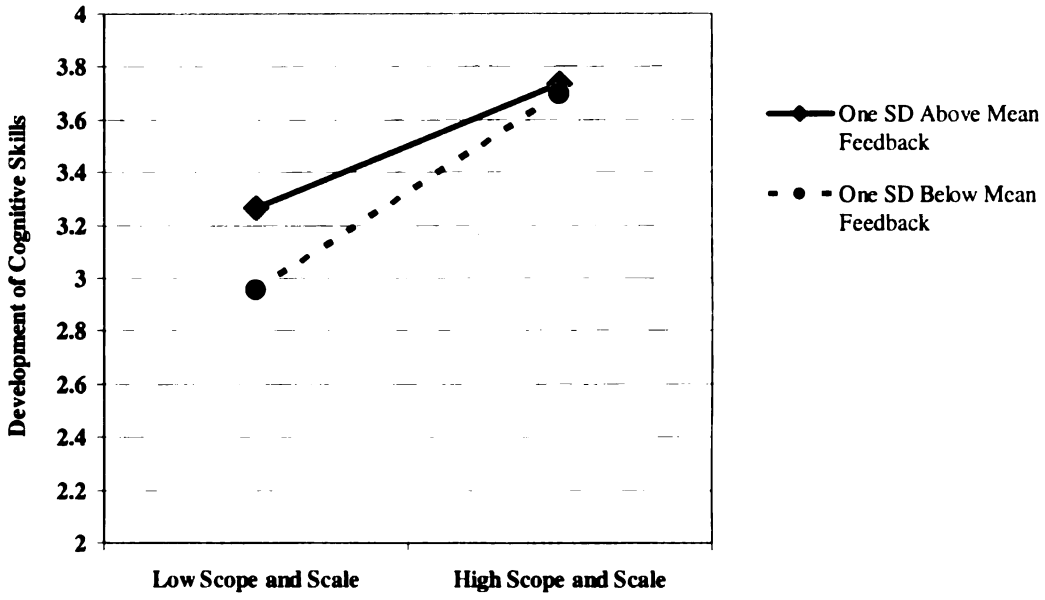


Figure 15 – Effects of Scope and Scale and Feedback on the Development of Cognitive Skills

Finally, Hypothesis 22 predicted that social support would enhance leader skill development from informal work experiences. Hypotheses 23a-23k predicted that social support would moderate the relationship between experience characteristics and leader skill development such that the relationship between experience characteristics and skill development would be stronger when people had high levels of social support. As indicated in Table 15, social support did not have a main effect on the development of leaders' cognitive, managerial or interpersonal skills. Thus, Hypothesis 22 was not supported with the current data. As predicted, social support moderated the relationship between the duration of an experience and the development of leaders' managerial and interpersonal skills, thus offering partial support for Hypothesis 23a. Social support also moderated the relationship between influencing without authority and the development of leaders' interpersonal skills, thus offering support for Hypothesis 23h. This cross-level moderation effect explained 35% of the level-2 variance in the slope coefficient for the relationship between influencing without authority and the development of interpersonal capacity. These cross-level interactions are illustrated in Figures 16-18. All other cross-level moderation hypotheses associated with social support did not reach statistical significance with the current data and thus were not supported.

Table 15 – Effects of Social Support on Leader Skill Development

	Cognitive Capacity		Managerial Capacity		Interpersonal Capacity	
Predictor	Coefficient	SE	Coefficient	SE	Coefficient	SE
Intercept (γ_{00})	3.44**	.07	3.05**	.07	3.52**	.07
Gender (γ_{01})	-.19	.15	-.33	.19	-.20	.13
Ethnicity (γ_{02})	-.04	.14	.06	.15	.07	.13
Cognitive ability (γ_{03})	.00	.00	.00	.00	.00	.00
Organizational tenure (γ_{04})	.07*	.03	.07*	.03	.08**	.02
Social support (γ_{05})	.10	.14	.11	.14	.07	.13
Hypothesis 23a: Duration						
Duration (γ_{10})	.0006*	.00	.00	.00	.00	.00
Social support (γ_{11})	.00	.00	.001*	.00	.001*	.00
Hypothesis 23b: Unfamiliarity						
Unfamiliarity (γ_{10})	.16**	.05	.14*	.06	.21**	.06
Social support (γ_{11})	-.16	.11	-.07	.13	-.04	.13
Hypothesis 23c: Density						
Density (γ_{10})	.26**	.04	.20**	.05	.26**	.05
Social support (γ_{11})	-.03	.09	.07	.11	.21	.11
Hypothesis 23d: New directions						
New directions (γ_{10})	.36**	.05	.34**	.06		
Social support (γ_{11})	.05	.12	.15	.14		
Hypothesis 23e: Dealing with problem employees						
Dealing with problem employees (γ_{10})					.21**	.07
Social support (γ_{11})					.20	.14
Hypothesis 23f: Inherited problems						
Inherited problems (γ_{10})	.14*	.06				
Social support (γ_{11})	.02	.11				

* $p < .05$, one-tailed. ** $p < .01$, one-tailed. Note: N = 206-225 (level-1); 60 (level-2). Gender (Male = 1). Ethnicity (Caucasian = 1). The intercept and control variable parameters presented here were calculated for Hypothesis 18a. These parameter estimates change slightly for each hypothesis, but the general pattern and interpretation of the values is consistent across all hypotheses.

Table 15 (cont.)

Predictor	Cognitive Capacity		Managerial Capacity		Interpersonal Capacity	
	Coefficient	SE	Coefficient	SE	Coefficient	SE
Intercept (γ_{00})	3.44**	.07	3.05**	.07	3.52**	.07
Gender (γ_{01})	-.19	.15	-.33	.19	-.20	.13
Ethnicity (γ_{02})	-.04	.14	.06	.15	.07	.13
Cognitive ability (γ_{03})	.00	.00	.00	.00	.00	.00
Organizational tenure (γ_{04})	.07*	.03	.07*	.03	.08**	.02
Social support (γ_{05})	.10	.14	.11	.14	.07	.13
Hypothesis 23g: External pressure						
External pressure (γ_{10})					.23**	.08
Social support (γ_{11})					.17	.20
Hypothesis 23h: Influencing without authority						
Influencing without authority (γ_{10})					.22**	.07
Social support (γ_{11})					.34*	.15
Hypothesis 23i: Work across cultures						
Work across cultures (γ_{10})					.18**	.06
Social support (γ_{11})					.00	.17
Hypothesis 23j: Work group diversity						
Work group diversity (γ_{10})					.38**	.11
Social support (γ_{11})					-.05	.25
Hypothesis 23k: Scope and scale						
Scope and scale (γ_{10})	.41**	.05	.40**	.07		
Social support (γ_{11})	.03	.11	.19	.16		

* $p < .05$, one-tailed. ** $p < .01$, one-tailed. Note: N = 206-225 (level-1); 60 (level-2). Gender (Male = 1). Ethnicity (Caucasian = 1). The intercept and control variable parameters presented here were calculated for Hypothesis 18a. These parameter estimates change slightly for each hypothesis, but the general pattern and interpretation of the values is consistent across all hypotheses.

