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Proactive Personality and the Big Five as Predictors of Motivation to Learn

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PROACTIVE PERSONALITY AND THE BIG FIVE
AS PREDICTORS OF MOTIVATION TO LEARN

by

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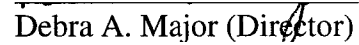
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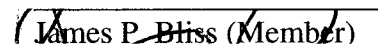
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ABSTRACT

PROACTIVE PERSONALITY AND THE BIG FIVE AS PREDICTORS OF MOTIVATION TO LEARN

Jonathan E. Turner
Old Dominion University, 2003
Director: Dr. Debra A. Major

In an environment of changing psychological contracts, corporate downsizing, and increases in alternative self-paced training delivery channels, motivation to learn is believed to represent a key variable in employee self-development that distinguishes employees who will thrive from those who will not. Predicting this variable, then, becomes an important step in managing workforce development and helping employees help themselves. Therefore, the efficacy of relevant personality characteristics as predictors of motivation to learn was investigated. Proactive personality and the Big Five factors of personality were hypothesized to be predictive of motivation to learn. These personality variables are relevant because they have been demonstrated to have important impacts on similar work-related outcomes. Results indicated that proactive personality had a significant positive relationship with motivation to learn. Extraversion, openness, and conscientiousness also had significant positive relationships with motivation to learn. Neuroticism and agreeableness were not significantly related to motivation to learn. No evidence was found for the hypothesis that motivation to learn partially mediates the relationship between personality and participation in developmental activities. Results suggest that personality can be employed as a useful predictor of motivation to learn, which in turn predicts development behaviors. Application of these findings includes the design of employee selection for learning organizations and building an employee

development process to fit the needs of employees with differing personalities and motivation to learn. Additional implications of motivation to learn in the workplace are discussed.

I dedicate this work to my wife and daughter, Jenny and Avery Turner who served as my inspiration to finish. I also dedicate this to my parents, Ron and Mary Jane Turner, for their love and support.

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INTRODUCTION

Ongoing changes in the economic climate and improvements in the use of technology for training have led to two emerging trends in today's work organizations, both of which suggest that employees with continuous-learning attitudes and behaviors are more likely to be successful in this environment. The dissolving of the psychological contract between employee and employer (DeMeuse, Bergmann, & Lester, 2001) and the new boundaryless or protean career (Arthur & Rousseau, 1996; Hall, 1996a; Hall, 1996b; Hall & Mirvis, 1995) indicate that employees are no longer guaranteed, nor do they expect, long-term employment with one organization. Therefore, they must take ultimate responsibility for their careers (Seibert, Kraimer, & Crant, 2001). Also, the number of training opportunities and delivery channels available is dramatically increasing with a large number of organizations taking advantage of self-paced, web-based learning events that can be completed at any time or place, in addition to more traditional face-to-face training opportunities. These self-paced types of learning require a greater amount of initiative and responsibility on the part of employees.

These trends imply that individuals who are willing to take responsibility for their own development and careers will be more successful (Arthur & Rousseau, 1996, Hall & Mirvis, 1995). While organizations are making themselves less and less responsible for employees' careers (Erllich, 1994), they are, at the same time, providing more and more development opportunities. Individuals who are highly motivated to learn are expected to prosper in this environment, contributing to their organizations and greatly advancing their careers. It is also expected that organizations will benefit from employing these types of individuals by increasing overall organizational learning, workforce flexibility to

Journal of Applied Psychology was used as the journal model for this dissertation.

take on new roles, and potentially decreasing resistance to change. In general, continuous learning is viewed as a significant competitive advantage for organizations (Appelbaum & Gallagher, 2000; Major, 2000).

The purpose of this study is to investigate the characteristics of these individuals with the intent of shedding more light on how organizations can best identify and leverage those with differing levels of motivation to learn. To build a learning organization is to create a culture where employees are not only given ample development opportunities, but are expected to take advantage of these opportunities and manage their own development (Senge, 1990). Organizations will be able to sustain the learning culture to the extent that employees possess high levels of motivation to learn. True learning organizations are able to translate their cultures into improved business performance using it as a competitive advantage. Motivation to learn is a key individual difference that will drive this type of culture.

