

Technical Report 1275

**Self-Initiated Development of Leadership Capabilities:
Toward Establishing the Validity of Key Motivational
Constructs and Assessment Tools**

Todd J. Maurer
Georgia State University

Michael Lippstreu
Georgia Institute of Technology

November 2010



**United States Army Research Institute
for the Behavioral and Social Sciences**

Approved for public release; distribution is unlimited.

**U.S. Army Research Institute
for the Behavioral and Social Sciences**

**Department of the Army
Deputy Chief of Staff, G1**

Authorized and approved for distribution:



**MICHELLE SAMS
Director**

Research accomplished under contract
for the Department of the Army

Georgia State University

Technical reviews by:

Stanley M. Halpin, U.S. Army Research Institute
Sena Garven, U.S. Army Research Institute

NOTICES

DISTRIBUTION: Primary distribution of this Technical Report has been made by ARI. Please address correspondence concerning distribution of reports to: U.S. Army Research Institute for the Behavioral and Social Sciences, Attn: DAPE-ARI-ZXM, 2511 Jefferson Davis Highway, Arlington, Virginia 22202-3926.

FINAL DISPOSITION: This Technical Report may be destroyed when it is no longer needed. Please do not return it to the U.S. Army Research Institute for the Behavioral and Social Sciences.

NOTE: The findings in this Technical Report are not to be construed as an official Department of the Army position, unless so designated by other authorized documents.

REPORT DOCUMENTATION PAGE

1. REPORT DATE (dd-mm-yy) November 2010	2. REPORT TYPE Final	3. DATES COVERED (from. . . to) October 2004 to October 2008			
4. TITLE AND SUBTITLE Self-Initiated Development of Leadership Capabilities: Toward Establishing the Validity of Key Motivational Constructs and Assessment Tools		5a. CONTRACT OR GRANT NUMBER W74V8H-05-K-0001			
		5b. PROGRAM ELEMENT NUMBER 611102			
6. AUTHOR(S) Todd J. Maurer (Georgia State University) Michael Lippstreu (Georgia Institute of Technology)		5c. PROJECT NUMBER B74F			
		5d. TASK NUMBER			
		5e. WORK UNIT NUMBER 1903			
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Georgia State University Albertha W. Barrett P.O. Box 3999 Atlanta, GA 30302-3999		8. PERFORMING ORGANIZATION REPORT NUMBER			
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Army Research Institute for the Behavioral and Social Sciences 2511 Jefferson Davis Highway Arlington, VA 22202-3926		10. MONITOR ACRONYM ARI			
		11. MONITOR REPORT NUMBER Technical Report 1275			
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution is unlimited.					
13. SUPPLEMENTARY NOTES Contracting Officer's Representation and Subject Matter POC: Paul A. Gade					
14. ABSTRACT (<i>Maximum 200 words</i>): To meet the transformation objectives of the United States Army over the coming decades, the Army must have leaders or potential leaders who continuously pursue development of leadership skills, and who are flexible and adaptable through their involvement in self-initiated development and learning experiences. A key first step in this process is to develop constructs and assessment methods, including a network of related constructs, that would help establish construct validity. In this vein, the goal of this basic research was to initiate development of new constructs and assessment methods that are central to the process of motivating leadership development. The motivation to develop leadership constructs measured in this research is conceptually and empirically distinguishable from other relevant constructs and provides utility above and beyond other existing constructs in relation to leadership development behavior and career success. The Army might explore the use of these measures as diagnostic tools prior to investing in leadership development. To the extent that these measures predict effectiveness in adapting to leadership roles or learning and developing necessary skills, these tools might be used in selection and placement within the Army.					
15. SUBJECT TERMS Self-efficacy; motivation to develop leadership; motivation to lead; improvability; construct validity					
SECURITY CLASSIFICATION OF			19. LIMITATION OF ABSTRACT Unlimited	20. NUMBER OF PAGES 124	21. RESPONSIBLE PERSON Ellen Kinzer Technical Publications Specialist 703-602-8049
16. REPORT Unclassified	17. ABSTRACT Unclassified	18. THIS PAGE Unclassified			

Technical Report 1275

**Self-Initiated Development of Leadership Capabilities:
Toward Establishing the Validity of Key Motivational Con-
structs and Assessment Tools**

Todd J. Maurer
Georgia State University

Michael Lippstreu
Georgia Institute of Technology

Basic Research Unit
Paul A. Gade, Chief

U.S. Army Research Institute for the Behavioral and Social Sciences
2511 Jefferson Davis Highway, Arlington, Virginia 22202-3926

November 2010

Army Project Number
611102B74F

Personnel, Performance
and Training

Approved for public release; distribution is unlimited.

SELF-INITIATED DEVELOPMENT OF LEADERSHIP CAPABILITIES: TOWARD ESTABLISHING THE VALIDITY OF KEY MOTIVATIONAL CONSTRUCTS AND ASSESSMENT TOOLS

EXECUTIVE SUMMARY

Research Requirement:

To meet the transformation objectives of the United States Army over the coming decades, the Army must have leaders or potential leaders who continuously pursue development of leadership skills and who are flexible and adaptable through their involvement in self-initiated development and learning experiences. The Army cannot rely solely on mandated training or learning experiences—it needs leaders or potential leaders to be motivated to pursue self-initiated development of leadership skills and characteristics. Total development must be motivated and initiated from within the person. However, little is known about predicting leadership development, because most research has been directed at predicting performance of leaders. Leadership development and leader performance are not the same thing. Major hurdles to truly understanding and influencing self-initiated development include gaining an understanding of the motivational processes that lead to engaging in self-development activities and developing measures of the relevant constructs. What is needed are new constructs and assessment tools that will be useful in understanding, predicting, and ultimately enhancing leadership development to enable the selection and development of flexible and adaptable leaders, to accelerate the development of leaders and potential leaders, and to support and enhance individual development efforts. An important first step in this process is to develop constructs and assessment methods, including a network of related constructs, that would help to establish construct validity. In this vein, the goal of this basic research was to initiate development of new constructs and assessment methods that are central to the process of motivating leadership development. The variables were explored within a system of related constructs, including antecedents and consequences, to establish validity of the variables within the leadership development domain.

Procedure:

In a series of three investigations involving a very broad sample of nearly fifteen hundred workers from across the work force, we collected data via Internet-based surveys to conduct a very extensive and detailed exploration and validation of these new constructs. The investigations were based on a thorough, theoretically-based review of the literature. The validity of the new measures was examined through a wide variety of analyses (i.e., psychometric, factor analytic, test-retest, convergent and discriminant validity, regression, correlation, and path models). The data included not only the new measures of motivation to develop leadership, but also motivation to lead, personality, leadership and leadership development experiential history, employee/leadership development domain individual and situational variables, specific leadership development activity measures, leader behavior/performance measures, as well as indicators of intrinsic and extrinsic career success. Multiple sources of data included not only respondents, but also data from their supervisors and coworkers. Some of the data were collected in a longitudinal fashion across a period of 1 year.

Findings:

The motivation to develop leadership constructs measured in this research is conceptually and empirically distinguishable from other relevant constructs and provides utility above and beyond other existing constructs in relation to leadership development behavior and career success. Structural equation modeling results provided a detailed picture of the network of constructs relevant to motivation to develop leadership in relation to leadership development activity. The measures also predicted career success indicators such as pay increases, promotions, increases in leadership responsibility, leadership performance/behavior ratings, and satisfaction at work. The results from the three investigations help to clearly establish the nature of motivation to develop leadership in relation to other constructs from the leadership and employee development literature. The extensive data and analyses presented here provide a very good foundation upon which to base the conclusion that these constructs and measures have unique and worthwhile value in relation to leadership development, leadership performance, and career success. Given the validity of the new measures in relation to these constructs, the measures seem to have substantial promise.

Utilization and Dissemination of Findings:

The Army might explore the use of these measures as diagnostic tools prior to investing in leadership development. The constructs and associated assessment methods could be used as predictors of performance, motivation, development, and adaptability in Army training and field settings. To the extent that these measures predict effectiveness in adapting to leadership roles or learning and developing necessary skills, these tools might be used in selection and placement within the Army. The tools might be used to identify those individuals who will likely most benefit from leadership training and who are most likely to take initiative to continually develop and improve leadership-relevant characteristics in themselves and to be successful.

The Army also may use the present results as a guide in efforts to change or impact the motivation to develop leadership skills among members of the organization through appropriate interventions. The models and relationships presented here provide ideas for which constructs—individual and situational—influence motivation to develop leadership, and therefore these results provide clues regarding possible motivational leverage points through which to change or influence motivation to develop leadership. Additional applied research might be done on ways of influencing these constructs in Army personnel to improve motivation for leadership development and, also, on using these measures to predict development and success in Army field settings.

SELF-INITIATED DEVELOPMENT OF LEADERSHIP CAPABILITIES:
TOWARD ESTABLISHING THE VALIDITY OF KEY MOTIVATIONAL CONSTRUCTS
AND ASSESSMENT TOOLS

CONTENTS

	Page
BACKGROUND	1
Description of the Problem and Its Importance to ARI’s Mission and Army Concerns	1
Specific Goals of the Research	1
How the Problem Relates to Significant Previous Research that is Applicable	2
Scientific Significance and Originality	4
INVESTIGATION 1	5
Motivation to Lead vs. Motivation to Develop Leadership Capability	5
Self-efficacy for Leadership vs. Self-efficacy for Development of Leadership Capability	6
Beliefs About the Improvability of Leadership Skills/Attributes (Leaders Are Born vs. Made).....	7
Correlational Evidence of Distinctions Between Leadership Development Motivation Constructs and Leadership Motivation Constructs	8
Leadership Development Activity, Leadership Experience and Differential Relationships with Leadership Development Motivation and Leadership Motivation Constructs	9
INVESTIGATION 1 METHOD	11
Sample and Survey Administration	11
Leadership Development-focused Measures	14
Leadership-focused Measures.....	18
Development Activity	19
Leadership Experiential Measures	19
INVESTIGATION 1 RESULTS.....	19
Descriptive and Psychometric Information	20
Hypothesis Testing.....	22
Exploring Differences in Perceived “Improvability” of Leadership Characteristics.....	26
INVESTIGATION 1 DISCUSSION.....	29
Practical Implications and Future Research.....	31
Limitations of Investigation 1	31
INVESTIGATION 2.....	32
Theoretical Framework and Structural Models	33
INVESTIGATION 2 METHOD.....	47
Sample and Survey Administration	47
Motivational Measures (T1)	52

CONTENTS (continued)

	Page
Individual Difference Measures (T1).....	52
Situational Support (T1)	53
Development Activity Intentions (T2).....	54
Follow-up Development Activity (T3).....	54
INVESTIGATION 2 RESULTS.....	54
Part 1: Establishing Separate Constructs	55
Part 2-Path Models.....	59
INVESTIGATION 2 DISCUSSION	78
Limitations of Investigation 2.....	80
INVESTIGATION 3	80
Comparing Motivation to Lead and Motivation to Develop Leadership in Predicting Leadership Performance and Career Success	81
INVESTIGATION 3 METHOD.....	86
Samples and Survey Administration.....	86
Self Ratings of Leadership Performance	88
Self-Provided Measures of Career Success: Extrinsic.....	88
Self-Provided Measure of Increased Leadership Responsibility	89
Self-Ratings of Career Success: Intrinsic	89
Supervisor Ratings of Respondent Leadership Behavior	89
Supervisor-Provided Measures of Career Success: Extrinsic & Increased Leadership Responsibility	90
Coworker Ratings of Respondent Leadership Behavior.....	90
Creating Composite Score for Behavior Ratings.....	90
INVESTIGATION 3 RESULTS	90
Comparing Motivation to Lead and Motivation to Develop Leadership in Predicting Leadership Performance and Career Success	91
Examining the Moderating Role of Motivation on Relationship Between Expanded Leadership Responsibility and Job/Career Satisfaction	97
INVESTIGATION 3 DISCUSSION	100
GENERAL SUMMARY AND DISCUSSION.....	100
Possible Additional Applied Research in Areas Addressed by ARI	101
REFERENCES	105
APPENDIX. LIST OF COMPETENCIES USED IN THE PRESENT INVESTIGATIONS BASED ON TETT, GUTERMAN, BLEIER, AND MURPHY (2000).....	A-1

LIST OF TABLES

TABLE 1. DEMOGRAPHIC DESCRIPTION OF INVESTIGATION 1 SAMPLE.....	13
TABLE 2. MEANS, STANDARD DEVIATIONS, AND INTERCORRELATIONS AMONG INVESTIGATION 1 VARIABLES	21
TABLE 3. COMPARISON OF MODELS IN INVESTIGATION 1.....	23
TABLE 4. INCREMENTAL VARIANCE	25
TABLE 5. ANOVA ESTIMATES OF VARIANCE COMPONENTS FOR IMPROVABILITY AND MOTIVATION TO DEVELOP RATINGS	27
TABLE 6. ITEM-LEVEL DESCRIPTIVES OF IMPROVABILITY AND MOTIVATION TO DEVELOP RATINGS	28
TABLE 7. DEMOGRAPHIC DESCRIPTION OF INVESTIGATION 2 SCALE CREATION AND CFA SAMPLE	49
TABLE 8. DEMOGRAPHIC DESCRIPTION OF INVESTIGATION 2 FULL RESEARCH SAMPLE.....	50
TABLE 9. MEANS, STANDARD DEVIATIONS, AND INTERCORRELATIONS AMONG INVESTIGATION 2 VARIABLES (SCALE CREATION & CFA).....	56
TABLE 10. COMPARISON OF INVESTIGATION 2 MODELS.....	59
TABLE 11. MEANS, STANDARD DEVIATIONS, AND INTERCORRELATIONS AMONG VARIABLES IN INVESTIGATION 2 FULL RESEARCH SAMPLE	61
TABLE 12. STANDARDIZED INDIRECT EFFECTS FOR FULLY MEDIATED PATH MODEL	67
TABLE 13. INCREMENTAL VARIANCE OF MOTIVATIONAL VARIABLES OVER ONE ANOTHER IN PREDICTING DEVELOPMENT BEHAVIOR – INVESTIGATION 2 FULL RESEARCH SAMPLE.....	69
TABLE 14. STANDARDIZED INDIRECT EFFECTS FOR PARTIALLY MEDIATED PATH MODEL	73
TABLE 15. STANDARDIZED INDIRECT EFFECTS FOR ALL EXOGENOUS PATH MODEL	76

CONTENTS (continued)

	Page
TABLE 16. DEMOGRAPHIC DESCRIPTION OF INVESTIGATION 3 SUPERVISOR SAMPLE.....	87
TABLE 17. DEMOGRAPHIC DESCRIPTION OF INVESTIGATION 3 COWORKER SAMPLE.....	87
TABLE 18. MEANS, STANDARD DEVIATIONS, AND INTERCORRELATIONS AMONG MOTIVATION AND CAREER SUCCESS VARIABLES – FULL RESEARCH (SELF) SAMPLE.....	92
TABLE 19. MEANS, STANDARD DEVIATIONS, AND INTERCORRELATIONS AMONG MOTIVATION AND CAREER SUCCESS VARIABLES – SUPERVISOR SAMPLE	93
TABLE 20. MEANS, STANDARD DEVIATIONS, AND INTERCORRELATIONS AMONG MOTIVATION AND LEADERSHIP PERFORMANCE VARIABLES – COWORKER SAMPLE.....	94
TABLE 21. INCREMENTAL VARIANCE OF MOTIVATIONAL VARIABLES OVER ONE ANOTHER IN PREDICTING CAREER SUCCESS – SELF SAMPLE	95
TABLE 22. INCREMENTAL VARIANCE OF MOTIVATIONAL VARIABLES OVER ONE ANOTHER IN PREDICTING CAREER SUCCESS – SUPERVISOR SAMPLE	96
TABLE 23. INCREMENTAL VARIANCE OF MOTIVATIONAL VARIABLES OVER ONE ANOTHER IN PREDICTING LEADERSHIP PERFORMANCE – COWORKER SAMPLE.....	96
TABLE 24. MODERATED REGRESSION ANALYSIS: MOTIVATION AS MODERATOR OF INCREASED LEADERSHIP RESPONSIBILITIES, SATISFACTION RELATIONSHIPS – SELF SAMPLE	98

LIST OF FIGURES

FIGURE 1. EXPECTED FULLY MEDIATED PATH MODEL.	35
FIGURE 2. EXPECTED PARTIALLY MEDIATED PATH MODEL.....	36
FIGURE 3. EXPECTED ALL EXOGENOUS PATH MODEL.....	37
FIGURE 4. OBSERVED FULLY MEDIATED PATH MODEL.....	65

	Page
FIGURE 5. OBSERVED PARTIALLY MEDIATED PATH MODEL.	71
FIGURE 6. OBSERVED ALL EXOGENOUS PATH MODEL.	75
FIGURE 7. INTERACTION OF RESPONSIBILITIES AND MTL IN PREDICTING JOB SATISFACTION.	99
FIGURE 8. INTERACTION OF RESPONSIBILITIES AND MTDL IN PREDICTING JOB SATISFACTION.	99

Background

Description of the Problem and Its Importance to ARI's Mission and Army Concerns

To meet the transformation objectives of the U.S. Army during the coming decades, the Army must have leaders or potential leaders who continuously pursue development of leadership skills and who are flexible and adaptable through their involvement in self-initiated development and learning experiences. In the Army's primary leadership manual, General Peter Schoomaker states that "Leaders must be committed to lifelong learning to remain relevant and ready during a career of service to the Nation" (Schoomaker, 2006, Foreword; Mensch & Rahschulte, 2008, p. 266). In this vein, the Army cannot rely solely on mandated training or learning experiences—it needs leaders or potential leaders to be motivated to pursue self-initiated development of leadership skills and characteristics. Total development must be motivated and initiated from within the person. However, little is known about predicting leadership development because most of the research has been directed at predicting performance of leaders. Leadership development and leader performance are not the same thing. Likewise, as the present research illustrated, motivation to be a leader and motivation to develop leadership skills are not the same. The U.S. Army needs a better understanding of leadership development, as well as behavioral constructs and assessment methods that are relevant to leadership development, especially those that involve individual, sustained effort to develop leadership attributes. Basic research that addresses these issues can, ultimately, lead to applied research that enables better selection and development of leaders.

A major hurdle to truly understanding self-initiated development is an understanding of the motivational processes that lead to engaging in self-development activities. If development is to be initiated from within the person, an understanding of what motivates a person to engage in development activities is crucial. Yet, relatively little research has been directed at this specific problem. What is needed are new constructs and assessment tools that will be useful in understanding, predicting, and ultimately enhancing leadership development to enable the selection and development of flexible and adaptable leaders, to accelerate development of leaders and potential leaders, and to support and enhance individual development efforts. An important first step in this process is to develop constructs and assessment methods, including a nomological network of related constructs, that would help establish construct validity. To the extent that these constructs are established in basic research, then applied research might explore the constructs in terms of predictive validity and more practical applications.

Specific Goals of the Research

The goal of this basic research was to initiate development of new constructs and assessment methods that are central to the process of motivating leadership development. The variables were explored within a system of related constructs, including antecedents and consequences, to establish construct validity of the variables within the leadership development domain. There were two general sets of variables examined in this research. The first ones were those introduced here as new to the leadership domain. These include: motivation for leadership development, self-efficacy for leadership development, and beliefs about the improvability of

leadership skills/attributes. The first investigation in this project developed measures of these new constructs and empirically distinguished them from the existing constructs of motivation to lead and self-efficacy for leadership.

The second set of variables examined included a variety of other individual and situational variables taken from the leadership and employee development literature that were examined as predictors of these new variables. In the second investigation of this project, we examined these relationships. In addition, in the third investigation, we compared the new motivational measures with existing motivation measures in relation to performance and career success indicators: leadership performance/behavior measures (provided by supervisors and coworkers), measures of ascendancy in an organization (increased leadership responsibility, promotions, increases in pay), and measures of job and career satisfaction. These measures were examined in Investigation 3 as relevant outcomes of leadership and leadership development motivations.

Through examining the interrelationships of the new variables along with their relationships with these existing variables, the construct and predictive validity of the new measures were established. Accordingly, there were three sets of relationships examined in this research: (1) relationships among the new leadership development motivation constructs and distinguishing them from existing leadership motivation constructs (Investigation 1), (2) relationships between the new leadership development motivation constructs and a variety of traditional/existing individual difference predictors as well as with leadership development activity outcomes (Investigation 2), and (3) relationships between the new motivation to develop leadership measures and indicators of career success and leader behavior/performance (Investigation 3).

How the Problem Relates to Significant Previous Research That is Applicable

Outside of leadership development, research on the increasingly important general issue of employee development has examined the factors that seem to lead an individual to be motivated to pursue development of his/her career skills. The major concern in this literature is better understanding the factors that motivate self-initiated development efforts. Although not focusing specifically on leadership development, this literature provides clues regarding the types of constructs that should receive close attention in attempts to better understand self-initiated leadership development.

This literature suggests three constructs that are likely to be important in self-initiated development: motivation to develop skills, self-efficacy for development, and beliefs about “improvability” or malleability of skills to be developed. Prior research has shown the validity of these variables within research on self-initiated employee development activity and learning motivation.

Motivation to develop skills. The first variable—*motivation to develop skills*—is obviously an important part of development. Feeling favorably disposed toward involvement and having high interest in being involved are reliable predictors of intentions and involvement in a behavior (cf. Ajzen, 1991; Fishbein & Ajzen, 1975; 1981). Various researchers have found that motivation to learn, training attitudes, and similar affectively loaded motivational constructs are predictors of development

activity and training behavior (Birdi, Allan, & Warr, 1997; Boyce, Wisecarver, & Zaccaro, 2005; Colquitt, LePine, & Noe, 2000; Maurer, Weiss, & Barbeite, 2003; Maurer & Tarulli, 1994; Noe & Wilk, 1993). Likewise, a key predictor of engaging in a behavior is intention to do so (Ajzen, 1991; Fishbein & Ajzen, 1975; 1981; Fishbein & Stasson, 1990). Maurer, Weiss, and Barbeite (2003), Maurer and Tarulli (1994), and Maurer and Palmer (1999) investigated developmental activity and associated constructs in relation to intentions to engage in development. Intentions are important constructs in development behavior because the mindset that one intends to do something about skill or knowledge gaps is an important first step in pursuing development. In fact, in a recent study, Maurer et al. (2003) found that motivation and intentions were consistently related to involvement in a wide variety of development activities by 800 workers from across the United States work force.

Self-efficacy for development of skills. A second variable that is likely to be important in motivating self-initiated development is *self-efficacy for development of skills*. Self-efficacy for development and improvement of career-relevant skills is a belief by a worker that he/she is capable of improving and developing his/her skills. Self-efficacy for development should be positively related to motivation to be involved in development activities (Maurer, 2001). Research has shown that self-efficacy is a key predictor of choosing to perform a behavior or pursuing a task, as well as of persistence, thoughts, and feelings during the task (Bandura, 1997; Gist & Mitchell, 1992; Sadri & Robertson, 1993). Therefore, self-efficacy for development is an important part of being adaptable, flexible, and aggressive with respect to developing and learning. In a meta-analysis of training motivation, Colquitt et al. (2000) found self-efficacy to be positively related to motivation to learn in training. Likewise, employees' beliefs that they are capable of improving and developing their career-relevant skills have been examined in relation to attitudes toward employee development programs in organizations (Maurer, Mitchell, & Barbeite, 2002; Maurer & Tarulli, 1996), past participation in development activities (Birdi et al., 1997, Maurer & Tarulli, 1994; Noe & Wilk, 1993), and intentions to participate in development activities in the future (Maurer & Palmer, 1999; Maurer & Tarulli, 1994). Maurer et al. (2003) found self-efficacy for development to be consistently related to motivation, intentions and actual involvement in a wide variety of employee development activities by 800 workers from across the United States work force.

Beliefs about the improvability or malleability of skills (leaders are born vs. made). A third variable that is likely to be important in motivating self-initiated development is *beliefs about the improvability or malleability of skills* (Dweck, Chiu, & Hong, 1995). It is important to note that self-efficacy for development and beliefs about the improvability or malleability of skills are *not* the same thing. The latter term refers to the belief about whether or not it should be possible for people to change an attribute; self-efficacy refers to the belief that one can improve that attribute in oneself. An individual may believe that it is possible that an attribute can be improved upon, but may not have the confidence that he or she can improve that attribute. For example, one may feel that it is possible for people to lose weight, but may not feel that he or she personally has the will power required to do so. However, generally speaking, people who believe that skills can be improved and developed will be more likely to believe that they can improve and develop their own skills. Maurer et al. (2002) found that those who believed mental ability is a characteristic that is fixed (cannot be improved) were less likely to be involved in off-job development activity (e.g., training, courses). In a meta-analysis, Beaubien and Payne (1999) found a positive relationship between learning goal orientation (a tendency to enjoy, pursue, and be attracted to challenging learning situations) and beliefs that skills/attributes can be changed. Maurer (2002) presents a detailed model of

continuous, voluntary involvement in learning and development activity in which beliefs about improvability of skills play a key role. These beliefs should enhance self-efficacy for development and generally lead to more adaptive thoughts and feelings during involvement in challenging learning and developmental experiences. Maurer, Wrenn, Pierce, Tross, and Collins (2003) found improvability beliefs to be relevant to learning-oriented constructs, including self-efficacy. In general, it just makes intuitive sense that the more a person believes it is possible for people to develop and improve skills, the more he/she is going to be motivated to pursue that task themselves.

Although the research discussed above has addressed self-initiated development in broad populations of jobs and in college student samples, it has *not* addressed leadership development. This is a crucial distinction to make when addressing motivation to develop leadership skills because of the very nature of leadership attributes and skills: That is, some people may believe that leaders are born and not made, while others may believe that leadership is an acquirable skill. These fundamental beliefs may play a significant role in leadership development motivation. Further, constructs such as self-efficacy for leadership development and motivation to develop leadership skills are, at this point, theoretical or hypothetical constructs. They have not yet been operationalized in basic research on leadership. Therefore, although the ideas proposed here have solid roots in prior theory and research, they have not been developed nor validated within the leadership domain. This research is the first to empirically develop and investigate these variables in the leadership development domain.

Scientific Significance and Originality

There has been a good bit of research on predicting performance as a leader. However, there has been relatively little research on predicting development of leadership skills. For example, while motivation to lead and self-efficacy for leadership have been explored in various research studies (cf. Chan & Drasgow, 2001), self-efficacy for leadership development and motivation to develop leadership skills have received little attention. While some Army research (completed after the initiation of the present project) has addressed constructs such as propensity to develop leadership (cf. Boyce et al., 2005), that research did not compare and distinguish those constructs from existing motivational measures of leadership such as motivation to lead and self-efficacy for leadership. Such comparisons and distinctions are important in establishing a new construct and associated measurement of the constructs.

In the present research, the similarities and differences between constructs associated with leadership performance and leadership development were addressed conceptually and empirically. This included the distinction between self-efficacy for leadership versus self-efficacy for leadership development, and motivation to lead versus motivation to develop leadership skills. Differences in the antecedents and outcomes of these constructs were explored in the present research to establish their distinct construct validity. Featuring both kinds of constructs, the current research initiated a model of leadership development motivation that specifically targets motivation to develop leadership skills. Especially given differing ideas about whether leaders are born or made, there can be real differences in how aggressively and effectively potential leaders pursue the development of leadership skills. Successful development of leadership skills depends on strong motivation to develop those skills. This research also explored assessment methods for measuring this construct (see Cortina et al., 2004, for more on possible

assessments related to leadership development). These issues have not been explored previously in relation to leadership development, but hold great theoretical and practical promise.

Investigation 1

Despite the critical importance of leadership development, the extant literature in the leadership domain has focused largely on predicting performance as a leader, with relatively little attention given to research on predicting development of leadership skills. There seem to be implicit assumptions that by identifying those with high leadership potential and/or motivation to be a leader, leadership development will naturally follow (cf. Chan & Drasgow, 2001). In this way of thinking, those who are motivated to be leaders should naturally be motivated to develop leadership capability. In the present research, we suggest that there is value in distinguishing between motivation to lead and motivation to develop leadership capability. As importantly, we provided new measures of the latter construct, tested the measures for construct validity and incremental utility, and also examined how motivation to develop leadership capability related to the underlying motivation to lead. The present research provided a unique contribution to the literature: While motivation to lead has been explored in various research projects, motivation to develop leadership skills has received very little attention.

In Investigation 1, we directly addressed measures relevant to motivation to develop leadership capability, distinguishing these measures from those relevant to motivation to lead. The main focus in Investigation 1 was on empirically distinguishing these measures psychometrically, using confirmatory factor analysis, and beginning to examine them in relation to one another and across time in a test-retest study.

The next section of this paper will address the similarities and differences between motivational constructs associated with leadership and leadership development. This includes the distinction between self-efficacy for leadership versus self-efficacy for leadership development, and motivation to lead versus motivation to develop leadership capability. In addition, we explored an underlying potential influence on leadership development motivation: Beliefs about the extent to which it is even possible to develop leadership capability. A central focus of this discussion is that people may be motivated to be a leader, but they may not necessarily have the motivation to develop leadership skills.

Motivation to Lead Versus Motivation to Develop Leadership Capability

Chan and Drasgow (2001) established motivation to lead as motivation to assume leadership-relevant roles, responsibilities, and training. This motivation also may affect a leader's or potential leader's intensity of effort at leading and persistence as a leader. This is an important variable because there can be vast differences in the extent to which people are motivated to lead, and the measures developed by Chan and Drasgow (2001) directly address those differences.

Chan and Drasgow (2001) also addressed the idea of leader development as part of the process of being a leader. Implicit within the Chan and Drasgow model is the idea that through participation in leadership experiences, leaders or potential leaders develop leadership capability and, therefore, motivation to lead is ultimately relevant to leader development. However, in the current paper we propose that not only can the construct of motivation to lead be distinguished from the mo-

tivation to develop leadership capability, but it is also important to make that distinction theoretically and empirically.

Motivation to develop leadership capability is the desire to develop or improve leadership skills and attributes through effort: this development could occur through getting involved in various types of learning and developmental experiences. A person might possess both the motivation to develop leadership capability and also the motivation to lead. For example, a person who is motivated to lead also might be motivated to develop his/her leadership skills to ensure that he/she possesses the appropriate skills before entering a leadership role. Similarly, a person may already be a leader and have the motivation to improve and develop his or her skills further to better adapt to the current or future demands of the role. Alternatively, people may possess only one of the two motivations. For example, if a person is motivated to lead and perceives himself/herself as possessing all of the leadership capability needed, he or she may not be motivated to further develop leadership skill. Thus, motivation to lead and motivation to develop leadership capability should be related, but conceptually they are distinguishable. This is not only a theoretically important distinction, but also—to the extent that organizations are investing tremendous amounts of resources in leadership development efforts—this distinction can have great practical importance.

Hypothesis 1: A measure of motivation to lead will be empirically distinguishable from motivation to develop leadership capability.

Self-Efficacy for Leadership Versus Self-Efficacy for Development of Leadership Capability

Self-efficacy has been found to be associated with work-related performance, learning, and adaptability (see Gist & Mitchell, 1992; Stajkovic & Luthans, 1998). Extensive research has shown that self-efficacy is a key predictor of intentions and choice to perform a behavior or pursue a task as well as persistence, thoughts, and feelings during the task (Bandura, 1997; Gist & Mitchell, 1992; Sadri & Robertson, 1993). Self-efficacy for leadership is confidence in one's ability to lead others (Chan & Drasgow, 2001). This means the person perceives himself/herself as possessing the ability needed to lead. However, self-efficacy for development of leadership skills/attributes is confidence that one is able to develop/improve leadership characteristics in oneself.

With regard to self-efficacy for leadership development, the focus is on development or learning of new leadership-relevant skills or new levels of existing skills. If a leadership activity involves only the application of existing knowledge or skills, then it is not really a development activity; rather, it is performance. Self-efficacy for leadership development is one's confidence in truly learning new things or improving/developing leadership skills. Leadership self-efficacy is self-efficacy for performing a leadership task that one already has the skills required to perform (Maurer, 2001). A person may have self-efficacy for leadership (believe he/she possesses the ability to lead) but may not have self-efficacy for leadership development (believe he/she can learn new skills or develop existing ones). Conversely, a person may have high self-efficacy for leadership development (believe he/she can develop what it takes to be a leader) but may not currently have high leadership self-efficacy. Thus, these constructs can be distinguished, and they are both important for separate reasons.

Hypothesis 2: A measure of leadership self-efficacy will be empirically distinguishable from self-efficacy for leadership development.

Beliefs About the Improvability of Leadership Skills/Attributes (Leaders Are Born vs. Made)

A recent research article authored by officers in the U.S. Army (Ruvolo, Petersen & Le-Boeuf, 2004) is titled “Leaders Are Made, Not Born”; it strongly reflects the notion that leadership can be developed. There are many other examples of successful leadership training and development programs (cf. Agboola, 1997; Barling, Weber, & Kelloway, 1996; Doh, 2003; Frese, Beigel, & Schoenborn, 2003). However, it is well known that people may differ markedly in their beliefs about whether leaders are “born or made.” Beliefs that leadership attributes are innate or fixed and are not acquirable or “improvable” (e.g., the “great man” theory of leadership) might be a fundamental belief that can set the stage for someone’s overall motivation for leadership and leadership development. To the extent that a person believes that leaders are born and not made, this can be a substantial impediment to motivation for developing leadership skills. While some might hold the belief that leadership capability is not acquirable, others might believe that leadership is an acquirable trait, and the skills or attributes needed for leadership can be developed. Although the idea of individual differences in beliefs about the improvability of leadership capability has not been the focus of a large amount of scientific research within the leadership domain, there is a scientific basis for believing that differences in such beliefs do exist.

Outside of the leadership domain, Dweck et al. (1995) discuss the nature of implicit beliefs about characteristics of people (e.g., abilities, personality, skills). They refer to theoretical work by Kelly (1955) and Heider (1958) in which a major component of personality is personal constructs or naïve assumptions about the self. According to this viewpoint, implicit assumptions within people’s “naïve models” of the world will guide the way information about the self is processed and understood. According to Dweck et al. (1995), a belief in fixed versus malleable or changeable characteristics of people is a core assumption in an individual’s world view. In Kelly’s (1955) earlier work, this would be similar to a “superordinate” construct that defines a person’s reality and provides meaning for events. The implicit theories do not directly determine behavior; rather they create a framework within which a person interprets the world.