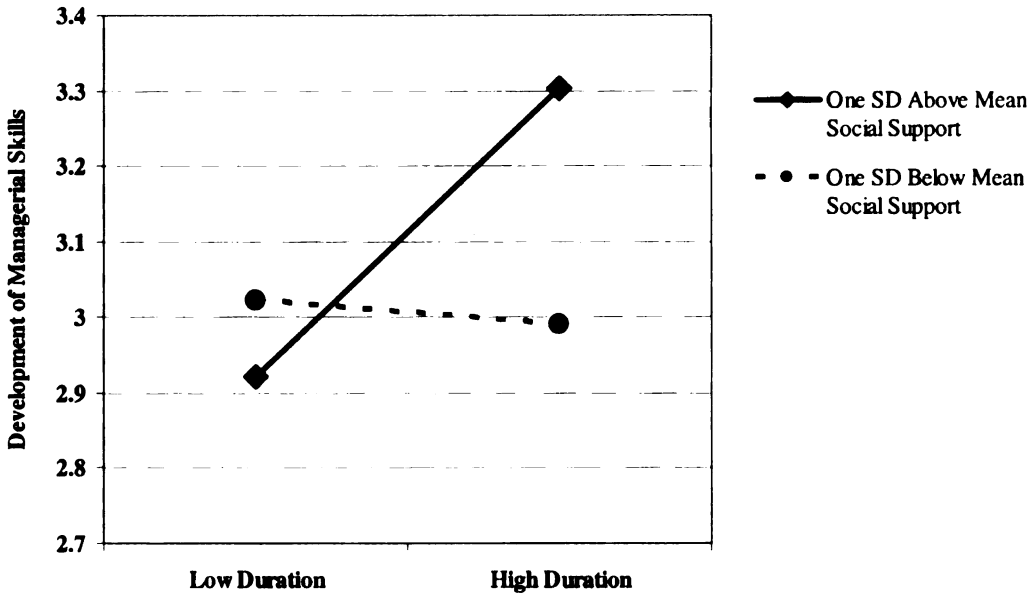


Figure 16 – Effects of Duration and Social Support on the Development of Managerial Skills

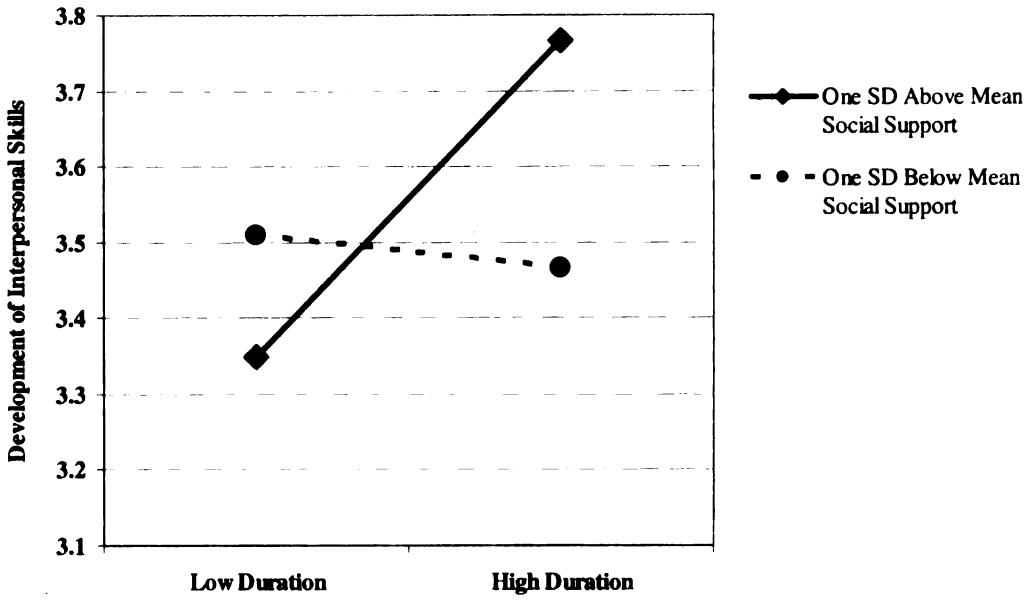


Figure 17 – Effects of Duration and Social Support on the Development of Interpersonal Skills

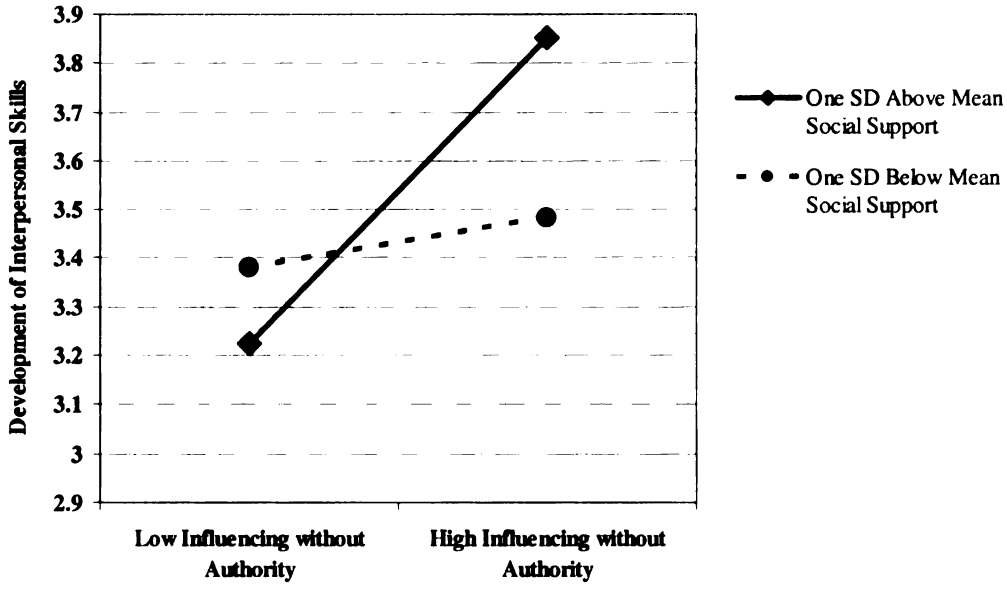


Figure 18 – Effects of Influencing without Authority and Social Support on the Development of Interpersonal Skills

DISCUSSION

The purpose of this research was to develop and test a multi-level theory of leader development. At the experience level of analysis, this theory explains how informal work experiences, which are nested within individuals, promote the development of leadership capacity. In this theory, leadership capacity comprises three specific leadership skills (cognitive, managerial, strategic) and two self-concept beliefs (leadership identity, leadership self-efficacy). At the individual level of analysis, this theory also explains how two individual differences (achievement motivation, locus of control) and three contextual factors (work constraints, feedback, social support) impact the developmental value of informal work experiences. To empirically test this theory, I conducted a study using both qualitative and quantitative methods with managers from a wide variety of organizations. In this discussion of the study, I first provide a brief overview of the study findings. I then discuss the strengths and limitations of the study, followed by a series of supplemental analyses that address select limitations. I conclude this dissertation with a discussion of the implications for leadership development research and practice.

Summary of Findings

One of the primary questions this research sought to address is which characteristics of informal work experiences are related to the development of leadership skills, namely cognitive, managerial, and interpersonal skills. Results from this study suggest that each of the quantitative, interactive, and qualitative experience characteristics possesses explanatory value in this respect. Among the quantitative and interactive dimensions, experiences that were particularly unfamiliar to the individual and dense with challenging

opportunities proved to be highly developmental in terms of cognitive, managerial, and interpersonal skills. The duration of an experience showed a modest positive relationship with the development of cognitive skills but had little to no effect on the development of managerial or interpersonal skills. In terms of the qualitative dimensions, experiences that required leaders to take their organization or work group in new directions and experiences of relatively large scope and scale were particularly developmental of cognitive and managerial skills. Experiences that forced leaders to overcome inherited problems also promoted the development of cognitive skills. Five qualitative experience characteristics were found to be particularly developmental of interpersonal skills. These included experiences that required leaders to deal with problem employees, handle significant external pressure, influence people whom they had no authority over, work in cross-culture environments, and lead highly diverse work groups. Overall, these results provide compelling evidence that informal work experiences have significant developmental value for leaders and that the characteristics of these experiences shape how and to what extent any single experience is developmental.