Learning theories suggest that adult learners benefit more from opportunities that are flexible, self-guided, experiential, and explicitly linked to their perceived learning needs (Knowles, 1978). In addition, more successful adult learners are those who have sufficient motivation to regulate their own learning (Corno, 1993). Although organizations provide formal training, there is also an expectation that employees will seek less formal, self-directed development opportunities (Megginson & Whitaker, 1998; Pedler, 1988). Therefore, investigating motivation to learn would appear to be both a timely and practical approach for improving employee development initiatives.

Motivation to learn has been defined in the training effectiveness literature as “a specific desire of the [employee] to learn the content of the training program” (Noe,

1986, p. 743). Similarly, training motivation refers to “an individual’s desire to engage in training activities and fully embrace the training experience” (Carlson, Bozeman, Kacmar, Wright, & McMahan, 2000, p. 271). A slightly broader definition encompassing training motivation, willingness to participate in development activities and self-development may be needed to describe an employee’s approach to all training and development activities. Thus, motivation to learn can also be defined as the desire of employees to engage or participate in continuous learning and take responsibility for their own development.

MOTIVATION TO LEARN

Research has identified many of the individual and environmental factors that affect motivation to learn (Figure 1). In the model proposed by Noe (1986) and Noe and Schmitt (1986), motivation to learn is affected by individual beliefs that skill assessments are credible or accurate, expectations about being able to learn training material, expectations that desirable outcomes are associated with learning, and the extent to which individuals identify with their work and engage in career exploration behaviors. The model also suggests that motivation to learn is affected by perceptions of the environment in terms of having social support, fewer task constraints, and technologies that allow application of the learned skills. The next sections will explain other important research outlining the individual and environmental antecedents of motivation to learn.

<u>Individual Characteristics</u>	<u>Environmental Characteristics</u>
<ul style="list-style-type: none"> • Achievement motivation • Anxiety • Conscientiousness • Job Involvement • Locus of control • Organizational commitment • Self-efficacy • Tenure 	<ul style="list-style-type: none"> • Choice in training • Credibility of skill assessments • Learning expectancies • Organizational framing of training • Perceived job utility of training • Social support • Task and situational constraints • Technologies • Training climate

Figure 1. Previously researched antecedents of motivation to learn.

Individual Antecedents

In a study of the factors that influence employee participation in development activities, Noe and Wilk (1993) found several individual antecedents of motivation to

learn. Self-efficacy was positively related to motivation to learn. Job tenure was negatively related to motivation to learn such that the longer employees worked for their organization, the lower their motivation was. The extent to which employees understood their skill strengths and weaknesses, how those affected reaching career goals, and the amount of agreement between their own needs assessment and that of the organization were all positively related to motivation to learn. Clark, Dobbins, and Ladd (1993) found that perceived job utility and career utility in terms of the benefits of participating in training to job and career were positive predictors of training motivation.

Consistent with earlier work, Birdi, Allan, and Warr (1997) found age and tenure to be negatively related to learning motivation. Education level and learning confidence, or training-specific self-efficacy, were positively related to learning motivation. Tharenou (1997) found that job level, masculinity, and use of career strategy behaviors were associated with greater intentions to participate in training. Clearly, motivation to learn is highly related to individuals' beliefs that they can be successful in the training and that the training has further benefit to their careers.

In a comprehensive meta-analysis, personality variables including locus of control, achievement motivation, conscientiousness, anxiety, and self-efficacy were all related to motivation to learn (Colquitt, LePine, & Noe, 2000). Job involvement, organizational commitment, career planning and exploration, and age were also related to motivation to learn. Given the positive findings with regard to conscientiousness, the authors called for future research to investigate the remaining Big Five factors and other personality variables.

These studies support the individual antecedents' portion of the Noe (1986) and Noe and Schmitt (1986) models showing that several personality variables such as self-efficacy, locus of control, a handful of Big Five factors, and other individual differences such as age and tenure play a significant role in determining motivation to learn. These findings suggest the importance of investigating other personality variables with the goal of developing a more comprehensive profile of highly motivated learners.

Environmental Antecedents

In an investigation of the effects of choice in the training context, Baldwin, Magjuka, and Loher (1991) found that individuals who were allowed to choose and participate in a particular training program from a list of options reported higher levels of pre-training motivation than those given no choice. Individuals not allowed to choose a training program and individuals allowed to choose but not given their choices reported lower levels of pre-training motivation. Similarly, Hicks and Klimoski (1987) found that individuals given a choice in training or a realistic preview of training also reported higher levels of motivation to learn.