According to Dweck and Leggett (1988), implicit theories of traits can be distinguished into two types, perhaps along a continuum. On one end is entity theory. In this way of thinking, people’s characteristics are conceptualized as fixed: that is, people’s characteristics are static entities that one possesses and carries through life as finite, non-changeable qualities. On the other end is incremental theory. Here people’s characteristics are conceptualized as malleable and constantly evolving in an incremental fashion through an individual’s efforts and experiences. In addition, people may believe skills in one domain are acquirable, and in another domain are fixed. Research in the leadership domain has not explored differences in these beliefs to any extent, despite the notion that people may differ in their beliefs about whether leadership can be learned or whether it is “born.” In the present investigation, we explored not only differences across people in these beliefs in relation to other constructs, but we also explored, for the first time in the leadership literature, differences in beliefs across different leadership attributes.

It is critical to note that self-efficacy for development and beliefs about the improvability or malleability of skills are not the same thing. The latter refers to the belief about whether or not it should be possible for people to change an attribute. Self-efficacy refers to the belief that one can improve that attribute in oneself. An individual may believe that it is possible that an attribute can be improved upon, but may not have the confidence that he or she can improve that attribute. For example, one may feel that it is possible for people to lose weight, but may not feel that he or she personally has the will power required to do so. Likewise, one may believe it is possible for people to learn a specific skill, but may not believe that they themselves will be capable of it. However, generally speaking, people who believe that skills can be improved and developed will be more likely to believe that they can improve and develop their own skills.

Hypothesis 3: A measure of beliefs about the extent to which it is possible to improve leadership capability will be empirically distinguishable from self-efficacy for leadership development.

Drawing on research in both the educational and organizational domains, Maurer (2002) presents a model of continuous, voluntary involvement in employee learning and development activity in which beliefs about improvability of skills play a key role. They should enhance self-efficacy for development and generally lead to more adaptive thoughts and feelings during involvement in challenging learning and developmental experiences. Maurer et al. (2003) did find improvability beliefs to be relevant to learning-oriented constructs, including self-efficacy. In a meta-analysis, Beaubien and Payne (1999) found a positive relationship between learning goal orientation (a tendency to enjoy, pursue, and be attracted to challenging learning situations) and beliefs that skills/attributes can be changed. Maurer, Mitchell, et al. (2002) found that those who believed mental ability is a characteristic that is fixed (cannot be improved) were less likely to be involved in off-job development activity (e.g., training, courses).

These types of beliefs have not been explored extensively in the leadership domain, although they should be particularly relevant within this domain, given differences in thinking about whether leaders are born versus made.

Hypothesis 4a: Beliefs about the extent to which it is possible to improve leadership capability will have a positive relationship with motivation to develop leadership skills.

Hypothesis 4b: Beliefs about the extent to which it is possible to improve leadership capability will have a positive relationship with self-efficacy for development of leadership skills.

Correlational Evidence of Distinctions Between Leadership Development Motivation Constructs and Leadership Motivation Constructs

In the vein of establishing the distinctiveness of the leadership development-oriented constructs in comparison to the leadership motivation constructs, we also expected that the constructs relevant to leadership development motivation (self-efficacy for development, motivation to develop, improvability beliefs) would have higher relationships with each other than with the corresponding constructs relevant to leadership motivation (self-efficacy for leadership, motivation to lead).

Hypothesis 5a: The correlation between leadership self-efficacy and motivation to lead will be stronger than the relationship between leadership self-efficacy and motivation to develop leadership capability.

Hypothesis 5b: The correlation between self-efficacy for leadership development and motivation to develop leadership will be stronger than the relationship between self-efficacy for leadership development and motivation to lead.

Hypothesis 5c: The correlation between beliefs about the extent to which it is possible to improve leadership capability and motivation to develop leadership capability will be higher than the correlation between beliefs about the extent to which it is possible to improve leadership and motivation to lead.

Leadership Development Activity, Leadership Experience, and Differential Relationships with Leadership Development Motivation and Leadership Motivation Constructs

Leadership development activity. Leadership development activities can take many forms, and include such things as assessment, job experiences, formal courses and seminars, and relationships (cf. Corporate Leadership Council, 2003; Day & Halpin, 2001; Noe, Wilk, Mullen, & Wanek, 1997). These activities are developmental because they can lead to a change in skills or attributes of the person who participates in these activities. Leaders or potential leaders participate in these kinds of activities for the purpose of growing or developing their leadership skills. Given the tremendous expense and effort involved in providing and engaging in these activities, an important question is the extent to which leaders or potential leaders are motivated to pursue them. If a leader or potential leader is motivated to be in a leadership role, but is not motivated to pursue leadership development, this can be a significant detriment to the leadership development effort on the part of an organization.

Outside of the leadership domain, research has demonstrated that motivation to develop skills is a key part of development. Having favorable attitudes toward or motivation for a behavior are reliable predictors of intentions and involvement in that behavior (cf. Ajzen, 1991; Fishbein & Ajzen, 1975; 1981). Research has shown that motivation to learn and similar affective/motivational constructs, are predictors of development activity and training behavior (Birdi et al., 1997; Colquitt et al., 2000; Maurer et al., 2003; Maurer & Tarulli, 1994; Noe & Wilk, 1993). In leadership, this type of motivational variable should be differentiated from the motivation to lead others.

In the hypotheses below, we sought to test the extent to which measures of development variables (i.e., self-efficacy for leadership development, motivation to develop leadership, beliefs about the extent to which it is possible to improve leadership) provide incremental and unique validity in predicting leadership development activity variables above and beyond prediction provided by measures relevant to leadership (i.e., leadership self-efficacy, motivation to lead).

Hypothesis 6a: Because leadership development activities are all relevant to leadership behavior and leadership roles, all of the variables relevant to motivation to lead and motivation to develop will be positively related to leadership development activity; however,

Hypothesis 6b: The leadership development motivation variables are conceptually closer and more relevant to leadership development activity, and therefore leadership development motivation variables will be more strongly and uniquely related to leadership development activity compared to leadership motivation variables.

Leadership experience. In addition to the leadership development activity constructs, we also examined leadership and supervisor experience in relation to the variables studied in this research. When it comes to leadership experience—in terms of time spent in leadership-oriented roles at work—it seems likely that both sets of variables (motivation to lead, motivation to develop leadership) would relate to these experiential constructs. However, motivation to be a leader and being a leader (i.e., occupying a leadership role) are conceptually closer and should therefore be more strongly related to one another. Simply being in a leadership role without any emphasis on developing or learning about leadership can be distinguished from being involved in leadership activities with a purpose of developing leadership capability. As discussed previously, one may be motivated to be a leader but may not possess the motivation to develop leadership.

Hypothesis 7: Motivation to lead and self-efficacy for leadership will be more strongly related to experience at being a leader compared to the relationships between leadership experience and motivation to develop leadership and self-efficacy for leadership development.

In addition to these hypothesized relationships, beliefs about the improvability of leadership skills should influence the relationship between motivation to lead and motivation to develop leadership skills. Those who have high motivation to lead should be more likely to be motivated to develop leadership skills, but only to the extent that they believe that leadership skills are improvable. Differences in improvability beliefs should moderate the relationship between motivation to lead and motivation to develop leadership skills. For those who hold high improvability beliefs (or who possess incremental theories of leadership attributes), there should be a high correlation between motivation to lead and motivation to develop leadership skills. However, for those who do not believe leadership skills/attributes are acquirable, the relationship between motivation to lead and motivation to develop leadership skills should be significantly lower.

Hypothesis 8: Improvability beliefs will interact with motivation to lead in predicting motivation to develop leadership. The relationship between motivation to lead and motivation to develop will be higher with higher levels of improvability beliefs.

Of course, there are likely to be differences in how “improvable” different leadership characteristics or skills are perceived to be. In fact, it seems likely that if ratings of improvability of various leadership characteristics and skills are conducted (i.e., judgments of how “improvable” specific leadership skills are), these ratings will vary both as a function of the specific leadership attributes being rated and as a function of the people doing the rating. That is, some leadership attributes are more improvable than others, and some people will view the same attributes as being more improvable than will other people. This suggests a *person x leadership attribute* framework of improvability ratings. Both leadership attributes and people should be sources of variability in improvability perceptions. However, it was posited here that there would be overall, average individual differences across people in the degree to which leadership in general was improvable. Yet, this issue has not been explored to any degree in the leadership domain. As part of this research, it was possible to develop a framework that categorized various leadership attributes and skills according to how improvable they were perceived to be, in addition to capturing individual differences in these beliefs. This framework might be

used in job/role/position analysis to categorize leadership positions according to how “improvable” the requisite characteristics are thought to be. This kind of analysis can be used to guide decisions about selecting incumbents/leaders vs. developing/training them. Although there has been a good bit of research on implicit theories of leadership and what people conceive effective leaders to be (cf. Keller, 1999; Offerman, Kennedy, & Wirtz, 1994), research has not been done on the extent to which people believe that various leadership qualities are fixed or acquirable/improvable.

Investigation 1 Method

Sample and Survey Administration

We sought to collect data entirely independently of respondents’ employers to eliminate concerns by respondents about how the data would be used, thus reducing motives to respond in a favorable manner. Also, we wanted to collect data from a sample with a wide variety of demographic and occupational background characteristics to enhance the overall generalizability of results to a working population beyond what would be obtained using a sample of workers from a specific job or single organization. This should allow greater differences in respondents than might be expected in only one organization and type of job. From this point of view, a smaller response ratio from a very broad population will result in a more diverse working sample than a larger response ratio from a single job, organization, or student population (Gosling, Vazire, Srivastava, & John, 2004).

To meet these objectives, participants were recruited through StudyResponse.com. As introduced at the 2003 annual meeting of the Society for Industrial and Organizational Psychology (Weiss & Stanton, 2003), StudyResponse is a service that matches researchers with participants willing to receive solicitations to complete surveys (see Piccolo & Colquitt, 2006, for an example of published research in which this sampling strategy was used). The participant pool includes over 45,000 members with a diverse demographic composition. In prior development-related research, Maurer et al. (2003) used random digit telephone dialing (RDD; Klecka & Tuchfarber, 1978) to identify participants in their survey process; however, research has found that Internet sampling techniques also generate diverse samples, and comparing samples drawn simultaneously using the Internet and probabilistic telephone methods, the psychological mechanisms underlying decisions do not differ between Internet users and the population (Best, Krueger, Hubbard, & Smith, 2001). Moreover, data collected by Internet surveys may manifest higher predictive validity than data provided from random digit dialing, and these differences in validity persist even after controlling for sample differences in demographic attributes and relevant knowledge (Chang, 2002). According to the StudyResponse panel administrator (J. M. Stanton, personal communication, January 13, 2006), statistics maintained on this panel suggest that although members agree to be listed in the data base, they are not called upon very frequently to consider a request to participate in a study. The average panelist membership time is 14 months and the average panelist has been solicited for 1.84 studies. This means the average person receives a solicitation only once every six or seven months. Of the panelists in the data base, 58% who have been sampled/solicited have never participated in a study. In addition, administrators of this service did a benchmarking study recently by replicating the topic matter of a national poll conducted with systematic sampling by a large polling company. The researchers found that the results from the StudyResponse panelists’ responses corresponded with the results obtained in the national poll of opinions within just a few percentage points of error on just about every question asked (J. M. Stanton, personal communication, January 13, 2006). This all sug-

gests that the panel is not overly involved in being solicited for studies or in participating in them, and the results they provide are reasonably representative of data provided by traditional and systematic sampling/polling procedures. In addition, data collected over the Internet for research purposes is increasingly common, and recent critical examinations of this method of research are positive (Gosling et al., 2004; Kraut, Olson, Banaji, Bruckman, Cohen, & Couper, 2004). This Internet panel approach provides a viable approach as a sound sampling strategy.

Surveys were administered at two points in time. This multiwave approach may help reduce consistency and method bias in the responses of participants between waves (Doty & Glick, 1998; Podsakoff & Organ, 1986), and it allows test-retest measurements to be done on new scales such as those being developed here. In exchange for their participation, participants were entered into a raffle for a chance to win one of ten \$75 gift certificates to a large online retailer. Participants were given one entry for each wave of surveys they completed for a maximum of two entries. At Time 1 (T1), recruitment notices were sent to 2,500 registered users of StudyResponse.com with work experience. The email described the general purpose of the investigation and directed the potential participants to a URL address, which allowed them to read the informed consent page and complete the surveys in their browser windows. Reminders about the study in the form of email were sent after the first week of the initial recruitment notice and also after the second week.

The second wave of recruitment began 3 weeks after we sent the initial email from T1. The recruitment procedure for the second wave was similar to the first wave, except that notices were sent only to the 448 participants who completed the first wave of surveys. Participants were invited to complete the Time 2 (T2) surveys in their browser windows, and reminders again were sent after the first and second week of the T2 recruitment notice. Two hundred seventy-one participants agreed to participate in the second wave, yielding a 60% T2 return rate. This sampling and response rate can be compared to that in Maurer et al. (2003) in which a RDD and mailing strategy was employed. In that study, 14.7% responded to the telephone call and mail invitation at T1, while in the present investigation 17.9% responded to the email solicitation. In the Maurer et al. study, 8.5% of those initially contacted completed all the surveys in the study, while in the present investigation 10.8% did so. The response rates in the present investigation appear generally similar to that obtained using the more common RDD recruiting method in survey research as employed by Maurer et al. (2003). It is important to recognize that while these rates reflect a fraction of the whole population, the sample obtained for the investigation is a substantially broader one than would be obtained should the survey be conducted in only a single organization or in a single type of occupation, as is common in organizational research.

The demographic composition of the final sample is provided in Table 1. The mean age of the participants was 41.29 ($SD = 10.91$). Of those who provided demographic data on gender and race, 159 were female and 108 were male, 220 were Caucasian, 17 were African American, 9 were Hispanic, 14 were Asian or Pacific Islander, and 10 listed themselves as "other." The participants were employed in diverse occupations (professional and nonprofessional) and had a mean work experience of 21.27 ($SD = 11.21$) years. They had been at their present job for a mean of 7.36 ($SD = 7.42$) years. The majority of participants (70.5 %) had had previous supervisory experience, and the mean level of experience for those participants was 9.46 ($SD = 9.75$) years. The overall mean level of supervisor experience was 6.66 ($SD = 9.24$) years.

Table 1
Demographic Description of Investigation 1 Sample (Final Sample N = 271)

Variable	M	SD
Age	41.29	10.91
Years Total Work Experience	21.27	11.21
Years Job Tenure	7.36	7.42
Years Supervisory Experience		
Overall Sample	6.66	9.24
Participants With Previous Supervisory Experience	9.46	9.75
	n	%
Gender		
Female	159	58.7
Male	108	39.9
No Response	4	1.5
Race		
Caucasian	220	81.2
African American	17	6.3
Hispanic	9	3.3
Asian/Pacific Islander	14	5.2
Other	10	3.7
No Response	1	0.4
Previous Supervisory Experience		
Yes	191	70.5
No	80	29.5
Occupation		
Architecture & Engineering	6	2.2
Arts, Design, Entertainment, Sports, & Media	5	1.8
Building/Ground Cleaning & Maintenance	1	0.4
Business & Financial Operations	18	6.6
Community & Social Services	7	2.6
Computer & Mathematical	19	7.0
Construction & Extraction	8	3.0
Education, Training, & Library	29	10.7
Food Preparation & Serving Related	11	4.1
Healthcare Practitioners & Technical	17	6.3

Healthcare Support	16	5.9
Installation, Maintenance, & Repair	8	3.0
Legal	6	2.2
Life, Physical, & Social Sciences	2	0.7
Management	18	6.6
Military Specific	2	0.7
Office & Administrative Support	33	12.2
Personal Care & Service	9	3.3
Production	15	5.5
Protective Service	3	1.1
Sales & Related	29	10.7
Transportation & Material Moving	9	3.3

Leadership Development-Focused Measures

The leadership development motivational measures utilized each of 39 leadership attributes borrowed from Tett, Guterman, Bleier, and Murphy (2000). Those researchers developed a comprehensive taxonomy of competencies by reviewing and building upon competencies from previously published taxonomies. Thirty-nine competencies mapped onto at least one important and recognizable leadership style in that work and were included here as leadership attributes for the present investigation. We next explain how this taxonomy was chosen to play a central role in this research.

How the measure content was chosen. We conducted an extensive search to select a set of leadership attributes that would be used as the basis for various types of ratings relevant to leadership development in this research. We searched for different types of leadership and managerial measures, taxonomies, and competency models by doing a literature search online (e.g., PsycInfo database) as well as examining the reference section of articles. Articles were read and evaluated based on the soundness of their research methodology: that is, models of leadership attributes had to be based on empirical research that contained some kind of validation effort, and the data should be derived at least in part by managers and/or leaders in actual organizations. Also, each model had to contain a manageable number of attributes. This was because participants in the present investigation would need to make several different types of ratings for each leadership attribute. Thus, models that contained greater than 60 leadership attributes were not considered as it may become too time consuming for participants in this research. We outline the different types of attribute models that met these criteria below.

First, several leadership measures were specifically developed based on transformational leadership theory. In terms of theory-driven measures, we focus on transformational leadership because it has received the most attention in the literature during the past two decades (as indicated by the literature search), and measures based on other theories (e.g., Ohio State Studies) were generally too lengthy. According to Avolio, Bass, and Jung (1999), the dimensions of transformational leadership include charisma (admirable behavior leads to follower identifying with

the leader, leader energizes the follower, acts as a role model, articulates a vision that is appealing and inspiring), intellectual stimulation (challenging assumptions and taking risks), and individualized consideration (supporting followers and acting as a coach or mentor), though there is some disagreement and criticism about the nature and assessment of the transformational leadership construct (Bycio, Hackett, & Allen, 1995; Carless, 1998; Goodwin, Wofford, & Whittington, 2001; Tejeda, Scandura, & Pillai, 2001; Yukl, 1999). The most widely used measure of transformational leadership is the Multifactor Leadership Questionnaire (MLQ; Lowe, Kroeck, & Sivasubramaniam, 1996). There are several different forms of the MLQ, but studies suggest that transformational leadership can be assessed with fewer than 30 items (e.g., Avolio et al., 1999; Tejeda et al., 2001).

The second group of measures of leadership we identified was developed without explicitly incorporating an established theory of leadership (e.g., McCauley & Lombardo, 1990; Morgan, 1989; Posner & Kouzes, 1988; Sevy, Olson, McGuire, Frazier, & Paajanen, 1985, cited in Scullen, Mount, & Judge, 2003; Shipper, 1995; Yukl, Wall, & Lepsinger, 1990). These measures were developed both by consulting organizations as well as research programs. For example, Personnel Decisions International, Inc. developed the Management Skills Profile (MSP; Sevy et al., 1985, cited in Scullen et al., 2003). The MSP consists of 116 items grouped into 18 scales (Delegating and Controlling; Personal Organization and Time Management; Planning; Informing; Coaching and Developing; Organizing; Human Relations; Listening; Motivating Others; Conflict Management; Personal Adaptability; Occupational and Technical Knowledge; Problem Analysis and Decision-Making; Personal Motivation; Financial and Quantitative; Oral Communication; Written Communication; Leadership Style and Influence). The Center for Creative Leadership developed their measure called Benchmarks, which contains 106 items from 16 scales (Resourcefulness; Doing Whatever it Takes; Being a Quick Study; Decisiveness; Leading Employees; Setting a Developmental Climate; Confronting Problem Employees; Work Team Orientation; Hiring Talented Staff; Building and Mending Relationships; Compassion and Sensitivity; Straightforwardness and Composure; Balance between Personal Life and Work; Self-Awareness; Putting People at Ease; Acting with Flexibility). The Managerial Practices Survey (MPS; Yukl et al., 1990) contains 110 items grouped into 11 scales (Informing; Consulting and Delegating; Planning and Organizing; Problem Solving; Clarifying Roles and Objectives; Monitoring Operations and Environment; Motivating; Recognizing and Rewarding; Supporting and Mentoring; Managing Conflict and Team Building; Networking). These measures generally include more behavioral items than the 60-item cutoff for the current research, so we considered using the dimensions as the object of ratings. Moreover, these measures typically include a definition for each of their dimensions, which would help the participant interpret the content of each dimension.

The third group of leadership attribute models included efforts to create taxonomies or typologies rather than scales or measures per se. We describe two taxonomies that seem to be particularly useful for the current research. The first taxonomy was created by Borman and Brush (1993) and has received considerable attention and respect in the literature, as researchers have used it as a point of comparison for other taxonomies and measures (Conway, 2000; Tett et al., 2000). This taxonomy was derived inductively by integrating the managerial performance dimensions that have previously been found across 26 different empirical studies. Expert judges were asked to categorize 187 performance dimensions (based on critical incidents from both

public and private organizations) into categories based on the similarity of content. A factor analysis of these similarity ratings resulted in 18 mega-dimensions. Each mega-dimension includes a definition that encompasses the scales that load on it. The 18 mega-dimensions are: Planning and Organizing; Guiding, Directing, and Motivating Subordinates and Providing Feedback; Training, Coaching, and Developing Subordinates; Communicating Effectively and Keeping Others Informed; Representing the Organization to Customers and the Public; Technical Proficiency; Administration and Paperwork; Maintaining Good Working Relationships; Coordinating Subordinates and Other Resources to Get the Job Done; Decision Making/Problem Solving; Staffing; Persisting to Reach Goals; Handling Crises and Stress; Organizational Commitment; Monitoring and Controlling Resources; Delegating; Selling/Influencing; Collecting and Interpreting Data.

Although the Borman and Brush (1993) taxonomy is comprehensive in its integration of findings from a variety of published and unpublished empirical studies, we believe the taxonomy offered by Tett et al. (2000) also deserves consideration. These authors assembled a master list of observable performance dimensions from 12 previously published taxonomies, including the taxonomy by Borman and Brush (1993). They note that previous taxonomies may be too broad, and obscure the content of managerial performance in relation to other variables. For example, it is conceivable that creativity could predict strategic vision positively but short-term planning negatively. To the extent that a particular job involves more of one type of planning than the other, it becomes difficult to ascertain the contribution of creativity in this job if planning is measured under the broad dimension of "Planning and Organizing." Thus, the objective of that study was to create a comprehensive performance taxonomy that was more detailed than other taxonomies. Expert raters combined or split the existing dimensions/competencies from the previous taxonomies using a series of decision rules. Each competency label included a definition and at least three unique behavioral elements. As part of a content validation, independent samples of expert raters were asked to sort the behavioral elements into their targeted competency labels and definitions. From this process, 53 competencies were generated. However, an effort by the authors to map these competencies onto different theories of leadership (initiating structure and consideration, transactional and transformational leadership, autocratic and participative style) showed that 14 of these competencies could not be linked to a leadership theory. Thus, 39 competencies from the Tett et al. (2000) model would be considered as leadership (rather than managerial) competencies for the present research.

After reviewing the literature and considering the advantages and disadvantages of using the measures and taxonomies above, we elected to use the taxonomy outlined in Tett et al. (2000) for the present research. The first group of measures (based on transformational theory) we reviewed have the benefit of being derived directly from an established theory of leadership, but are relatively narrow in scope as they focus on only one type of leadership theory. The second group of measures we reviewed (managerial measures that were not specifically derived from leadership theory) also is limited by the perspective of the researcher who developed the measures. The relevance of leadership theory to these measures is also unclear. Finally, the taxonomic effort by Borman and Brush (1993) is comprehensive but the level of the competencies may be too broad. Again, the relevance of the dimensions to leadership theory is unclear.

On the other hand, the Tett et al. (2000) model integrates findings from several previously published taxonomies, some of which have been well established in the literature. The model also includes a more detailed set of competencies than can be found in other taxonomic efforts that have integrated findings from previous research (e.g., Borman & Brush, 1993). Thus, the Tett et al. (2000) taxonomy is comprehensive in terms of both breadth and depth and may be applicable to a wide variety of contexts. Second, Tett et al. presented a mapping that links their competencies to different theories of leadership. This shows the relevance of the competencies to leadership and not just managerial performance. In sum, we selected the Tett et al. taxonomy because it incorporates many of the strengths of the other models described above. The attributes are listed in Appendix A.

Application of the measure content. In using the attributes in the taxonomy within the present research, participants were asked to read the definition of each attribute (see Appendix A for the content used in the items) and provide ratings in terms of three leadership development scales: leadership improvability beliefs, self-efficacy for leadership development, and motivation to develop the leadership attributes. The instruction said: “*We are interested in your thoughts about various types of attributes relevant to being a leader. For each of these characteristics, we will be asking you 3 different questions as follows: First, we are asking you to indicate whether it is possible for people to improve various characteristics in themselves. For example, there may be some characteristics that you feel people can definitely change about themselves, if they try. There may be other characteristics that you feel are more difficult or impossible for people to change in themselves. Second, we are asking you to indicate how confident are that you can personally improve each of these attributes in yourself if you tried. Third, we are asking you to indicate how motivated you are to improve each of these attributes in yourself. Please read the description of each attribute carefully before indicating your responses to these 3 items (the description is provided directly to the right of each characteristic).*”

For improvability beliefs, participants were asked: “*To what extent can people improve this attribute in themselves?*” The 5-point response scale ranged from Not at All (1) to Moderately (3) to Very Much (5). Next, the participants rated their self-efficacy for leadership development when they were asked: “*How confident are you that you can improve this attribute in yourself?*” The response scale ranged from Not at all Confident (1) to Moderately Confident (3) to Very Confident (5). Finally, motivation to develop leadership was assessed when respondents were asked: “*To what extent are you motivated to improve this attribute in yourself?*” Participants endorsed their responses using a 5-point response scale, ranging from Not at all Motivated (1) to Moderately Motivated (3) to Very Motivated (5). All development-focused ratings were collected at both Time 1 and Time 2 for test-retest reliability purposes, as discussed later in this paper.

Factor analysis of measure content. Confirmatory factor analysis (CFA) was done using the Time 1 sample to take advantage of the larger sample size. The CFAs were performed separately for improvability beliefs, self-efficacy for leadership development, and motivation to develop leadership because the 39 leadership items contained in each scale are identical across the scales. Including all three scales in a single measurement model would therefore result in highly correlated errors due to individual item content uniqueness. Due to the large number of items, parcels for each scale were created by randomly assigning 7 to 8 items to each parcel and computing the mean. The five parcels were then entered in a single-factor model for each scale. Parceling involves summing or averaging

item scores from two or more items and using these parcel scores in place of the item scores in a structural equation modeling SEM analysis. In SEM applications across the literature, this practice is not uncommon (Bandalos & Finney, 2001) and has been adopted by researchers in such areas as education (Cook, Dorans, & Eignor, 1988); psychology (Russell, Kahn, Spoth, & Altmaier, 1998; Schau, Stevens, Dauphinee, & Del Vecchio, 1995); marketing (Singh & Rhoads, 1991); and organizational research (Bagozzi & Edwards, 1998; Bagozzi & Heatherton, 1994). In research such as the present research, in which there is a focus principally on the relations among constructs, parceling is warranted (cf. Little, Cunningham, Shahar, & Widaman, 2002) and may help mitigate negative effects of large numbers of items relative to sample, item categorical distribution, and other issues.

The results of the confirmatory factor analysis showed good fit for the one-factor improvability model (CFI = 1.00; RMSEA = .04; SRMR = .00), one-factor self-efficacy for leadership development model (CFI = 1.00; RMSEA = .06; SRMR = .01), and one-factor motivation to develop leadership model (CFI = 1.00; RMSEA = .08; SRMR = .01).

Leadership-Focused Measures

The leadership-focused measures below also were assessed at both Time 1 and Time 2 to examine test-retest reliabilities.

Leadership self-efficacy. A 5-item scale, like that used by Chan and Drasgow (2001), assessed the participants' confidence in being an effective leader. A sample item was: "I am capable of being an effective leader in most of the groups that I work with." The response scale ranged from Strongly Disagree (1) to Strongly Agree (7). A confirmatory factor analysis on the Time 1 sample showed good fit for the one-factor model (CFI = .99; RMSEA = .08; SRMR = .01).

Motivation to lead. The motivation to lead (MTL) measure (Chan & Drasgow, 2001) consists of three dimensions that reflect different reasons for assuming leadership roles. That is, people may simply enjoy leading others (affective MTL; 9 items), may feel a sense of duty or obligation (social-normative MTL; 9 items), and/or may be concerned with the benefits or outcomes associated with leadership: this scale is worded such that the respondent is *not* concerned or "calculative" regarding outcomes (noncalculative MTL; 9 items). Sample items were: "I usually want to be the leader in the groups that I work in" (affective), "I am only interested to lead a group if there are clear advantages for me" (noncalculative; reverse-scored), and "I feel that I have a duty to lead others if I am asked" (social-normative). A confirmatory factor analysis was done on the Time 1 sample by creating three 3-item parcels for each dimension. The three-factor model (affective, noncalculative, social-normative) showed good fit (CFI = .95; RMSEA = .11; SRMR = .05). These dimensions were moderately correlated (mean $r = .39$) and have conceptual/theoretical closeness. Other factor analytic results described below suggest that the three MTL dimensions do load onto a single factor (a 2-factor Motivation to Lead and Motivation to Develop Leadership model, in which each scale loads onto its own factor, fits well). So, in the interest of parsimony, for some analyses we also created an overall motivation to lead composite score that combined these three subscales. The composite reliability of the scale was .91 at both T1 and T2.

Development Activity

Respondents were asked to indicate the frequency with which they participated in and also intended to participate in various learning and development activities (Maurer et al., 2002, 2003; Maurer & Tarulli, 1994; Noe & Wilk, 1993). Items were introduced as activities that people sometimes do to learn something new about leadership or to improve their leadership capability. At T1, participants indicated the extent to which they engaged in these activities during the past 12 months. At T2, participants rated how frequently they intended to engage in these activities in the next 12 months. Respondents used a seven-point response scale ranging from Never (0) to About six times or more (6). The items included activities related to traditional on-the-job development (e.g., participated in a special project), skill acquisition (e.g., worked on a specific skill on the job), and feedback (e.g., asked for feedback from his/her supervisor), as well as traditional off-the-job activities (e.g., had taken a correspondence course) and career planning (e.g., worked on a career/professional development plan) that an employee could perform either during work or nonwork hours. The prior participation and intentions scales were used in prior research on general employee development (Maurer, Lippstreu, & Judge, 2008; Maurer et al, 2003). The instructions were adapted for this research so that participants were rating these items specifically in terms of leadership development activity rather than general employee development activity.

In order to test the single factor measurement model, parcels were created and used as indicators in a confirmatory factor analysis. Five parcels were formed, with each parcel consisting of 7 to 8 items. The results of the confirmatory factor analysis supported the one-factor model for both prior participation (CFI = .99; RMSEA = .10; SRMR = .01) and intentions (CFI = .99; RMSEA = .11; SRMR = .01).

Leadership Experiential Measures

Two types of leadership experience indices were examined, the first of which was past supervisory experience, as described in the demographic section. The number of years and months were used for this variable. The second leadership experience measure was a self-reported leadership experience rating, rather than supervisory experience. A sample item from this 3-item scale was: "I have been responsible for leading others in the past." The reliability of the scale was .83.

Investigation 1 Results

The analyses were conducted in three phases. The first phase involved an exploration of the descriptive and psychometric properties of the development-focused scales. The test-retest reliabilities of the development- and leadership-focused scales also were examined during this phase. The research hypotheses were tested during the second phase of analyses. For Hypotheses 1-3, confirmatory factor analysis was used to establish the development-focused variables as separate constructs from the leadership-focused variables. Next, correlational analyses were used to examine the interrelationships among the leadership-relevant scales, including tests to determine whether the development-focused scales were more highly related to each other than to the leadership-focused scales and vice versa (Hypotheses 4a-5c). In the next step of this phase, the relationships between all leadership-relevant scales with development activity were examined (Hypothesis 6a), and the development-focused scales were compared against the leadership-focused scales in testing for

incremental variance in the prediction of development activity using hierarchical regression (Hypothesis 6b). Hypothesis 7 involved examining the leadership experience variables and their relative relationships with the development-focused and leadership-focused variables. For Hypothesis 8, a moderated regression analysis was done to test whether improvability beliefs moderated the relationship between motivation to lead and motivation to develop leadership. In the third and final phase of the analyses, we explored whether improvability and motivation ratings reflect general individual difference constructs or differentiation in ratings at the item level.

Descriptive and Psychometric Information

Table 2 provides the means, standard deviations, and intercorrelations among the research variables. The reliabilities of the scales are found in the diagonal. It should be noted that at the item level, all 39 items were rated as mid-range or higher on each of the three scales (improvability, self-efficacy for development, and motivation to develop the leadership attribute).

Table 2
Means, Standard Deviations, and Intercorrelations Among Investigation 1 Variables (Final Sample N = 271)

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. IBL (T1)	3.85	.69	.97													
2. SELD (T1)	3.96	.69	.71	.97												
3. MTDL (T1)	3.85	.80	.57	.80	.98											
4. IBL (T2)	3.80	.73	.63	.43	.33	.98										
5. SELD (T2)	3.93	.67	.48	.68	.53	.68	.97									
6. MTDL (T2)	3.76	.80	.41	.60	.73	.47	.75	.98								
7. SEL (T1)	5.43	1.16	.21	.53	.43	.11	.43	.36	.91							
8. MTL (T1)	3.39	.54	.16	.41	.42	.08	.37	.41	.65	.91						
9. SEL (T2)	5.28	1.19	.15	.45	.41	.10	.46	.45	.74	.59	.93					
10. MTL (T2)	3.36	.50	.12	.37	.41	.06	.38	.46	.59	.81	.71	.91				
11. Prior Participation	1.71	1.30	.30	.41	.46	.26	.36	.44	.38	.40	.40	.40	.96			
12. Intentions	1.71	1.30	.30	.42	.49	.30	.44	.56	.35	.39	.41	.42	.78	.97		
13. Leadership Experience	5.33	1.38	.16	.41	.40	.10	.36	.35	.66	.52	.61	.47	.46	.38	.83	
14. Supervisory Experience	6.66	9.24	.03	.16	.11	.05	.24	.19	.32	.31	.32	.33	.25	.20	.47	–

Note. IBL = improvability beliefs; SELD = self-efficacy for leadership development; MTDL = motivation to develop leadership; SEL = self-efficacy for leadership; MTL = motivation to lead; T1 = Time 1; T2 = Time 2.