Beyond leadership skills, this research also examined how the characteristics of informal work experiences and individuals' performance in those experiences impact one's leadership identity and leadership self-efficacy. Findings from this study suggest that one's performance is a meaningful predictor for how any single experience affects self-concept beliefs. In particular, individuals' leadership identity and leadership self-efficacy are enhanced as a result of experiences in which the individual performs well. Contrary to expectations and existing theory (Bandura, 1997, Erikson, 1968), the significance of an experience did not influence the relationship between performance and

self-concept beliefs. Thus, these findings confirm parts of existing theory on self-concept beliefs but also raise some questions about why the significance of an experience might not influence self-concept beliefs as some have suggested.

The findings discussed thus far have all been at the experience level of analysis. Another important question this research sought to address is how and to what extent individual-level factors, namely individual differences and contextual factors, influence the developmental value of informal work experiences. In terms of individual differences, I examined the impact of achievement motivation and locus of control on the development of leadership skills—both of which were expected to enhance the development of leadership skills. In the case of achievement motivation, findings from this study suggest that achievement motivation does not enhance the developmental value of informal work experiences. First, achievement motivation did not have a main effect on leader skill development, meaning that individuals who were higher on achievement motivation did not develop more than those who were low on this factor. Furthermore, only one out of 19 cross-level moderation hypotheses associated with achievement motivation was found to be significant. One possible explanation for these underwhelming results is that the sample used in this study produced a restricted range of achievement motivation data ($M = 3.97$; $SD = .51$). With a sample that included more variation in achievement motivation, the results may have been more in line with a priori predictions. Nonetheless, these findings draw into question the impact of achievement motivation on leader skill development and thus provide an impetus for future research on the role of motivation in leader development.

For locus of control, existing theory and research suggests that an internal locus of control enhances learning and development (DuCette & Wolk, 1973; Ude & Vogler, 1969; Wolk & DuCette, 1974). In light of this literature, results from the present study were mixed. Contrary to expectations, locus of control exhibited a negative main effect on leader skill development. However, consistent with expectations, locus of control did have a positive cross-level moderating effect on leader skill development for select experience characteristics. Specifically, for experiences that were dense with challenging opportunities, an internal locus of control proved to be particularly valuable for the development of managerial and interpersonal skills. Similar findings emerged for experiences that required leaders to deal with problem employees, influence without authority, and deal with relatively large amounts of scope and scale. Thus, on one hand, these results confirm that locus of control can have a positive impact on leader skill development. On the other hand, these results draw into question the generic prediction made by existing literature and suggest that locus of control may only have a positive impact for select types of informal work experiences. Future research should examine this issue further and attempt to understand why locus of control would have a positive impact for certain types of informal work experiences but not others.

In terms of contextual factors, results from the current study suggest that work constraints do not negatively impact leader skill development as expected, and availability of feedback and social support can enhance leader skill development but only for certain types of informal work experiences. Of the three contextual factors, only availability of feedback exhibited a main effect on leader skill development—specifically, feedback enhanced the development of managerial skills across all

experiences. In terms of cross-level moderation, only one of 19 cross-level moderation hypotheses associated with work constraints was found to be significant and it was in the opposite direction as expected—specifically, work constraints enhanced the developmental value of experiences that required leaders to manage diverse work groups.

In terms of feedback, cross-level effects were inconsistent. For longer duration experiences and experiences that required leaders to deal with problem employees, feedback enhanced the development of managerial and interpersonal skills. On the other hand, feedback decreased the developmental value of experiences where leaders had to take their organization or work group in new directions and experiences of relatively large scope and scale. These findings are consistent with past research that questions the efficacy of feedback interventions (e.g., Klueger & Denisi, 1996) and suggest that feedback availability is generally not sufficient for leadership development—even when coupled with challenging informal work experiences. One possible explanation for this that future research might explore is that the type of feedback received (positive versus negative; diagnostic versus non-diagnostic) determines the ultimate impact on leader development outcomes. It could be the case that the type of feedback received explains how individuals interpret, react to, and learn from their experiences. Moreover, the type of feedback received may interact with the type of experience such that different experience types require different types of feedback. These are questions the present study cannot address but would be interesting areas for future research. Finally, social support exhibited a positive effect on leader skill development for certain types of experiences. Specifically, social support enhanced the developmental value of

experiences that were long in duration and experiences that required individuals to influence people for whom they had no authority.

Looking across these results, the cross-level findings complement and refine existing literature in several ways. First, existing literature assumes that work constraints negatively impact learning and development, yet results from this study suggest that may not be the case. This could be because overcoming certain work constraints is developmental in its own right; an example from the present study is the positive relationship between work constraints and development when experiences require managing work group diversity. That said, the general pattern of results for work constraints is negative, so it seems reasonable that in most cases work constraints do not enhance leader skill development. Second, Klueger and Denisi (1996) showed that feedback does not necessarily result in higher levels of performance. The present study confirms their findings at the experience level of analysis. In doing so, this research also draws into question existing literature that suggests feedback coupled with challenging informal work experiences leads to positive developmental benefits (Van Velsor & McCauley, 2004). The present research suggests this is true for certain types of informal work experiences but not all. Third, social support does not seem to promote leader skill development as existing literature would suggest (Birdi et al., 1997; Noe, 1986).

Strengths, Limitations, and Areas for Future Research

This research had several strengths and limitations that should be noted. First, the multi-level nature of this theory and research addresses a limitation of existing literature. As stated previously, most research on informal work experiences as a mechanism for development has focused on job-level experiences (e.g., Jackson & Wall, 1991; McCall

et al., 1988; McCauley et al., 1994; Wall, Jackson, & Davids, 1992). However, a job-level perspective does not address the fact that two people in the same job often have different sets of developmental experiences and, as a result of these experiences, develop in different ways and at different rates. By conceptualizing and examining discrete, task-level experiences, the current research explicitly models within-job and within-person variance in developmental experiences that would not be considered at the job level.

The second strength of this study is the consideration of both skill and belief-based outcomes. Existing leadership development research has focused purely on skill-based outcomes. However, an emphasis on skills without considering the impact on individuals' beliefs offers an incomplete report of the development process (Gagne, 1984; Kraiger, Ford, & Salas, 1993; Messick, 1984). To address this limitation, the current research examined the impact of informal work experiences on the development of leadership skills and self-concept beliefs, namely leadership identity and leadership self-efficacy. In turn, the current research offers a more robust framework for conceptualizing leader development outcomes.

Another important strength of this research was the study design. Specifically, this research employed multiple methods, using qualitative interview techniques to capture rich data on each discrete experiences and quantitative survey measures to collect data on individual differences, contextual factors, experience characteristics, and development outcomes. Moreover, the quantitative survey data was collected from multiple sources and at different times. The individual difference and contextual factors were collected first from the focal participants. After the qualitative interviews, the focal participants completed surveys on the experience characteristics. In a subsequent survey, the focal

participant provided data on how each experience impacted his or her leadership identity and leadership self-efficacy. At this same time but on a different survey, individuals' supervisors provided data on the relevant skill-based outcomes. By using multiple sources and multiple methods, I minimized common method variance as a potential explanation for the results and provided a more robust test of the study hypotheses.

Notwithstanding the strengths of this research, this study also had several limitations. The first three points discussed here present methodological and research design limitations of the study. Although every attempt was made to minimize these limitations in the design of this study, the limitations are still noteworthy. Then, the remaining three limitations discussed here are more conceptual in nature and highlight interesting avenues for future theory building and research.