Mathieu, Tannenbaum, and Salas (1992) found that perceived situational constraints such as lack of time or authority to complete tasks had a negative impact on training motivation. In Birdi et al. (1997), perceived time constraints were also found to be negatively related to learning motivation whereas environmental support was found to be positively related.

In addition to their work on individual antecedents, Noe and Wilk (1993) found several environmental antecedents of motivation to learn. Perceived social support was positively related to motivation to learn. Supporting the findings by Mathieu et al. (1992),

Noe and Wilk (1993) found that perceived situational constraints in the form of working conditions that inhibited participation in development had a negative relationship with motivation to learn.

Additional studies further indicate that climate factors are important determinants of motivation to learn. Clark et al. (1993) found that anticipated supervisory training transfer climate was predictive of perceived job utility, thus affecting training motivation indirectly. Colquitt et al. (2000) also found that supervisor support, peer support, and climate were related to motivation to learn. Similarly, Tharenou (1997) found that career encouragement defined as the extent to which employees reported receiving encouragement from colleagues and senior staff for career development was positively related to greater intentions to participate in training.

In a framework highlighting the various factors that determine overall training effectiveness, Quinones (1997) identified several environmental factors related to motivation to learn. The ability to participate in training decisions or to choose which training programs to take, the way an organization frames training programs by the information provided, and organizational climates for updating skills and transfer were all theorized to influence the trainee characteristics of motivation to learn, self-efficacy, and perceptions of fairness.

In summary, several critical environmental factors have a significant impact on individual motivation to learn. It would appear that individuals in situations where choice, encouragement, and support are high and constraints such as lack of time are low would be more likely to have higher levels of motivation to learn. Due to these findings appearing consistently in the literature, the current study does not focus on the

environment, but seeks to add a greater understanding of the individual in the environment.

Outcomes

Willingness to participate in development activities is a very similar construct to motivation to learn. Noe (1996) found that employees with greater willingness to participate in development activities were also more likely to: (1) explore their environments for career options, (2) use intended-systematic career exploration methods, (3) engage in creating opportunities as a career management strategy, and (4) demonstrate development behavior as rated by their manager. Although based on manager ratings alone, there was a strong relationship between ratings of development behavior and ratings of job performance suggesting that employees who do participate in development activities are at least perceived as higher performers by their managers.

Colquitt et al. (2000) found that motivation to learn was related to important outcomes including declarative knowledge, skill acquisition, training reactions, transfer, and post-training self-efficacy. Birdi et al. (1997) found that learning motivation was predictive of five types of developmental activity: required training, on the job training, voluntary job-related learning, voluntary non job-related learning, and career planning. The effect was strongest for the more voluntary types of development. In addition, learning motivation was positively related to attitudes including job satisfaction, organizational commitment, work-role flexibility, perceived job-related benefits, perceived non job-related benefits, and perceived learning orientation benefits. The effect on work-role flexibility is particularly interesting because this is described as the individual's feeling of being able to perform different roles in the organization,

suggesting that those with higher learning motivation levels are more likely to feel capable in a variety of roles. This level of adaptability demonstrates the value of these employees to organizations and the employees' own readiness to seek out new opportunities as the new career contract unfolds.

PROACTIVE PERSONALITY

The proactive personality construct was derived from the interactionist perspective, which contends that individuals have the ability to create their environments and that situations both influence and are influenced by the behavior of the individual (Bateman & Crant, 1993; Bowers, 1973). Individuals with a prototypical proactive personality are “relatively unconstrained by situational forces” and “identify opportunities and act on them, show initiative, take action, and persevere until meaningful change occurs” (Crant, 2000, p.439). In a model of proactive behaviors (Crant, 2000), proactive personality is viewed as one of many individual differences, along with role breadth self-efficacy (Parker & Sprigg, 1999), and personal initiative or control (Frese, Kring, Soose, & Zempel, 1996; Greenberger & Strasser, 1986), that directly influences proactive behaviors such as identifying areas for improvement, challenging the status quo, and creating more favorable conditions. This model also specifies how contextual factors, such as organizational culture and management support, can determine proactive behaviors. Finally, the outcomes resulting from these behaviors include job performance, career success, attitudes, role clarity, and feelings of control.