* $p < .05$ for $r > .11$. ** $p < .01$ for $r > .15$. *** $p < .001$ for $r > .20$.

Test-retest reliability. As seen in Table 2, among the new development motivation measures, the motivation to develop scale had the highest test-retest reliability (.73), followed by self-efficacy for development (.68), and finally by improvability (.63). In addition, all internal consistency reliabilities were high (.97 to .98). The test-retest reliabilities for the leadership-focused scales were higher than the development-focused scales, suggesting even greater stability across time. Leadership self-efficacy and motivation to lead had test-retest reliabilities of .74 and .81, respectively. The internal consistency reliabilities were also high for these scales (.91 to .93).

Hypothesis Testing

Establishing Separate Constructs. The distinctiveness of constructs was examined in various measurement models. This was done by entering one development-focused construct and one analogous leadership-focused construct into the same CFA model. For example, self-efficacy for development and leadership self-efficacy were entered into the same model to examine the distinctiveness of the constructs relevant to self-efficacy. For the development-focused constructs, the parcels discussed in the Method section acted as the five indicators per construct. In terms of the leadership-focused constructs, items were used as indicators for leadership self-efficacy, and the dimension scores (affective, noncalculative, social-normative) were used as indicators for motivation to lead.

Table 3 shows that the two-factor model for motivation fit the data well: that is, the results showed good model fit when motivation to develop leadership was a separate factor from motivation to lead. The fit of the one-factor model was significantly worse than the fit of the two-factor model ($\Delta\chi^2[1, N = 448] = 145.96, p < .001$). This suggests that motivation to develop leadership attributes is a different construct from motivation to lead. The two-factor model for self-efficacy also had good model fit. Combining these constructs into a single “self-efficacy” model resulted in a lower fit. A chi-square difference test indicated that the two models were significantly different ($\Delta\chi^2[1, N = 448] = 2627.19, p < .001$). Thus, Hypotheses 1 and 2 were supported.

In addition to comparing the development- and leadership-focused constructs, we sought to establish improvability beliefs and development self-efficacy beliefs as separate constructs (Hypothesis 3). As seen in Table 3, only the two-factor model fit the data well. The chi-square difference between the one-factor and two-factor models was significant ($\Delta\chi^2[1, N = 448] = 2038.58, p < .001$). Thus, Hypothesis 3 was supported: Improvability beliefs and self-efficacy for development can be considered as two different constructs.

Table 3
Comparison of Models in Investigation 1 (T1 N = 448)

Model	χ^2	df	RMSEA	SRMR	CFI
Self-Efficacy					
2-Factor Model	84.41	34	.06	.02	.99
1-Factor Model	2,711.60	35	.49	.24	.52
Motivation					
2-Factor Model	73.70	19	.08	.03	.99
1-Factor Model	219.66	20	.15	.09	.95
Efficacy vs. Improvability					
2-Factor Model	338.95	34	.14	.02	.96
1-Factor Model	2,377.53	35	.46	.15	.67

Note. Self-Efficacy includes self-efficacy for leadership development and self-efficacy for leadership; Motivation includes motivation for leadership development and motivation to lead; and Efficacy vs. Improvability includes self-efficacy for leadership development and leadership improvability beliefs. Time 1 scales and items were used for confirmatory factor analyses.

Interrelationships among similar constructs. Hypothesis 4a stated that improvability beliefs would be positively related to motivation to develop leadership attributes, and Hypothesis 4b stated that improvability beliefs would be positively related to self-efficacy for development. Table 2 shows support for both hypotheses. Improvability beliefs were highly related to both motivation to develop ($r = .57$) and self-efficacy for development ($r = .71$).

Development-focused constructs should predict other relevant development-focused constructs better than leadership-focused constructs and vice versa. Results showed that the correlation between leadership self-efficacy and motivation to lead ($r = .65$) was stronger than the relationship between leadership self-efficacy and motivation to develop leadership attributes ($r = .43$; difference $t(268) = 4.38, p < .001$). This supports Hypothesis 5a. Similarly, the relationship between self-efficacy for leadership development and motivation to develop ($r = .80$) was higher than the relationship between self-efficacy for leadership development and motivation to lead ($r = .41$), and this difference was significant, $t(268) = 9.42, p < .001$. Hypothesis 5b was supported. Finally, the relationship between improvability beliefs and motivation to develop leadership attributes ($r = .57$) was higher than the relationship between improvability beliefs and motivation to lead ($r = .16$). In support of Hypothesis 5c, this relationship was also significantly different, $t(268) = 7.54, p < .01$. Thus, the development-focused variables had stronger relationships with motivation to develop leadership

attributes than with motivation to lead, but the opposite was true for the relationship between leadership self-efficacy and the motivation variables.

Development activity. Hypothesis 6a predicted that all development motivation and leadership motivation variables will be positively related to development activity. According to Table 2, all correlations were in the .30 to .50 range. Thus, Hypothesis 6a was supported.

Regression analyses were performed to test for incremental variance of the development- and the leadership-focused variables in the prediction of development activity (Hypothesis 6b). As seen in Table 4, both self-efficacy for leadership development and leadership self-efficacy had significant incremental variance over each other. However, self-efficacy for leadership development added greater prediction to development activity than leadership self-efficacy. A similar pattern of relationships was found for motivation to develop leadership attributes and motivation to lead. There was support for significant incremental variance for both of these variables over each other, but the added variance was larger for motivation to develop leadership.

The findings for improvability beliefs were unlike those of the other two types of development-focused variables. The incremental variance for improvability beliefs and leadership self-efficacy were both significant, but the added prediction of development activity by leadership self-efficacy was higher. In addition, self-efficacy for leadership development had significant incremental variance over improvability beliefs in predicting development activity, but the incremental variance for improvability beliefs over development self-efficacy was not significant. These findings suggest that with the exception of improvability beliefs, the development-focused variables add greater prediction to development activity compared to the leadership-focused variables. This provides partial support for Hypothesis 6b.

Table 2 suggests that prior participation is a strong predictor of intentions, such that prior behavior predicts future behavior intentions ($r = .78$). As a follow-up analysis, we examined whether improvability beliefs, self-efficacy for leadership development, and motivation to develop leadership would collectively add unique variance over prior participation in the prediction of intentions. For comparison, we also examined whether leadership self-efficacy and motivation to lead added unique variance over prior participation. Table 4 shows that only the development-focused variables collectively added unique variance in the prediction of intentions.

Table 4
Incremental Variance (N = 271)

Regression model	Prior participation		Intentions	
	ΔR^2	<i>p</i>	ΔR^2	<i>p</i>
SELD over SEL	.06	***	.07	***
SEL over SELD	.04	***	.02	**
MTDL over MTL	.11	***	.13	***
MTL over MTDL	.05	***	.04	***
IBL over SEL	.05	***	.05	***
SEL over IBL	.11	***	.09	***
SELD over IBL	.08	***	.08	***
IBL over SELD	.00		.00	
Develop over Prior	–	–	.02	**
Perform over Prior	–	–	.01	

Note. SELD = Self-efficacy for leadership development; SEL = self-efficacy for leadership; MTDL = motivation to develop leadership; MTL = motivation to lead; IBL = improvability beliefs; Prior = prior participation; Develop = IBL, SELD, and MTDL as a block; perform = SEL and MTL as a block.

All development- and leadership-focused scales shown here are from Time 1.

p* < .01. *p* < .001.

Experiential variables. Table 2 shows the development- and leadership-focused scales and their relationships with leadership experience and supervisory experience. We compared the correlations for the development-focused scales and the corresponding leadership-focused scales with respect to the experiential variables (e.g., correlation between self-efficacy for leadership development and leadership experience, compared to the correlation between leadership self-efficacy and leadership experience). Tests of the differences between dependent correlations showed that compared to self-efficacy for leadership development, leadership self-efficacy was more strongly related to leadership experience [$t(268) = -5.54, p < .001$] and supervisory experience [$t(268) = -2.85, p < .01$]. Similarly, compared to motivation to develop leadership, motivation to lead was more strongly related to leadership experience [$t(268) = -2.16, p < .05$] and supervisory experience [$t(268) = -3.19, p < .01$]. Thus, the two leadership experience indices were more highly related to the leadership-focused (as opposed to development-focused) measures. Hypothesis 7 was supported.

Interaction effect. Hypothesis 8 stated that motivation to lead and improvability beliefs will interact to predict motivation to develop leadership, such that the relationship between motivation to lead and motivation to develop leadership will be stronger for those with higher improvability beliefs. Hypothesis 8 was tested by using the composite score for motivation to lead (average of three MTL scores), the composite score reflecting motivation to develop leadership, and the composite score reflecting improvability beliefs. In a moderated regression analysis, MTL and improvability beliefs were entered first, followed by the interaction of those two variables. If the interaction is significant, the incremental R-squared value for the addition of the interaction term should be significant. However, that test showed that the interaction term did not significantly add to the prediction of motivation to develop leadership ($\Delta R^2 = 0.00$, *ns*).

Exploring Differences in Perceived “Improvability” of Leadership Characteristics

We explored the amount of variability in improvability ratings due to people and to leadership attributes by computing a persons x items design following the ANOVA procedure for generalizability analyses outlined in Shavelson and Webb (1991). SPSS was used to produce the ANOVA values, which were then plugged into the equations provided by Shavelson and Webb in order to compute the estimated variance components and percentage of total variance. Persons explained more variance in improvability ratings, compared to the attributes. For the improvability ratings across all leadership attribute items rated, persons accounted for 46.33% of the variance, whereas the items accounted for 2.16% of the variance. For comparison purposes, we also conducted this analysis on the motivation to develop ratings involving the same items. For the motivation to develop ratings across all leadership attribute items rated, persons accounted for 49.67% of the variance, whereas the items accounted for 3.87% of the variance. Table 5 provides the full results of the ANOVA.

Table 5
ANOVA Estimates of Variance Components for Improvability and Motivation to Develop Ratings
(N = 271)

Source of variation	Sums of squares	df	Mean squares	Estimated variance components	Percentage of total variance
Improvability					
Persons (p)	5,063.73	270	18.76	.47	46.33
Items (i)	243.91	38	6.42	.02	2.16
Residual (pi, e)	5,343.76	10,260	.52	.52	51.51
MTDL					
Persons (p)	6,685.20	270	24.76	.62	49.67
Items (i)	519.21	38	13.66	.05	3.87
Residual (pi, e)	5,935.57	10,260	.58	.58	46.46

Note: MTDL = motivation to develop leadership.

In addition, we examined the mean improvability scores of leadership attributes at the item level. As shown in Table 6, the mean ratings ranged from 3.52 to 4.19 on the 5-point improvability scale. The results indicate that the participants perceived all of the leadership attributes to be at least moderately improvable. The limited variability in improvability ratings across the items is consistent with the persons x items ANOVA analyses. A similar pattern of ratings was also found in a prior study that examined the improvability of general work-related knowledge, skills, and abilities (Maurer & Lippstreu, in press). For comparison purposes, we include the mean motivation to develop ratings for the same items in that table. There was little variability in motivation to develop ratings, as mean item ratings ranged from 3.08 to 4.25 on the 5-point scale.

Table 6
Item-Level Descriptives of Improvability and Motivation to Develop Ratings (N = 271)

Item (T1)	Improvability		MTDL	
	M	SD	M	SD
Productivity	4.19	0.91	4.12	0.97
Politeness	4.12	0.97	4.17	1.01
Safety Concern	4.12	0.90	4.04	1.10
Short-Term Planning	4.04	0.89	3.96	1.03
Timeliness	4.02	0.97	3.99	1.00
Listening Skills	4.00	1.05	4.16	0.96
Coordinating	4.00	0.96	3.76	1.13
Goal Setting	3.99	0.98	3.88	1.09
Cooperation	3.99	0.91	4.04	1.02
Quality Concern	3.97	0.91	4.05	1.08
Directing	3.94	0.89	3.75	1.18
Oral Communication	3.93	0.94	4.09	1.00
Quantity Concern	3.93	0.95	3.80	1.13
Seeking Input	3.91	0.93	3.79	1.09
Job Enrichment	3.91	0.96	3.74	1.19
Trustworthiness	3.90	1.12	4.25	0.95
Initiative	3.87	1.03	4.11	0.96
Rule Orientation	3.87	0.93	3.74	1.11
Problem Awareness	3.86	0.96	3.73	1.10
Financial Concern	3.85	0.99	3.98	1.12
Team Building	3.85	0.99	3.68	1.20
Monitoring	3.84	0.96	3.69	1.13

Decision Delegation	3.83	0.98	3.71	1.20
Task Focus	3.82	1.00	3.96	0.99
Developmental Goal Setting	3.80	0.99	3.67	1.20
Developmental Feedback	3.80	1.00	3.61	1.17
Motivating by Authority	3.79	0.99	3.42	1.24
Strategic Planning	3.79	0.98	3.71	1.16
Urgency	3.78	0.95	3.89	1.03
Compassion	3.73	1.18	4.14	1.04
Motivating by Persuasion	3.73	1.00	3.71	1.15
Public Presentation	3.72	1.04	3.61	1.19
Sociability	3.72	1.05	3.83	1.08
Assertiveness	3.71	0.98	3.77	1.09
Tolerance	3.69	1.07	3.90	1.00
Creative Thinking	3.62	1.11	3.92	1.05
Cultural Appreciation	3.58	1.11	3.83	1.12
Decisiveness	3.55	1.07	3.83	1.07
Political Astuteness	3.52	1.07	3.08	1.25

Note. MTDL = motivation to develop leadership.

Both the ANOVA and item level analyses for improvability and motivation clearly suggest the ratings are more a function of individual differences in people than differences in items. There is little variability in the item-level analysis, suggesting ratings of perceived improvability of leadership and motivation to develop leadership are more a general individual difference construct than a difference across specific items or attributes. This implies little value in analyzing the scales at the item level or in item subgroups versus a general scale score.

Investigation 1 Discussion

Just as motivation to lead is not the same as the ability to lead (Chan & Drasgow, 2001), the motivation to develop leadership is not the same as the motivation to lead. The findings of the current investigation suggest that the concepts measured in this paper—reflecting the motivation for leadership development—are indeed distinguishable from motivation to lead, and that the former provide

utility above and beyond the latter in relation to leadership development behavior. This is a particularly crucial distinction to make in light of the fact that investments in leadership development are presently very expensive and growing (Ready & Conger, 2003). Given the increasing need to develop leadership talent (The Conference Board, 2005), it is important to maximize understanding of leadership development behavior as well as identify new tools that may facilitate the development process. The measures developed in the present research are offered as a tool for use in future research and practice involving leadership development.

It is encouraging that the validity of the new measures was supported by various tests of psychometric properties. The factor structure of the measures was consistent with the logic underlying their development, and the internal consistency reliabilities of the new measures surpassed typical thresholds for judging the psychometric adequacy of measures. Results further showed that the test-retest reliability of the measures, over a 3-week period, was in the .6 to .7 range, suggesting that the characteristics were relatively stable. In addition, evidence supported the convergent and discriminant validity of the measures. Specifically, the results indicated that self-efficacy for leadership is distinguishable from self-efficacy for leadership development, that beliefs about the improvability of leadership are distinguishable from self-efficacy for leadership development, and that motivation to lead is distinguishable from motivation for leadership development. More generally, the development constructs correlated more highly with each other than with the leadership constructs (e.g., leadership self-efficacy, motivation to lead), and vice-versa.

Finally, the development oriented constructs predicted development activity reports and did so with validity above and beyond the leadership motivation measures to a higher extent than the converse. Demonstrations of incremental validity are often missing from studies that introduce new concepts and measures into the psychological literature. As Sanders, Lubinski, and Benbow (1995) note, "Measures of favorite constructs...are frequently constructed and 'validated' within elaborate networks of criterion variables and experimental manipulations, without ever considering the possibility that other *existing measures* might account for the same correlational and experimental findings as well as, or perhaps more comprehensively than, the investigator's purported ("master") construct" (p. 499). Thus, the results suggested that the development motivation variables provide validity in predicting future development behavior over and above past development behavior, which is a critical but often missing step in developing new measures (Schwab, 1980).

This research showed that the variance in improvability ratings can be more largely attributed to personal beliefs than to differences between items. Some people may have conservative perceptions about the improvability of leadership, whereas others may have more liberal perceptions about the improvability of leadership. This is consistent with Maurer and Lippstreu (in press), who found that improvability ratings by workers of various work-related knowledge, skills, and abilities from the O*NET database were due largely to individual differences rather than differences between particular KSAOs. Of course, believing that it is possible to develop an attribute is not the same as being motivated to develop it in oneself. The data from the present research also suggested that variance in ratings of respondents' motivation to develop the leadership attributes was more a function of differences in people than differences across the items. This similarly suggests that the overall motivation to develop leadership may cause differences in motivation ratings across all of the items, and there may be little merit in considering the items individually.

It is also interesting that the average improvability ratings of attributes in the present research ranged from 3.5 (for the attribute “Productivity”) to 4.2 (for the attribute “Political Astuteness”). On a 5-point scale, this suggests that the sample was relatively optimistic about the prospect of peoples’ ability to change the various leadership-relevant attributes through effort. Maurer and Lippstreu (in press) found similar results for workers rating the improvability of a broad set of characteristics relevant to many different types of jobs and occupations. They asserted that this may have underscored a type of “Horatio Alger myth” of work-related human capability held by working people in general. Those in the general working population may believe that it is possible to change most any attribute of oneself through effort. Similarly, it does appear in the present research that respondents are relatively optimistic about the idea of people being able to improve leadership-relevant characteristics.

Practical Implications and Future Research

The leadership development literature might be characterized as emphasizing the availability of leadership development systems—mentoring, coaching, assimilation, and adjustment (Lockwood, 2006)—based on the implicit assumption that those who *need* development in fact *want* development. The results of this research—while by no means suggesting that leadership development programs are unworthy of organizational attention—do suggest that organizations should not assume that everyone is equally motivated to develop their leadership skills nor that those who want to be leaders want to develop leadership talent. There are two ways to make use of these findings. First, organizations might use motivation as a diagnostic tool prior to investing in leadership development. Just as motivation to learn is important to training success (Colquitt et al., 2000), motivation to develop one’s leadership skills matters to leadership development. Leadership development represents a multibillion dollar industry and thus organizations are well advised to ensure that individuals targeted for development are “development-ready.” At more of a macro level, measures of this construct may allow a “read” on the local culture of an organization: Do people want to be in leadership positions but not want to develop/improve leadership capability? A second practical implication of the present results is that organizations might try to impact directly the motivation to develop one’s leadership skills. This might be done by bolstering individuals’ self-efficacy, emphasizing the importance of developing these skills, or attempting to enhance individuals’ improvability perceptions.

Future research might further examine the types of constructs that predict and influence motivation to develop leadership capability. While some research has examined prediction of leadership performance and motivation to lead, less has examined predictors of and influences on the motivation to develop leadership. Future research could examine the measures developed in the present research in relation to other individual and situational influences. The present measure format could easily be adapted for local or more specific leadership competency models used in any organization. The present results suggest the construct and scales developed here have promise for application in other research.

Limitations of Investigation 1

Although this first investigation was useful in distinguishing the two types of constructs and measures using factor analysis and correlations, the research did not fully explore the nomological network of constructs that might correlate with or predict the new measures. Additional research

should examine the types of constructs that predict motivation to develop leadership capability. Future research could examine the measures developed in the present research in relation to other individual and situational influences from the literature on employee and leader development. Only research that examines a wider network of variables along with the new measures examined in Investigation 1 can address these issues.

Further, while motivation to develop leadership was predictive of intentions for development, it would be worthwhile to examine this variable in relation to subsequent leadership development activity. Does motivation to develop leadership predict actual, subsequent leadership development behavior in the same manner that it predicted intentions to engage in development activity and prior development activity? Does the effect on intentions hold for actual participation behavior at a later time? An intention to engage in development over the next year is not the same construct as actual participation over that year. In addition, we could posit and test a model of participation in leadership development activity such as that tested by Maurer et al. (2003) in which various constructs predicted not only intentions but also ultimate participation in employee development activity in a longitudinal fashion. It would be very worthwhile to measure development activity following intentions, and to use structural equation modeling for an entire set of relevant constructs to create a model of participation in leadership development activities featuring motivation to develop leadership and motivation to lead at the core. We therefore set out—in Investigation 2—to build such a model, including follow-up measures of leadership development activity 1 year following intentions.

Investigation 2

The purpose of the second investigation was to more fully examine the motivational measures in relation to leadership development behavior and other constructs from the employee and leader development literature. We posited and tested structural models that included additional predictor variables in relation to the motivational constructs, including both individual and situational constructs. At the outset of this research, we also conducted additional confirmatory factor analyses to establish the distinct nature of the motivational constructs in comparison to other, existing constructs including motivation to lead (as in Investigation 1) and also some other conceptually-similar variables added in this research.

In the present research, the individual difference predictors included the Big 5 personality factors (i.e., openness, conscientiousness, extraversion, agreeableness, neuroticism) that have been linked to leadership (cf. Judge, Bono, Ilies, & Gerhardt, 2002); motivation to lead (Chan & Drasgow, 2001); as well as training/learning behavior (cf. Barrick & Mount, 1991; Colquitt & Simmering, 1998). The predictors also included variables shown to be specifically relevant to the employee and management development domain in prior research (Maurer & Tarulli, 1994; Maurer et al., 2003; Maurer et al., 2008) including perceived need for development, development-oriented self-concept, and learning/performance goal orientation. We also explored situational variables that have been shown to be relevant to development behavior. These included perceived policies, resources, and support in the work situation that lend support to development by the respondent (Maurer et al., 2003; Maurer et al., 2008). Finally, we examined experiential variables that should be relevant to motivation to develop leadership and motivation to lead; these included prior leadership development activity and prior leadership experience. All of these individual and situational factors could contri-

bute in various ways to leadership development motivation. We also examined the motivational variables in relation to leadership development intentions and subsequent development activity one year later.

Theoretical Framework and Structural Models

The general theoretical framework used here borrows from that employed by Maurer, Lippstreu, and Judge (2008) and Maurer, Weiss, and Barbeite (2003). This prior work on employee development drew on research and theory from training and development literature as well as from well-established theories from social psychology and motivation theory. Consistent with this prior research on employee development, the general framework or sequence of relationships that guides the empirical tests in the present research is: *Employee individual and situational variables* → *Leadership and leadership development motivation variables* → *Specific intentions for involvement in leadership development* → *Subsequent leadership development activity*. In the present research, the employee individual variables include personality, development domain, and experiential constructs. The situational variable includes support for leadership development. The leadership development motivation variables include self-efficacy for leadership development, perceived benefits of leadership development, and motivation to develop leadership. The leadership motivation variables include self-efficacy for leadership and motivation to lead.

In the present research, three variations on this overall framework were tested. Figures 1, 2, and 3 display the expected configurations of variables in these three models. The three variations have many aspects in common, but they differ in some important ways that are addressed in detail below. Rather than to list specific, numbered hypotheses, which would be numerous and extensive, we will present the expected configurations of models in figural form and describe the specific predictions for individual variables in the text below each figure.

First, we tested a structural model similar to that examined by Maurer et al. (2008) in which the relatively immutable individual difference variables serve as exogenous variables in the model. In the present research, we posited that personality should serve as exogenous along with prior experiential history variables, all of which predict the other development domain as well as individual and situational constructs. Figure 1 illustrates that model. The theoretical reasoning behind this model is that constructs such as personality and variables reflecting one's past history are relatively immutable and difficult to change, and both of these types of constructs are fundamentally influential in shaping one's current perceptions, experiences, and situations. The other development domain and situational constructs are considered to be more proximal or "mid-level constructs," hierarchically situated between more distal dispositions and experiential history and specific behaviors or outcomes (Elliot & Church, 1997). In this approach, the more general and immutable variables, such as personality and experiential history, should predict the more domain-specific and mutable variables that are directly relevant to motivation for employee development (Locke & Latham, 2004). The development domain and situational variables are posited to predict perceived benefits and self-efficacy as subcomponents of motivation. The subcomponents predict overall motivation. Motivation predicts intentions, which predict subsequent development activity. Finally, in the study by Maurer et al. (2008), a direct effect from prior development activity to development activity intentions was posited. In the present research, the ultimate outcome variable of interest is actual development activity (Maurer et al., 2008, predicted only intentions for development activity as an outcome). We believe that

a link between prior behavior and subsequent behavior (rather than intentions) should be more theoretically justified. Therefore, somewhat similar to the prior research, we examine this linkage: “past behavior predicts future behavior” and posit a direct relationship between the prior development activity and actual reported outcome development activity in the present research. We refer to the version of the model just described as the “Personality and Experiential History as Exogenous, Fully-Mediated” model (shown in Figure 1) because the effects of personality and history on the motivational subcomponents are fully mediated through the development domain and situational constructs.

In a second variation on this configuration of variables tested, we posited a partially-mediated version of the above model. In it, not only did the personality and experiential history constructs have effects on the motivational subcomponents through the development domain and situational variables (mediated), but also directly to the motivational subcomponents, thus partially-mediated through the development domain and situational variables. We refer to this as the “Personality and Experiential History as Exogenous, Partially-Mediated” model (shown in Figure 2).

In a third configuration of the variables, we tested a model in which all variables were treated as exogenous. Thus, personality, experiential history, development domain, and situational constructs were all allotted the same general status as exogenous variables that predict the subcomponents of motivation directly. There was no differentiation between more general and immutable and more mutable or specific variables (see Figure 3).

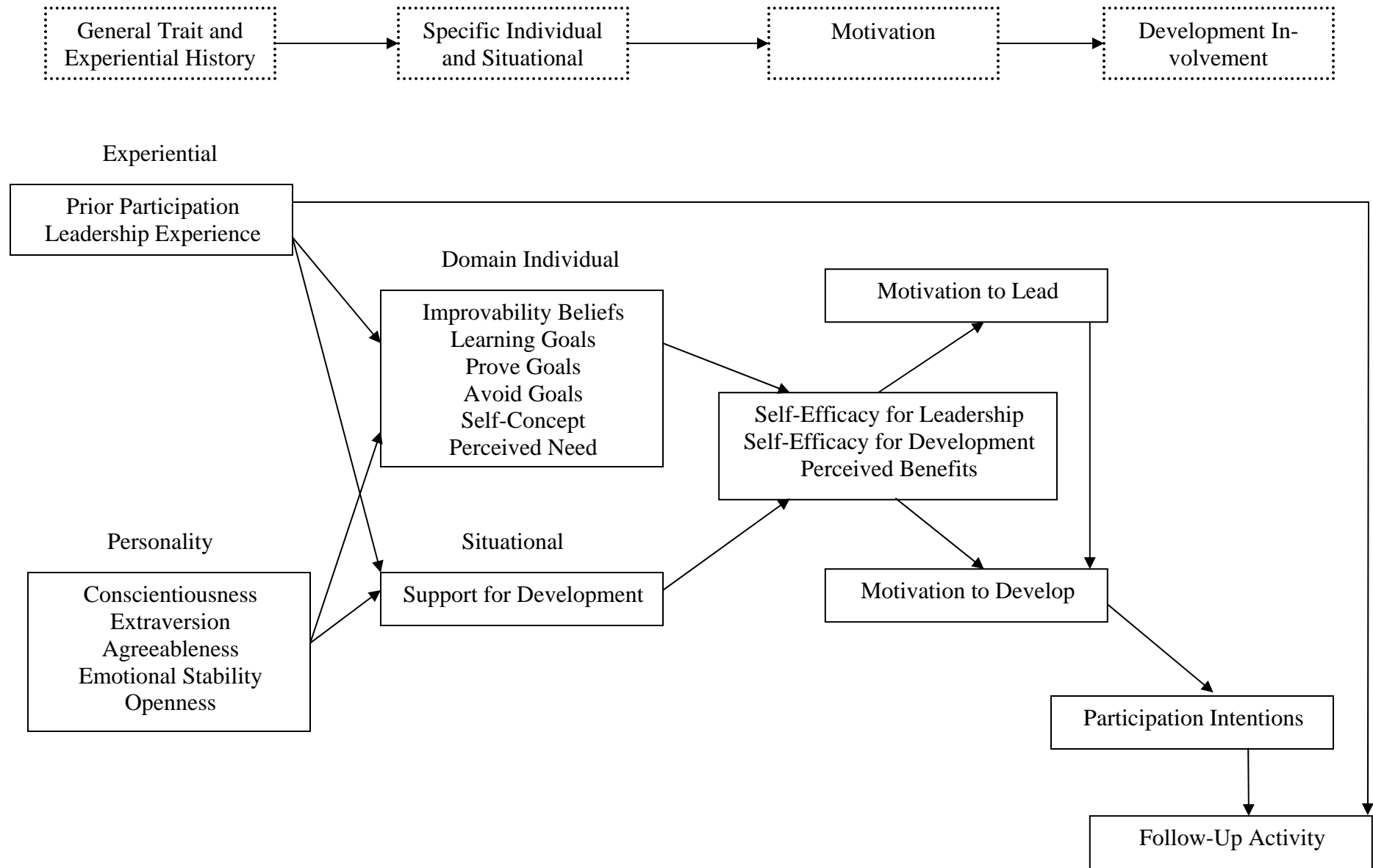


Figure 1. Expected Fully Mediated Path Model.

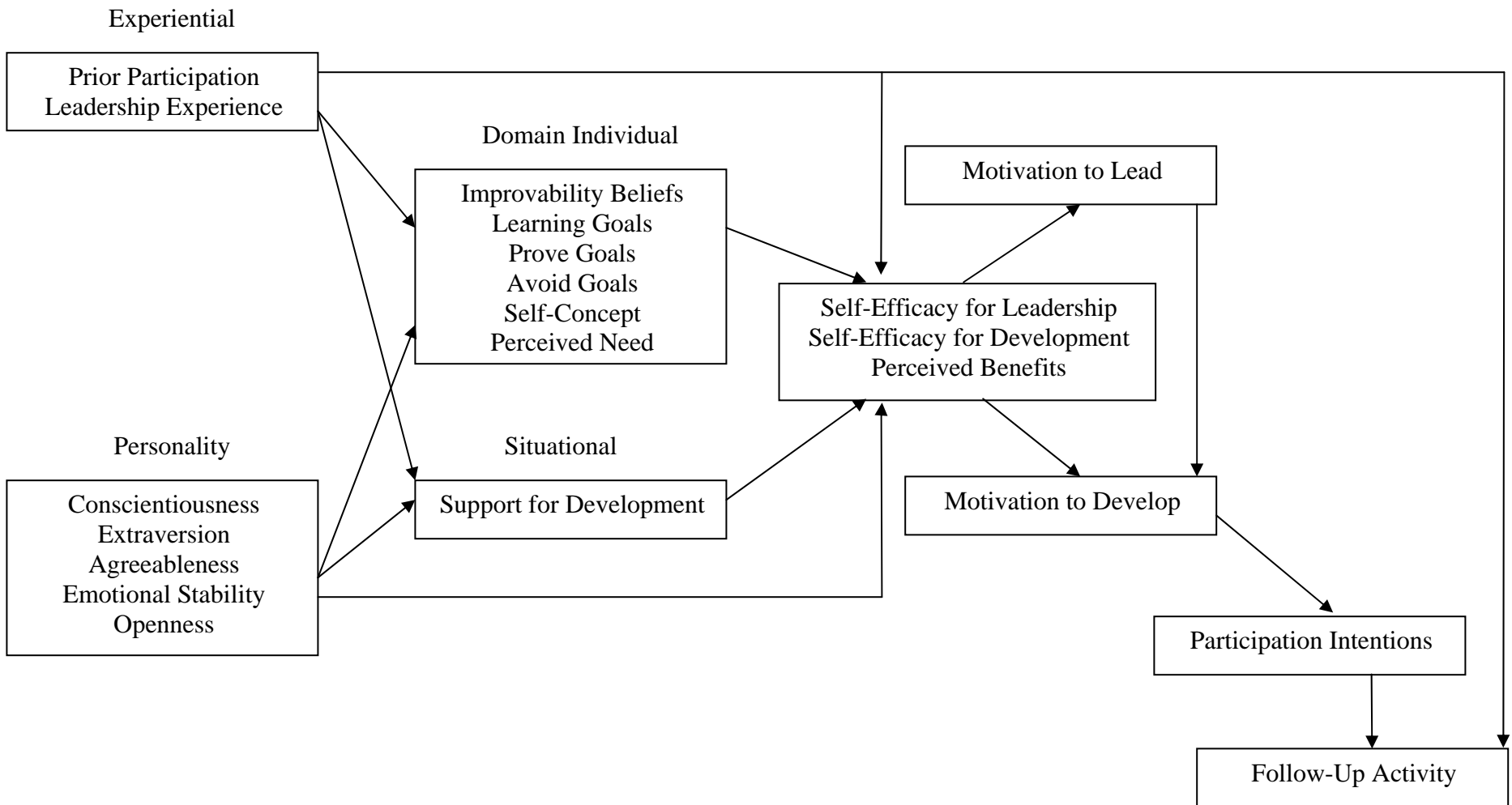
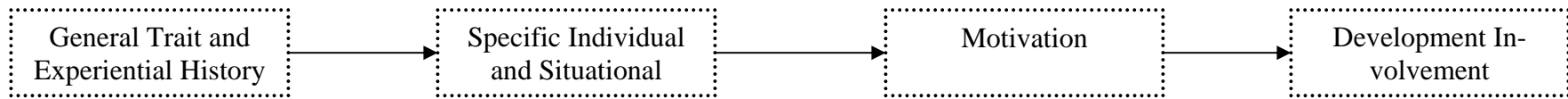


Figure 2. Expected Partially Mediated Path Model.