First, the present study relied on retrospective accounts of informal work experiences, both from the focal participant and his or her supervisor. Retrospective accounts are subject to errors of recall and memory biases. These retrospective biases occur because people have limited, imperfect recall (Ericsson & Simon, 1980), are influenced by their implicit or espoused theories of the past (Duncan, 1979), and are subject to cognitive processes such as rationalization, self-presentation, simplification, attribution, or simple lapses of memory (Wolfe & Jackson, 1987). Although issues related to memory and recall bias are important limitations, there are four reasons why these biases are not a significant concern in the present research. First, research on experience-sampling methodologies has shown that retrospective reports converge with real-time reports of life events (Ptacek, Smith, Espe, & Raffety, 1994). Second, as a check for recall bias, I collected self-reports of the skill-based development outcomes in addition to the

supervisor ratings. In this particular study, the self ratings converged with the supervisor ratings of cognitive, managerial, and interpersonal skill development (bivariate correlations ranged from .28 to .44, $p < .05$). Third, one might expect retrospective biases to attenuate the within-person variance among the experiences. However, data from this study suggests that both focal participants and their supervisors sufficiently discriminated among experiences. Specifically, the ratings of experience characteristics and development outcomes showed considerable within-person variance (see Table 7). This suggests that any retrospective bias present in the study did not result in a lack of discrimination between experiences. Finally, this research was designed according to the guidelines offered by Huber and colleagues (Huber, 1985; Huber & Power, 1985) for minimizing memory and recall bias. Specifically, all of the experiences examined in this study occurred within the last 12 months and were meaningful enough to be identified by the participant. Furthermore, all participants were directly involved in their respective experiences. As such, memory and recall bias was minimized in this research. That said, future research should examine leader development from informal work experiences over time—thus allowing researchers the opportunity to assess in real time the pre-post changes in leadership capacity that result from informal work experiences.

A second limitation of this study involves the manner in which the information was gathered. In the interview phase, leaders were interviewed by the author. It is possible that the focal participants biased their responses in such a way that made them appear more favorable. It is also possible that the underlying perspective or biases of the interviewer somehow influenced the individuals' responses. Some of these threats were minimized by the methods used to elicit information on the experiences (e.g., asking for

both developmental and not developmental experiences) and the methods used to summarize the experiences (e.g., written by the author and then edited/corrected by the focal participants directly).

Another limitation of this study has to do with how the sample characteristics may have influenced the results. Participation in this study was voluntary, and some individuals who participated initially decided to drop out of the study. Thus, it is possible that respondents and non-respondents varied along important (and unmeasured) variables. For example, it might be the case that those who chose to complete the research had a strong orientation toward learning and development, which might influence the degree to which they develop from their experiences at work. In addition, it is possible that participants did not feel their responses were anonymous. This could have influenced response rates, but it also may have influenced the honesty of individuals' responses. Any such bias may have distorted the results in ways that are undetectable.

In addition to the above methodological concerns, there are also several conceptual limitations in this research. First, only a limited range of experience characteristics were assessed. The experience characteristics examined in this research were identified from existing theory and research on general work experience and leadership development (e.g., McCauley et al., 1994; Tesluk & Jacobs, 1998). However, relative to other leadership domains, there has been very little research on how informal work experiences facilitate leader development. Thus, there may be experience characteristics other than those studied here that are noteworthy. Future research should look to identify these other experience characteristics using the theoretical framework presented here as a guideline. Further analysis of the current research could also be insightful in this respect. The

qualitative descriptions of the experiences collected in this study are extremely rich and could be content analyzed for meaningful characteristics other than those identified a priori.

Another conceptual limitation in this research is that the theory articulated here does not identify the underlying psychological and behavioral mechanisms that explain how certain informal experiences promote leader development. Future research should build on the present theory to further articulate the leader development process and explanatory mechanisms for how individuals develop leadership capacity from their experiences at work. This research might choose to focus on how individuals psychologically or behaviorally react to different types of informal work experiences, and then seek to understand how these psychological or behavioral responses facilitate or hinder leader development.

Finally, this research predicted a series of differential relationships between experience characteristics and leader development outcomes. However, the experience characteristics were generally correlated with all three leader skill dimensions – cognitive, managerial, and interpersonal. This is not surprising given that the correlations among cognitive, managerial, and interpersonal skill development ranged from .66 to .73 ($p < .01$). Moreover, the experience characteristics were modestly correlated with each other. These data suggest there may be superordinate factors that better explain and provide a more parsimonious view of both the experience characteristics and leader development outcomes. In terms of the experience characteristics, with the exception of duration, Ohlott (2004) suggested that experience characteristics could be organized along five superordinate factors: unfamiliarity, creating change (new directions, inherited

problems, problems with employees), high levels of responsibility (high stakes, scope and scale), managing boundaries (external pressure, influence without authority), and dealing with diversity (work across cultures, work group diversity). Regarding leader development outcomes, it seems reasonable based on the theory and research presented here to expect the three skill-based outcomes to represent a general factor of leader skill development; leadership identity and leadership self-efficacy, however, likely represent a general factor of self-concept beliefs. In the next section, I present a series of supplemental analyses that examine the superordinate factor structure of the experience characteristics and leader development outcomes, thus addressing this limitation and pursuing a more parsimonious model. Although the primary purpose of this research was to examine the developmental value of each experience characteristic independently, I also use these supplemental analyses to examine the relative importance of specific experience characteristics in explaining leader skill development.

Supplemental Analyses

I first conducted a principal components analysis of the five leader development outcomes—leadership identity, leadership self-efficacy, and cognitive, managerial, and interpersonal skills. As illustrated in Table 16, the three skill-based outcomes loaded onto to a single factor (leadership skills), and leadership identity and leadership self-efficacy loaded onto a separate factor (self-concept beliefs). Thus, the leader development outcomes examined in this study can be explained using a 2-factor solution. I then conducted a principal components analysis of the qualitative experience characteristics, excluding the quantitative (unfamiliarity, duration) and interactive (density) characteristics because they are conceptually distinct based on the present theory and

prior research (e.g., Tesluk & Jacobs, 1998). Initial results indicated a 3-factor solution best fit the data (Table 17). This 3-factor solution identified dealing with diversity and creating change as separate factors, which was consistent with existing literature (Ohlott, 2004). However, the current data resulted in a single factor explaining high levels of responsibility and managing boundaries, despite existing literature treating these as conceptually distinct factors. Based on existing literature, I conducted a follow-up principal components analysis where I forced a 4-factor solution. This solution, as presented in Table 18, resulted in the 4-factor solution that was consistent with existing literature: creating change, managing boundaries, high levels of responsibility, and dealing with diversity. Given these results and the support for this 4-factor solution in prior research, future research might choose to conceptualize the qualitative experience characteristics around these four factors.

Table 16 – Principal Components Analysis of Leader Development Outcomes

	Components	
	Leadership skills	Self-concept beliefs
Interpersonal skills	.882	
Managerial skills	.878	
Cognitive skills	.875	
Leadership identity		.932
Leadership self-efficacy		.925

Note. Varimax rotation with kaiser normalization.

Table 17 – Principal Components Analysis of Experience Characteristics (3-factor solution)

	Components		
	Responsibility & Managing Boundaries	Creating change	Dealing with diversity
High stakes	.779		
Influence without authority	.704		
Scope and scale	.699		
External pressure	.683		
New directions		.557	
Dealing with problem employees		.857	
Inherited problems		.848	
Working across cultures			.890
Work group diversity			.708

Note. Varimax rotation with kaiser normalization. All coefficients below .50 are not shown.

Table 18 – Principal Components Analysis of Experience Characteristics (4-factor solution)

	Components			
	Creating change	Managing boundaries	High levels of responsibility	Dealing with diversity
Inherited problems	.857			
Dealing with problem employees	.851			
New directions	.580			
External pressure		.858		
Influence without authority		.665		
High stakes			.886	
Scope and scale			.626	
Working across cultures				.833
Work group diversity				.779

Note. Varimax rotation with kaiser normalization. All coefficients below .50 are not shown.

Using this more parsimonious view of the qualitative experience characteristics, I then used multi-level modeling to examine the relative importance of the quantitative, interactive, and qualitative experience characteristics on the development of leadership skills. In this analysis, all predictors were entered simultaneously. As presented in Table 19, creating change and high levels of responsibility emerged as key predictors of leader skill development when controlling for the other experience characteristics. Dealing with diversity was found to be a marginally significant predictor of leader skill development. Together, these variables explained 32% of the within-person variance for leader skill development. Based on these findings, future research on leader skill development may want to focus primarily on these particular characteristics of informal work experiences.