In a study designed to validate a proactive personality scale, Bateman and Crant (1993) found that proactive personality was related to several other aspects of personality including extraversion, conscientiousness, and need for achievement, as well as several behavioral outcomes including participating in extracurricular activities, self-reported personal achievements reflecting change, and peer nominations of transformational leadership. No relationship was found for other variables such as general mental ability, locus of control, and the remaining Big Five dimensions of personality (i.e., openness,

agreeableness, and neuroticism). Crant (1995) identified significant relationships with measures of job performance among real estate agents along with extraversion and conscientiousness.

Proactive personality therefore has demonstrated an impact on meaningful performance outcomes including participating in extracurricular activities and achievements relating to change, both of which are associated with going above and beyond what is normally expected. Motivation to learn is believed to be internally driven, similar to proactive personality, and in the work environment, represents pursuing learning beyond what is required to simply execute one's job. In addition, research (Bateman & Crant, 1993) shows that proactive personality is closely tied to two of the Big Five factors of personality, which are also theorized to play an important role in predicting motivation to learn. While the apparent relationship between proactive personality and the Big Five is important, it is not the focus of this study. However, this relationship does suggest that there is more work to be done towards developing a comprehensive profile of motivation to learn that incorporates proactive personality and the Big Five.

In the self-development literature, Antonacopoulou (2000) highlighted choice and willingness as part of personal responsibility, one of the main dimensions of a self-development model. "Personal willingness and determination to commit oneself to a process" (p.494) were described as allowing the individual to take control of their own development. These concepts are aligned with the general idea that proactive personality is associated with taking initiative and controlling situations rather than passively accepting one's environment. By including personal responsibility in a model of self-

development, this theory suggests that proactive personality is likely to be related to self-development as well. In the context of self-development, having a proactive personality is likely to be associated with having a higher motivation to learn. Thus, theoretical work has identified that self-development requires one to “take control” and demonstrate “willingness to learn.” This theory reflects why proactive personality (or taking control and acting to make something happen) is related to motivation to learn, which could also be considered a prerequisite for self-development.

Proactive personality is also related to behaviors that new employees undertake to learn more about their job and environment. In a study of newcomer socialization, Ashford and Black (1996) found that new employees with a greater desire for control, an aspect of proactive personality, engaged in significantly more proactive behaviors such as information seeking, relationship building, and negotiating job changes. Some of these proactive behaviors also resulted in higher reported levels of job performance and job satisfaction. In another study of new employee behavior, Wanberg and Kammeyer-Mueller (2000) found that proactive behaviors including feedback seeking, relationship building, and positive framing were associated with the Big Five factors of extraversion and openness. These results indicate that new employees with certain personality traits tend to demonstrate more "active learning" behaviors which are associated with being more proactive. Although the studies did not directly measure proactive personality, the proactive behaviors identified suggest that new employees are going out of their way to acquire information (or learn) to help themselves understand their environment and what they need to do to be successful. The conclusion is that proactive behavior on the part of

new employees leads to increased learning, which then leads to a greater likelihood of new employee success.

Ultimately, proactive personality is positively related to both subjective and objective measures of career success (Seibert, Crant, & Kraimer, 1999). Specifically, salary, promotions, and self-reported career satisfaction were higher for individuals with higher levels of proactive personality. In a study investigating career progression strategies, Seibert et al. (2001) found proactive personality to be positively related to innovative behavior, political knowledge, and career initiative, which in turn had implications for career outcomes. These findings are relevant because proactive personality was shown to have positive effects on career-related outcomes. One premise of the current study is that proactive personality has a positive relationship with motivation to learn, which in turn is highly predictive of self-development behaviors. These behaviors may then lead to more success in an environment where one must drive their own career rather than rely on organizations to do this for them. Seibert et al.'s (2001) findings are interesting because they imply that being proactive by itself leads to greater career success. The current study contributes to this existing research by explaining one of the possible reasons why that relationship exists. In other words, being proactive may translate into being more motivated to learn how to perform the job better, which then results in positive career outcomes.

As individuals with more proactive personalities demonstrate behaviors leading to positive changes in their environments and personal outcomes, it is hypothesized that these individuals are also more likely to view learning as an effective means to similar

ends as compared to those with less proactive personalities. Thus, proactive personality becomes an integral individual difference variable predicting motivation to learn.