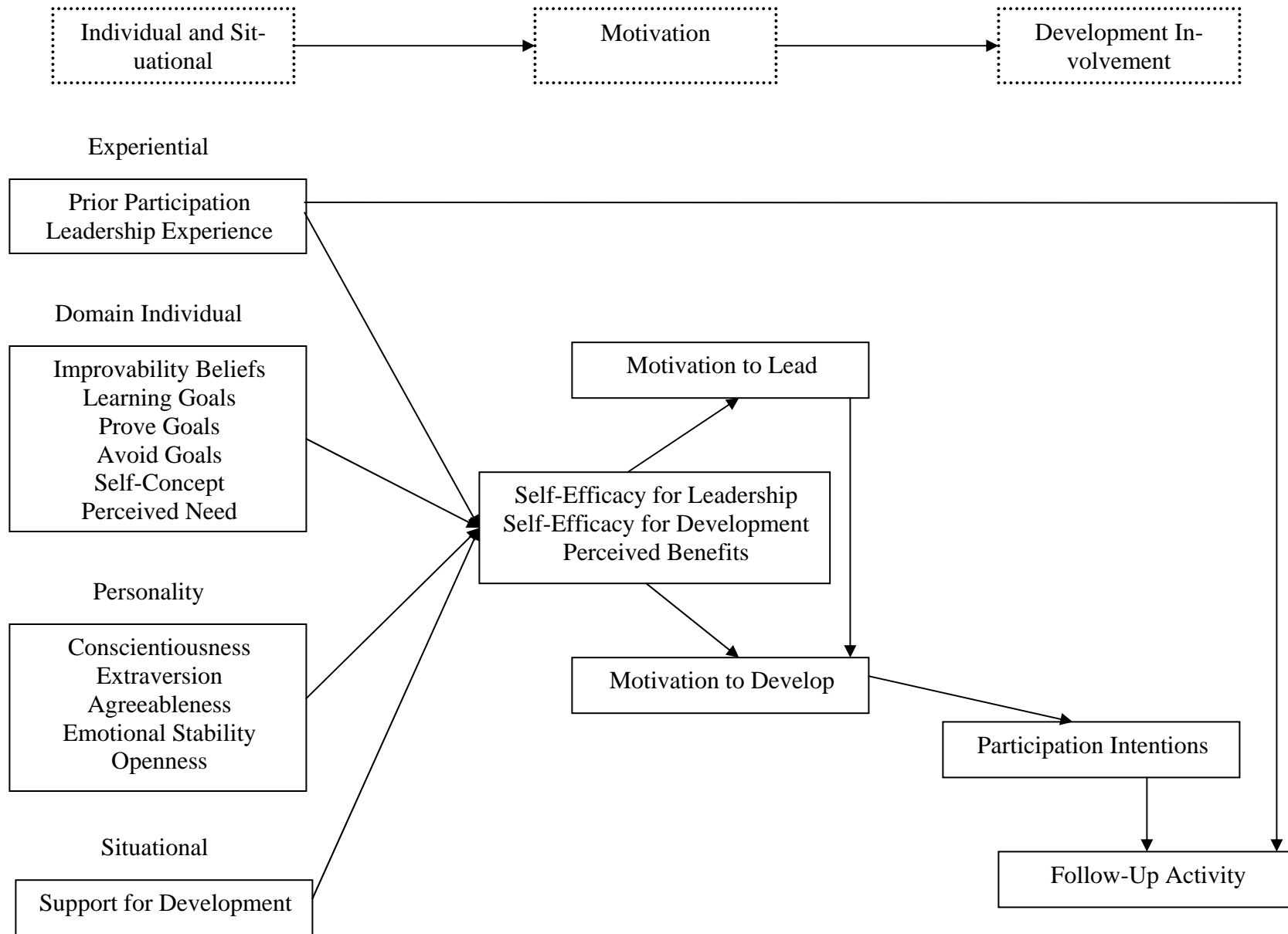


Figure 3. Expected All Exogenous Path Model.

While the overall framework used to organize the variables is theoretically sound and supported in various ways in prior literature, the specific models tested in the present research involved many new variables and paths that were quite complex. The motivation to develop leadership constructs are new, as is modeling the motivation to lead in relation to variables from the employee development literature. Therefore, the theoretical guidance available at this point in the evolution of the literature provides some, but not complete, assistance in making every single prediction. Most effects in the models were explicitly hypothesized; however, given the intent of the research—to examine relationships of the motivation to develop construct alongside the motivation to lead construct within a larger, sound framework, for completeness sake as well as for comparison—we included some estimated effects of the constructs even if the prior literature did not provide explicit guidance on directional predictions. In addition, for completeness sake and to fully explore the nature of the nomological network involving the new constructs, as just outlined above, we compared different forms or configurations of the models tested.

We will first describe the elements of the three models that are shared across models. This includes the relationships among development domain, situational, motivational, and development activity constructs. After explaining these parts of the models that are common across all three configurations, we will go on to describe the effects of personality and experiential history that are posited to have different effects depending on the version of the model: the “personality and experiential history as exogenous—fully mediated” model, the “personality and experiential history as exogenous—partially mediated,” and the “all exogenous” models.

Motivation constructs and leadership development activity (Motivational Subcomponents → Motivation → Specific Intentions for Development → Development Activity). Regarding the motivation to develop leadership construct, it is expected (as in Investigation 1) that self-efficacy for leadership development should be positively related to motivation to develop leadership. To provide evidence and a rationale to expect that relationship, in addition to empirical results observed in Investigation 1, employees’ self-efficacy for development has been found to be related to motivation to pursue employee development (Maurer et al., 2003; Maurer et al., 2008) and motivation to learn in training (Colquitt et al., 2000). Overall, this literature suggests that those with higher self-efficacy for development should have more favorable motivation toward participation in development. In a sense, as in motivational theory (e.g., Vroom, 1964), self-efficacy (or expectation that one will succeed at a task) is a sub-component or direct predictor of overall motivation to perform a task.

We also introduced another variable into Investigation 2 that has previously been shown to be a significant component of motivation for development: perceived benefits of development. Noe and Wilk (1993), Birdi et al. (1997), Maurer and Tarulli (1994), Maurer and Palmer (1999), Colquitt et al. (2000), Maurer et al. (2003) and Maurer et al. (2008) all showed the relevance of beliefs about the benefits or outcomes of engaging in training/development activities to motivation and involvement in them. Outcomes or benefits can include a variety of things such as getting more money, tangible rewards, job security, more interesting and stimulating work, becoming a better or more well-rounded person, reaching one’s potential, enhancing one’s career, and helping the organization (Maurer, Pierce & Shore, 2002). More positive beliefs about benefits or outcomes of development activities should lead to higher motivation to engage in the development activities. Again, consistent with motivational theory (e.g., Vroom, 1964), perceived benefits is considered a sub-component or direct predictor of

overall motivation. Thus, perceived benefits of leadership development and self-efficacy for leadership development are posited to predict overall motivation to develop leadership.

Interestingly, with respect to the perceived benefits construct, when Chan and Drasgow (2001) developed the motivation to lead construct, they incorporated into the measure some underlying inducements that can motivate people to be leaders. As discussed in Investigation 1, people may perceive that they simply enjoy leading others (affective inducement/benefits), may perceive that they have a duty or social obligation to lead (social-normative inducement/benefits), and/or may perceive tangible or extrinsic outcomes associated with leadership in the sense that being in a leadership role brings these kinds of outcomes to oneself (extrinsic or calculative inducement/benefits). Because the motivation to lead measure includes these perceptions as part of the motivational measure, we do not need to measure perceived benefits of leading separately. However, we do measure self-efficacy for leading as a separate construct that is expected to predict motivation to lead, just as self-efficacy for development is measured separately from overall motivation to develop leadership. We also tested whether the self-efficacy for development and benefits constructs predicted motivation to lead and whether self-efficacy for leadership predicted motivation to develop leadership. Investigation 1 suggested that these relationships may exist, albeit to a lesser extent than the relationships among the corresponding constructs (i.e., the motivation to lead constructs and the motivation to develop leadership constructs). We also tested in this model whether motivation to lead predicts motivation to develop leadership, and whether motivation to develop leadership mediates between motivation to lead and intentions to engage in development activity. It seems likely that being motivated to lead will predict motivation to develop leadership and that this mediation effect may describe the data (i.e., being motivated to lead will predict intentions for development activity through its effects on motivation to develop leadership).

Finally, specific intentions for involvement in leadership development activities over the course of the next year were used to predict actual reported participation in leadership development activity one year later. Figures 1, 2, and 3 show the effects just described as being common across all versions of the models tested (i.e., those effects among the motivation constructs and leadership development activity constructs: *Motivational Subcomponents* → *Motivation* → *Specific Intentions for Development* → *Development Activity*). Next we describe the effects involving the development domain variables and the motivational subcomponents.

Individual development domain variables (Development Domain → *Motivational Subcomponents*). We included a category of variables to be examined in relation to motivation to develop leadership referred to here as individual development domain variables. These are individual differences specifically relevant to employee and leadership development. To the extent that people possess individual qualities that are specifically relevant to employee and leadership development, that act as enablers for learning and development, this should enhance self-efficacy for leadership development and beliefs that good outcomes will result from participation in leadership development activities. This category included learning and performance goal orientations, development self-concept, perceived need for development, and perceived improvability of leadership qualities.

One construct that has promise as a predictor of motivation to develop leadership is goal orientation. These constructs were found to be relevant to motivation for employee development by Maurer

et al. (2008). Those who have a “learning goal orientation” strive to understand new things and to increase their competence and skills through pursuing challenging, developmental activities. They are attracted to learning opportunities and maintain a positive, confident composure during challenging experiences. Individuals with a “performance goal orientation” strive to demonstrate their competence via task performance (i.e., performance prove goal) or to avoid negative judgments of their performance (i.e., performance avoid goal; Dweck & Leggett, 1988; Elliot & Harackiewicz, 1996). It was expected here that those people who are learning-oriented will perceive greater benefit from participation in leadership development activity and will be more self-confident about their success in them. It also was expected that those who are performance oriented (i.e., possess prove or avoid goals) will be less confident and will perceive less benefit (Colquitt & Simmering, 1998). These constructs should influence both self-efficacy for development and perceived benefits of development.

Perceiving that one has a need for development of one’s skills has been shown to be a significant predictor of employee development motivation and involvement (Maurer & Tarulli, 1994; Maurer et al., 2003; Maurer et al., 2008). This makes theoretical sense in that beliefs that skills are in need of improvement should naturally precede the motive to improve them. Perceiving oneself as possessing the qualities one needs to successfully pursue learning and development, or a development-oriented self-concept, also has been shown to be related to motive toward and involvement in development (Maurer et al., 2003; Maurer et al., 2008). These constructs should enhance one’s confidence in one’s ability to develop skills, and beliefs that worthwhile outcomes will result from development. These constructs were adapted here to predict motivation for leadership development in a manner similar to how they were used in prior research on employee development.

Beliefs about the improvability of leadership characteristics were investigated in Investigation 1 as a potential influence on motivation for leadership development. We therefore include these improvability beliefs here as an important individual development domain construct that could affect self-efficacy for leadership development. As stated in Investigation 1, it is well known that people may differ markedly in their beliefs that leaders are “born or made.” Beliefs that leadership attributes are innate or fixed and are not acquirable or “improvable” might be a fundamental belief that can set the stage for someone’s overall motivation for leadership and leadership development. According to Dweck et al. (1995), a belief in fixed versus malleable or changeable characteristics of people is a core assumption in an individual’s world view. Maurer (2002) posits that this construct should have a significant effect on a person’s self-efficacy for development. Investigation 1 found significant correlations between beliefs about leadership improvability and self-efficacy for leadership development. That effect was therefore expected in Investigation 2.

Situational support (Situational Support → Motivational Subcomponents). Organizational support can be beneficial to leadership development (Boyce et al., 2005). The work situation that a person faces can have significant effects on his/her motivation. An organization that emphasizes and supports learning and development and that provides resources to develop should enhance employees’ self-confidence in their own capacity to develop (Maurer, 2001). Additionally, to the extent that learning and development are common in such organizations, any employee is likely to observe others engaged in such activity, providing a source of modeling. Modeling has been shown to enhance self-efficacy for accomplishment of a goal (Gist & Mitchell, 1992). If an employee is surrounded by others in the job engaged in challenging work, and they can be observed to engage in developmental experiences successfully, this can serve as a source of modeling,

which also can increase self-efficacy. Further, to the extent that supervisors, coworkers, and the organization emphasize and support development, this should not only enhance confidence that it can be done successfully, but also that it is valued and should lead to favorable outcomes. In both studies by Maurer et al. (2003; 2008), situational support for employee development was related to motivation for development. Therefore, we expected that support for leadership development in the situation should positively influence both subcomponents of motivation for leadership development. We now turn to effects that may differ in form across versions of the models tested, beginning with the effects of personality.

Effects of personality in the Personality and Experiential History as Exogenous Model—Fully Mediated (Personality → Development Domain & Situational). Those who are more conscientious may perceive themselves as possessing the qualities needed for developing skills due to their awareness and thinking about themselves as being diligent and hardworking (Colquitt & Simmering, 1998; McCrae & Costa, 1987), their constant striving for achievement and success, and their tendency to set challenging goals and do what it takes to succeed (Barrick, Mount, & Strauss, 1993; Colquitt & Simmering, 1998). Because they possess these qualities, they are more likely to have taken time in the past to invest in training and development efforts and to currently perceive the need for and value of expanding one's leadership skills and capability, which can allow them to be even more effective in the future. They also are likely to be attracted to situations that will provide to them the support they need to be effective at improving and maximizing their leadership skills over situations that do not provide that support. This means that conscientiousness should be positively related to development self-concept, prior participation in leadership development activities, and perceived support for leadership development in the existing work environment. As articulated by Maurer et al. (2008), it is not entirely clear whether conscientiousness should be positively related to perceived need for development. In prior research, more conscientiousness employees deceived themselves into believing their achievements were greater than they actually were, and this had a negative effect on learning (Martocchio & Judge, 1997). Therefore, it is possible that conscientiousness will be negatively related to perceived need for development of leadership skills; this is the opposite prediction from the literature cited above, which suggests a positive effect by conscientiousness. In fact, Maurer et al. (2008) found a negative effect for this variable on perceived need for development of skills. We therefore expected a negative link between conscientiousness and perceived need for development of leadership skills.

Conscientiousness also predicted goal orientation in a study by Zweig and Webster (2004) on students performing in an academic setting. The achievement-oriented nature of conscientiousness relates well conceptually to those characteristics of individuals who are development-oriented, being motivated to achieve, succeed, and persevere on difficult tasks such as leadership development. Also, Beaubien and Payne (1999) conducted a meta-analysis of the goal orientation literature and documented a correlation between conscientiousness and learning orientation. In addition to these effects between conscientiousness and learning goals, people who are high on the "performance prove" dimension or the "performance avoid" dimension are also achievement-oriented in their motive to demonstrate their ability to perform (Elliot & Harackiewicz, 1996) and this should cause linkages with conscientiousness. People with a performance prove or performance avoid orientation are determined to demonstrate competence on relevant performance domains either by showing their ability in a positive light (prove) or avoiding situations that will reflect negatively on their ability (avoid). This strong interest in performing well implies a strong reason to expect a relationship between the "prove" and "avoid" goal orientation constructs and conscientiousness: Conscientiousness should have a positive

relationship with performance prove and a negative relationship with performance avoid (Zweig & Webster, 2004). Maurer et al. (2008) did observe a negative relationship between avoid and conscientiousness. We expected conscientiousness to be positively related to learning goals and performance prove and negatively related to performance avoid.

Similarly, openness to experience has been found to be related to success in training/learning and to favorable attitudes toward learning (Barrick & Mount, 1991). Openness includes characteristics such as being curious, broad-minded, and intelligent (Barrick & Mount, 1991) which are attributes predictive of attitudes toward learning experiences. Individuals with a high level of openness to experience appreciate variety and intellectual stimulation and are better at grasping new ideas (Costa & McCrae, 1988). By definition, those who are high in openness to experience are attracted to new experiences and opportunities. This means they will be more likely to perceive value in (or a need for) developing their capabilities and will perceive themselves as being the type of person who possesses the qualities needed for learning. They should be more likely to have been attracted to choose situations that will provide them with the opportunity to be involved in novel learning and development experiences. Therefore, openness to experience should be positively related to learning self-concept, perceived need for development of one's skills, and perceived support for development in the existing work environment (Maurer et al., 2008). In addition, given the desire of people high in openness to experience to pursue new and challenging activities, there also should be a positive relationship between openness to experience and possessing a learning goal orientation (Zweig & Webster, 2004). Zweig and Webster (2004) also found a negative relationship between openness and performance avoid orientation. They asserted that people who are low in openness tend to be "unadventurous, behaviorally rigid, socially conforming, and conventional in their reasoning (McCrae & Costa, 1987). These characteristics are similar to those of a performance avoidance goal orientation..." (pp. 1697–1698). Although those authors did not posit a relationship with performance prove goals, Maurer et al. (2008) later posited that it stands to reason that those who are very open to experience and seek out novel and challenging activities may very well enjoy trying out situations in which they can prove their competence on various tasks. Costa and McCrae (1988) suggest that people with a high level of openness to experience like variety and intellectual stimulation and are better at grasping new concepts or ideas. It seems quite reasonable to expect them to be more likely to be attracted to situations in which they can prove their ability in various domains. Finally, those who have been involved in a variety of experiences because of their higher openness to experience also will be more likely to have observed themselves and others improve their capabilities in a wide variety of domains (e.g., sports, music, art, science) after initially being inexperienced in a domain, trying it, and acquiring at least some minimal level of proficiency in a variety of settings. This suggests a relationship between openness and perceived improvability of leadership qualities.

Extraversion is characterized by ambition reflecting individual differences in mastery seeking and perseverance (Clark & Watson, 1991), which are two key concepts in learning goal orientation. Low levels of extraversion are associated with decreased activity and interest, and avoidance of stimulation (Clark & Watson, 1991). Individuals with a performance goal orientation view challenging problems as a threat to self-esteem and display avoidance and low persistence (Dweck, 1986). Based upon this logic, Zweig and Webster (2004) posited and confirmed that extraversion is positively related to learning goal orientation and negatively related to performance avoidance orientation. That should be expected in the present investigation as well. As a result of this orientation toward learning and mastery seeking, and therefore a propensity to

choose and be attracted to situations that support such activity, there also should be relationships between extraversion and perceiving support for learning and development in one's current situation.

Emotional stability should relate to several of the constructs being examined here. People with a performance approach or avoid orientation tend to focus on whether their ability is adequate before engaging in a task; they avoid challenging or difficult tasks to avoid unfavorable judgments, and their performance may deteriorate when they encounter obstacles (Dweck & Leggett, 1988). Along these same lines, individuals with low levels of emotional stability tend to be defensive and guarded, have a negative view of themselves, and worry about others' opinions of them (Clark & Watson, 1991). Emotional instability is characterized by avoidance and defensive behavior. Conversely, being undaunted, not appearing to perceive that one is failing, and maintaining strong optimism in the face of difficult challenges characterizes both a learning orientation and people with high emotional stability. Based on this logic, Zweig and Webster (2004) posited and found that emotional stability is positively related to a learning orientation and negatively to performance prove and performance avoid orientations. The same types of effects were expected in the present research. Likewise, because of these strong learning-oriented qualities possessed by steady and emotionally stable individuals, it was expected that emotional stability would be positively related to a self-concept as possessing qualities needed for development and learning. However, given the lack of self-doubt, lack of defensiveness, and lack of a negative view of oneself combined with relative optimism (Clark & Watson, 1991), emotional stability also should relate negatively to a perception that one's skills are in need of improvement and development.

Zweig and Webster (2004) suggested that people who had a high learning orientation should show higher levels of persistence without being concerned with their perceived levels of ability (Dweck & Leggett, 1988). They asserted that having that kind of mindset is similar to being "imperturbable," which is typical of those who are high in agreeableness (McCrae & Costa, 1987). Further, those who are low in agreeableness may be competitive and interested in proving their abilities, which closely parallels traits possessed by those who have a performance prove orientation. They also suggested that skepticism and cynicism toward others might lead to withdrawal behavior similar to that displayed by those who have a performance avoid orientation. Along these same lines, we expected here that there should be a positive relationship between agreeableness and learning orientation and a negative relationship with both performance prove and avoid.

In the Personality as Exogenous Model (Figure 1), the effects of personality described above were posited in relation to the development domain and situational variables. Next we describe the possible effects of personality in a partially-mediated model. Here the effects of personality on motivational subcomponents would be mediated not only through the development domain and situational variables, but personality also would have effects directly on the subcomponents.

Possible direct effects of personality in Partially-Mediated Model (Personality → Motivational Subcomponents). In the second variation model tested (see Figure 2), personality had effects not only on the development domain and situational variables, but also

had direct effects on the motivational subcomponents (self-efficacy and perceived benefits of development). The construct of openness to experience has been linked to work-related behavior, including success in training/learning settings and favorable attitudes toward learning (Barrick & Mount, 1991). Barrick and Mount (1991) note that openness includes characteristics such as being curious, broad-minded, and intelligent, which are attributes predictive of attitudes toward learning experiences. Individuals with a high level of openness to experience appreciate variety and intellectual stimulation and are better at grasping new ideas (Costa & McCrae, 1988). By definition, those who are high in openness to experience are attracted to new experiences and opportunities. They should approach challenging new situations more confidently and should be more likely to recognize the value in new experiences and in trying out new skills. Therefore, openness should be related to self-efficacy for leadership development and perceived benefits of leadership development. These theoretical connections relate to learning and development, but not to the process of leading, per se. In fact, Chan and Drasgow (2001) did *not* find a relationship between motivation to lead and openness. Given these differences, while we did test for such a relationship for completeness and comparison purposes, no predictions were made regarding a relationship between openness and self-efficacy for leadership.

Adjectives used to describe both extraverts and leaders are active, assertive, energetic, talkative, dominant, and sociable. Perhaps not surprisingly, Chan and Drasgow (2001) reported that people who tend to be outgoing and sociable in nature (who are extraverts) also are confident about their own leadership capability (high leadership self-efficacy). Along these lines, in a meta-analysis of relationships between personality and leader performance, Judge et al. (2002) reported that extraversion emerged as the most consistent correlate of leadership. Not only was it the strongest correlate of leadership in the combined analysis, but it also displayed a nonzero effect in all analyses—when controlling for the other Big Five traits. Judge et al. (2002) reported that extraversion is the most important trait of leaders and effective leadership. These characteristics align well with leadership performance and a relationship between extraversion and self-efficacy for leadership seems very likely. It is less clear, but still possible, that these characteristics could relate to motivations relevant to learning and development. We did examine the relationship between extraversion and self-efficacy for development and perceived benefits of development for leadership. Here the idea is that those who are naturally oriented toward leadership behavior may also be likely to have confidence and to perceive benefit in pursuing leadership-relevant development experiences.

One personality variable that should be expected to relate to both motivation to lead and leader development constructs is conscientiousness. Prior research has linked this personality construct to motivation to learn (Colquitt & Simmering, 1998). Individuals who are more conscientious should be more confident about their success in a learning situation due to their knowledge of themselves as being diligent and hardworking (Colquitt & Simmering, 1998; McCrae & Costa, 1987), they should be more likely to perceive the benefits of participation in development due to their constant striving for success, their tendency to set challenging goals (Colquitt & Simmering, 1998; Barrick et al., 1993), and to therefore see the value of expanding one's capability and personal resources. This can allow them to be even more effective in future work endeavors. This means that conscientiousness should relate to both self-efficacy for leadership development and perceived benefits of leadership development. Being motivated by a sense of duty, doing what is required to move the agenda forward, facilitating work, and so on, are all behaviors that can characterize both highly conscientious workers and leaders.

Chan and Drasgow (2001) found that conscientiousness related to self-efficacy for leadership. Along these lines, Judge et al. (2002) found in a meta-analysis that after extraversion, conscientiousness displayed the second strongest correlation with leadership. It is therefore predicted here that conscientiousness will predict self-efficacy for leadership.

As described above, those who are agreeable have a mindset that is similar to being “imperturbable” (McCrae & Costa, 1987) and those who are low in agreeableness may display skepticism and cynicism toward others. Those who are agreeable may be more prone to working well with others and to being effective socially, which are important tasks in leadership. Being imperturbable also may serve one in challenging development activities. This suggests that agreeableness may positively relate to the motivational subcomponents of both motivation to lead and motivation to develop leadership. Likewise, as described earlier, emotional instability is characterized by avoidance and defensive behavior. Conversely, being undaunted, not appearing to perceive that one is failing, and maintaining strong optimism in the face of difficult challenges characterizes people with high emotional stability. Because of these strong learning-oriented qualities possessed by steady and emotionally stable individuals, it was expected that emotional stability would be positively related to a self-efficacy for development and to self-efficacy for leadership. Likewise, emotional stability should be related to a sense of optimism that good things should result from hard work on endeavors such as developing leadership skills; therefore there should be a link between emotional stability and perceived benefits of development. For this reason, we also explored relationships between agreeableness, emotional stability, and the motivational variables within the partially-mediated version of the model.

Next we discuss the possible effects of experiential history on the other constructs just like the discussion of personality on the other variables. In this discussion, both experiential history constructs and personality are framed as exogenous.

Effects of experiential variables in Personality and History as Exogenous Model—Fully mediated (Experiential variables → Development domain & situational). Prior experience is an individual variable that comes from Bandura’s (1997) framework. In the current research, prior experience was operationalized in two ways: as prior leadership development experience (i.e., as frequency of prior involvement in various types of specific leadership development activity) and as experience in leadership roles leading other people. Leadership experience itself can serve a developmental role and enhance leadership development as a function of being in the leadership role (McCall, Lombardo, & Morrison, 1988; McCauley & Hughes-James, 1994; Young & Dixon, 1996). In the present framework, these types of experiential constructs reflect people’s prior history in life, which is a relatively immutable and fundamentally influential variable much like personality. Both prior experience in leadership development activity and also leadership experience should have an influence on development domain and situational constructs.

Maurer (2002) illustrated how successful involvement in learning and development activity may strengthen a learning and development orientation. Maurer (2002) cited Alderfer (1972) who stated that as growth needs are satisfied, they may become even more important to an individual. As a result of prior leadership development activity, their cognitions may become more oriented toward development: They may obtain further self- and career-relevant knowledge during development activity (Stumpf, Colarelli, & Hartman, 1983), leading to even more

information about themselves and learning/development. For example, they may learn more about their own capabilities and interests, as well as more about potential professional and career goals. They may become more aware of their own development needs. Observing one's own personal characteristics increase following a learning experience also may cause one's beliefs that it is possible to improve and develop become enhanced. Nordhaug (1989) has illustrated that one perceived outcome of participating in training activities is an increased interest in training and learning activities, or the development of a learning motivation. Similarly, Kraiger, Ford, and Salas (1993) and Noe et al. (1997) have suggested that increased attitudinal as well as motivational variables (e.g., mastery vs. performance orientation) may be outcomes of training. Given this prior literature and the theoretical reasoning outlined here, it follows that prior experience with leadership development and leadership experience could have effects on a variety of development domain constructs. The effects posited and tested here are as follows: people should be more likely to believe that it is possible to improve capabilities, they should be more likely to have learning goals and less likely to possess avoidance goals when it comes to learning activities, they should be more likely to perceive themselves as possessing the qualities required for learning/development, and they should be more likely to perceive the need for development. In addition, having had more experience with development in one's own setting or situation will result in heightened likelihood of perceiving support for development.

Possible direct effects of experiential variables in Partially-Mediated Model (Experiential variables → Motivational subcomponents). Experience or lack thereof in leadership activities can have some effect on people's self-efficacy for leadership. Those who perform more leadership-related tasks will have enhanced confidence in their leadership capability. For example, research conducted at the Center for Creative Leadership has found that enhanced self-confidence for leadership-related tasks often shows up as an outcome in evaluation of leadership programs (McCauley & Hughes-James; 1994; Young & Dixon, 1996) and was one of the "lessons" reported by executives from challenging management job assignments (McCall, Lombardo & Morrison, 1988). In addition, to the extent that people observe their own leadership capability improve through these efforts, this may influence their own beliefs about the extent to which they are capable of developing leadership competence (self-efficacy for leadership development). Likewise, prior participation in developmental experiences should help a person perceive the benefits that person will receive for learning and development experiences. Maurer et al. (2003) found prior development experience to be related to motivation for development. Given these ideas, it was expected that prior leadership development activity would predict subcomponents of motivation to develop leadership. Likewise, prior leadership experiences should predict self-efficacy for leadership, and to a lesser extent, self-efficacy for leadership development and perceived benefits of leadership development.

In both of the mediated and partially mediated models described above, other than the effects of personality and experiential history, the same predictions were posited regarding the effects of the development domain and situational variables in relation to the motivational variables and about the motivational variables in relation to the development activity variables. See Figures 1 and 2 for illustrations of the configurations of constructs in these models.

All Exogenous Model. Finally, a model was posited and tested in which all personality, experiential history, development domain, and situational variables were treated as exogenous. In

this model all personality, experiential history, development domain, and situational support were posited to influence the motivational subcomponents. The effects of personality and experiential history on motivation were described above in relation to the Partially-Mediated Model. The effects of the development domain and situational variables on motivation also were described above. Figure 3 illustrates the nature of that model.

Investigation 2 Method

Sample and Survey Administration

The survey administration procedure for Investigation 2 was similar to the first investigation. However, in Investigation 2 we conducted three waves of data collection. Respondents were surveyed three times in a longitudinal fashion: once at the outset, again 3 weeks later, and again approximately 1 year later. The first two data collections resulted in a sample used for scale creation and confirmatory factor analyses to distinguish the scales from each other. This included the respondents who completed both T1 and T2 survey waves and is referred to here as the “scale creation and confirmatory factor analysis sample.” The third data collection resulted in a longitudinal full research sample upon which we could base the full data analyses for the respondents, as will be explained below. This included the respondents who completed all three survey waves (T1, T2, and T3) and is referred to here as the respondent “full research sample.” More detail and explanation will be provided below on each of these data collections.

First, at Time 1 (T1), recruitment notices were sent to 10,739 registered users of StudyResponse.com with work experience. The email provided general information about the investigation, as well as the URL address for the survey. Potential participants who had not completed the survey after the first week were sent reminders about the investigation. This was also done after the second week of initial recruitment. In exchange for their participation in the survey, participants were entered into a drawing for a chance to win one of seventy-six \$50 gift certificates to a large online retailer.

The second wave of the investigation began 3 weeks after we sent the initial email from T1. The recruitment notices were sent only to the 1,299 participants who completed the first wave of surveys. Participants were invited to complete the Time 2 (T2) surveys in their browser windows, and reminders were sent again after the first and second week of the T2 recruitment notice. Those who participated at T2 received an additional entry into a drawing for a chance to win one of the 76 gift certificates. Participants who completed surveys at both time periods received two entries into the drawing, whereas those who participated only at T1 received a single entry.

A “scale creation and confirmatory factor analysis sample” dataset was created by combining data from both waves. This yielded 909 participants who had useable data at both T1 and T2. Table 7 shows the demographic characteristics of this sample. The mean age of the participants was 40.96 (SD = 10.55). Of those who provided demographic data on gender and race, 679 were female and 225 were male; 801 were Caucasian, 39 were African American, 33 were Hispanic, 27 were Asian or Pacific Islander, and 7 listed themselves as “other.” The participants were employed in diverse occupations (professional and nonprofessional) and had a mean work experience of 20.77 (SD = 10.59) years. They had been at their present job for a mean of 6.90 (SD = 7.34) years. The majority of participants (62.4%; excluding missing data) have had previous supervisory experience, and the mean

level of experience for those participants was 8.29 (SD = 7.53) years. The overall mean level of supervisory experience (counting those who had no prior experience) was 5.30 (SD = 7.33) years.

We contacted the “scale creation and confirmatory factor analysis sample” described above in order to recruit participants for the longitudinal respondent “full research sample.” Of the 909 StudyResponse.com users who participated in the scale creation sample, 750 users were still active at T3 approximately 1 year later. These active users were sent recruitment notices for the T3 survey. All active users were sent recruitment notices. This involved collecting follow-up data directly from the respondents at approximately 1 year following T2.

The T3 recruitment email asked the respondents to complete a brief online survey. The survey was described as a follow-up survey to an earlier investigation in which the respondent participated (the surveys completed approximately 1 year earlier). Reminders about the investigation were sent after the second and third week to any person who had not completed the survey by those times. Participants were entered into a drawing for a chance to win one of 50 gift certificates in the amount of \$50 to an online retailer. The final “respondent research sample” consisted of 375 participants who completed not only the first two waves 1 year earlier, but also this follow-up data collection. The demographic details of this sample are provided in Table 8. This sample had a mean age of 41.56 (SD = 10.34) years. The ethnic/racial composition was 334 Caucasian, 13 African American, 12 Hispanic, 11 Asian or Pacific Islander, and 5 listed as “other.” Of those who provided demographic data on gender, 261 were female and 113 were male. The participants were employed in diverse occupations (professional and nonprofessional). They had a mean work experience of 21.01 (SD = 10.34) years and had been at their present job for a mean of 7.31 (SD = 7.72) years. The majority of participants (67.5%) have had previous supervisory experience, and the mean level of experience for those participants was 8.36 (SD = 7.71) years. The overall mean level of supervisory experience was 5.68 (SD = 7.46) years.