Table 19 – Effects of Experience Characteristics on Leader Skill Development

	Leader Skill Development	
Predictor	Coefficient	SE
Intercept (γ_{00})	3.34**	.06
Gender (γ_{01})	-.21	.14
Ethnicity (γ_{02})	.07	.12
Cognitive ability (γ_{03})	.00	.00
Organizational tenure (γ_{04})	.07**	.02
Supplemental Analysis		
Duration (γ_{10})	.00	.00
Unfamiliarity (γ_{20})	.00	.05
Density (γ_{30})	-.03	.05
Creating change (γ_{40})	.19**	.07
High levels of responsibility (γ_{50})	.41**	.13
Managing boundaries (γ_{60})	.00	.11
Dealing with diversity (γ_{70})	.13†	.07

† $p < .10$. * $p < .05$, one-tailed. ** $p < .01$, one-tailed.
Note: N = 225 (level-1); 60 (level-2). Gender (Male = 1). Ethnicity (Caucasian = 1).

Conclusion and Implications

With a strong theoretical foundation, a number of methodological strengths, and many supportive findings, this dissertation makes a noteworthy contribution toward a multi-level theory of leader development. This theory and the accompanying empirical evidence illustrate the value of examining a variety of experience characteristics and leader development outcomes at multiple levels of analysis. Notwithstanding the limitations noted earlier, the results of this study have important implications for leadership development research and practice. In this section, I highlight several of these implications.

Organizations interested in designing leadership development programs that leverage individuals' informal work experiences will benefit from this research in several ways. First, this research identifies the important characteristics of informal work experiences and links those characteristics to meaningful development outcomes. To the extent possible, organizations should match individuals' developmental needs with the characteristics of the experiences they are assigned within the normal course of work. Second, this research identifies individual differences and contextual factors that are important considerations in understanding the extent to which people develop from informal work experiences. This allows organizations to predict a priori which types of people and work environments will maximize the developmental value of certain types of informal work experiences. Moreover, this research provides a foundation on which organizations can explore interventions that might help overcome any developmental limitations people have due to their individual predispositions or work context. In this light, future research should examine ways in which organizations can implement

interventions that actually enhance the development that occurs as a result of informal work experiences. Based on adult learning theories, interventions that facilitate self-reflection and awareness processes should be particularly fruitful. Existing research on reflective learning (Boyd & Fales, 1983; Marsick, 1988) and learning journals (Morrison, 1996; Riley-Doucet & Wilson, 1997) should provide valuable insights to this research.

Not only can organizations use this research to design leadership development programs, but this research could also inform selection and succession planning in organizations. The findings presented here provide insight into the types of experiences that promote development of leadership skills and self-concept beliefs—both of which are important for leader effectiveness. In turn, organizations could use the experience typology developed here as a selection tool for leadership positions. In other words, people with more experiences of a certain type in their career are likely to be more prepared for leadership positions than people who have had fewer of these types of informal work experiences. Future research that studies how individuals' experience profile, both in terms of the quantity of experience as well as the quality of experience, predicts leadership effectiveness would be particularly insightful in this respect.

This dissertation only considered a limited set of experience characteristics, individual differences, and contextual factors. Moreover, this dissertation did not explicitly model the underlying psychological and behavioral mechanisms that explain how individuals develop leadership skills and self-concept beliefs from their informal experiences at work. As mentioned previously, these limitations of the present research present opportunities for future research. Specifically, future research should seek to identify meaningful experience characteristics other than those studied here. Similarly,

future research should examine other individual differences and contextual factors within the context of the theoretical framework presented here. Potential factors include learning orientation (Colquitt & Simmering, 1998; Pintrich, 2000), openness to experience (Costa & McCrae, 1992), and organizational culture and climate for development (Noe, 1986; Schein, 1992). Lastly, future research should also attempt to explicitly model the leader development process. Existing literature on developmental and experiential learning processes (e.g., Kolb, 1984; Van Velsor, Moxley, Bunker, 2004) offer a useful framework for this line of research. In conclusion, this dissertation provides the foundation for a multi-level theory of leader development and offers an agenda for researchers interested in leader development from informal work experiences.

APPENDIX A

APPENDIX A: Summary of Hypothesized Main Effects

Hypothesis	Antecedent	Outcome				
		Cognitive skills	Managerial skills	Interpersonal skills	Leadership identity	Leadership self-efficacy
1	Duration	X	X	X		
2	Unfamiliarity	X	X	X		
3	Density	X	X	X		
4	New directions	X	X			
5	Dealing with problem employees			X		
6	Inherited problems	X				
7	External pressures			X		
8	Influencing without authority			X		
9	Work across cultures			X		
10	Work group diversity			X		
11	Scope and scale	X	X			
12-13	Leader performance				X	X

APPENDIX B

APPENDIX B: Letter to Participants

Dear XXX:
On [date and time], we are scheduled to talk [in person or phone] as part of the MSU Leadership Development Initiative. Prior to this interview, I would like for you to prepare some thoughts about experiences you have had at work over the last 12 months. Below is a framework for how to structure your reflection and thinking. **Your goal is to think of 4 specific on-the-job experiences.**

IMPORTANT: So that your supervisor can help assess these experiences on a variety of dimensions, please only consider experiences or events for which your supervisor will be familiar with.

Some experiences or events at work are highly developmental. Some experiences actually hurt or impair our development as leaders. Furthermore, we learn and develop from our successes as well as our failures. Thus, the 4 work experiences that we discuss should fall into the following four categories (one experience from each category):

	Hurt Your Development	Very Developmental
Performed Really Well	1	2
Performed Poorly	3	4

Category #1: Not Developmental / High Performance
An experience or event in which you performed well but felt your development as a leader was impaired or at least not enhanced in any way. An example might be a project or specific assignment with which you already possessed the leadership knowledge and skills to perform well. Thus, your capacity for leadership was not challenged per se, but you were able to perform really well.

Category #2: Very Developmental / High Performance
An experience or event in which you performed well and really developed your capacity for leadership. This experience or event was highly developmental because it greatly enhanced your leadership skills, knowledge, or confidence.

Category #3: Not Developmental / Poor Performance
An experience or event in which you performed poorly and felt your development as a leader was impaired or at least not enhanced in any way. These experiences likely hurt your confidence as a leader, impaired your career trajectory, and/or weakened your skills or knowledge. These might include projects or assignments where you learned something that you eventually discovered was incorrect, or an experience that made you really doubt your own ability to effectively lead others.

Category #4: Very Developmental / Poor Performance
An experience or event in which you performed poorly but really developed your capacity for leadership as a result of this experience. Despite your performance in the experience or event, the experience itself was highly developmental because it greatly enhanced your leadership skills, knowledge, or confidence. This experience is characterized as "learning from our failures."

I expect some experiences will be easier to think about than others. Please try to come to the interview with 4 experiences already in mind – one from each of these categories. We will discuss these experiences for approximately 1 hour. The types of questions I will ask include:

1. What happened before this work experience / event – what led up to this event?
2. Had you experienced similar events in the past?
3. To what extent did this experience challenge your leadership capacity? Why and how? What was it about this experience that made it challenging (or not challenging)?
4. What did you do before, during and after this experience / event occurred?

If you have any questions, feel free to email or call me. I look forward to meeting with you.

APPENDIX C

APPENDIX C: Descriptions of Experiences

To protect participant anonymity, the descriptions of each experience were not included in the published version of this dissertation. For more information on these descriptions, please contact the author.