H1: Individuals with more proactive personalities are more likely to exhibit higher levels of motivation to learn than those with less proactive personalities.

BIG FIVE FACTORS OF PERSONALITY

Although little research has investigated the direct effects of the Big Five factors of personality on motivation to learn (Colquitt et al., 2000; Colquitt & Simmering, 1998), significant findings and theoretical positions do suggest possible relationships that can further define or explain the underlying personality structure that contributes to higher levels of motivation to learn. Additional empirical research discussed below shows strong relationships between the Big Five factors and learning variables, further supporting the existence of a relationship between personality and motivation to learn.

The Big Five dimensions of personality represent one of the most widely held views of a comprehensive model of personality. (See Figure 2 for definitions of the Big Five factors of personality.) Several reviews and meta-analyses support the consistency and breadth this model has had on many work-related constructs (Barrick & Mount, 1991; Digman, 1990; Goodstein & Lanyon, 1999; Hough, 1992; Judge & Ilies, 2002; Mount & Barrick, 1998; Salgado, 1997; Vinchur, Schippmann, Switzer, & Roth, 1998). The most widely cited work in this area as it relates to employees and organizations is the meta-analysis by Barrick and Mount (1991), which demonstrated significant effects of the Big Five on job performance. A less commonly cited finding from this work is the impact of these factors on training proficiency. Extraversion, conscientiousness, and openness were all positively related to training proficiency defined as training performance ratings, productivity data, and time to complete training results.

<u>Big Five Factor</u>	<u>Definition</u>
Neuroticism	- A tendency to experience negative affects such as fear, sadness, embarrassment, anger, guilt, and disgust.
Extraversion	- A tendency to like people, prefer being in large groups, being assertive, active, talkative, and a desire for excitement and stimulation.
Openness	- A tendency to have an active imagination, aesthetic sensitivity, intellectual curiosity, and be attentive to feelings.
Agreeableness	- A tendency to be altruistic, cooperative, and trusting.
Conscientiousness	- A tendency to be purposeful, organized, reliable, determined, and ambitious.

Figure 2. Definitions of the Big Five factors of personality.

For outcomes including training success and educational success, Hough (1992) found additional meta-analytic results for Big Five constructs within a larger nine-factor taxonomy. Potency, a part of extraversion, was positively related to educational success. Achievement, a part of conscientiousness, was positively related to both training and educational success. Adjustment, a part of neuroticism or emotional stability, was positively related to educational success. Intellectance, a part of openness, was positively related to educational success. In a meta-analysis conducted by Salgado (1997), European data not included in the previous two meta-analyses were analyzed. Each of the five factors with the exception of extraversion was significantly correlated with a training criterion. Conscientiousness had a slightly larger corrected validity coefficient compared to the other significant factors. These studies demonstrate the overall impact of the Big Five on training outcomes.

In a review of personality and learning research, DeRaad and Schouwenburg (1996) cite early work by Webb (1915) who correlated descriptors of character, or personal qualities that are not intellectual, with examination results. The authors aligned Webb's descriptors to the Big Five factors of today and found several results relevant to the current study. A desire to excel at performance was associated with high conscientiousness and low agreeableness. Originality of ideas was associated with high openness. The tendency to not abandon tasks in the face of obstacles was associated with low neuroticism and high conscientiousness. The descriptors found to relate to the Big Five are consistent with both proactive personality and motivation to learn constructs.

Existing empirical research clearly suggests some type of global relationship among the Big Five, training proficiency or performance, and learning. Other work that is less empirical also suggests connections between the Big Five and motivation to learn. A linguistic examination by DeRadd (1996) found that adjectives most often used to describe success or failure in learning and education were highly associated with extraversion, openness, and conscientiousness. A set of 1203 personality trait adjectives were rated on relevance for learning and education and were then factor analyzed to form what the authors call the educational circumplex which depicts the relevant traits on a two dimensional plane. The first dimension of traits was found to positively correlate with extraversion and intellect, or openness. The second dimension was found to positively correlate with conscientiousness. This finding supports the connection between the Big Five and learning success.