Table 7

Demographic Description of Investigation 2 Scale Creation and CFA Sample (N = 909)

Variable	M	SD
Age	40.96	10.55
Years Total Work Experience	20.77	10.59
Years Job Tenure	6.90	7.34
Years Supervisory Experience		
Overall Sample	5.30	7.33
Participants With Previous Supervisory Experience	8.29	7.53
	n	%
Gender		
Female	679	74.7
Male	225	24.8
No Response	5	.6
Race		
Caucasian	801	88.1
African American	39	4.3
Hispanic	33	3.6
Asian/Pacific Islander	27	3.0
Other	7	.8
No Response	2	.2
Previous Supervisory Experience		
Yes	567	62.4
No	335	36.9
No Response	7	.8
Occupation		
Architecture & Engineering	16	1.8
Arts, Design, Entertainment, Sports, & Media	25	2.8
Building and Ground Cleaning & Maintenance	4	.4
Business & Financial Operations	71	7.8
Community & Social Services	23	2.5
Computer & Mathematical	60	6.6
Construction & Extraction	24	2.6
Education, Training, & Library	104	11.4
Farming, Fishing, & Forestry	7	.8
Food Preparation & Serving Related	29	3.2

Table 7 (continued)

Healthcare Practitioners & Technical	69	7.6
Healthcare Support	36	4.0
Installation, Maintenance, & Repair	16	1.8
Legal	28	3.1
Life, Physical, & Social Sciences	16	1.8
Management	61	6.7
Military Specific	1	.1
Office & Administrative Support	127	14.0
Personal Care & Service	20	2.2
Production	36	4.0
Protective Service	17	1.9
Sales & Related	76	8.4
Transportation & Material Moving	38	4.2
No Response	5	.6

Table 8

Demographic Description of Investigation 2 Full Research Sample (T1-T3, N = 375)

Variable	M	SD
Age	41.56	10.34
Years Total Work Experience	21.01	10.34
Years Job Tenure	7.31	7.72
Years Supervisory Experience		
Overall Sample	5.68	7.46
Participants With Previous Supervisory Experience	8.36	7.71
	n	%
Gender		
Female	261	69.6
Male	113	30.1
No Response	1	.3
Race		
Caucasian	334	89.1
African American	13	3.5
Hispanic	12	3.2
Asian/Pacific Islander	11	2.9

Table 8 (continued)

Other	5	1.3
Previous Supervisory Experience		
Yes	253	67.5
No	121	32.3
No Response	1	.3
Occupation		
Architecture & Engineering	6	1.6
Arts, Design, Entertainment, Sports, & Media	11	2.9
Building and Ground Cleaning & Maintenance	1	.3
Business & Financial Operations	25	6.7
Community & Social Services	9	2.4
Computer & Mathematical	27	7.2
Construction & Extraction	9	2.4
Education, Training, & Library	49	13.1
Farming, Fishing, & Forestry	3	.8
Food Preparation & Serving Related	12	3.2
Healthcare Practitioners & Technical	25	6.7
Healthcare Support	15	4.0
Installation, Maintenance, & Repair	9	2.4
Legal	11	2.9
Life, Physical, & Social Sciences	7	1.9
Management	32	8.5
Military Specific	1	.3
Office & Administrative Support	50	13.3
Personal Care & Service	9	2.4
Production	12	3.2
Protective Service	5	1.3
Sales & Related	29	7.7
Transportation & Material Moving	15	4.0
No Response	3	.8

We next turn to the measures used in the investigation. The number of scales, constructs, and measures was large in this investigation, and whenever possible and reasonable, we attempted to simplify, enhance parsimony, and to reduce collinearity among measures by combining or creating composites of theoretically and empirically-related constructs.

Motivational Measures (T1)

Five motivational constructs were assessed at T1. Four of these were taken from the previous investigation, including motivation to develop leadership, motivation to lead, self-efficacy for leadership development, and self-efficacy for leadership. The same scales from Investigation 1 were used to measure these constructs. In addition, we collected ratings on the perceived benefits of participating in leadership development activities. The scales used in this investigation were adapted from prior research in the general employee development literature (Maurer et al., 2008; Maurer et al., 2003; Maurer & Tarulli, 1994). Perceptions of development benefits could be extrinsic, intrinsic, or organizational. Extrinsic benefits (3 items) reflect traditional tangible outcomes such as better pay or job promotion, whereas intrinsic benefits (5 items) result in interest or stimulation on the part of the participant or help the participant reach his or her full potential as a person. Organizational benefits (3 items) deal with outcomes that benefit the organization, subordinates, peers, and supervisors.

Confirmatory factor analysis was done to test a seven-factor measurement model. The seven factors represented each of the motivation to lead dimensions (i.e., affective, social-normative, non-calculative), motivation to develop leadership, self-efficacy for leadership development, self-efficacy for leadership, and benefits. Parcels (Bandalos & Finney, 2001; Little et al., 2002) served as indicators for the motivation to lead factors, the motivation to develop leadership factor, and the self-efficacy for leadership development factor. Items were used as indicators for the self-efficacy for leadership factor. This is consistent with the approach used in the first investigation. For perceived benefits, we used the scale scores from the extrinsic, intrinsic, and organizational dimensions as indicators. Finally, we allowed for correlated errors between the motivation to develop leadership and self-efficacy for leadership development parcels, as these measures shared the same 39 items with the only difference being the rating scales (rating the items in terms of motivation to develop vs. self-efficacy for development of the item). The results of the confirmatory factor analysis showed good fit for the seven-factor model (CFI = .97; RMSEA = .06; SRMR = .04). For simplicity, parsimony, and to reduce collinearity in analyses, composite scores were created to mirror the composites used in Investigation 1. A single composite for perceived benefits was created. We also attempted to create some shorter versions (e.g., 4-5 items) of the detailed, longer motivation to develop leadership scales described above; however, the results for these very short scales in comparison to the detailed scales were not as favorable, so we focused attention here only on the more promising, longer scales which reflected more favorable psychometric results.

Individual Difference Measures (T1)

Three types of individual difference measures were administered at T1: personality, development domain, and experiential.

Personality. The Big Five personality factors were assessed using the conscientiousness, extraversion, agreeableness, emotional stability, and intellect/openness to experience scales from the International Personality Item Pool (2001). These personality scales have construct validity, being widely applied in research (see Lim & Ployhart, 2006, for a review). Participants were asked to indicate the extent to which a given statement described them, using a response scale ranging from Very Inaccurate (1) to Very Accurate (5). Each of the scales consisted of 10 items.

Development domain. The development domain individual difference variables included improvability beliefs, goal orientation, development self-concept, and perceived need for development.

Improvability beliefs were measured using the same scale used in Investigation 1. The participants' goal orientation was captured using VandeWalle's (1997) measure. This is a work-specific measure of goal orientation that includes a learning orientation scale (5 items) and two performance orientation scales (4 items for performance-prove and 4 items for performance-avoid). The 6-point rating scale ranged from Strongly Disagree (1) to Strongly Agree (6). Sample items from each goal orientation scale are "I am willing to select a challenging work assignment that I can learn a lot from" (learning), "I prefer to work on projects where I can prove my ability to others" (prove), and "I prefer to avoid situations at work where I might perform poorly" (avoid).

The self-concept scale consists of 5 items taken from Maurer et al. (2003). It measures the degree to which participants believed they possess the characteristics or qualities needed to learn, improve, and grow within their careers. Finally, the perceived need scale (3 items) assessed the participants' perceptions of the need to improve their work-related skills (Maurer & Tarulli, 1994; Maurer et al., 2008; Maurer et al., 2003). Ratings of self-concept and perceived need were made on a 7-point response scale, ranging from Disagree Very Strongly (1) to Agree Very Strongly (7). Example items include "I have the capabilities and qualities to be continually learning, improving, and developing at work" (self-concept) and "One or more of my career-related skills or knowledge have been in need of improvement" (perceived need).

Experiential. Two experiential variables were included in Investigation 2. The first variable was prior participation in development activity. The second variable was self-reported leadership experience. Both variables were measured with the same scales used in Investigation 1.

The personality, development domain individual difference, and experiential variables were entered into a confirmatory factor analysis to test a 13-factor measurement model reflecting individual difference variables. As in Investigation 1, parcels were used as indicators for improvability beliefs and prior participation in development activity. Parcels also were created for each of the Big Five factors, where each factor consisted of 3 parcels of 3 to 4 items. The rest of the factors (i.e., learning goals, prove goals, avoid goals, self-concept, perceived need, leadership experience) all used their respective scale items as indicators. The 13-factor model showed good fit (CFI = .94; RMSEA = .05; SRMR = .06).

Situational Support (T1)

Two measures of situation support for development were used in this investigation. One of the measures was developed for and used in prior research on employee development (Maurer et al., 2008; Maurer et al., 2002; Maurer & Tarulli, 1994; Maurer et al., 2003). It consists of three scales that assess perceptions of support received for learning and development activities, including supervisor support (supervisor scale; 7 items), coworker support (coworker scale; 6 items), the extent to which company policies facilitate employee learning and development activities, and the extent to which learning and development resources are available to workers to facilitate the development of career-relevant skills (development-oriented policies and resources scale; 8 items).

The other measure was prepared specifically for this investigation in order to more directly assess situational support in a leadership development context. Two scales were created to measure perceptions of encouragement received from supervisors, coworkers, and the organization about one's leadership development (encouragement scale; 5 items) and the extent to which the workplace emphasizes the importance of leadership development or places expectations on its employees to

pursue leadership development (emphasis scale; 5 items). Sample items from each of these scales are “The organization where I work is supportive of employees who want to develop their leadership capabilities” (encouragement) and “Employees where I work are expected to participate in leadership development activities” (emphasis).

The five scales described above (supervisor support, coworker support, development-oriented policies and resources, encouragement, emphasis) were initially tested as five-factor model in a confirmatory factor analysis, with each scale representing its own factor. Three parcels of 2-3 items per parcel were used as indicators for the supervisor support, coworker support, and policies-resources factors, whereas items were used as indicators for the encouragement and emphasis factors. The five-factor model resulted in good fit (CFI = .93; RMSEA = .10; SRMR = .06). Scale scores were created based on this factor structure and used as indicators to test a higher order two-factor model. The scale scores for supervisor support, coworker support, and policies-resources were loaded onto one factor reflecting the extent to which there was general support and resources to facilitate development (resources/support) and the scale scores for encouragement and emphasis were loaded onto the other factor to reflect the extent to which workers perceive social or organizational influence in the form of emphasis or encouragement to develop (emphasis/encouragement). The two-factor model fit well (CFI = .99; RMSEA = .10; SRMR = .02). In addition, we found that the correlation between a composite of the first three scales and a composite of the last two scales was .67, suggesting these are very highly related. In an effort to simplify, be parsimonious, and to reduce collinearity, we created a composite of these two into one score. The final composite will be referred to as situational support.

Development Activity Intentions (T2)

At T2 we measured the participants’ intentions to participate in leadership development activities in the next 12 months. This is similar to the intentions scale used in Investigation 1, with the exception of three new items that were added to the scale. These items were added to gain more coverage in the types of activities that people can pursue, such as taking online or web-based training courses. All other aspects of the scale were identical to Investigation 1, including the 7-point frequency scale.

In order to test the single factor measurement model, parcels were created and used as indicators in a confirmatory factor analysis. Five parcels were formed, with each parcel consisting of 8-9 items. The results of the confirmatory factor analysis supported the one-factor model (CFI = .99; RMSEA = .10; SRMR = .01). This scale provides a good overall index of intentions to engage in a variety of leadership development activities.

Follow-Up Development Activity (T3)

At T3, we asked the respondents to report how frequently they participated in various leadership development activities over the past year. The same development activity scale from the “scale creation and confirmatory factor analysis sample” data collection was used; however, at T3 we used data from the full research sample to conduct the factor analysis. The confirmatory factor analysis showed good fit for a single factor model using parcels as indicators (CFI = .99; RMSEA = .10; SRMR = .01).

Investigation 2 Results

We analyzed the data in two parts. In Part 1, we conducted a series of confirmatory factor analyses to distinguish the motivational constructs from one another and from other individual difference constructs. The scale creation and confirmatory factor analysis sample was used for these analyses ($n = 909$). In Part 2, we then conducted tests of the path models. The full research sample was used for these analyses ($n = 375$).

Part 1: Establishing Separate Constructs

Table 9 provides the means, standard deviations, and intercorrelations among the variables in the scale creation and confirmatory factor analysis sample. The reliabilities are shown on the diagonal. Although these analyses were partly an attempt to replicate the Investigation 1 results, model comparisons also were made in this investigation that included some of the new variables—such as openness to experience and learning goals, which appear somewhat close conceptually to the development motivation constructs. Confirmatory factor analysis was used to establish certain motivation variables as distinct constructs from other motivation variables. Each measurement model was compared to an alternative model, and the fit of the two models was examined for significant differences. These results of all model comparisons are presented in Table 10.

Table 9

Means, Standard Deviations, and Intercorrelations among Investigation 2 Variables (Scale Creation & CFA, N = 909)

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. MTL	3.38	.54	.92													
2. MTDL	3.76	.78	.47	.98												
3. SEL	5.30	1.18	.71	.48	.91											
4. SELD	3.85	.72	.46	.91	.52	.97										
5. Benefits	4.76	1.03	.54	.53	.53	.48	.93									
6. Conscientiousness	3.82	.64	.30	.32	.38	.36	.23	.82								
7. Extraversion	3.21	.79	.52	.36	.49	.36	.34	.20	.88							
8. Agreeableness	4.01	.63	.34	.37	.35	.40	.29	.40	.32	.84						
9. Emotional Stability	3.27	.82	.26	.22	.29	.24	.11	.34	.30	.22	.90					
10. Openness	3.72	.62	.45	.37	.52	.42	.34	.38	.40	.44	.16	.81				
11. IBL	3.69	.73	.23	.58	.25	.67	.30	.19	.12	.29	.07	.22	.97			
12. Learning Goals	4.53	.98	.55	.55	.56	.52	.55	.31	.36	.32	.17	.50	.30	.94		
13. Prove Goals	3.99	1.03	.24	.33	.25	.29	.41	.08	.22	.04	-.13	.21	.25	.50	.81	
14. Avoid Goals	3.07	1.19	-.34	-.18	-.31	-.21	-.14	-.23	-.25	-.32	-.36	-.26	-.05	-.15	.31	.91
15. Self-Concept	5.55	1.05	.50	.48	.63	.54	.49	.44	.37	.50	.26	.60	.31	.61	.22	-.35
16. Perceived Need	4.53	1.21	.04	.21	.08	.19	.27	-.03	-.01	.07	-.17	.10	.20	.28	.30	.13
17. Prior Participation	1.56	1.18	.27	.38	.23	.34	.30	.02	.24	.05	.07	.24	.21	.36	.27	.00
18. Leadership Experience	5.05	1.50	.54	.35	.61	.36	.36	.21	.36	.17	.20	.35	.17	.38	.17	-.16
19. Situation	4.25	1.11	.23	.38	.21	.34	.42	.09	.20	.15	.08	.15	.23	.32	.22	.01
20. Intentions	1.56	1.19	.28	.37	.23	.32	.33	.05	.19	.07	.05	.22	.19	.35	.25	.00

Note. MTL = motivation to lead; MTDL = motivation to develop leadership; SEL = self-efficacy for leadership; SELD = self-efficacy for leadership development; IBL = improvability beliefs.

* $p < .05$ for $r > .06$. ** $p < .01$ for $r > .08$. *** $p < .001$ for $r > .11$.

Table 9 (*continued*)

Variable	15	16	17	18	19	20
15. Self-Concept	.89					
16. Perceived Need	.21	.80				
17. Prior Participation	.16	.15	.96			
18. Leadership Experience	.33	.03	.32	.88		
19. Situation	.19	.04	.33	.22	.98	
20. Intentions	.19	.16	.67	.30	.31	.97

We first attempted to replicate the main measurement model comparisons from Investigation 1. The purpose of those analyses was to establish motivation to develop leadership as a separate construct from motivation to lead. Further, the distinction between self-efficacy for leadership development and self-efficacy for leadership was tested. In both cases (i.e., motivation comparison and self-efficacy comparison), a two-factor model was compared to a one-factor model. Parcels were used as indicators for the motivation to develop leadership and self-efficacy for leadership development constructs, and items were used as indicators for the self-efficacy for leadership construct. For the motivation to lead construct, we used the three dimension scores as indicators.

In terms of the overall motivation constructs, the two-factor model (motivation to develop leadership and motivation to lead as separate factors) resulted in significantly better fit than a single factor model where the indicators from both constructs were allowed to load on the same factor ($\Delta\chi^2[1, N = 909] = 243.13, p < .001$). Similarly, the two-factor self-efficacy model (self-efficacy for leadership development and self-efficacy for leadership as separate factors) fit significantly better than the one-factor model ($\Delta\chi^2[1, N = 909] = 3,749.75, p < .001$). These results replicated the findings from Investigation 1. As an additional test, we included all the motivation-relevant constructs in the same measurement model. The five-factor model included motivation to develop leadership, motivation to lead, self-efficacy for leadership development, self-efficacy for leadership, and perceived benefits as separate factors (the three dimension scores of perceived benefits were used as indicators for the construct). This model was compared to an alternative three-factor model where motivation to develop leadership and motivation to lead loaded on the first factor, self-efficacy for leadership development and self-efficacy for leadership loaded on the second factor, and benefits loaded on the third factor. As shown in Table 10, the five-factor model had significantly better fit than the three-factor model ($\Delta\chi^2[7, N = 909] = 4,610.96, p < .001$). These results taken together suggest that motivation to develop leadership is a distinct construct from motivation to lead, and self-efficacy for leadership development is a distinct construct from self-efficacy for leadership.

In addition to replicating the Investigation 1 results, we sought to differentiate motivation to develop leadership from two other constructs that could be considered conceptually similar. First, we compared motivation to develop leadership with openness to experience (using parcels as indicators). The two-factor model, where motivation to develop leadership and openness were allowed to load on their own factors, resulted in significantly better fit than a model where both constructs loaded on the same factor ($\Delta\chi^2[1, N = 909] = 961.68, p < .001$). Next, we examined the distinction between motivation to develop leadership and learning goals (using items as indicators for learning goals). The two-factor model (each construct as separate factor) resulted in significantly better fit than the one-factor model ($\Delta\chi^2[1, N = 909] = 2,960.61, p < .001$). Thus, motivation to develop leadership is a distinct construct from openness to experience and learning goals.

Table 10
Comparison of Investigation 2 Models (N = 909)

Model	χ^2	df	RMSEA	SRMR	CFI
Efficacy vs. Motivation vs. Benefits					
5-Factor Model	836.13	174	.07	.04	.97
3-Factor Model	5,447.09	181	.23	.14	.79
Self-Efficacy					
2-Factor Model	151.41	34	.06	.02	.99
1-Factor Model	3,901.16	35	.38	.21	.67
Motivation					
2-Factor Model	161.04	19	.09	.02	.98
1-Factor Model	404.17	20	.15	.08	.95
MTDL vs. Openness					
2-Factor Model	116.00	19	.07	.03	.99
1-Factor Model	1,077.68	20	.24	.15	.87
MTDL vs. Learning					
2-Factor Model	214.62	34	.08	.03	.98
1-Factor Model	3,175.23	35	.37	.20	.72

Note. Efficacy vs. Motivation vs. Benefits includes self-efficacy for leadership development, self-efficacy for leadership, motivation for leadership development, motivation to lead, and benefits; Self-efficacy includes self-efficacy for leadership development and self-efficacy for leadership; Motivation includes motivation for leadership development and motivation to lead; MTDL vs. Openness includes motivation for leadership development and openness to experience; and MTDL vs. Learning includes motivation for leadership development and learning goals.

Part 2-Path Models

The means, standard deviations, and intercorrelations among the variables in the respondent full research sample used in the path models are provided in Table 11. Path models were tested using LISREL 8.50, with each scale in Table 11 loading as the single indicator for its construct. The error variance for each indicator was estimated by taking 1 minus the reliability of the scale and multiplying this value by the scale's variance. We tested three model configurations in

this investigation, beginning with the Personality and Experiential History as Exogenous—Fully Mediated Model, and then the Partially Mediated Model, and finally the All Exogenous Model.

Table 11

Means, Standard Deviations, and Intercorrelations Among Variables in Investigation 2 Full Research Sample (T1-T3, N = 375)

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. MTL	3.35	.54	.92													
2. MTDL	3.71	.77	.46	.98												
3. SEL	5.27	1.15	.72	.48	.91											
4. SELD	3.81	.71	.42	.91	.51	.97										
5. Benefits	4.76	.98	.52	.53	.58	.49	.93									
6. Conscientiousness	3.82	.65	.31	.28	.39	.32	.21	.83								
7. Extraversion	3.20	.75	.52	.43	.53	.41	.42	.22	.87							
8. Agreeableness	3.99	.62	.30	.36	.35	.39	.25	.39	.34	.85						
9. Emotional Stability	3.28	.81	.34	.25	.34	.27	.13	.42	.32	.27	.90					
10. Openness	3.72	.61	.42	.41	.54	.45	.33	.39	.41	.43	.15	.81				
11. IBL	3.64	.70	.23	.62	.25	.70	.34	.16	.14	.24	.08	.25	.97			
12. Learning Goals	4.52	.94	.52	.61	.54	.56	.52	.30	.38	.27	.27	.50	.35	.93		
13. Prove Goals	4.01	.96	.25	.39	.26	.32	.44	.06	.30	.05	-.06	.22	.29	.50	.79	
14. Avoid Goals	3.12	1.16	-.35	-.13	-.35	-.19	-.16	-.28	-.22	-.32	-.41	-.26	-.05	-.15	.23	.91
15. Self-Concept	5.50	1.02	.47	.49	.63	.57	.47	.43	.36	.50	.31	.57	.32	.56	.17	-.40
16. Perceived Need	4.53	1.21	.10	.29	.16	.22	.30	-.09	.05	.09	-.18	.16	.22	.30	.31	.09
17. Prior Participation	1.55	1.16	.22	.42	.22	.36	.29	.05	.19	.04	.05	.22	.30	.38	.29	.02
18. Leadership Experience	5.12	1.48	.57	.36	.68	.35	.45	.23	.36	.17	.17	.40	.17	.42	.22	-.13
19. Situation	4.35	1.07	.21	.33	.25	.30	.40	.08	.25	.17	.14	.19	.25	.34	.24	-.05
20. Intentions	1.50	1.18	.26	.40	.24	.33	.35	.03	.16	.07	.04	.22	.25	.36	.25	.03
21. Follow-Up Activities	1.42	1.11	.19	.31	.14	.27	.23	.04	.20	.07	.03	.20	.22	.29	.24	.05

Note. MTL = motivation to lead; MTDL = motivation to develop leadership; SEL = self-efficacy for leadership; SELD = self-efficacy for leadership development; IBL = improvability beliefs.

* $p < .05$ for $r > .10$. ** $p < .01$ for $r > .13$. *** $p < .001$ for $r > .16$.

Table 11 (*continued*)

Variable	15	16	17	18	19	20	21
15. Self-Concept	.89						
16. Perceived Need	.24	.82					
17. Prior Participation	.14	.20	.96				
18. Leadership Experience	.40	.13	.29	.88			
19. Situation	.21	.06	.31	.20	.97		
20. Intentions	.22	.19	.66	.31	.34	.97	
21. Follow-Up Activities	.09	.11	.59	.17	.25	.57	.96

Personality and Experiential History as Exogenous Model—Fully Mediated. The first model configuration we examined is presented in Figure 1. This configuration is referred to as the “fully mediated” model because the personality and experiential variables were treated as exogenous variables, and the other person and situation variables mediated the relationship between the exogenous variables and motivation. Thus, the first model tested had all the personality and experiential variables directly predicting the individual domain and situational variables, which in turn were estimated to predict each of the motivational subcomponents (self-efficacy for leadership, self-efficacy for leadership development, perceived benefits). The motivational subcomponents were then estimated to predict each of the main motivation variables (motivation to lead, motivation to develop leadership). Because motivation to develop leadership was thought to mediate the relationship between motivation to lead and development activity intentions, we estimated a direct path from motivation to lead to motivation to develop, and also from motivation to develop to intentions. Finally, we expected that both prior development activity and intentions to participate in development activity would directly predict follow-up development activity.

In addition to the paths described above, several other non-directional bivariate relationships were predicted based on prior research and theory and were expected to correlate here. Although not shown in the figure in order to simplify, these relationships among endogenous variables were estimated in the model (Table 11 displays correlations among these as well as among all other variables in the investigation). Based upon prior research and theory, these were relationships among the self-efficacy for leadership, self-efficacy for leadership development, and perceived benefits for development constructs (cf. Ajzen, 1991; Maurer et al., 2003; Vroom, 1964), possessing a learning self-concept and emphasizing/de-emphasizing learning, prove, and avoid goals (Maurer, 2002; Maurer et al., 2008), perceiving support for development in one’s work situation and perceiving that leadership skills are improvable as well as possessing learning, prove, and avoid goals (Maurer, 2002; Ames & Archer, 1987; Butler, 1987; Dweck & Leggett, 1988; Maurer et al., 2008), relationships among improvability beliefs and goal orientation constructs (Dweck & Leggett, 1988; Maurer, 2002, Zweig & Webster, 2004; VandeWalle, 1997), and possessing learning goals and perceiving a need for development of one’s skills (Maurer, 2002; Dweck & Leggett, 1988).

The fit of the Fully Mediated Model was $\chi^2(92, N = 375) = 598.37, p < .001$; CFI = .88; RMSEA = .11; SRMR = .07. Figure 4 presents the significant paths and their standardized coefficients. Several of the hypothesized relationships were statistically significant. Starting with the personality variables, openness to experience was positively related to learning goals, self-concept, and perceived need, and negatively related to avoid goals. Emotional stability positively predicted learning goals and self-concept and negatively predicted prove goals, avoid goals, and perceived need. Conscientiousness was negatively related to perceived need and agreeableness was negatively related to avoid goals. These relationships were all consistent with hypotheses. However, there were also several hypothesized relationships that were not significant, including the paths from conscientiousness to learning goals, prove goals, avoid goals, self-concept, and situational support; the paths from openness to support, prove goals, and improvability beliefs; the paths from extraversion to learning goals and avoid goals; and the paths from agreeableness to learning goals and prove goals.

Unexpected significant relationships also were found. Extraversion was positively related to prove goals and situational support, and agreeableness was positively related to self-concept and improvability beliefs.

Several of the hypotheses involving the experiential variables also were supported. Prior development activity was positively related to improvability beliefs, learning goals, perceived need, and situational support. Leadership experience was positively related to learning goals and self-concept. Contrary to expectations, prior development activity was not significantly related to avoid goals or self-concept, and leadership experience did not significantly predict improvability beliefs, avoid goals, perceived need, or situational support.

For the next sequence in the model (i.e., domain individual and situation predicting motivational subcomponents), significant predictors of self-efficacy for leadership development were improvability beliefs, learning goals, and self-concept. Perceived benefits was significantly predicted by avoid goals, self-concept, perceived need, and situational support. Consistent with the hypotheses, all of these relationships were positive with the exception of the path from avoid goals to perceived benefits, which was a negative relationship. In addition, there were some unexpected significant relationships involving the person and situation variables. Prove goals was positively related to perceived benefits (a negative relationship was expected) and self-efficacy for leadership, avoid goals was negatively related to self-efficacy for leadership, and self-concept was positively related to self-efficacy for leadership. Finally, some of the hypothesized paths from the individual and situational variables were not significant: the paths from prove goals, avoid goals, perceived need, and situational support to self-efficacy for leadership development; and the path from learning goals to perceived benefits.

Figure 4 also shows that the hypotheses were generally supported in terms of motivation to lead and motivation to develop. Self-efficacy for leadership was positively related to motivation to lead, self-efficacy for leadership development was positively related to motivation to develop leadership, and perceived benefits was positively related to motivation to develop leadership. There was an unexpected negative relationship between self-efficacy for leadership and motivation to develop leadership. However, this is likely a statistical artifact as the negative relationship is inconsistent with the correlation matrix, which shows a moderate to strong positive relationship between these variables.

The remaining significant paths in the model were as hypothesized. Motivation to lead positively predicted motivation to develop leadership, which in turn predicted development activity intentions. This offers initial support for the notion that motivation to develop leadership mediates the relationship between motivation to lead and intentions. Also as expected, future participation in development activity was predicted by both prior participation and intentions to participate in development activity.

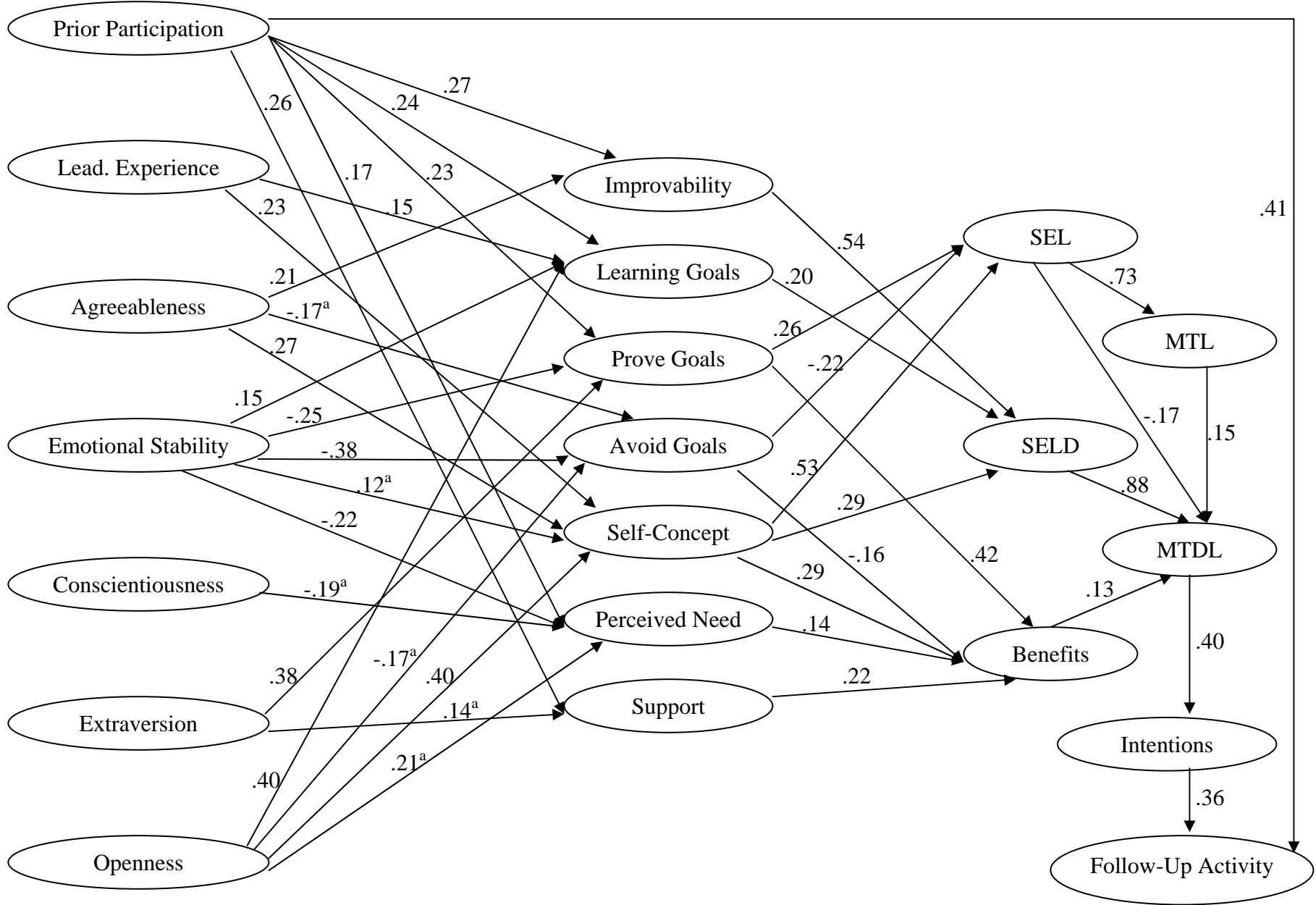


Figure 4. Observed Fully Mediated Path Model. Only significant paths and their standardized coefficients are shown. Path coefficients with a superscript are significant at $p < .05$. All others are significant at $p < .01$. MTL = motivation to lead; MTDL = motivation to develop leadership; SEL = self-efficacy for leadership; SELD = self-efficacy for leadership development.

In addition to the direct effects stated above, there were significant indirect effects between the predictors and motivational and behavioral outcomes. As shown in Table 12, most of the personality and experiential variables had significant indirect effects on at least some of the motivation variables through the individual domain and situational variables. However, only prior participation, leadership experience, agreeableness, and openness had significant indirect effects on the development involvement variables. In terms of the domain individual variables, there were several significant indirect effects to either motivation to lead or motivation to develop leadership. Improvability, learning goals, and self-concept had significant indirect effects on development involvement through the motivation variables. For the motivational subcomponents, self-efficacy for leadership development and benefits had significant indirect effects on development involvement through motivation to develop. The indirect effect of motivation to lead on development activity intentions (through motivation to develop) was also significant, which again suggests that motivation to develop mediates the relationship between motivation to lead and intentions. Finally, motivation to develop had a significant indirect effect on follow-up development activity through intentions.

Table 12
Standardized Indirect Effects for Fully Mediated Path Model (N = 375)

Variable	SEL	SELD	Benefits	MTL	MTDL	Intentions	Follow-up activities
Prior Participation	.04	.20**	.17**	.05	.20**	.08**	.03**
Lead. Experience	.17**	.11*	.14**	.13**	.11**	.04*	.02*
Agreeableness	.14**	.19**	.11*	.11**	.17**	.07**	.03**
Emotional Stability	.12**	.07	-.03	.08*	.05	.02	.01
Conscientiousness	.06	.03	.01	.05	.03	.01	.00
Extraversion	.10*	.00	.18**	.09*	.02	.01	.00
Openness	.29**	.28**	.20**	.23**	.26**	.10**	.04**
Improvability				-.02	.48**	.19**	.07**
Learning Goals				.08	.17**	.07**	.02**
Prove Goals				.23**	.09	.04	.01
Avoid Goals				-.18**	-.03	-.01	.00
Self-concept				.41**	.27**	.11**	.04**
Perceived Need				-.02	.00	.00	.00
Situation				.05	.05	.02	.01
SEL					.11**	-.02	-.01
SELD					.00	.35**	.13**
Benefits					.01	.06**	.02**
MTL						.06**	.02**
MTDL							.15**

Note. MTL = motivation to lead; MTDL = motivation to develop leadership; SEL = self-efficacy for leadership; SELD = self-efficacy for leadership development.

* $p < .05$. ** $p < .01$.

Motivation to develop as mediator between motivation to lead and intentions. Before moving on to test the alternative model configurations that were presented in the introduction, we further examined whether motivation to develop was in fact a mediator between motivation to lead and development activity intentions. The significant direct and indirect effects presented above were supportive of this relationship. However, we also formally tested the mediated relationship through a series of nested model comparisons.