APPENDIX D

APPENDIX D: Survey Measures

Survey of Individuals Differences and Contextual Factors (Phase 1)

Welcome to the MSU Leadership Development Initiative! As discussed, you will receive a variety of personalized feedback from this program — all directed at supporting your own leadership development. In order for this feedback to be accurate and useful, please answer all items candidly and honestly. There are no right or wrong answers. All data will be kept confidential. Other than Scott DeRue (the program coordinator), no one will have access to your individual data. You can be assured that your individual responses will not be shared with anyone. In total, this first survey should take approximately 20 minutes to complete. Please note that the survey does not allow you to skip questions, so please complete all of the items. After you complete this survey, Scott will contact you to schedule an interview.

In accordance with University regulations, you must formally agree to participate in this program. Please read the section below and then indicate your willingness to participate by clicking the box at the bottom of the page.

This research study is designed to investigate leadership development. If you choose to participate in this study, you will be asked to complete several short questionnaires and participate in a one-on-one interview. In addition, if you choose to participate in this study, you will be asked to get your direct supervisor to complete a brief questionnaire. In this questionnaire, your supervisor will rate your learning and development over the past 12 months.

Your participation in this project is completely voluntary and will require a maximum of 3 hours over the next 4 months. You are free to terminate your participation at any time without penalty. Your participation in this study will be kept confidential to the maximum extent allowable by law.

If you have any questions or concerns regarding this study, you may contact D. Scott DeRue (432-7725; derue@msu.edu) or John R. Hollenbeck (355-2413; jrh@msu.edu) in the Management Department. Data from this study will be used for D. Scott DeRue's dissertation, and John R. Hollenbeck is his dissertation advisor. If you have questions or concerns regarding your rights as a study participant, or are dissatisfied at any time with any aspect of this study, you may contact - anonymously, if you wish - the Social, Behavioral, Educational Institutional Review Board (SIRB) by phone: (517) 355-2180, fax: (517) 432-4503, e-mail: irb@msu.edu, or regular mail: 205B Olds Hall, East Lansing, MI 48824.

Please click here:

I voluntarily agree to participate in this study.

Background Information

First name _____
Last name _____

In which year were you born? _____

Gender
Male
Female

How many years have you worked at your current employer (round to the nearest year)?
_____

How many years have you worked in your current position (round to the nearest year)?
_____

How many years have you reported to your current supervisor (round to the nearest year)?
_____

How many direct reports are you responsible for in your organization?
_____

Personal Characteristics

This first section gathers information on your personal characteristics. As feedback, you will receive customized personality profiles based on this data. Read each statement carefully. For each statement, please indicate the degree to which you agree or disagree with the statement. There are no right or wrong answers.

Work Orientation
[Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]
I am hesitant about making important decisions.
I do not work well under pressure.
I really enjoy an assignment that involves overcoming obstacles.
I only work as hard as I have to.
I like situations which do not require me to make risky decisions.
I more often take on difficult assignments that I am not sure that I can handle, than easier ones that I believe I can do well in easily.
I do not like to have the responsibility of handling a difficult situation.
I prefer my work to be filled with challenging assignments.
I would rather do something at which I feel confident and relaxed than something which is challenging and difficult.

The idea of climbing my way to the top does not appeal to me.
I am willing to select a challenging work assignment that I can learn a lot from.
I often look for opportunities to develop new skills and knowledge.
I enjoy challenging and difficult tasks at work where I'll learn new skills.
For me, development of my work ability is important enough to take risks.
I prefer to work in situations that require a high level of ability and talent.

Life Orientation
[Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]
Whether or not I get to be a leader depends mostly on my own ability.
When I make plans, I am almost certain to make them work.
When I get what I want, it's usually because I'm lucky.
I have often found that what is going to happen will happen.
I can pretty much determine what will happen in my life.
I am usually able to protect my personal interests.
When I get what I want, it's usually because I worked hard for it.
My life is determined by my own actions.

Job & Organizational Characteristics

This next section gathers information on the characteristics of your job and organization. This is the final set of questions in this survey. Based on this information, you will receive feedback on how the nature of your job and organization impact your own development as a leader. Read each statement carefully. For each statement, please indicate the degree to which you agree or disagree with the statement. If a statement is highly reflective of your job, you will strongly agree with the statement. If a statement is not at all reflective of your job, you will strongly disagree. There are no right or wrong answers.

Feedback on the Job
[Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]
My actual work activities provide direct and clear information about the effectiveness (e.g., quality and quantity) of my job performance.
My job itself provides feedback on my performance.
My job itself provides me with information about my performance.
I receive a great deal of information from my manager and co-workers about my job performance.
Other people in the organization, such as managers and co-workers, provide information about the effectiveness (e.g., quality and quantity) of my job performance.
I receive feedback on my performance from other people in my organization (such as my manager or co-workers).

Support on the Job

[Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]

I have the opportunity to develop close friendships in my job.
I have the chance in my job to get to know other people.
I have the opportunity to meet with others in my work.
My supervisor is concerned about the welfare of the people that work for him / her.
People I work with take a personal interest in me.
People I work with are friendly.

Constraints on the Job

[Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]

I often must depend on others who are not well trained.
I have not been given enough training to do my job properly.
I am often not provided with the right materials and supplies to do my job.
The tools and equipment I need to do my job are frequently not available.
Lack of time frequently keeps me from getting my job done.
I am frequently given unscheduled activities to work on which keep me from getting my job done.
It is difficult to get others to provide the help required to do my job.
Bad physical conditions (too cold, too bright, etc.) often interfere with getting my work done.
I frequently receive inconsistent policies, procedures and instructions, which makes it difficult to do my job.
Too much `red tape' frequently interferes with getting my work done.
I often have to follow the instructions of others even though I am in a better position to know what should be done.
I often do not have the information I must have to do my job when it is needed.
My department's budget does not allow me to get my job done.

Survey of Experience Characteristics (Phase 3)

As part of the MSU Leadership Development Initiative, you recently talked with Scott DeRue about several experiences you had at work. This survey gathers additional information on the specific experiences that you and Scott discussed. The information gathered in this survey will be a critical component in the feedback you receive from the program. In order for this feedback to be accurate and useful, please answer all items candidly and honestly. There are no right or wrong answers. All data will be kept confidential.

In total, this survey should take approximately 20-25 minutes to complete. Please note that the survey requires you to answer all of the questions.

First name _____
Last name _____

Your Specific Work Experiences

Below are summaries of the experiences you discussed with Scott. These are the same summaries you reviewed shortly after your interview. Please read through these summaries again to refresh your memory.

[Summary of experience(s) goes here]

For the remainder of this survey, you will be asked to rate each of the above experiences on a variety of important dimensions. All of the following items ask to what extent you agree or disagree with specific statements. For each of the experiences, you will indicate your level of agreement for each item. Please answer all items the best you can. If you need to refer back to the summaries at any point during the survey, simply scroll back to the top of this screen.

Taking on Unfamiliar Responsibilities
[Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]
For each experience...

Going into this experience, you lacked the experience necessary for carrying out some aspect of the work (e.g., financial or market analysis, negotiation, budgeting).

During this experience, you had to manage something (e.g., a function, product, technology, market) with which you were unfamiliar.

Others questioned whether you were "ready" for this experience.

Compared to others, you didn't have the credentials or background expected for someone in this experience.

This experience was no less than a change in your career direction—you were doing a type of work dramatically different from what you've done before.

Taking Your Group or Organization in New Directions
[Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]
For each experience...

In this experience, you had to carry out a major reorganization as a result of a merger, acquisition, downsizing, or rapid growth.

In this experience, you had to make major strategic changes in the business—its direction, structure, technology systems, or operations.

In this experience, you were trying something the organization had never tried before; no one knew for sure how to do it or how it will come out.

This experience included launching new organizational ventures, such as new product lines, acquisitions, new functions or groups, new plans or concepts, or new facilities.

In this experience, you had to create or establish new policies or procedures.

Inheriting Problems That You Did Not Create
[Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]
For each experience...

As part of this experience, you inherited widespread morale problems.

In this experience, you needed to restore the credibility of your unit with the rest of the organization.