In a theoretical model of self-directed learning, Garrison (1997) described three overlapping dimensions: self-management, self-monitoring, and motivation. Self-

management refers to the amount of control the learner can exercise in making choices. Self-monitoring refers to the learner's ability to construct meaning from new ideas and concepts and to monitor the learning strategies being used. This dimension of the model would appear to be easier for individuals high in openness, which is also commonly thought of in terms of creativity and strategic thinking. The third dimension of motivation refers to the perceived value and anticipated success of learning goals and seems highly related to conceptions of conscientiousness.

Education and motivational theories also point to relationships between motivation to learn and personality variables included in the Big Five (Corno, 1993). One important quote states that volition "can be viewed as one of several key conative aptitudes for education, that is, a measurable potential for responsibility, dependability, or conscientiousness predictive of success in educational settings" (Snow, 1992, p.6). Two qualitative research studies (Brookfield, 1981; Tough, 1979) demonstrate that traits consistently used to describe individuals classified as successfully self-taught include curiosity, self-discipline, creativity, and perseverance. Finally, Oddi (1986) presents a validity study testing a measure of self-directed learning that uses three dimensions: Proactivity vs. Reactivity, Cognitive Openness vs. Defensiveness, and Commitment to Learning vs. Aversion to Learning. Proactivity and cognitive openness both have qualities associated with the Big Five factors of personality, namely high extraversion and high conscientiousness.

In one of the few studies that has specifically examined the relationship between a Big Five personality factor and motivation to learn, Colquitt and Simmering (1998) found that conscientiousness and goal orientation positively predicted levels of motivation to

learn which in turn was related to learning outcomes. Colquitt et al. (2000) reported meta-analytic evidence of the positive relationship between achievement motivation and conscientiousness with motivation to learn. In addition, anxiety, a component of the Big Five's neuroticism, was negatively related to motivation to learn. Individuals who were more goal-oriented and less anxious were also more motivated to learn.

Empirical, qualitative and theoretical research clearly suggests relationships between the Big Five and learning outcomes. Therefore, it appears highly plausible that substantial relationships would also exist with motivation to learn. Furthermore, it may be that motivation to learn is the more appropriate variable to link with learning or training criteria such that the Big Five have indirect effects on learning outcomes through this variable. For the purposes of the current study, hypotheses are presented at the factor level of the Big Five in terms of how these may relate to motivation to learn. Exploratory analyses were also conducted at the facet level of the Big Five model so that personality research can focus in on the key drivers of motivation to learn.

Motivation to learn was hypothesized to be negatively related to neuroticism. Individuals with high levels of anxiety and few coping skills are not expected to actively seek out and participate in new learning opportunities. Self-paced learning may also present a significant challenge for these individuals due to the relative lack of structure compared to instructor-led training.

H2: Neuroticism is negatively related to motivation to learn.

Motivation to learn was hypothesized to be positively related to extraversion. Extraverted individuals are more likely to be assertive and sociable compared to less extraverted individuals and these qualities seem more related to a general willingness or

desire to learn. In addition, extraversion is also highly associated with a more proactive personality (Bateman & Crant, 1993), which is also hypothesized to predict motivation to learn.

H3: Extraversion is positively related to motivation to learn.

Motivation to learn was hypothesized to be positively related to openness.

Individuals high in openness are expected to be more willing and interested in learning for the sake of learning. These individuals are generally more likely to try something new and desire to expand their understanding especially of topics where they are not already familiar.

H4: Openness is positively related to motivation to learn.

Motivation to learn was hypothesized to be positively related to conscientiousness. Individuals high in conscientiousness are more achievement oriented and set very clear goals for themselves. These individuals are more likely to develop themselves for the purposes of preparing for the future or taking on more responsibility.

H5: Conscientiousness is positively related to motivation to learn.

Motivation to learn was not expected to be related to agreeableness, the last Big Five factor. An individual's level of cooperation would not seem to play a significant role in his/her personal development aspirations. Agreeableness ranges from high levels where individuals are very accommodating towards others to low levels where individuals are very challenging towards others. Motivation to learn would appear to be independent of this Big Five factor.