We used the Fully Mediated Model from the prior section as the baseline model and first compared that model to one in which a direct path was added from motivation to lead to intentions. Because motivation to lead had paths to both motivation to develop leadership and development activity intentions, this model variation tested whether motivation to develop leadership was a partial mediator. The fit of this model was similar to the fit of the baseline model, $\chi^2(91, N = 375) = 594.69, p < .001$; CFI = .88; RMSEA = .11; SRMR = .07. Indeed, a chi-square difference test indicated that the fit of the two models was not significantly different ($\Delta\chi^2[1, N = 375] = 3.68, ns$). Next, we compared the second model (motivation to develop as partial mediator) to a third model where the path from motivation to lead to motivation to develop was removed. Thus, motivation to lead was a direct predictor of intentions, and no path was present from motivation to lead to motivation to develop. The fit of this model was $\chi^2(92, N = 375) = 609.10, p < .001$; CFI = .87; RMSEA = .11; SRMR = .07. A chi-square difference test showed that this model fit significantly worse than the model where motivation to develop was a partial mediator ($\Delta\chi^2[1, N = 375] = 14.41, p < .001$). These results indicate that motivation to develop is at least a partial mediator of the relationship between motivation to lead and development activity intentions. Although there was no difference in model fit when motivation to develop was a partial mediator versus full mediator, the fully mediated version is more parsimonious and consistent with the theory presented in this paper. Thus, we prefer the original model that was presented in Figure 4, where motivation to develop fully mediated the relationship from motivation to lead to development activity intentions.

A significant thrust of this research is comparing motivation to lead with motivation to develop leadership in relation to leadership development behavior. In this vein, as a supplemental analysis, we ran a hierarchical regression to test whether motivation to develop leadership had significant incremental validity over motivation to lead in predicting development activity intentions and follow-up development activity. We also examined whether motivation to lead had significant incremental validity over motivation to develop leadership. The incremental R-square and standardized beta coefficients from these analyses are provided in Table 13. The results show that motivation to develop leadership accounted for significant variance over motivation to lead in predicting both development and activity variables. However, motivation to lead did not add to the prediction of development activity over motivation to develop leadership. This is consistent with the mediation analysis, as it suggests that motivation to develop is a stronger predictor of development involvement compared to motivation to lead, and the effect of motivation to lead on development involvement is carried through motivation to develop leadership.

Table 13

Incremental Variance of Motivational Variables Over One Another in Predicting Development Behavior—Investigation 2, Full Research Sample (N = 375)

Predictors	Activity intentions	Follow-up activities
Incremental R ²		
MTDL over MTL	.10***	.06***
MTL over MTDL	.01	.00
Regression Coefficients (β)		
MTDL	.36***	.28***
MTL	.10	.06

Note. MTL = motivation to lead; MTDL = motivation to develop leadership.

Regression coefficients represent standardized coefficients with both predictors entered into the regression.

*** $p < .001$.

Personality and Experiential History as Exogenous Model—Partially Mediated. The next model configuration we tested is displayed in Figure 2. This model is a variation of the Fully Mediated Model where direct paths were added from all of the personality and experiential variables to self-efficacy for leadership, self-efficacy for leadership development, and perceived benefits. All other estimated paths remained the same. Thus, the model posited that the domain individual and situational variables partially mediated the relationship between personality/experiential history and the motivational subcomponents. Adding the direct paths from the exogenous variables to the motivational subcomponents resulted in acceptable model fit, $\chi^2(71, N = 375) = 370.47, p < .001$; CFI = .93; RMSEA = .10; SRMR = .06. The difference in fit over the Fully Mediated Model is statistically significant ($\Delta\chi^2[21, N = 375] = 227.90, p < .001$), which suggests that the Partially Mediated Model is the better fitting model.

The significant paths and standardized coefficients are shown in Figure 5. Most of the significant paths from the Fully Mediated Model remained significant in the Partially Mediated Model. The path from extraversion to situational support and the path from prove goals to self-efficacy for leadership were no longer significant in the Partially Mediated Model (recall that these relationships were unexpected in the Fully Mediated Model).

For the direct paths that were added from personality to the motivational subcomponents, we found that extraversion was a significant positive predictor of self-efficacy for leadership, self-efficacy for leadership development, and perceived benefits. The relationship between extraversion and self-efficacy for leadership was consistent with our hypothesis, but the significant paths from extraversion to self-efficacy for leadership development and benefits were exploratory in nature. There was also a significant unexpected negative relationship between

openness and benefits, but this again is likely a statistical artifact given the positive correlation coefficient shown in Table 11 between these variables. The other hypotheses involving personality were not supported. The insignificant hypothesized relationships include the paths from openness, conscientiousness, emotional stability, and agreeableness to self-efficacy for leadership development; the paths from openness, conscientiousness, emotional stability, and agreeableness to benefits; and the paths from conscientiousness, emotional stability, and agreeableness to self-efficacy for leadership.

In terms of the paths that were added from the experiential variables to the motivational subcomponents, we found that prior development activity significantly predicted self-efficacy for leadership development, and leadership experience significantly predicted self-efficacy for leadership and benefits. As expected, all three of these relationships were positive. The hypothesized paths from prior activity to self-efficacy for leadership and benefits were not significant. The hypothesized path from leadership experience to self-efficacy for leadership development was also not significant.

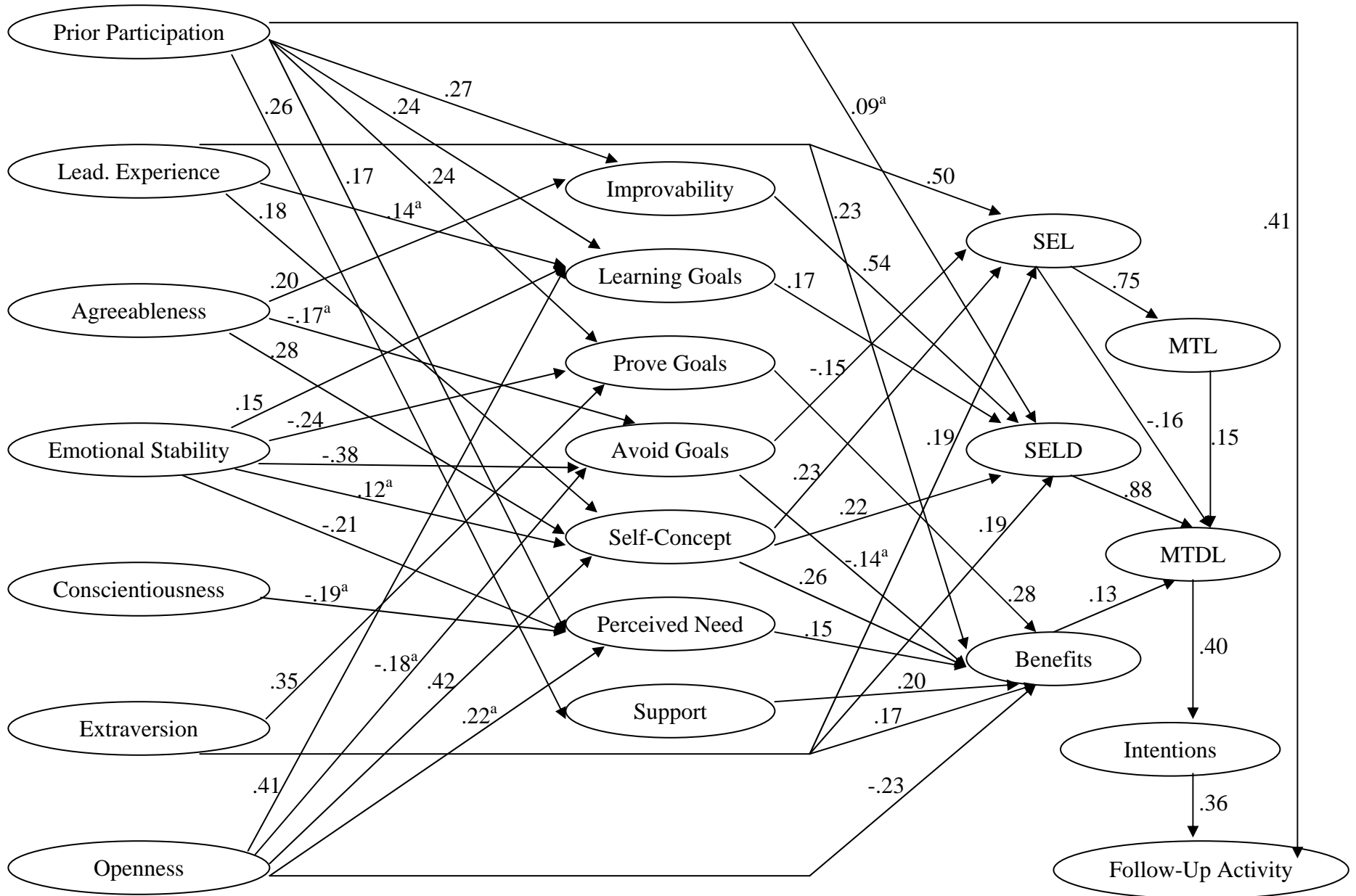


Figure 5. Observed Partially Mediated Path Model. Only significant paths and their standardized coefficients are shown. Path coefficients with a superscript are significant at $p < .05$. All others are significant at $p < .01$. MTL = motivation to lead; MTDL = motivation to develop leadership; SEL = self-efficacy for leadership; SELD = self-efficacy for leadership development

Table 14 provides the standardized indirect effects for the model. Prior participation in development activity, extraversion, agreeableness, and openness had significant indirect effects on the motivational and development involvement variables. Leadership experience and emotional stability had indirect relationships with motivation (mainly with motivation to lead and its subcomponent) but not with development involvement. These results are somewhat similar to the Fully Mediated Model, with the major exceptions being that extraversion now has significant indirect effects on development activity, and the number of significant indirect effects involving leadership experience was reduced. The pattern of indirect effects for the remaining predictors (i.e., individual domain, situational support, motivation) was similar to the pattern of indirect effects for the Fully Mediated Model.

Table 14
Standardized Indirect Effects for Partially Mediated Path Model (N = 375)

Variable	SEL	SELD	Benefits	MTL	MTDL	Intentions	Follow-up activities
Prior Participation	.02	.17**	.16**	-.02	.25**	.10**	.04**
Lead. Experience	.05*	.07	.09*	.44**	.09	.03	.01
Agreeableness	.09**	.16**	.13**	.04	.20**	.08**	.03**
Emotional Stability	.07*	.04	.01	.08*	.06	.03	.01
Conscientiousness	.02	.01	-.01	.06	.04	.02	.01
Extraversion	.01	-.05	.11*	.18**	.15**	.06**	.02*
Openness	.16**	.23**	.23**	.15**	.18**	.07*	.03*
Improvability				.02	.48**	.19**	.07**
Learning Goals				.04	.16**	.06**	.02*
Prove Goals				.08	-.02	-.01	.00
Avoid Goals				-.13**	.04	.02	.01
Self-Concept				.19**	.22**	.09**	.03**
Perceived Need				.02	.03	.01	.00
Situation				.02	.02	.01	.00
SEL					.11**	-.02	-.01
SELD					.00	.35**	.13**
Benefits					.01	.06**	.02**
MTL						.06**	.02**
MTDL							.15**

Note. MTL = motivation to lead; MTDL = motivation to develop leadership; SEL = self-efficacy for leadership; SELD = self-efficacy for leadership development.

* $p < .05$. ** $p < .01$.

All Exogenous Model. The final model configuration we examined is presented in Figure 6. This is referred to as the All Exogenous Model because the personality, experiential history, individual domain, and situational variables were all treated as exogenous variables. Paths were estimated from these variables to each of the motivational subcomponents (i.e., self-efficacy for leadership, self-efficacy for leadership development, benefits). The configuration of paths from the motivational subcomponents onward was not changed from the earlier models. The results showed good fit for the All Exogenous Model, $\chi^2(64, N = 375) = 313.49, p < .001$; CFI = .94; RMSEA = .09; SRMR = .05.

The significant paths for the All Exogenous Model are shown in Figure 6. The pattern of findings was consistent between this model and the Partially Mediated Model in terms of the areas of the models that were shared. That is, the same significant direct paths were found from the individual domain, experiential, and situational variables to the motivational variables, as well as the paths from the motivation variables to involvement in development activity. We also provide the indirect effects for the All Exogenous Model in Table 15. In general, the pattern of indirect effects was similar to the corresponding indirect effects from the Partially Mediated Model. The exceptions were that agreeableness, emotional stability, and conscientiousness did not have any significant indirect effects in the All Exogenous Model.

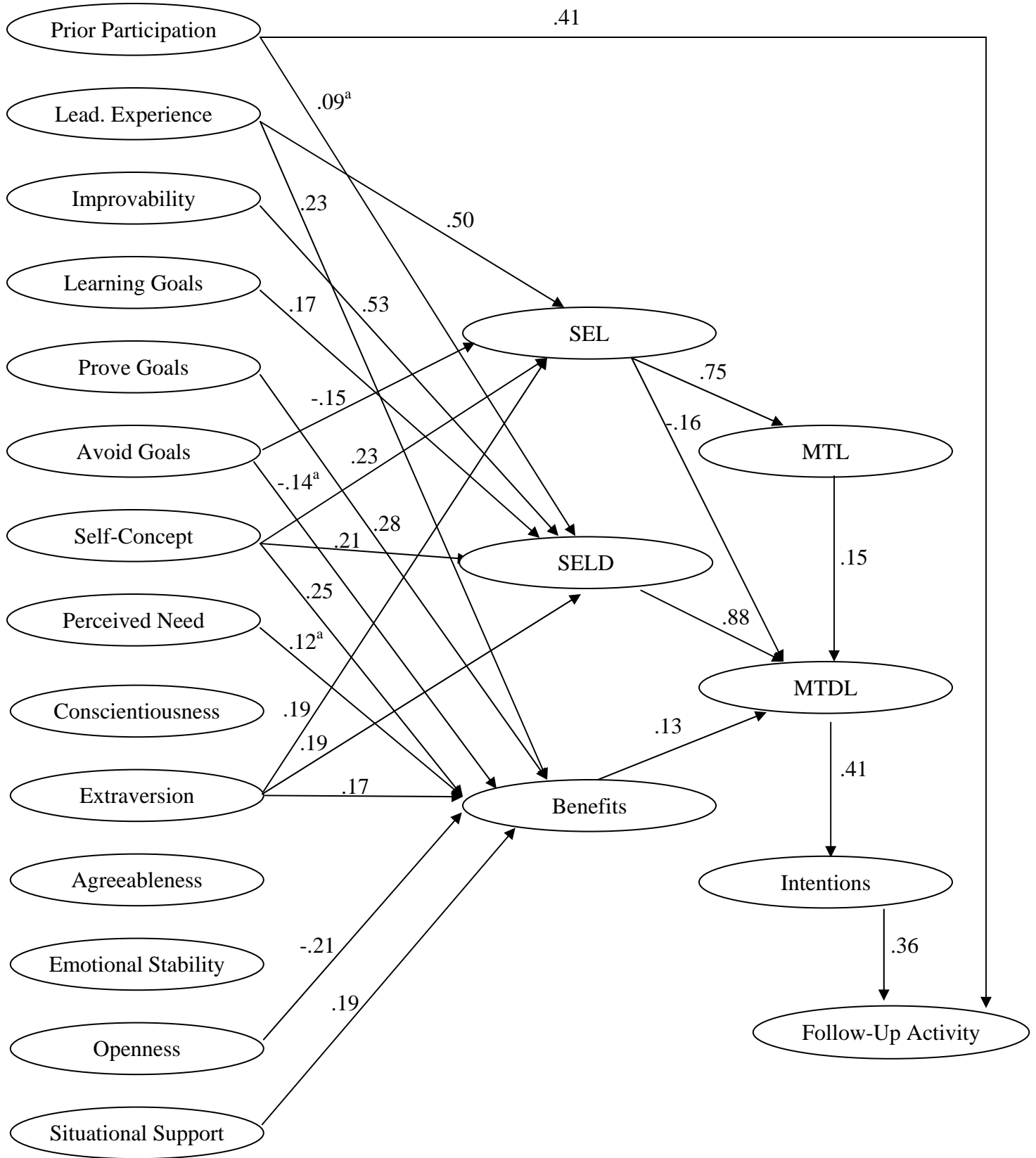


Figure 6. Observed All Exogenous Path Model. Only significant paths and their standardized coefficients are shown. Path coefficients with a superscript are significant at $p < .05$. All others are significant at $p < .01$. MTL = motivation to lead; MTDL = motivation to develop leadership; SEL = self-efficacy for leadership; SELD = self-efficacy for leadership development

Table 15
Standardized Indirect Effects for All Exogenous Path Model (N = 375)

Variable	MTL	MTDL	Intentions	Follow-up activities
Prior Participation	-.05	.08*	.03*	.01*
Leadership Experience	.39**	.02	.01	.00
Conscientiousness	.05	.02	.01	.00
Extraversion	.15**	.18**	.07**	.03**
Agreeableness	-.03	.04	.02	.01
Emotional Stability	.03	.03	.01	.00
Openness	.02	-.05	-.02	-.01
Improvability	.02	.47**	.19**	.07**
Learning Goals	.04	.16**	.06**	.02*
Prove Goals	.08	-.01	-.01	.00
Avoid Goals	-.13**	.04	.02	.01
Self-Concept	.19**	.21**	.09**	.03**
Perceived Need	.02	.02	.01	.00
Situation	.02	.01	.01	.00
SEL		.11**	-.02	-.01
SELD		.00	.36**	.13**
Benefits		.01	.06**	.02**
MTL			.06**	.02**
MTDL				.15**

Note. MTL = motivation to lead; MTDL = motivation to develop leadership; SEL = self-efficacy for leadership; SELD = self-efficacy for leadership development.

* $p < .05$. ** $p < .01$.

In comparing the fit across the three models in this investigation (fully mediated, partially mediated, all exogenous), we see that the fit statistics were most favorable for the All Exogenous Model. Moreover, the Akaike Information Criterion (Akaike, 1987), which can be used to compare models that are not nested, was lower for the All Exogenous Model (AIC = 598.22) relative to both the Partially Mediated Model (AIC = 642.91) and Fully Mediated Model (AIC = 801.25). This further suggests that the All Exogenous Model fits better than the other models. However, the Fully Mediated and Partially Mediated Models could be considered reasonable alternatives due to their closer conformance to detailed theory as outlined in the introduction to this investigation. The All Exogenous Model is simpler and possibly more practical, while the other two model the interplay of antecedents in more detail.

The level of fit in the Fully and Partially Mediated Models as reflected in the fit indices reported here are highly similar to that in the prior investigation involving personality, domain, and situational and motivational constructs in development behavior, despite the fact that the present models are considerably more complex with a greater number of variables. Maurer et al. (2008) reported fit indices of CFI=.92, RMSEA = .10, and SRMR = .08 for a similar overall model with fewer variables. Various criteria are offered in the literature to evaluate fit. For example, some authors have suggested a CFI of .90 and RMSEA of .08 as a reflection of reasonable fit (Browne & Cudeck, 1993; Byrne, 1998), while others, such as Hu and Bentler (1999), have suggested a SRMR less than or equal to .08, a CFI greater than or equal to .95 and a RMSEA less than or equal to .06. However, Marsh, Hau, and Wen (2004) recently reviewed the literature on goodness of fit indices and stated that traditional cutoff values such as these amount to little more than rules of thumb and should not be used as golden rules. They reviewed prior research that suggested that conventional cutoff values for fit indices may be inappropriate in some complex, multifactor models. They pointed to the need to consider a wide variety of information when assessing the validity of a model. The literature suggests that researchers should consider things such as adequacy and interpretability of parameter estimates, model complexity, construct validity, as well as theoretical and substantive issues within a study. Similarly, in a review of often-cited cutoff criteria, Lance, Butts, and Michels (2006) state that “the jury is still out as to whether .90, .95, or any rule-of-thumb cutoff is appropriate” (p. 204-205) and that a goodness of fit of “> .90 (or .95, or whatever) is only one piece of information that is available for judging model fit. Model convergence, theoretical defensibility, model parsimony, tests of alternative models, and so forth are other pieces of the model-fit puzzle” (p. 213). In the present investigation, given the complexity of the models and the number of variables involved, the fit indices are generally acceptable, the various parameter estimates are generally reasonable and interpretable, and given that the paths are, overall, consistent with predictions and theory, we consider the model results in total to be acceptable according to empirical and theoretical criteria.

Overall, while each of the three models is a good choice for different reasons, given consideration of detailed consistency with prior research and theory presented here (e.g., Maurer et al., 2003; Maurer et al., 2008; Zweig & Webster, 2004), parsimony, and empirical fit and interpretability criteria, we believe the best overall model for purposes of the present report is the Personality and Experiential History as Exogenous—Partially Mediated Model (Figure 5). The fit is reasonable, especially given the complexity of the model that shows the interplay among the antecedents in some detail, it can be interpreted both overall and in specific parameters, and it is generally consistent with prior modeling and theory.

Investigation 2 Discussion

The present investigation established motivation to develop leadership as distinct from conceptually-similar constructs such as motivation to lead, learning goal orientation, and openness to experience. The results showed that while these conceptually-similar and other constructs seem to predict motivation to develop leadership, they are distinct and separate constructs. The path model results here provided a detailed picture of the nomological network of constructs relevant to motivation to develop leadership and motivation to lead in relation to leadership development activity. This helps to establish more clearly the nature of motivation to develop leadership in relation to motivation to lead and other constructs from the leadership and employee development literature. Especially given their complexity and size, the path models seemed to fit the data well and provide an interpretable, conceptually sound way to describe the interrelationships of the constructs and a way to understand differences in leadership development activity. Overall, the results were generally consistent with prior research and theory: Individual differences and situational variables predict motivation which predicts behavior. The individual and situational constructs predict the subcomponents of motivation (self-efficacy, benefits), which predict overall motivation (Maurer et al., 2003; 2008). This suggests that prior research on motivation for employee development, which showed a similar configuration of results, may have some relevance to motivation for leadership development. In fact, some of the constructs from that prior literature on employee development were adapted here and did have predictive validity. This is intuitively appealing because leadership roles are perhaps a subset of employee roles in general, and so similar overall motivational processes should occur.

Not only was motivation to develop leadership distinguished from motivation to lead, but it predicted involvement in specific leadership development activities better than did motivation to lead. In fact, the model suggested that the motivation to develop leadership construct likely carries variance not only from motivation to lead, but also many other constructs that precede motivation to develop leadership in the model. This and other studies suggest that employee and leadership development behavior is multifaceted and complex, occurring because of a wide variety of causes (both individual and situational). These results provide insight regarding the constructs that should influence motivation to develop leadership and leadership development activity. There are two types of value provided to the literature on leadership development by these results. First, the results advance understanding of this construct and leadership development behavior from a theoretical point of view. Second, the results provide clues regarding the types of tactics in practice that might affect motivation for leadership development.

Examining the results for the most consistent predictors of motivation to develop leadership, it appears that having self-confidence that one can improve one's leadership skills (self-efficacy) seems an important precursor to motivation to develop leadership. This construct was discussed at length in Investigation 1 and was confirmed here as a key predictor of motivation to develop leadership, among other potentially relevant constructs. In addition, the perceived benefit of leadership development as a subcomponent of motivation was a significant predictor. These subcomponents (self-efficacy, perceived benefits) correspond to key elements of motivation theory in which one must believe in one's capability to perform a task and believe that it leads to desirable benefits before one will be motivated (Vroom, 1964). The present research highlights the need to understand and influence both variables to motivate leadership development. It is im-

portant to note also that the motivation to lead also predicted motivation to develop leadership, suggesting that the motive to be a leader is a significant predictor of motivation to develop leadership skills; however, they are clearly *not* the same construct and understanding the motive to develop leadership requires significantly more than just knowing a person's motive to lead.

The data also suggested that motivation to develop leadership (and subsequent leadership development activity) was influenced indirectly, in part, by relatively immutable variables such as personality or prior leadership development experiential history. Leveraging these constructs to influence motivation to develop leadership implies perhaps mainly a selection strategy. For example, this might involve selecting individuals with personality characteristics (agreeableness, extraversion, openness) that will facilitate motivation for leadership development or selecting those whose experiential history (perhaps through biodata) reflect high participation in development previously. To influence motivation through future participation in development, which can play a role in subsequent motivation to develop, Maurer (2002) suggests how coaxing initial participation in favorable development experiences may help to initiate the process of participation. While such small initial participation effects may not approach having a long and rich history of such participation already, a small number of successful initial experiences might help someone begin the longer process of self-development.

The results suggesting that motivation to develop leadership was influenced by potentially mutable development domain variables imply both tactics to influence or change the constructs in leaders or potential leaders and selection of individuals who already possess the qualities. For example, learning goals have been enhanced in people by situational manipulations such as emphasizing that people should understand and master the situation by focusing on the task as opposed to how well other people are performing, and using errors as learning opportunities. Generally, helping people follow these guidelines while encouraging them to not constantly compare their performance to others' performance nor continually monitor their current performance level against others may help enhance learning goal emphasis (cf. Ames & Archer, 1987; Roberson & Alsua, 2002). Likewise, perceptions that skills can be improved through effort can be influenced through information, persuasion, and personal experience (cf. Chiu, Hong, & Dweck, 1997; Maurer, 2002; Wood & Bandura, 1989; Martocchio, 1994). Along these lines, the motivational subcomponents might be influenced via appropriate tactics. Self-efficacy for development can be influenced through mastery experiences, vicarious modeling, and persuasion strategies in the workplace relevant to development behavior (Maurer, 2001); perceived benefits could be influenced through helping individuals better understand the positive outcomes of engaging in leadership development. Each of these predictors can presumably be influenced to some extent through relevant interventions and/or policies.

The data suggest that motivation to lead might be more a function of self-efficacy for leadership, extraversion, openness, leadership experience, and avoid goals. Chan and Drasgow (2001) also found extraversion and self-efficacy to be related to motivation to lead in a U.S. sample. Judge et al. (2002) found extraversion to be the personality variable that best predicted leadership, but suggested research offers little reason why it is predictive. It may be that extraversion encompasses behaviors that fit with effective leadership behavior, such as talking more, being forceful, outgoing, and so on. However, it also may be that extraverts are simply more motivated to pursue leadership roles and are more self-confident about it. Hence, they are more likely to put themselves in leadership positions. It is interesting that not avoiding challenging sit-

uations also was related to motivation to lead. This suggests that being open to new experiences and not avoiding challenges in which one might look bad are an important part of being motivated to lead. Leaders are, by definition, often salient and more visible than individual followers and so their performance may be more of a public matter than an individual follower's. Having a strong motive to avoid looking bad will be harder to satisfy when in higher-visibility leadership roles.

The overall profile of direct and indirect predictors of motivation to develop leadership and motivation to lead suggest that these variables are influenced by different, but partially overlapping, constructs—as should be expected. Further, the conceptual/theoretical framework employed here has motivation to develop leadership as an outcome not only of the other individual/situational constructs, but also motivation to lead. This suggests that motivation to develop leadership should carry some of the predictive variance of these other constructs rather than being separate from them, *per se*. And, importantly, motivation to develop leadership had incremental validity in predicting intentions for development and also subsequent development activities above and beyond motivation to lead. While it might be assumed that those who are motivated to lead also will be motivated to develop leadership capability, the present investigation illustrated that while these constructs are related, they are also distinct, and the development construct has unique predictive validity for leadership development.

Limitations of Investigation 2

The present research was very helpful in examining the constructs that may relate to motivation to develop leadership and motivation to lead, and also in examining these two motivations in relation to the outcome of leadership development activity. However, it would be worthwhile to examine the relative predictive validity of motivation to develop leadership capability in comparison to motivation to lead for other outcomes of importance such as leadership performance as perceived by the individual himself/herself, his/her supervisor, or coworker. Likewise, how does motivation to develop leadership compare to motivation to lead in predicting various other outcomes of importance to a person's career or organizational success? Research might explore these two motivations for relationships with indicators of career success such as increased leadership responsibilities at work, and promotions or pay increases. Likewise, might these motivations play a role in predicting intrinsic outcomes such as job or career satisfaction? These other types of outcome variables might be examined in relation to motivation to develop leadership and, in particular, compared to the relationships of these variables with motivation to lead. That was the purpose of Investigation 3: To compare motivation to develop leadership with motivation to lead in predicting these other types of outcomes. Addressing all of these additional issues beyond those addressed in Investigation 2 would shed further light on the validity of motivation to develop leadership as a construct.

Investigation 3

In Investigation 3, we compared motivation to develop leadership to motivation to lead as predictors of a number of important outcome variables relevant to a leader's or potential leader's behavior, performance, and success. These other variables included leadership behavior/performance as well as a

variety of career success indicators. We included not only the respondent, but also his/her supervisor and coworkers as additional sources of data in Investigation 3.

Comparing Motivation to Lead and Motivation to Develop Leadership in Predicting Leadership Performance and Career Success

Leadership performance. Many executives, like Jack Welch of GE, often move their top managers from one functional business area to another to ensure the ongoing professional development of their senior executives through various forms of job rotation (Locke, 2004). “The purpose of the rotation is to ‘shake the executives up,’ provide them with opportunities to learn new perspectives and skills, get them out of their comfort zones, and develop greater creativity” (Seijts & Latham, 2005, p. 129). According to this way of thinking, those who pursue new challenges in which leadership skills must be mastered with vigor and enthusiasm are likely to be better leaders. Therefore, those who are more motivated to develop leadership should be more effective than those who simply want to be in leadership roles. This is analogous to the learning and performance orientation literature in which individuals with an orientation toward learning and developing have been found to use more effective self-regulation tactics, such as setting higher goals and intending to engage in greater effort and planning before a task. These self-regulation tactics relate to higher job performance. In contrast, having an orientation toward only performing effectively is only slightly or unrelated to these tactics and job performance (cf. Vandewalle, Brown, Cron, & Slocum, 1999). Extending these findings to the leadership development domain, we can expect those with a high motivation to develop leadership attributes to do well in leadership relative to those with only a high motivation to lead, in part because of their adaptive approach to performing leadership tasks. This also suggests that, paradoxically, people who engage in leadership activities for the sole purpose of development may eventually become more effective (better performing) leaders than those who approach these activities with the sole (but strong) desire to be in a leadership role.

Also, based on the learning and development literature, we can expect that people with only a motive to perform leadership tasks and no motive to develop skills will not be as resilient, when facing failure, as those with learning goals (cf. Dweck & Leggett, 1988). In leadership, there is always the possibility of failing and not being perceived as an effective leader. People with a high motivation to lead may get involved in activities because they like leading, but they may later find out that they do not actually possess sufficient capability. Without a motivation to develop these lacking attributes, people with a motivation to lead will not be resilient when facing such an obstacle. In contrast, having a motivation to develop will allow people to continuously attempt to improve on their skills and past performance regardless of current success or failure. To be a maximally successful leader, it seems likely that one should be motivated to continuously improve leadership skills. If a person has a high motivation to lead but a low motivation to develop leadership attributes, this person may not evolve into a great leader.

This suggests that motivation to develop leadership capability should relate to leadership performance ratings to a greater extent than motivation to lead. Motivation to develop leadership capability should carry variance for both a desire to develop and also motivation to lead.

Hypothesis 1: Motivation to lead will correlate positively with leadership behavior/performance ratings;

Hypothesis 2: Motivation to develop leadership will correlate positively with leadership behavior/performance ratings.

Hypothesis 3: Motivation to develop leadership will have incremental predictive validity above and beyond motivation to lead in predicting behavior/performance ratings.

Objective and intrinsic career success. Previous authors have defined career success as the positive psychological or work-related outcomes a worker accumulates as a result of his/her work experiences (cf. London & Stumpf, 1982). Consistent with this general idea and also consistent with Judge, Cable, Boudreau, and Bretz (1995) and Boudreau, Boswell, and Judge (2001), career success includes both “extrinsic” success (or objective, externally visible outcomes such as pay and ascendancy), and “intrinsic” success (or outcomes that are subjectively defined by the worker, such as job or career satisfaction (Gattiker & Larwood, 1988; Jaskolka, Beyer, & Trice, 1985). Research that considers objective and subjective career success together is relatively rare (Boudreau et al., 2001; Gattiker & Larwood, 1988; Judge et al., 1995). Judge et al. (1995) assert that because past research has suggested that many individuals who are extrinsically successful do not feel successful or satisfied with their achievements (Korman, Wittig-Berman, & Lang, 1981), it is important to consider both objective and subjective evaluations of career success (Howard & Bray, 1988; Gattiker & Larwood, 1989). Thus, we included both extrinsic and intrinsic indicators of career success here.

As previous authors and researchers have done (Boudreau et al., 2001; Judge et al., 1995; London & Stumpf, 1982), we considered as indicators of objective career success measures of ascendancy (promotions) and financial rewards (increases in pay). With respect to intrinsic success, we included measures of job and career satisfaction. Consistent with Judge et al. (1995), we reasoned that because a career is a sequence of work-related positions (jobs) occupied throughout a person’s life, subjective career success should include current job satisfaction just as the career includes the current job. According to Locke (1976), overall job satisfaction is defined as “a pleasurable or positive emotional state resulting from an appraisal of one’s job or job experiences” (p. 1300). Career satisfaction, in turn, is defined as the satisfaction individuals derive from intrinsic and extrinsic aspects of their careers, including pay, advancement, and developmental opportunities (Greenhaus, Parasuraman, & Wormley, 1990). We included measures of both job and career satisfaction.

Increased leadership responsibility as distinct dimension of career success. We also differentiated here another possible dimension of career success in the context of the present research, which is focusing specifically on leadership development and performance. We distinguished between a person receiving outcomes such as promotions and pay increases from the outcome of receiving increases in leadership responsibility. While people may experience promotions and increases in pay, this need not mean that they have increased their involvement in leading others. An example is that a university professor may progress from assistant professor, to associate or full professor, and not necessarily experience a concomitant increase in the extent to which he/she must lead others. Rather, the professor may simply advance in his/her own spe-

cialized research and teaching career, maintaining a technical or scholarly focus in his/her work without expanding leadership responsibilities. Likewise, there may not be a direct correspondence between promotions and increased leadership responsibility in other jobs or careers.

We therefore distinguished between promotions, pay, and increased leadership responsibility as distinct indicators of career success. We compared the relationships of motivation to develop leadership versus motivation to lead with these indicators of career success. It seems very likely that such motivational constructs will relate significantly to career success.