To succeed in this experience, you had to dismantle the strategy your predecessor had established.

Prior to this experience, your business or unit had a record of poor performance.

In this experience, you had to solve major problems a redecessor created.

Managing Problems with Employees
[Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]
For each experience...

Your direct reports resisted your initiatives at some point during this experience.

During this experience, there was an interpersonal conflict between you and at least one of your key direct reports.

In this experience, your employees were used to doing things the way they had always been done and were reluctant to change.

In this experience, key members of your staff were incompetent, demotivated, technically obsolete, or otherwise performed poorly.

In this experience, some of your key direct reports lacked the experience to do their jobs without close supervision from you.

Taking on "High Stakes" Roles and Responsibilities
[Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]
For each experience...

Your success or failure in this experience was evident to higher management.

In this experience, you were responsible for decisive action in a highly charged environment.

In this experience, you were being tested by higher management.

In this experience, there were clear deadlines by which your key objectives had to be accomplished.

In this experience, there was pressure to get a major piece of your job completed fast.

Dealing with Large Scope and Scale
[Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]
For each experience...

For you, this experience was a dramatic increase in scope (managing significantly more people, dollars, sites, functions, and so forth).

This experience was potentially more than even a good delegator can handle.

In this experience, you were responsible for numerous different products, technologies, or services.

In this experience, you were responsible for multiple functions or groups.

This experience put you under constant pressure: there were seldom any periods to "catch your breath."

Dealing with External Pressure
[Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]

For each experience...

In this experience, the customer base you worked with was extremely varied.

To achieve your most important goals in this experience, you had to influence people outside the organizations (for example, clients, suppliers, unions, government agencies).

In this experience, you managed relationships with government officials or regulatory agencies.

In this experience, you had to deal with diverse clients, customers, or markets.

In this experience, you had to carry out formal negotiations with an outside body, such as unions or clients or joint venture partners.

Influencing People and Processes Without Direct Authority
[Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]
For each experience...

In this experience, you had to coordinate action across dispersed sites over which you have no direct authority.

To achieve your most important goals in this experience, you had to influence peers at similar levels in other units, functions, divisions, and so forth.

Achieving your goals in this experience depended on how well you handled internal politics.

To accomplish a major portion of your objectives in this experience, you had to influence and work with executives higher than your immediate boss.

In this experience, a great deal of coordination with other organizational units for functions was required.

Working Across Cultures
[Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]
For each experience...

In this experience, you conducted business with people from different countries.

This experience required working in a foreign country where the culture is different from your own.

This experience required dealing with foreign companies, agencies, or governments that had a substantial impact on your business.

In this experience, you had to manage parts of the business that were scattered across the world.

This experience required understanding the traditions and values of people from different cultures.

Working with a Diverse Work Group
[Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]
For each experience...

In this experience, you had a diverse group of direct reports in terms of demographic variables (e.g., age, race).

In this experience, you were part of a diverse work group.

In terms of demographic variables, you were responsible for developing managers from both genders and different ethnic groups.
In this experience, you had to get people from different racial, religious, cultural, or ethnic backgrounds to work together.
In terms of demographic variables, you had to make personnel decisions about employees who differ from you in terms of race or gender.

Intensity of the Experience
[Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree]
For each experience...
I experienced a high number of challenging opportunities during this experience.
There were a lot of unique opportunities during this experience that challenged my leadership capacity.
This experience offered only a limited number of opportunities for personal growth and development.

Survey of Leader Development Outcomes – Self Ratings (Phase 4)

This survey is the final and most important phase of the MSU Leadership Development Initiative. This survey gathers information on how you developed as a result of the work experiences we discussed. The information gathered in this survey is an essential component of the feedback you will receive. In order for this feedback to be accurate and useful, please answer all items candidly and honestly. There are no right or wrong answers. All data will be kept confidential.

In total, this survey should take approximately 20-30 minutes to complete. Please note that the survey requires you to answer all of the questions.

First name _____
Last name _____

Your Specific Work Experiences

Below are summaries of the experiences you discussed with Scott. These are the same summaries you reviewed shortly after your interview. Please read through these summaries again to refresh your memory.

[Summary of experience(s) goes here]

In this section of the survey, you will be asked to rate the extent to which you developed specific leadership competencies as a result of the above experiences. Remember, some experiences are highly developmental -- whereas other experiences are less

developmental. Moreover, experiences can be developmental in different ways. You will also be asked to rate how each of these experiences made you feel at the time the experience was happening - please try to recall your feelings during the experience as best you can. If you need to refer back to the summaries at any point during the survey, simply scroll back to the top of this screen.

To what extent did each experience make you feel...
[Not at all, To a limited extent, To a moderate extent, To a large extent, To a very large extent]
For each experience...
- Intelligent
- Sensitive
- Dedicated
- Dynamic

To what extent did each experience increase your confidence in your own ability to...
[Not at all, To a limited extent, To a moderate extent, To a large extent, To a very large extent]
For each experience...
- Identify critical areas for making improvements in your unit's effectiveness
- Develop plans for change that take your unit in important new directions
- Develop trusting relationships with others such that they will embrace change
- Obtain the genuine support of others for new initiatives
- Figure out ways for overcoming resistance to change
- Obtain senior management's support for change

To what extent did each experience enhance the following competencies...
[Not at all, To a limited extent, To a moderate extent, To a large extent, To a very large extent]
For each experience...
- Comprehension of complex written documents
- Active listening and questioning (i.e., listening to others and asking questions as appropriate)
- Critical thinking (i.e., using logic and analysis to identify the strengths and weaknesses of different approaches)
- Active learning (i.e., working with new information to grasp its implications)
- Information gathering and comprehension (i.e., acquiring and comprehending new information)
- Visioning (i.e., developing an image of how things should work under ideal conditions)
- Judgment and decision making (i.e., evaluating costs and benefits of potential actions)
- Systems perception (i.e., determining when important changes have occurred in a system or are likely to occur)
- System evaluation (i.e., evaluating indicators of system performance)
- Identification of downstream consequences (i.e., determining the long-term outcomes of a change in operations)

Identification of key causes (i.e., identifying the things that must be changed to achieve a goal)
Problem identification / diagnosis (i.e., identifying the nature of problems)
Solution appraisal (i.e., evaluating the outcomes of problem solutions and identifying lessons learned)
Operations analysis (i.e., analyzing system needs and requirements)

To what extent did each experience enhance the following competencies...
[Not at all, To a limited extent, To a moderate extent, To a large extent, To a very large extent]
For each experience...
Management of financial resources
Management of material resources (e.g., equipment, facilities)
Management of personnel resources (i.e., motivating, developing, directing people)
Coordination (i.e., adjusting actions in relation to others' actions)
Time management (i.e., managing his/her time and the time of others)
Monitoring the performance of him/herself and others to make improvements
Instructing (i.e., teaching others how to do something)
Complex problem solving skills

To what extent did each experience enhance the following competencies...
[Not at all, To a limited extent, To a moderate extent, To a large extent, To a very large extent]
For each experience...
Communicating information effectively (i.e., speaking, writing)
Social perceptiveness (i.e., being aware of others' reactions)
Persuasion (i.e., persuading others to change their minds or behavior)
Negotiation (i.e., bringing others together to reconcile differences)
Knowledge of human behavior (i.e., understanding people and the drivers of human performance)

Survey of Leader Development Outcomes – Supervisor Ratings (Phase 4)

The person who asked you to complete this survey is participating in a leadership development initiative that is part of the MBA program at Michigan State University. Your input is extremely important to the success of this initiative, so thank you for agreeing to participate.

As part of this initiative, the person who asked you to complete this survey identified several experiences that occurred as part of his/her job. This survey asks you to rate this person's development as a leader from each of these independent experiences. Your input will be a critical component in the feedback that he or she receives from the program. In order for this feedback to be accurate and useful, please answer all items candidly and honestly. There are no right or wrong answers.

In total, this survey should take approximately 20 minutes to complete. Please note that the survey requires you to answer all of the questions. After you have completed the survey, I will email you to confirm that you were the person actually completing the survey.

Your first name _____
Your last name _____

First name of program participant _____
Last name of program participant _____

Below are summaries of the experiences that the program participant identified. Please read through these summaries and familiarize yourself with each experience. You will be asked to rate the developmental impact of each experience.

Some experiences may be very developmental, while other experiences may not be developmental at all. In some experiences, the person may have performed well. In other experiences, the person may have performed poorly. Please evaluate each experience with this in mind and be as honest and candid as possible. We requested that the program participant only identify experiences that you would be familiar with. If you are not familiar with a particular experience, you will have an opportunity to indicate this in the survey. If you need to refer back to these summaries at any point during the survey, simply scroll back to the top of this screen.

[Summary of experience(s) goes here]

To what extent did each experience enhance the following competencies...
[Not at all, To a limited extent, To a moderate extent, To a large extent, To a very large extent]
For each experience...

Comprehension of complex written documents
Active listening and questioning (i.e., listening to others and asking questions as appropriate)
Critical thinking (i.e., using logic and analysis to identify the strengths and weaknesses of different approaches)
Active learning (i.e., working with new information to grasp its implications)
Information gathering and comprehension (i.e., acquiring and comprehending new information)
Visioning (i.e., developing an image of how things should work under ideal conditions)
Judgment and decision making (i.e., evaluating costs and benefits of potential actions)
Systems perception (i.e., determining when important changes have occurred in a system or are likely to occur)
System evaluation (i.e., evaluating indicators of system performance)

Identification of downstream consequences (i.e., determining the long-term outcomes of a change in operations)
Identification of key causes (i.e., identifying the things that must be changed to achieve a goal)
Problem identification / diagnosis (i.e., identifying the nature of problems)
Solution appraisal (i.e., evaluating the outcomes of problem solutions and identifying lessons learned)
Operations analysis (i.e., analyzing system needs and requirements)

To what extent did each experience enhance the following competencies...
[Not at all, To a limited extent, To a moderate extent, To a large extent, To a very large extent]
For each experience...
Management of financial resources
Management of material resources (e.g., equipment, facilities)
Management of personnel resources (i.e., motivating, developing, directing people)
Coordination (i.e., adjusting actions in relation to others' actions)
Time management (i.e., managing his/her time and the time of others)
Monitoring the performance of him/herself and others to make improvements
Instructing (i.e., teaching others how to do something)
Complex problem solving skills

To what extent did each experience enhance the following competencies...
[Not at all, To a limited extent, To a moderate extent, To a large extent, To a very large extent]
For each experience...
Communicating information effectively (i.e., speaking, writing)
Social perceptiveness (i.e., being aware of others' reactions)
Persuasion (i.e., persuading others to change their minds or behavior)
Negotiation (i.e., bringing others together to reconcile differences)
Knowledge of human behavior (i.e., understanding people and the drivers of human performance)

For each experience, please rate this person's performance along the following dimensions:
Quantity of performance (i.e., how many things he/she got done)
Quality of performance (i.e., the quality of what he/she accomplished)
Ability to get along with others
Dependability
Overall performance

APPENDIX E

APPENDIX E: Interview Protocol

Name: _____
Phone:_____

Email: _____

Organization: _____

Job Title: _____

Years in job: _____

General Questions

[After giving a brief overview of leadership development program and the purpose of this interview]

I'd like to start by learning a little about you and your company...

- Describe the unit that you work in – e.g., role in the organization, type of work, etc.
    - How many people work for you? What type of work do they do?
- What are your primary roles and responsibilities as a manager / leader within this unit?
    - Describe how you see your role as manager or leader.
    - What do you do in a normal day?

Developmental Experiences

Per the email I sent you, you were to think of several work experiences – some of which were developmental, some not so developmental, some where you performed really well, and others where you didn't perform do well. What I am really interested in understanding is the nature of these experiences and how they were (or were not) developmental for you. Let's start with an experience that was especially developmental...

- What was the experience / event that occurred – describe it to me.

Context Around the Experience (what happened before the experience, why did it occur)

- What led up to the experience / event? What happened before the experience occurred?
- What was the cause of the experience? Why did the experience occur?

- Had you experienced similar experiences in the past, or was this a completely new experience for you?
    - Had you seen other people go through similar experiences in the past? Did this help you in going through the experience yourself? Why or why not?

Content of the Experience (how challenging was the event and why)

- How challenging was this experience / event? What made it challenging or not challenging?
    - Look for the experience characteristics (don't ask about each on in particular):
        - Unfamiliarity
        - Duration
        - Density
        - New directions
        - Inherited problem
        - Problems with employees
        - Scope and scale (task variety, skill variety)
        - External pressure
        - Influencing without authority
        - Work across cultures
        - Work group diversity
- Who all was involved in this experience / event? How many people and who?
    - Did you have to coordinate all of these people? Did they depend on each other (interdependence)?
    - To what extent did you have authority over all of the people involved? How much autonomy did you have in this experience – were you given the freedom to make all of your decisions, etc.?
- What did you do prior to this prior to, during, and after this experience / event?
    - How did you decide what to do?
    - When did you decide to do what you did?
    - Why did you do what you did?

Outcomes

- What happened after the experience / event was over – e.g., did you reflect, receive feedback, move on to the next "fire", etc.?
- How did you react to the experience / event? Did it make you feel more like an effective leader? Did the experience improve or hurt your confidence in your leadership capabilities? Why or why not?
- Did you feel like you gained any new knowledge or skills from this experience? Knowledge about what? What types of skills? Why or why not?

APPENDIX F

APPENDIX F: HLM Formulas

Level-1:

$$y_{ij} = B_{0j} + B_{1j}*X_{ij} + r_{ij}$$

Level-2 (intercept):

$$B_{0j} = \gamma_{00} + u_{0j}$$

Level-2 (slope):

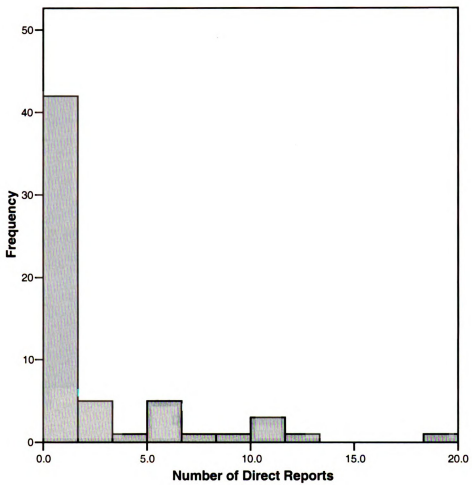
$$B_{1j} = \gamma_{10} + u_{1j}$$

Mixed model:

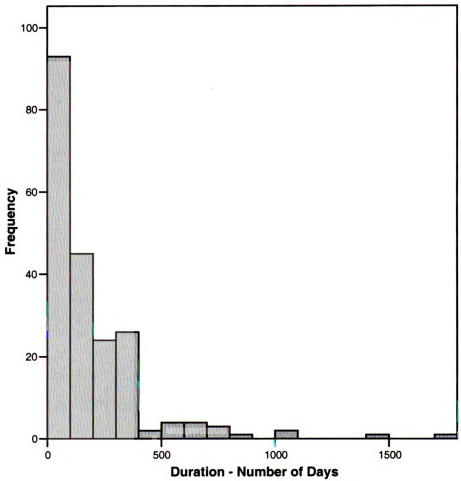
$$y_{ij} = (\gamma_{00} + u_{0j}) + (\gamma_{10}*X_{ij} + u_{1j}*X_{ij}) + r_{ij}$$

APPENDIX G

Frequency Histogram for the Number of Direct Reports



Frequency Histogram for the Duration of Experiences



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