Expected relationships between motivation and career success. Prior research has suggested that job and career motivation, leadership and achievement motivation, and effort are related to career success and managerial advancement (Boudreau et al., 2001; Judge et al., 1995; Tharenou, 1997; McClelland & Boyatzis, 1982). Cox and Cooper (1989) sought to determine the motivation behind successful executives' long work hours and found that these executives enjoyed working long hours. They may find their work more motivating, put in greater effort, and thus have a greater probability of success than other executives. Whitely, Dougherty, and Dreher (1991) examined as indicators of motivation hours worked per week and work centrality. Research supports the relationship between the number of hours worked per week and salary and ascendancy (Cox & Cooper, 1989; Gutteridge, 1973; Harrell, 1969). Howard and Bray (1988), in their study of AT&T managers, found that ambition (the desire to get ahead) was one of the best predictors of advancement. This type of positive correlation between ambition and career success has been found in other studies of managers and executives (Cannings & Montmarquette, 1991; Cox & Cooper, 1989).

All of this literature suggests that there should be a relationship between motivational variables such as those examined in the present research and indicators of objective career success, as well as increases in leadership responsibility. We can expect motivation to develop leadership attributes to be more strongly related to ascendancy in the organization and to receiving greater financial rewards than motivation to lead. This is, in part, because of the adaptive approach this motivational construct brings to performing leadership tasks discussed previously. As discussed previously, those who engage in leadership activities for the purpose of development may eventually be recognized as being very concerned with being effective (and better performing) and this will lead to being promoted and rewarded. Those individuals who approach these activities with the desire only to be in a leadership role may also be rewarded, but not to the same extent as those who desire to develop leadership. Having a motivation to develop will allow people to continuously attempt to improve on their skills and past performance regardless of current success or failure. If a person has a high motivation to lead but a low motivation to develop leadership attributes, this person may not be perceived as likely to evolve into a strong leader and may not be rewarded at the same rate in promotions, pay raises, and expanded leadership responsibility.

This suggests that motivation to develop leadership capability should relate to promotions, raises, and increased leadership responsibility to a greater extent than motivation to lead. As discussed above, motivation to develop leadership capability should carry variance for both a desire to develop and also motivation to lead. While both motivations should have a relationship with career success, the motivation to develop leadership construct should have greater predictive validity. We therefore expected motivation to develop leadership to have a higher

relationship with objective and leadership responsibility indicators of career success than motivation to lead.

Hypothesis 4a: Motivation to lead will correlate positively with promotions received.

Hypothesis 4b: Motivation to develop leadership will correlate positively with promotions received.

Hypothesis 4c: Motivation to develop leadership will have incremental validity for predicting promotions received above and beyond motivation to lead.

Hypothesis 5a: Motivation to lead will correlate positively with pay increases received.

Hypothesis 5b: Motivation to develop leadership will correlate positively with pay increases received.

Hypothesis 5c: Motivation to develop leadership will have incremental validity for predicting pay increases received above and beyond motivation to lead.

Hypothesis 6a: Motivation to lead will correlate positively with increased leadership responsibility received.

Hypothesis 6b: Motivation to develop leadership will correlate positively with increased leadership responsibility received.

Hypothesis 6c: Motivation to develop leadership will have incremental validity for predicting increased leadership responsibility received above and beyond motivation to lead.

Similar effects might be expected for intrinsic career success. There is reason to believe that motivation to develop leadership and motivation to lead should be related to intrinsic outcomes, and that motivation to develop leadership should be related to these outcomes to a greater extent than motivation to lead. Maurer et al. (2003) found a closer link between perceived intrinsic outcomes of development and development activity than perceived extrinsic outcomes, suggesting closer alignment of development with outcomes such as enhanced job satisfaction and interesting work. Also, Maurer and Tarulli (1994) and Maurer et al. (2003) found a correlation between development motivation and job involvement, suggesting a link between job attitudes and development. The literature about managerial advancement discussed above (e.g., Cox & Cooper, 1989) suggested strong relationships between motivation and centrality of work, effort and being very interested in one's work and career, and that this ultimately led to success. This all suggests that motivation to develop leadership should relate to job and career satisfaction as should motivation to lead; however, the effect is likely to be stronger for motivation to develop leadership.

Hypothesis 7a: Motivation to lead will correlate positively with job satisfaction.

Hypothesis 7b: Motivation to develop leadership will correlate positively with job satisfaction.

Hypothesis 7c: Motivation to develop leadership will have incremental validity for predicting job satisfaction above and beyond motivation to lead.

Hypothesis 8a: Motivation to lead will correlate positively with career satisfaction.
Hypothesis 8b: Motivation to develop leadership will correlate positively with career satisfaction.
Hypothesis 8c: Motivation to develop leadership will have incremental validity for predicting career satisfaction above and beyond motivation to lead.

Although the discussion above outlines relationships involving motivational variables and intrinsic success, it seems likely that there also may be a relationship between objective and intrinsic success, and that motivational constructs could play a moderating role in that relationship.

Moderating role of motivation on relationship between objective and intrinsic success.
Judge et al. (1995) suggested that objective success will positively predict subjective career success. Research has shown that extrinsic outcomes such as pay and promotion opportunities affect job and career attitudes (e.g., Gattiker & Larwood, 1988; Locke, 1976). Those who receive more pay and promotions should be more satisfied with their jobs and careers. We should therefore expect those types of relationships to exist in the present research as well (i.e., correlations between job/career satisfaction and promotions, increased pay, and leadership responsibility). However, in the context of studying motivation to lead and motivation to develop leadership in the present research, it seems likely that these constructs could play a role in the relationship between an outcome such as increased leadership responsibility and job or career satisfaction. We specifically delineated between increased leadership responsibility and other forms of extrinsic career success such as promotions and pay increase. In the context of the present research, increased leadership responsibility should receive explicit attention. Although there is reason from the literature to expect a positive relationship between increased leadership responsibility and higher job and career satisfaction, it seems likely in the theoretical context of the current research that this will depend upon one's motivation to lead and one's motivation to develop leadership capability. To the extent that one's leadership responsibilities are increased and one has a high motivation to lead or motivation to develop leadership, this should result in favorable outcomes (higher satisfaction). To the extent that one does not have a high motivation to lead or high motivation to develop leadership, then increased leadership responsibility should not lead to increased satisfaction to the same extent as it does for those with high motivation.

Hypothesis 9a: Motivation to lead will moderate the relationship between increased leadership responsibility and job satisfaction: The relationship will be more strongly positive when motivation to lead is higher.

Hypothesis 9b: Motivation to develop leadership will moderate the relationship between increased leadership responsibility and job satisfaction: The relationship will be more strongly positive when motivation to develop leadership is higher.

Hypothesis 10a: Motivation to lead will moderate the relationship between increased leadership responsibility and career satisfaction: The relationship will be more strongly positive when motivation to lead is higher.

Hypothesis 10b: Motivation to develop leadership will moderate the relationship between increased leadership responsibility and career satisfaction: The relationship will be more strongly positive when motivation to develop leadership is higher.

Investigation 3 Method

Samples and Survey Administration

Three weeks after we contacted the 750 individuals who were still active in the Study-Response database at the 1 year follow-up measurement (T3) described in Investigation 2, we initiated two other data collections involving the supervisors and coworkers of these respondents. These same 750 active users were sent recruitment notices to solicit the involvement of their supervisors and coworkers in Investigation 3. That is, recruitment notices for the supervisor sample data collection were sent 3 weeks after the recruitment of the respondent sample in the third wave of Investigation 2. The email asked the respondent to solicit his or her supervisor's participation in the study, where the supervisor would complete a short, confidential survey about the respondent's leadership-relevant behavior. A preview of the survey content was provided. Interested respondents forwarded the survey information to their supervisors, which included an ID number that was used to link the respondent data with the supervisor data. Reminders were sent to the respondent after the second and third week if the supervisor had not completed the survey at those times. The respondents received one entry into a drawing for a \$50 gift certificate if their supervisor participated in the study. Fifteen gift certificates were awarded overall. We did not directly provide compensation to the supervisors for their participation. This process resulted in a total of 151 completed surveys from the "supervisor sample." The demographic data of the supervisors are presented in Table 16. The mean age of the supervisors was 45.92 (SD = 9.91) years. In terms of gender and race, 74 were female and 77 were male, 131 were Caucasian, 9 were African American, 4 were Hispanic, 5 were Asian or Pacific Islander, and 2 listed themselves as "other." They had supervised their subordinate (i.e., the Investigation 2 respondent) for a mean of 5.02 (SD = 5.06) years.

Three weeks after the start of the supervisor data collection, we sent recruitment notices for the coworker sample data collection. The recruitment approach was similar to the supervisor sample, except that the respondents were asked to solicit participation from their coworkers. A coworker was defined as "someone with whom you work who has observed your work behavior, but not your supervisor and not someone that you supervise." The recruitment letter stated that the coworker will be asked to provide information about the respondent's leadership-relevant behavior, and a preview of the survey was provided in the letter. All other aspects of the recruitment and survey administration process were identical to the supervisor sample data collection, including the incentive structure. The only other difference was the content of the actual survey. We received 165 completed surveys from the "coworker sample." The coworkers had a mean age of 42.82 (SD = 10.63) years. Of those who provided demographic data on gender and race, 89 were female and 72 were male, 137 were Caucasian, 7 were African American, 8 were Hispanic, 9 were Asian or Pacific Islander, and 3 listed themselves as "other." The coworkers reported working with the Investigation 2 respondent for a mean of 5.56 (SD = 5.12) years. The demographic composition of the coworkers is summarized in Table 17.

Table 16
Demographic Description of Investigation 3 Supervisor Sample (N = 151)

Variable	M	SD
Age	45.92	9.91
Years Supervising the Investigation 2 Respondent	5.02	5.06
	n	%
Gender		
Female	74	49.0
Male	77	51.0
Race		
Caucasian	131	86.8
African American	9	6.0
Hispanic	4	2.6
Asian/Pacific Islander	5	3.3
Other	2	1.3

Table 17
Demographic Description of Investigation 3 Coworker Sample (N = 165)

Variable	M	SD
Age	42.82	10.63
Years Working With the Investigation 2 Respondent	5.56	5.12
	n	%
Gender		
Female	89	53.9
Male	72	43.6
No Response	4	2.4
Race		
Caucasian	137	83.0
African American	7	4.2
Hispanic	8	4.8
Asian/Pacific Islander	9	5.5
Other	3	1.8
No Response	1	0.6

In addition to these two additional data collections involving supervisors and coworkers of respondents, at the end of the T3 survey in Investigation 2 described above, we also collected the leadership performance and career success data from respondents in that “full research sample” from Investigation 2 (N=375) to be compared to that collected from supervisors and coworkers as the focus of Investigation 3. Those measures for respondents (collected at T3 in Investigation 2), supervisors, and coworkers (the latter two collected in the present Investigation 3 data collection) will be presented below.

Self Ratings of Leadership Performance

At T3 of Investigation 2, we asked the respondents to rate themselves on three types of leadership behavior. The first scale measured the respondent’s leadership performance over the past year, the second scale measured the respondent’s leadership development over the past year, and the third scale measured the respondent’s potential to be a better leader. Each type of behavior was assessed by 3 items using 9-point response scales. A sample item from the performance scale was: “Please rate your own past leadership behavior, according to what you have done in the past year or so, using the following 9-point scale. Your own past leadership behavior is as follows:” (9 = Demonstrated the absolute best leadership behavior I have ever seen, 5 = Demonstrated typical leadership behavior I have seen, 1 = Demonstrated the absolute worst leadership behavior I have ever seen). A sample item from the development scale was: “Please rate the extent to which your leadership talent or capability developed or increased in the past year or so using the following 9-point scale. Your own leadership talent or capability has developed or increased as follows:” (9 = Demonstrated the absolute highest amount of development or increase I have ever seen, 5 = Demonstrated a typical amount of development or increase, 1 = Demonstrated no development or increase). A sample item from the potential scale was: “Please rate your own overall potential for a more significant leadership role than you have now within your organization using the following 9-point scale. Your own potential for a more significant leadership role than you have now:” (9 = Absolute highest potential for a more significant leadership role, 5 = Typical potential for a more significant leadership role, 1 = Lowest potential for a more significant leadership role).

The nine items were entered into a confirmatory factor analysis to test a 3-factor measurement model. The three scales described above (performance, development, potential) each represented its own factor, with each factor consisting of three items. The results showed good fit for the three-factor model (CFI = .99; RMSEA = .06; SRMR = .03).

Self-Provided Measures of Career Success: Extrinsic

At T3 of Investigation 2, the respondents reported the extent to which they received two types of extrinsic outcomes over the past year. Both types of extrinsic outcome were measured with a single item. First, they reported the size of pay increase in total compensation from their job over the past year (considering total of salary, bonus, stock options, and other forms of compensation). The pay raise percentage responses were in one of seven different categories: 0%, 1-2%, 3-4%, 5-6%, 7-8%, 9-10%, greater than 10%. Participants also reported the number of promotions (upward changes in job levels) received or offered over the past year: 0, 1, 2, greater than 2.

Self-Provided Measure of Increased Leadership Responsibility

At T3 of Investigation 2, the participants rated the extent to which their leadership responsibilities were expanded over the past year, whether at the same level job or a higher level job (i.e., increase in number of people supervised, size of team or department, etc.). Responses were made on a 7-point scale, ranging from None (0) to An Extreme Amount (6).

Self-Ratings of Career Success: Intrinsic

At T3 of Investigation 2, the measures of intrinsic success included job satisfaction and career satisfaction. The job satisfaction measure consisted of three items that were adapted from prior studies (Boudreau et al., 2001; Judge et al., 1995). The first item was an adapted Gallup Poll measure of job satisfaction, which asked the respondent to indicate a “yes” or “no” response to this question: “All things considered, were you satisfied with your job during the prior year?” The second item was the adapted job-in-general scale that asked the participants: “How satisfied were you with your job in general during the prior year?” The response scale ranged from Very Dissatisfied (1) to Very Satisfied (5). The third item was the adapted version of the Fordyce Percent Time Satisfied Item. For this item, participants reported the percent time they were happy, neutral, and unhappy with their job on average during the prior year, though only the percent happy figure is used. Because the three items used different response formats, they were standardized before being combined into a single job satisfaction composite.

The second intrinsic outcome was career satisfaction. This was an adapted five-item scale developed by Greenhaus et al. (1990) and used by Judge et al. (1995) and Boudreau et al. (2001). Participants rated the extent to which they were satisfied with various aspects of their career over the past year, including achieving career success, meeting overall career goals, meeting income goals, meeting advancement goals, and meeting goals related to the development of new skills. A sample item was: “I am satisfied with the success I have achieved in my career over the past year.” The response scale ranged from Strongly Disagree (1) to Strongly Agree (5).

A confirmatory factor analysis was done to test a two-factor measurement model. For the job satisfaction factor, we used the three standardized scores as indicators. For the career satisfaction factor, we used the five items as indicators. The two-factor model was supported (CFI = .98; RMSEA = .07; SRMR = .03).

Supervisor Ratings of Respondent Leadership Behavior

At the outset of Investigation 3, the supervisors rated the respondents on leadership performance, development, and potential over the past year. The same items and response scales from the self (respondent) sample were used, except that the instructions and items were written in the third person perspective. For example, the sample item from the performance scale stated: “Please rate this person’s past leadership behavior, according to what you have observed in the past year or so, using the following 9-point scale. This person’s past leadership behavior is as follows:” (9 = Demonstrated the absolute best leadership behavior I have ever seen, 5 = Demonstrated typical leadership behavior I have seen, 1 = Demonstrated the absolute worst leadership behavior I have ever seen). The confirmatory factor analysis showed good fit for the three-factor

model, with items from the three scales forming a performance factor, development factor, and potential factor (CFI = .98; RMSEA = .09; SRMR = .02).

Supervisor-Provided Measures of Career Success: Extrinsic & Increased Leadership Responsibility

We asked the supervisors to report the extrinsic outcomes that their subordinate (i.e., the respondent) received over the past year. The same items and response format from the self sample were used, except that the items were written in the third person perspective. Thus, the supervisor provided information about the subordinate on three items, including the subordinate's percent pay raise, expansion of the subordinate's leadership responsibility, and number of promotions received by the subordinate over the past year. For the pay raise and promotions variables, the same categories were used: pay raise (0%, 1-2%, 3-4%, 5-6%, 7-8%, 9-10%, greater than 10%), number of promotions (0, 1, 2, greater than 2).

Coworker Ratings of Respondent Leadership Behavior

As part of the Investigation 3 data collection, the coworkers of respondents completed the leadership behavior scales. The same items and response scales from the self sample were used, though the items were adapted to be in the third person. Thus, the coworkers rated the respondent on 3 items from the leadership performance scale, 3 items from the leadership development scale, and 3 items from the leadership potential scale. A confirmatory factor analysis supported the three-factor model (CFI = .98; RMSEA = .10; SRMR = .02).

Creating Composite Score for Behavior Ratings

As is often the case in behavior/performance ratings, we noticed that the scale scores from the three dimensions of behavior ratings (performance, development, potential) were highly correlated (.70s to .80s). This was true regardless of whether the rating source was the self, the supervisor, or a coworker. As a result, we explored the viability of creating an overall composite score for behavior ratings that would combine the three dimensions into a single score. A confirmatory factor analysis was done to test a three-factor model, where each factor represented a different rating source (respondent, supervisor, coworker), and each factor consisted of the three dimension scores as indicators (performance, development, potential). The confirmatory factor analysis resulted in good model fit (CFI = .97; RMSEA = .11; SRMR = .03). In the interest of reducing complexity and increasing parsimony, we combined the three dimensions into a single composite for each source. Thus, we created an overall leadership behavior composite for the self sample, the supervisor sample, and the coworker sample.

Investigation 3 Results

We compared motivation to develop leadership to motivation to lead in relation to career success variables in the respondent sample (n=375), the supervisor sample (n=151), and the coworker sample (n=165). We examined the correlations between motivation to lead and motivation to develop leadership with the other outcome variables (e.g., pay raise, promotions), we compared the incremental predictive validity of motivation to lead and motivation to develop leadership,

and we explored motivation to lead and motivation to develop leadership as potential moderators in the relationship between leadership responsibility and job and career satisfaction.

Comparing Motivation to Lead and Motivation to Develop Leadership in Predicting Leadership Performance and Career Success

In this section, we present the relationships between motivation to lead and motivation to develop leadership with the career success variables. These variables include the overall leadership behavior composite, extrinsic outcomes, and intrinsic outcomes. The results are reported separately for each source of data (self, supervisor, and coworker) where appropriate.

Bivariate correlations. Tables 18, 19, and 20 provide the means, standard deviations, and intercorrelations among motivation to lead, motivation to develop leadership, and the career success variables within each sample. The reliabilities are shown on the diagonal.

For the self sample, motivation to develop leadership had significant positive relationships with each of the outcome variables, including overall leadership behavior, number of promotions, pay raise, expanded leadership responsibilities, job satisfaction, and career satisfaction. Motivation to lead was significantly and positively related to all but one of the outcome variables; it had no significant relationship with job satisfaction. These results support Hypotheses 1, 2, 4a, 4b, 5a, 5b, 6a, 6b, 7b, 8a, and 8b (but not Hypothesis 7a) in the self sample. In the supervisor sample, respondent motivation to develop leadership was positively related to overall leadership behavior (Hypothesis 2) as rated by supervisors, number of promotions (Hypothesis 4b) as indicated by supervisors, and expanded leadership responsibilities (Hypothesis 6b) as rated by supervisors, whereas the relationship with pay raise (Hypothesis 5b) was not significant. Motivation to lead was not related to any of the outcome variables in this sample. Thus, Hypotheses 1, 4a, 5a, 6a, 7a, and 8a were not supported for motivation to lead in the supervisor sample. Finally, the coworker sample had a significant positive relationship between respondent motivation to develop leadership and overall leadership behavior (Hypothesis 2) as rated by coworkers. In contrast, motivation to lead was not related to overall leadership behavior (Hypothesis 1) as rated by the coworker. Thus, in comparison to motivation to lead, motivation to develop leadership more consistently predicted the outcome variables across the three samples.

Table 18

Means, Standard Deviations, and Intercorrelations Among Motivation and Career Success Variables—Full Research (Self) Sample (N = 375)

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11
1. MTL	3.35	.54	.92										
2. MTDL	3.71	.77	.46	.98									
3. Performance	6.22	1.39	.36	.33	.94								
4. Development	6.21	1.51	.30	.38	.78	.94							
5. Potential	6.41	1.48	.39	.36	.71	.77	.86						
6. Overall Behavior	6.28	1.33	.38	.39	.90	.93	.91	.97					
7. Pay Raise	3.86	2.13	.12	.17	.21	.30	.27	.29	–				
8. Responsibilities	2.51	1.67	.25	.26	.43	.50	.50	.52	.37	–			
9. Promotions	1.47	.74	.16	.20	.31	.34	.33	.35	.35	.40	–		
10. Job Satisfaction	0.00	.89	.09	.12	.15	.17	.13	.16	.17	.19	.04	.87	
11. Career Satisfaction	3.63	1.02	.17	.24	.29	.29	.22	.29	.27	.29	.21	.63	.93

Note. MTL = motivation to lead; MTDL = motivation to develop leadership.

* $p < .05$ for $r > .10$. ** $p < .01$ for $r > .13$. *** $p < .001$ for $r > .16$.

Table 19

Means, Standard Deviations, and Intercorrelations Among Motivation and Career Success Variables—Supervisor Sample (N = 151)

Variable	M	SD	1	2	3	4	5	6	7	8	9
1. MTL	3.37	.54	.92								
2. MTDL	3.77	.81	.41	.98							
3. Performance	6.68	1.37	.10	.20	.95						
4. Development	6.66	1.42	.02	.23	.87	.95					
5. Potential	6.92	1.46	.06	.23	.84	.88	.93				
6. Overall Behavior	6.75	1.35	.06	.23	.95	.96	.95	.98			
7. Pay Raise	3.76	2.10	-.03	.13	.24	.17	.21	.22	–		
8. Responsibilities	3.12	1.51	-.01	.17	.48	.45	.45	.48	.38	–	
9. Promotions	1.64	.79	-.02	.18	.27	.30	.29	.30	.42	.31	–

Note. MTL = motivation to lead; MTDL = motivation to develop leadership.

* $p < .05$ for $r > .16$. ** $p < .01$ for $r > .20$. *** $p < .001$ for $r > .26$.

Table 20

Means, Standard Deviations, and Intercorrelations Among Motivation and Leadership Performance Variables—Coworker Sample (N = 165)

Variable	M	SD	1	2	3	4	5	6
1. MTL	3.34	.53	.91					
2. MTDL	3.76	.81	.38	.98				
3. Performance	6.69	1.44	.12	.19	.95			
4. Development	6.57	1.64	.06	.23	.80	.95		
5. Potential	6.89	1.66	.15	.25	.79	.87	.94	
6. Overall Behavior	6.72	1.48	.12	.24	.91	.95	.95	.98

Note. MTL = motivation to lead; MTDL = motivation to develop leadership.

* $p < .05$ for $r > .15$. ** $p < .01$ for $r > .19$. *** $p < .001$ for $r > .25$.

Comparing incremental variance. We compared the amount of incremental variance explained by motivation to lead and motivation to develop leadership in predicting the outcome variables within each sample. The results of these analyses are presented in Tables 21-23. As shown in Table 21, motivation to develop leadership accounted for significant incremental variance over motivation to lead in predicting overall leadership behavior, number of promotions, pay raises, expanded leadership responsibilities, and career satisfaction in the self sample. In contrast, motivation to lead showed significant incremental variance over motivation to develop leadership in predicting only two of the outcomes: overall leadership behavior and expanded leadership responsibilities. Moreover, the amount of incremental variance explained by motivation to lead in predicting these two variables was less than the amount of incremental variance accounted for by motivation to develop leadership. Thus, Hypotheses 3, 4c, 5c, 6c, and 8c were supported for the self sample. In the supervisor sample (see Table 22), motivation to develop leadership significantly predicted overall leadership behavior, number of promotions, and increased leadership responsibilities over and above motivation to lead. The incremental variance of motivation to lead was not significant for any of the outcomes in this sample. These results are consistent with Hypotheses 3, 4c, and 6c in the supervisor sample. Similarly, the coworker sample (see Table 23) showed that only motivation to develop leadership had significant incremental variance in predicting overall leadership behavior (Hypothesis 3). In sum, motivation to develop leadership seems to be the stronger and more unique predictor of leadership behavior, extrinsic outcomes, and intrinsic outcomes compared to motivation to lead.

Table 21

Incremental Variance of Motivational Variables Over One Another in Predicting Career Success—Self Sample (N = 375)

Predictors	Composite leadership performance	Pay raise	Increased leadership responsibility	Promotions	Job satisfaction	Career satisfaction
Incremental R ²						
MTDL over MTL	.06***	.02*	.03**	.02**	.01	.03***
MTL over MTDL	.05***	.00	.02**	.01	.00	.01
Regression Coefficients (β)						
MTDL	.28***	.14*	.18**	.16**	.10	.20***
MTL	.26***	.06	.16**	.09	.04	.08

Note. MTL = motivation to lead; MTDL = motivation to develop leadership.

Regression coefficients represent standardized coefficients with both predictors entered into the regression.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 22

Incremental Variance of Motivational Variables Over One Another in Predicting Career Success—Supervisor Sample (N = 151)

Predictors	Composite leadership performance	Pay raise	Increased leadership responsibility	Promotions
Incremental R ²				
MTDL over MTL	.05**	.02	.04*	.05**
MTL over MTDL	.00	.01	.01	.01
Regression Coefficients (β)				
MTDL	.24**	.17	.22*	.23**
MTL	-.04	-.11	-.10	-.12

Note. MTL = motivation to lead; MTDL = motivation to develop leadership.

Regression coefficients represent standardized coefficients with both predictors entered into the regression.

* $p < .05$. ** $p < .01$.

Table 23

Incremental Variance of Motivational Variables Over One Another in Predicting Leadership Performance—Coworker Sample (N = 165)

Predictors	Composite leadership performance
Incremental R ²	
MTDL over MTL	.04**
MTL over MTDL	.00
Regression Coefficients (β)	
MTDL	.23**
MTL	.03

Note. MTL = motivation to lead; MTDL = motivation to develop leadership.

Regression coefficients represent standardized coefficients with both predictors entered into the regression.

** $p < .01$.

Examining the Moderating Role of Motivation on the Relationship Between Expanded Leadership Responsibility and Job/Career Satisfaction

We examined whether motivation to lead and motivation to develop leadership moderated the relationship between self-reported expanded leadership responsibilities and job and career satisfaction. Separate regression analyses were done for motivation to lead and motivation to develop leadership. For each regression, the predictor and moderator were entered into the first step, and the interaction term was entered into the second step. The additional variance explained by the interaction term was examined to determine if a moderated effect was present. As shown in Table 24, both motivation to lead and motivation to develop leadership moderated the positive relationship between expanded leadership responsibilities and job satisfaction. Figures 7 and 8 illustrate the nature of these effects. The figures show that the relationship between leadership responsibility and job satisfaction was stronger when the respondent had a higher motivation to be a leader. Likewise, the relationship was stronger when the respondent had a higher motivation to develop his or her leadership capability. These interaction patterns are consistent with Hypotheses 9a and 9b. Contrary to Hypotheses 10a and 10b, no interaction effect was observed for career satisfaction.

Table 24

Moderated Regression Analysis: Motivation as Moderator of Increased Leadership Responsibilities, Satisfaction Relationships—Self Sample (N = 375)

Step	β	R ²	ΔR^2	F	ΔF
MTL as Moderator (DV: Job Satisfaction)					
Responsibilities	.18***	.04	.04	7.60***	7.60***
MTL	.04				
Responsibilities	-.81**	.07	.03	9.24***	12.08***
MTL	-.20*				
Responsibilities x MTL	1.10***				
MTDL as Moderator (DV: Job Satisfaction)					
Responsibilities	.18***	.04	.04	8.20***	8.20***
MTDL	.07				
Responsibilities	-.34	.05	.01	7.13***	4.81*
MTDL	-.09				
Responsibilities x MTDL	.59*				
MTL as Moderator (DV: Career Satisfaction)					
Responsibilities	.26***	.09	.09	19.05***	19.05***
MTL	.11*				
Responsibilities	-.22	.10	.01	13.75***	2.95
MTL	-.01				
Responsibilities x MTL	.53				
MTDL as Moderator (DV: Career Satisfaction)					
Responsibilities	.24***	.11	.11	23.16***	23.16***
MTDL	.18***				
Responsibilities	.49*	.11	.00	15.83***	1.16
MTDL	.25**				
Responsibilities x MTDL	-.28				

Note. MTL = motivation to lead; MTDL = motivation to develop leadership.

* $p < .05$. ** $p < .01$. *** $p < .001$.

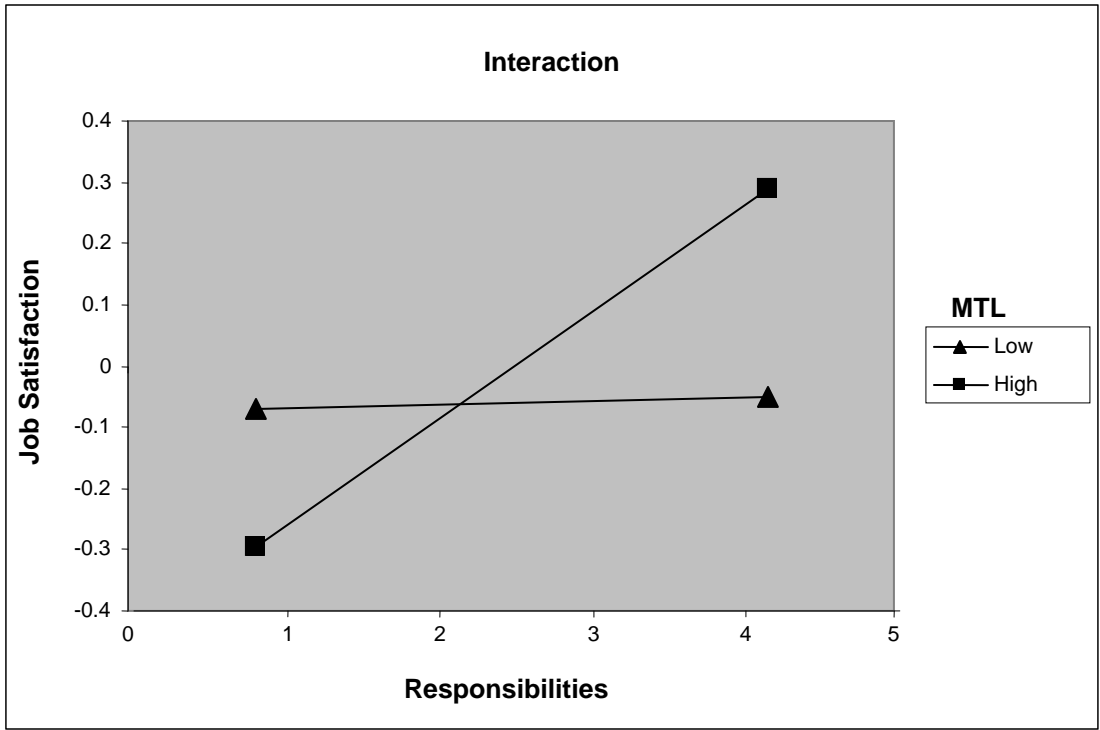


Figure 7. Interaction of responsibilities and MTL in predicting job satisfaction.

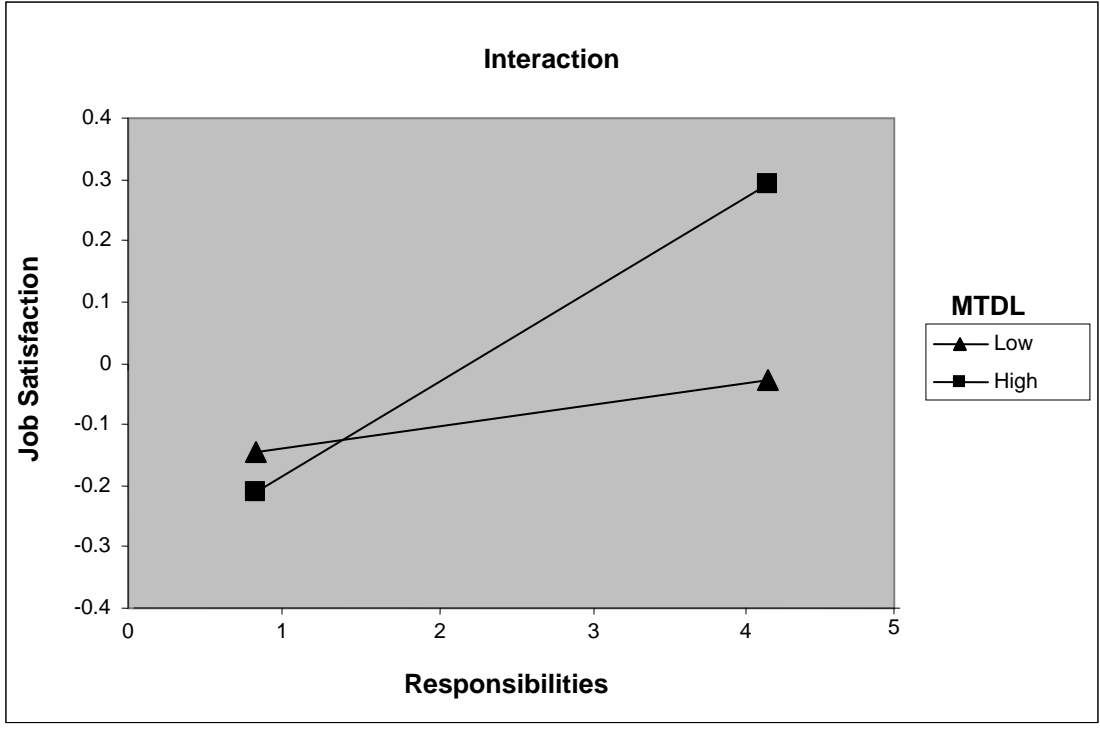


Figure 8. Interaction of responsibilities and MTDL in predicting job satisfaction.

Investigation 3 Discussion

The present research suggests an important dimension to consider in understanding and predicting career success. Differences in workers' motivation to develop leadership capability was generally better than differences in motivation to lead at predicting outcomes such as leadership performance (as rated by supervisors and coworkers), increases in pay, increases in leadership responsibility, promotions, and career satisfaction. Although conventional wisdom, as well as prior research, would suggest that the motive to be in leadership roles will predict ascendancy, success, and similar outcomes, the present investigation suggests that the motive to enhance and improve leadership capabilities should be an even stronger predictor of these types of career outcomes. The prior research and theory discussed in this report suggest that such a development-oriented motivational mindset may be more adaptive and may lead to longer-term success compared to only motivation to lead. This suggests that the motivation to develop leadership capability is a worthwhile construct for predicting not only leadership development activity, which is an important behavior to understand in and of itself, but is useful also in relation to these other key job and career outcomes: leadership performance, ascendancy, and satisfaction. The data from not only the respondents themselves, but also supervisors and coworkers, bolster this conclusion. These are important and valuable additions to the leadership and leadership development literature.

This investigation also suggested that the motivation to lead and motivation to develop leadership may play a role in the effect that increased leadership responsibility may have on job satisfaction experienced by workers. The idea that all workers want to "get ahead" pervades conventional wisdom, and relationships between extrinsic indicators of success, such as pay and promotions, are established in the literature. However, what is less clear and not previously studied is whether adding leadership responsibility to someone's job will make them more satisfied. Conventional wisdom would suggest being promoted to being a leader of a group would be received favorably; however, the present research emphasizes differences in the motive to be a leader and to develop leadership. This research illustrated that these motives make a difference in the effect that increased leadership responsibility has on job satisfaction: Those who had high motivation to lead or motivation to develop leadership responded more favorably to increased leadership responsibility over the following year in terms of their job satisfaction. This suggests that these motives should receive explicit attention in relation to job redesign, promotions, and leadership development efforts. Especially where concerns about job satisfaction of workers are especially valued by the organization, these results would seem to have the greatest implications.

General Summary and Discussion

The three investigations conducted in this research provided several new and very important additions to the literature on leadership and leadership development. The concepts measured in this research (motivation for leadership development) are indeed distinguishable from motivation to lead and other constructs, and motivation to develop leadership provides utility above and beyond motivation to lead in relation to leadership development behavior. This is a key finding because the Army and other organizations will rely heavily on effective leadership development to reach organizational goals in the coming decades. Investments in leadership development are very expensive and growing (Ready & Conger, 2003). Given the increasing need to develop leadership talent (The Conference

Board, 2005), it is important to maximize understanding of leadership development behavior as well as identify new tools that may facilitate the development process. The measures developed in the present research are offered as a tool for use in future research and practice involving leadership development. Given their validity in relation to development behavior, and also for predicting leadership performance as well as career success (ascendancy and satisfaction constructs), the measures seem to have real promise.

In fact, the validity of the new measures was supported by a wide variety of data across the three investigations (i.e., psychometric, factor analytic, test-retest, convergent and discriminant validity, path models, validity investigations involving performance and career success, and multiple sources of data including self, supervisors, and coworkers). All of the data provide a very good foundation upon which to base the conclusion that these constructs and measures have unique and worthwhile value in leadership development, leadership performance, and career success.

The leadership development activity models tested here suggested that the motivation to develop leadership construct likely carries variance from not only motivation to lead, but also many other constructs that precede motivation to develop leadership in the model. This and other investigations suggest that employee and leadership development behavior is multifaceted and complex, occurring because of a wide variety of causes (both individual and situational). These results provide insight regarding the constructs that should influence motivation to develop leadership. The results of these investigations suggest that the Army and other organizations should not assume that everyone is equally motivated to develop their leadership skills nor that those who want to be leaders want to develop leadership talent. The Army and other organizations might use these measures as diagnostic tools prior to investing in leadership development or to select individuals who will be most likely to succeed in roles that will demand development and leader ascendancy in the organization. Organizations also may use the present results as a guide in efforts to change or impact the motivation to develop leadership skills among members of the organization. The models and relationships provide clear ideas for which constructs (individual and situational) influence motivation to develop leadership. We next discuss additional applied work that might be done using these newly-developed constructs and measures.

Possible Additional Applied Research in Areas Addressed by ARI

The results of the basic research described above established that the assessment methods have adequate psychometric characteristics and properties. In addition, through the interrelationships of the new variables, along with their relationships with traditional and existing variables, the construct validity of the new measures was established. Further, their predictive validity in relation to important performance, behavioral, and career outcomes was demonstrated. Given the promising validity data presented in this research, it seems that additional applied research could be conducted in key areas addressed by ARI. Generally, this applied research could fall into two categories: (1) further individual difference predictive studies, and (2) experimental research in which manipulations are used.

First, the constructs and associated assessment methods could be used as predictors of performance, motivation, development, and adaptability in Army training and field settings (Boyce, 2005). To the extent that these measures predict effectiveness in adapting to leadership

roles and learning and developing necessary skills, these tools might be used in selection and placement within the Army to identify those individuals who will likely most benefit from leadership training and who are most likely to take initiative to continually develop and improve leadership relevant characteristics in themselves. These individual difference constructs and assessment tools might be explored in applied research for relationships with key behavioral and performance criteria relevant to leadership, leadership development, and learning in practical Army or other organizational settings. As part of this effort, alternative measurement formats might be explored for testing individual differences in the motivational constructs (such as forced choice, paired comparison response formats, and so on).

There is a second type of applied research that could be done in key areas addressed by ARI. Research might be done on ways of influencing these constructs in Army personnel to improve motivation for leadership development. For example, variables such as self-efficacy are subject to enhancement through mastery experiences, persuasion, modeling, or vicarious learning (Bandura, 1997). Self-efficacy for development also might be influenced through these types of tactics (Maurer, 2001). For example, some research has manipulated expectations for military personnel and found effects for increasing self-efficacy (cf. Eden, 1992). Applied research might be conducted to determine whether self-efficacy for leadership development can be influenced, and whether this enhances motivation for development of leadership skills and subsequent development and leader performance. Prior research and theory suggests that this should be possible (Bandura, 1997; Eden, 1992; Maurer, 2001).

It also should be possible to conduct applied research on ways in which beliefs about improvability of leadership skills can be influenced. Wood and Bandura (1989), Martocchio (1994), and Heslin and Latham (2004) all affected individuals' conceptions of ability. Heslin and Latham (2004) found that individuals who had low improvability beliefs increased their improvability beliefs through a workshop in which they used various manipulations to affect improvability beliefs. It would be interesting to determine if influences on beliefs about improvability of leadership skills have a subsequent influence on motivation to develop leadership skills and attributes as people increasingly believe that it is possible to develop and improve specific characteristics. Perhaps in an Army context, techniques from this prior research could be explored in several ways. For example, leaders could offer true testimonials to new recruits or potential leaders of how they developed specific leadership competencies or improved through effort and development the specific qualities that were important to them as leaders. If they convey a sense, through true stories or testimonials, that it is possible to improve and develop leadership qualities, this might help to shift beliefs that it is possible to develop leadership skills, and indirectly enhance leadership development motivation. Other strategies might include providing small-scale experiences at developing leadership-relevant skills (e.g., mini-training). As individuals observe their own improvement, this may help to persuade them that improvement on leadership attributes is possible. Because research has shown that training can successfully improve leadership (cf. Agboola, 1997; Barling et al., 1996; Doh, 2003; Frese et al., 2003), it might be possible to report the results of this type of research to bolster the impact of the testimonials/stories, persuasion, and personal experiences. Prior research found that providing experimental participants with reports of scientific research reflecting the fact that people can change had the effect of changing the participants' beliefs about the extent to which it was possible to change personal qualities (cf. Chiu et al., 1997).

Thus, given the promising findings of the present basic research, additional applied research could follow. Overall, the results of the three investigations reported here suggest that the measures have considerable promise and that the constructs underlying motivation to develop leadership capability have unique theoretical and practical value.

References

- Agboola, S. (1997). Impact of training on leadership development: Lessons from a leadership training program. *Evaluation Review*, *21*, 713–737.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*, 179–211.
- Akaike, H. (1987). Factor analysis and AIC. *Psychometrika*, *52*(3), 317–332.
- Alderfer, C. (1972). *Existence, relatedness, and growth: Human needs in organizational settings*. New York: Free Press.
- Ames, C., & Archer, J. (1987). Achievement goals in the classroom: Students' learning strategies and motivation processes. *Journal of Educational Psychology*, *80*, 260–267.
- Avolio, B. J., Bass, B. M., & Jung, D. I. (1999). Re-examining the components of transformational and transactional leadership using the Multifactor Leadership Questionnaire. *Journal of Occupational and Organizational Psychology*, *72*, 441–462.
- Bagozzi, R. P., & Edwards, J. R. (1998). A general approach for representing constructs in organizational research. *Organizational Research Methods*, *1*, 45–87.
- Bagozzi, R. P., & Heatherton, T. F. (1994). A general approach to representing multifaceted personality constructs: Application to state self-esteem. *Structural Equation Modeling*, *1*, 35–67.
- Bandalos, D. L., & Finney, S. J. (2001). Item parceling issues in structural equation modeling. In G. A. Marcoulides & R. E. Schumacker (Eds.), *New developments and techniques in structural equation modeling* (pp. 269–296). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: W. H. Freeman.
- Barling, J., Weber, T., & Kelloway, E. (1996). Effects of transformational leadership training on attitudinal and financial outcomes: A field experiment. *Journal of Applied Psychology*, *81*, 827–832.
- Barrick, M. R., & Mount, M. K. (1991). The Big Five personality dimensions and job performance: A meta-analysis. *Personnel Psychology*, *44*, 1–26.
- Barrick, M., Mount, M., & Strauss, J. (1993). Conscientiousness and performance of sales representatives: Test of the mediation effects of goal setting. *Journal of Applied Psychology*, *78*, 715–722.

- Beaubien, J. M., & Payne, S. C. (1999). *Individual goal orientation as a predictor of job and academic performance: A meta-analytic review and integration*. Paper presented at the annual meeting of the Society for Industrial and Organizational Psychology, Atlanta, GA.
- Best, S., Krueger, B., Hubbard, C., & Smith, A. (2001). An assessment of the generalizability of Internet surveys. *Social Science Computer Review, 19*, 31–145.
- Birdi, K., Allan, C., & Warr, P. (1997). Correlates and perceived outcomes of four types of employee development activity. *Journal of Applied Psychology, 82*, 845–857.
- Borman, W. C., & Brush, D. H. (1993). More progress toward a taxonomy of managerial performance requirements. *Human Performance, 6*, 1–21.
- Boudreau, J., Boswell, W., & Judge, T. (2001). Effects of personality on executive career success in the United States and Europe. *Journal of Vocational Behavior, 58*, 53–81.
- Boyce, L., Wisecarver, M., & Zaccaro, S. (2005). *Understanding, predicting, and supporting leader self-development* (ARI Technical Report 1173). Arlington, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.
- Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 136-162). Newbury Park, CA: Sage.
- Butler, R. (1987). Task-involving and ego-involving properties of evaluation: Effects of different feedback conditions on motivational perceptions, interest, and performance. *Journal of Educational Psychology, 79*, 474–482.
- Bycio, P., Hackett, R. D., & Allen, J. S. (1995). Further assessments of Bass's (1985) conceptualization of transactional and transformational leadership. *Journal of Applied Psychology, 80*, 468–478.
- Byrne, B. M. (1998). *Structural equation modeling with LISREL, PRELIS, and SIMPLIS: Basic concepts, applications, and programming*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Cannings, K., & Montmarquette, C. (1991). Managerial momentum: A simultaneous model of the career progress of male and female managers. *Industrial and Labor Relations Review, 44*, 212–228.
- Carless, S. A. (1998). Assessing the discriminant validity of transformational leader behaviour as measured by the MLQ. *Journal of Occupational and Organizational Psychology, 71*, 353–358.
- Chan, K., & Drasgow, F. (2001). Toward a theory of individual differences and leadership: Understanding the motivation to lead. *Journal of Applied Psychology, 86*, 481–498.

- Chang, L. (2002). A comparison of samples and response quality obtained from RDD telephone survey methodology and Internet survey methodology. *Dissertation Abstracts International: Section B: The Sciences & Engineering*, 628-B, 3845.
- Chiu, C., Hong, Y., & Dweck, C. (1997). Lay disposition and implicit theories of personality. *Journal of Personality and Social Psychology*, 73, 19–30.
- Clark, L. A., & Watson, D. (1991). General affective dispositions in physical and psychological health. In C. R. Snyder & D. R. Forsyth (Eds.), *Handbook of social and clinical psychology* (pp. 241–245). New York: Pergamon.
- Colquitt, J., LePine, J., & Noe, R. (2000). Toward an integrative theory of training motivation: A meta-analytic path analysis of 20 years of research. *Journal of Applied Psychology*, 85, 678–707.
- Colquitt, J., & Simmering, M. (1998). Conscientiousness, goal orientation, and motivation to learn during the learning process: A longitudinal study. *Journal of Applied Psychology*, 83, 654–665.
- Conway, J. M. (2000). Managerial performance development constructs and personality correlates. *Human Performance*, 13, 23–46.
- Cook, L. L., Dorans, N. J., & Eignor, D. R. (1988). An assessment of the dimensionality of three SAT-Verbal test editions. *Journal of Educational Statistics*, 13, 19–43.
- Corporate Leadership Council (2003). *Highlights of effective leadership programs*. Washington, DC: Corporate Executive Board.
- Cortina, C., Zaccaro, S., McFarland, L., Baughman, K., Wood, G., & Odin, E. (2004). *Promoting realistic self-assessment as the basis for effective leader self-development* (ARI Research Note 2004-05). Arlington, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.
- Costa, P. T., Jr., & McCrae, R. R. (1988). Personality in adulthood: A six-year longitudinal study of self-reports and spouse ratings on the NEO Personality Inventory. *Journal of Personality and Social Psychology*, 54, 853–863.
- Cox, C. J., & Cooper, C. L. (1989). The making of the British CEO: Childhood, work experience, personality, and management style. *Academy of Management Executive*, 3, 241–245.
- Day, D. & Halpin, S. (2001). *Leadership development: A review of industry best practices* (ARI Technical Report 1111). Fort Leavenworth, KS: U.S. Army Research Institute for the Behavioral and Social Sciences.
- Doh, J. (2003). Can leadership be taught? Perspectives from management educators. *Academy of Management Learning and Education*, 2, 54–67.

- Doty, H., & Glick, W. (1998). Common methods bias: Does common methods variance really bias results? *Organizational Research Methods, 1*, 374–406.
- Dweck, C. S. (1986). Motivational processes affecting learning. *American Psychologist, 41*(10), 1040–1048.
- Dweck, C. S., Chiu, C., & Hong, Y. (1995). Implicit theories and their role in judgments and reactions: A world from two perspectives. *Psychological Inquiry, 6*, 267–285.
- Dweck, C. S., & Leggett, E. L. (1988). A social cognitive approach to motivation and personality. *Psychological Review, 95*, 256–273.
- Eden, D. (1992). Leadership and expectations: Pygmalion effects and other self-fulfilling prophecies in organizations. *Leadership Quarterly, 3*, 271–305.
- Elliot, A. J., & Church, M. A. (1997). A hierarchical model of approach and avoidance achievement motivation. *Journal of Personality and Social Psychology, 72*, 218–232.
- Elliot, A. J., & Harackiewicz, J. M. (1996). Approach and avoidance achievement goals and intrinsic motivation: A mediational analysis. *Journal of Personality and Social Psychology, 70*, 461–475.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley.
- Fishbein, M., & Ajzen, I. (1981). Acceptance, yielding, and impact: Cognitive processes in persuasion. In R. Petty, T. Ostrom, & T. Brock. (Eds.) *Cognitive responses in persuasion*. Reading, MA: Addison-Wesley.
- Fishbein, M., & Stasson, M. (1990). The role of desires, self-predictions, and perceived control in the prediction of training session attendance. *Journal of Applied Social Psychology, 20*, 173–198.
- Frese, M., Beimeel, S., & Schoenborn, S. (2003). Action training for charismatic leadership: Two evaluations of studies of a commercial training module on inspirational communication. *Personnel Psychology, 56*, 671–697.
- Gattiker, U. E., & Larwood, L. (1988). Predictors for managers' career mobility, success, and satisfaction. *Human Relations, 41*, 569–591.
- Gist, M., & Mitchell, T. (1992). Self-efficacy: A theoretical analysis of its determinants and malleability. *Academy of Management Review, 17*, 183–211.

- Goodwin, V. L., Wofford, J. C., & Whittington, J. L. (2001). A theoretical and empirical extension to the transformational leadership construct. *Journal of Organizational Behavior*, 22, 759–774.
- Gosling, S., Vazire, S., Srivastava, S., & John, O. (2004). Should we trust web-based studies? A comparative analysis of six preconceptions about internet questionnaires. *American Psychologist*, 59, 93–104.
- Greenhaus J. H., Parasuraman S., & Wormley, W. M. (1990). Effects of race on organizational experiences, job performance evaluations, and career outcomes. *Academy of Management Journal*, 33, 64–86.
- Gutteridge, T. G. (1973). Predicting career success of graduate business school alumni. *Academy of Management Journal*, 16, 129–137.
- Harrell, T. W. (1969). The personality of high earning MBA's in big business, *Personnel Psychology*, 22, 457–463.
- Heider, F. (1958). *The psychology of interpersonal relations*. New York: Wiley.
- Heslin, P., & Latham, G. (2004). *The effect of training in self-persuasion on incremental implicit theories*. Presented at the Annual Conference of the Society for Industrial and Organizational Psychology, April, Chicago.
- Howard, A., & Bray, D. (1988). *Managerial lives in transition: Advancing age and changing times*. New York: Guilford Press.
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structural analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6, 1–55.
- International Personality Item Pool (2001). A Scientific Collaboratory for the Development of Advanced Measures of Personality Traits and Other Individual Differences (<http://ipip.ori.org/>). Web Site.
- Jaskolka, G., Beyer, J. M., & Trice, H. M. (1985). Measuring and predicting managerial success. *Journal of Vocational Behavior*, 26, 189–205.
- Judge, T. A., Bono, J. E., Ilies, R., & Gerhardt, M. (2002). Personality and leadership: A qualitative and quantitative review. *Journal of Applied Psychology*, 87, 765–780.
- Judge, T. A., Cable, D. M., Boudreau, J. W., & Bretz, R. D. (1995). An empirical investigation of the predictors of executive career success. *Personnel Psychology*, 48, 485–519.
- Keller, T. (1999). Images of the familiar: Individual differences and implicit leadership theories. *Leadership Quarterly*, 10, 589–607.
- Kelly, G. (1955). *The psychology of personal constructs*. New York: Norton.

- Klecka, W., & Tuchfarber, A. (1978). Random digit dialing: A comparison to personal surveys. *Public Opinion Quarterly*, 42, 105–114.
- Korman, A. K., Wittig-Berman, U., & Lang, D. (1981). Career success and personal failure: Alienation in professionals and managers. *Academy of Management Journal*, 24, 342–360.
- Kraiger, K., Ford, J., & Salas, E. (1993). Application of cognitive, skill-based, and affective theories of learning outcomes to new methods of training evaluation. *Journal of Applied Psychology*, 78, 311–308.
- Kraut, R., Olson, J., Banaji, M., Bruckman, A., Cohen, J., & Couper, M. (2004). Psychological research online: report of Board of Scientific Affairs' Advisory Group on the conduct of research on the Internet. *American Psychologist*, 59, 105–117.
- Lance, C., Butts, M., & Michels, L. (2006). The sources of four commonly reported cutoff criteria: What did they really say? *Organizational Research Methods*, 9(2), 202–220.
- Lim, B., & Ployhart, R. E. (2006). Assessing the convergent and discriminant validity of Goldberg's International Personality Item Pool: A multitrait-multimethod examination. *Organizational Research Methods*, 9, 29–54.
- Little, T., Cunningham, W., Shahar, G., & Widaman, K. (2002). To parcel or not to parcel: Exploring the question, weighing the merits. *Structural Equation Modeling*, 9(2), 151–173.
- Locke, E., & Latham, G. (2004). What should we do about motivation theory? Six recommendations for the twenty-first century. *Academy of Management Review*, 29, 388–402.
- Locke, E. A. (1976). The nature and causes of job satisfaction. In M. D. Dunnette (Ed.), *Handbook of industrial and organizational psychology* (pp. 1297–1343). Chicago: Rand McNally.
- Locke, E. A. (2004). The leader as integrator: The case of Jack Welch at General Electric. In L. Neider and C. Schriesheim (Eds.), *Research in management for information age publishing*, 2 (pp. 1-22). Greenwich, CT: Information Age Publishing, Inc.
- Lockwood, N. R. (2006). *Leadership development: Optimizing human capital for business success*. Alexandria, VA: Society for Human Resource Management.
- London, M., & Stumpf, S. (1982). *Managing careers*. Reading, MA: Addison-Wesley.
- Lowe, K. B., Kroeck, K. G., & Sivasubramaniam, N. (1996). Effectiveness correlates of transformational and transactional leadership: A meta-analytic review of the MLQ literature. *Leadership Quarterly*, 7, 385–425.

- Marsh, H. W., Hau, K., & Wen, Z. (2004). In search of golden rules: Comment on hypothesis-testing approaches to setting cutoff values for fit indexes and dangers in overgeneralizing Hu and Bentler's (1999) findings. *Structural Equation Modeling, 11*, 320–341.
- Martocchio, J., & Judge, T. (1997). Relationship between conscientiousness and learning in employee training: Mediating influences of self-deception and self-efficacy. *Journal of Applied Psychology, 82*, 764–773.
- Martocchio, J. J. (1994). The effects of conceptions of ability on self-efficacy beliefs and learning in training. *Journal of Applied Psychology, 79*, 819–825.
- Maurer, T. (2001). Career-relevant learning and development, worker age, and beliefs about self-efficacy for development. *Journal of Management, 27*, 123–140.
- Maurer, T. (2002). Employee learning and development orientation: Toward an integrative model of involvement in continuous learning. *Human Resource Development Review, 1*, 9–44.
- Maurer, T., & Lippstreu, M. (in press). Expert vs. general working sample differences in KSAO “improvability” ratings and relationships with measures relevant to occupational and organizational psychology. *Journal of Occupational and Organizational Psychology*.
- Maurer, T., Lippstreu, M., & Judge, T. A. (2008). Structural model of employee involvement in skill development activity: The role of individual differences. *Journal of Vocational Behavior, 72*, 336–350.
- Maurer, T., Mitchell, D., & Barbeite, F. (2002). Predictors of attitudes toward a 360-degree feedback system and involvement in post-feedback management development activity. *Journal of Occupational and Organizational Psychology, 75*, 87–107.
- Maurer, T., & Palmer, J. (1999). Management development intentions following feedback: Role of perceived outcomes, social pressures and control. *Journal of Management Development, 18*, 733–751.
- Maurer, T., Pierce, H., & Shore, L. (2002). Perceived beneficiary of employee development activity: A three-dimensional social exchange model. *Academy of Management Review, 27*, 432–444.
- Maurer, T., & Tarulli, B. (1994). Perceived environment, perceived outcome, and person variables in relationship to voluntary development activity by employees. *Journal of Applied Psychology, 79*, 3–14.
- Maurer, T., & Tarulli, B. (1996). Acceptance of peer/upward performance appraisal systems: Role of work context factors and beliefs about managers' development capability. *Human Resource Management Journal, 35*, 217–241.

- Maurer, T., Weiss, E., & Barbeite, F. (2003). A model of involvement in work-related learning and development activity: The effects of individual, situational, motivational and age variables. *Journal of Applied Psychology, 88*, 707–724.
- Maurer, T., Wrenn, K., Pierce, H., Tross, S., & Collins, W. (2003). Beliefs about “improvability” of career-relevant skills: Relevance to job/task analysis, competency modeling and learning orientation. *Journal of Organizational Behavior, 24*, 107–131.
- McCall, M. W., Lombardo, M. M., & Morrison, A. M. (1988). *The lessons of experience: How successful executives develop on the job*. Lexington, MA: Lexington Books.
- McCauley, C., & Hughes-James, M. (1994). *An evaluation of the outcomes of a leadership development program*. Greensboro, NC: Center for Creative Leadership.
- McCauley, C. D., & Lombardo, M. M. (1990). BENCHMARKS: An instrument for diagnosing managerial strengths and weaknesses. In K. E. Clark & M. B. Clark (Eds.), *Measures of leadership* (pp. 535–545). West Orange, NJ: Leadership Library of America, Inc.
- McClelland, D. C., & Boyatzis, R. E. (1982). Leadership motive pattern and long-term success in management. *Journal of Applied Psychology, 67*, 737–743.
- McCrae, R., & Costa, P. (1987). Validation of the five-factor model of personality across instruments and observers. *Journal of Personality and Social Psychology, 34*, 81–90.
- Mensch, K., & Rahschulte, T. (2008). Military leader development and autonomous learning: responding to the growing complexity of warfare. *Human Resource Development Quarterly, 19*(3), 263–272.
- Morgan, R. B. (1989). Reliability and validity of a factor analytically derived measure of leadership behavior and characteristics. *Educational and Psychological Measurement, 49*, 911–919.
- Noe, R., & Wilk, S. (1993). Investigation of factors that influence employees’ participation in development activities. *Journal of Applied Psychology, 78*, 291–302.
- Noe, R., Wilk, S., Mullen, E., & Wanek, J. (1997). Employee development: Issues in construct definition and investigation of antecedents. In J. Ford & Associates (Eds.), *Improving training effectiveness in work organizations* (pp. 153–189). Mahwah, NJ: Erlbaum.
- Nordhaug, O. (1989). Reward functions of personnel training. *Human Relations, 42*, 373–388.
- Offerman, L., Kennedy, J., & Wirtz, P. (1994). Implicit leadership theories: Content, structure, and generalizability. *Leadership Quarterly, 5*, 43–58.
- Piccolo, R., & Colquitt, J. (2006). Transformational leadership and job behaviors: The mediating role of core job characteristics. *Academy of Management Journal, 49*, 327–340.

- Podsakoff, P., & Organ, D. (1986). Self-reports in organizational research: Problems and prospects. *Journal of Management*, *12*, 531–546.
- Posner, B. Z., & Kouzes, J. M. (1988). Development and validation of the leadership practices inventory. *Educational and Psychological Measurement*, *48*, 483–496.
- Ready, D., & Conger, J. (2003). Why leadership efforts fail. *MIT Sloan Management Review*, *44*(3), 83.
- Roberson, L., & Alsua, C. J. (2002). Moderating effects of goal orientation on the negative consequences of gender-based preferential selection. *Organizational Behavior and Human Decision Processes*, *87*, 103–135.
- Russell, D. W., Kahn, J. H., Spoth, R., & Altmaier, E. M. (1998). Analyzing data from experimental studies: A latent variable structural equation modeling approach. *Journal of Counseling Psychology*, *45*, 18–29.
- Ruvolo, C., Petersen, S., & LeBoeuf, J. (2004). Leaders are made, not born: The critical role of a developmental framework to facilitate an organizational culture of development. *Consulting Psychology Journal*, *56*, 10–19.
- Sadri, G., & Robertson, I. (1993). Self-efficacy and work-related behavior: A review and meta-analysis. *Applied Psychology: An International Review*, *42*, 139–152.
- Sanders, C. E., Lubinski, D., & Benbow, C. P. (1995). Does the Defining Issues Test measure psychological phenomena distinct from verbal ability?: An examination of Lykken's query. *Journal of Personality and Social Psychology*, *69*, 498–504.
- Schau, C., Stevens, J., Dauphinee, T. L., & Del Vecchio, A. (1995). The development and validation of the Survey of Attitudes toward Statistics. *Educational and Psychological Measurement*, *55*, 868–875.
- Schoomaker, P. (2006). Foreword. In Department of the Army, FM 6–22 (FM 22–100) Army leadership: Competent, confident and agile. Washington, DC: Department of the Army.
- Schwab, D. E. (1980). Construct validity in organizational behavior. *Research in Organizational Behavior*, *2*, 3–43.
- Scullen, S. E., Mount, M. K., & Judge, T. A. (2003). Evidence of the construct validity of developmental ratings of managerial performance. *Journal of Applied Psychology*, *88*, 50–66.
- Seijts, G., & Latham, G. (2005). Learning versus performance goals: When should each be used? *Academy of Management Executive*, *19*, 124–131.

- Sevy, B. A., Olson, R. D., McGuire, D. P., Frazier, M. E., & Paajanen, G. (1985). *Management skills profile technical manual*. Minneapolis, MN: Personnel Decisions.
- Shavelson, R. J., & Webb, N. M. (1991). *Generalizability theory: A primer*. Newbury Park, CA: Sage Publications, Inc.
- Shipper, F. (1995). A study of the psychometric properties of the managerial skills scales of the survey of management practices. *Educational and Psychological Measurement, 55*, 468–479.
- Singh, J., & Rhoads, G. K. (1991). Boundary role ambiguity in marketing-oriented positions: A multidimensional, multi-faceted operationalization. *Journal of Marketing Research, 28*, 328–338.
- Stajkovic, A. D., & Luthans, F. (1998). Self-efficacy and work-related performance: A meta-analysis. *Psychological Bulletin, 124*, 240–261.
- Stumpf, S., Colarelli, S., & Hartman, K. (1983). Development of the career exploration survey. *Journal of Vocational Psychology, 22*, 191–226.
- Tejeda, M. J., Scandura, T. A., & Pillai, R. (2001). The MLQ revisited: Psychometric properties and recommendations. *Leadership Quarterly, 12*, 31–52.
- Tett, R. P., Guterman, H. A., Bleier, A., & Murphy, P. J. (2000). Development and content validation of a “hyperdimensional” taxonomy of managerial competence. *Human Performance, 13*, 205–251.
- Tharenou, P. (1997). Managerial career advancement. *International Review of Industrial and Organizational Psychology, 12*, 39–93.
- The Conference Board (2005). *The Business Value of Leadership Development*. New York, NY.
- VandeWalle, D. (1997). Development and validation of a work domain goal orientation instrument. *Educational and Psychological Measurement, 57*, 995–1015.
- VandeWalle, D., Brown, S., Cron, W., & Slocum, J. (1999). The influence of goal orientation and self-regulation tactics on sales performance: A longitudinal field test. *Journal of Applied Psychology, 84*, 249–259.
- Vroom, V. (1964). *Work and motivation*. New York: Wiley.
- Weiss, E. M., & Stanton, J. M. (2003, April). *Web-based standing panels for organizational research*. Paper presented at the annual meeting of the Society for Industrial and Organizational Psychology. Orlando, FL.

- Whitely, W., Dougherty, T. W., & Dreher, G. F. (1991). Relationship of career mentoring and socioeconomic origin to managers' and professionals' early career progress. *Academy of Management Journal*, *34*, 331–351.
- Wood, R., & Bandura, A. (1989). Impact of conceptions of ability on self-regulatory mechanisms and complex decision making. *Journal of Personality and Social Psychology*, *56*, 407–415.
- Young, D., & Dixon, N. (1996). *Helping leaders take effective action*. Greensboro, NC: Center for Creative Leadership.
- Yukl, G. (1999). An evaluation of conceptual weaknesses in transformational and charismatic leadership theories. *Leadership Quarterly*, *10*, 285–305.
- Yukl, G., Wall, S., & Lepsinger, R. (1990). Preliminary report on validation of the managerial practices survey. In K. E. Clark & M. B. Clark (Eds.), *Measures of leadership* (pp. 223–237). West Orange, NJ: Leadership Library of America, Inc.
- Zweig, D., & Webster, J. (2004). What are we measuring? An examination of the relationships between the big-five personality traits, goal orientation, and performance intentions. *Personality and Individual Differences*, *36*, 1693–1708.

Appendix
List of Competencies Used in the Present Investigations Based on
Tett, Guterman, Beier, and Murphy (2000)

Competency	Definition
1. Problem Awareness	Perceives situations that may require action to promote organizational success.
2. Directing	Clearly specifies to subordinates what needs to be done.
3. Decision Delegation	Assigns true decision-making authority to qualified subordinates.
4. Short-Term Planning	Prepares the steps needed to complete tasks before action is taken.
5. Strategic Planning	Develops long-term plans to keep the organization aligned with future demands.
6. Coordinating	Organizes the activities of subordinates and the allocation of resources.
7. Goal Setting	Identifies organizational work unit objectives and the methods for achieving them.
8. Monitoring	Compares current work unit progress to predetermined standards, objectives, and deadlines.
9. Motivating by Authority	Influences subordinates directly using rewards and/or punishments.
10. Motivating by Persuasion	Persuades others to achieve excellence for its own sake.
11. Team Building	Identifies and integrates distinct subordinate roles in a spirit of collaboration.
12. Productivity	Accomplishes goals set by self or others.
13. Initiative	Takes preliminary steps to do what needs to be done without direction.
14. Task Focus	Stays on task despite complexity and/or ambiguity.
15. Urgency	Responds quickly to pressing organizational demands.
16. Decisiveness	Does not hesitate in making tough decisions.
17. Compassion	Shows genuine concern for the welfare of others.
18. Cooperation	Seeks to accomplish work goals through collaboration with others.
19. Sociability	Initiates and energetically maintains friendly interactions with others inside and outside of work.
20. Politeness	Demonstrates proper manners when dealing with others.

Competency	Definition
21. Political Astuteness	Takes advantage of political relationships and the distribution of power in pursuing goals.
22. Assertiveness	States views confidently, directly, and forcefully.
23. Seeking Input	Actively pursues others' contributions to work-related discussion.
24. Rule Orientation	Realizes the importance of organizational rules and policies, and willingly follows them.
25. Trustworthiness	Maintains confidentiality in dealing with sensitive information about the company, its customers, and/or its workers.
26. Timeliness	Shows appreciation for and abides by routine job-related time limits.
27. Tolerance	Values judgments different from his or her own.
28. Creative Thinking	Fosters creative thinking within the organization or work unit.
29. Cultural Appreciation	Appreciates diversity in cultural experiences and/or beliefs.
30. Listening Skills	Actively attends to what others are saying.
31. Oral Communication	Expresses thoughts verbally in a clear, pleasant, and straightforward manner.
32. Public Presentation	Is effective and comfortable in presenting material to groups of people.
33. Developmental Goal Setting	Collaborates with individual subordinates to establish work objectives for their career advancement.
34. Developmental Feedback	Gives regular, specific, and timely feedback to subordinates in relation to personal goals.
35. Job Enrichment	Gives employees learning opportunities to expand job-related expertise.
36. Quantity Concern	Works to meet or exceed existing organizational quotas.
37. Quality Concern	Works to meet or exceed existing quality standards.
38. Financial Concern	Understands the importance of generating and saving money for the organization.
39. Safety Concern	Emphasizes accident prevention at the workplace.