MOTIVATION TO LEARN AS A PARTIAL MEDIATOR

Motivation to learn has been shown to partially mediate the relationship between certain personality variables and development outcomes. Conscientiousness and anxiety were found to have significant relationships with learning outcomes such as declarative knowledge, skill acquisition, and post-training self-efficacy even after controlling for motivation to learn (Colquitt et al., 2000). It is interesting to note that although conscientiousness was positively related to motivation to learn, it had a negative impact on learning outcomes with the exception of training reactions. Possible reasons suggested for these results included that conscientious individuals may be more self-deceptive in identifying how much they have learned (Martocchio & Judge, 1997) or engage in self-regulatory activity thought to detract from on-task attention (Kanfer & Ackerman, 1989). One difference between the meta-analysis (Colquitt et al., 2000) and this study is that those results investigated only the specific outcomes of training such as increased knowledge and skill rather than the amount of participation in development activities in the first place. The purpose of this study is to identify the personality characteristics and motivational composition of individuals who engage in self-development behaviors.

Proactive personality and four of the Big 5 personality characteristics identified here are expected to have both a direct and indirect impact on development activity. As shown in Figure 3, the personality traits indirectly influence development behavior through their impact on motivation to learn. The extant literature also suggests that personality characteristics may have some direct bearing on development activity. Therefore, motivation to learn is hypothesized to mediate partially, rather than fully, the relationship between personality and development activity (Figure 3).

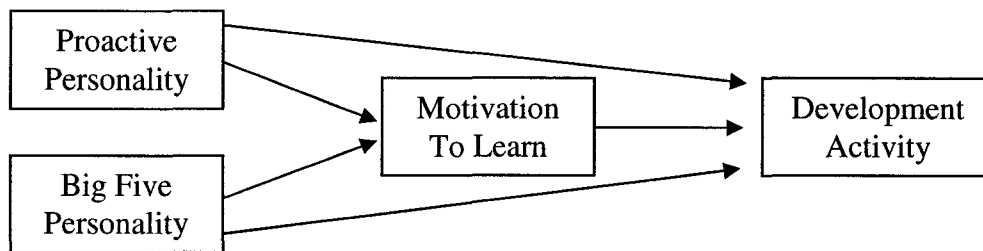


Figure 3. Motivation to learn as a partial mediator of the relationship between personality and development activity.

H6: Motivation to learn partially mediates the relationship between personality and development activity.

METHOD

Sample

This research utilized a randomly selected sample of 183 employees from a mid-sized financial service organization. Invitations were sent to 300 employees resulting in a participation rate of 61%. Only two employees who completed the first survey did not complete the second survey. A majority of participants were Caucasian (94%) with all other minority groups being represented by less than 2% each. Fifty-nine percent of the participants were female. Seventeen percent were under the age of 35, 70% were between 35 and 55, and 12% were over age 55. Twenty percent of the participants had achieved a high school degree, 14% had some college or an associate's degree, 46% had a college degree, and 20% had an advanced degree. Sixteen percent were in administrative functions, 17% were in professional or technical functions, 30% were in sales functions, and 37% were in management. Forty-one percent were front-line staff, 20% were front-line management, 30% were middle management, and 9% were senior management. The average organizational tenure was 10 years ($SD = 7.9$).

A power analysis was conducted to determine the appropriate sample size given the expected effect sizes from previous research. The relationships between proactive personality and the Big Five with motivation to learn were considered in the first analysis. The relationship between motivation to learn and development activity was considered in the second analysis.

In the first analysis, existing research (Carlson et al., 2000; Colquitt et al., 2000; Colquitt & Simmering, 1998) suggested a moderate to large effect size between conscientiousness and two other variables similar to the factors within the Big Five;

anxiety and achievement motivation. Achievement motivation, a construct similar to conscientiousness, was found to have an effect size of $\beta = .66$ on motivation to learn (Carlson et al., 2000). Conscientiousness was shown to have an effect size of $\beta = .33$ on pre-training motivation and an effect size of $\beta = .66$ on post-training motivation (Colquitt & Simmering, 1998). Finally, conscientiousness has also been shown to be correlated .38 with motivation to learn. Anxiety, an aspect of neuroticism, was correlated -.57 with motivation to learn (Colquitt et al., 2000).

Although no research to date has investigated proactive personality and motivation to learn, given the moderate relationships between Big Five and proactive personality, a moderate effect size was anticipated between proactive personality and motivation to learn. The current study predicted that proactive personality and four of the Big Five would be significant predictors of motivation to learn. Using a power analysis software program (Power and Precision), the effect size of $\beta = .55$ (an average of the path coefficients above) was entered assuming that regression analysis would be used with a total of six variables entered together to predict motivation to learn. The correlations reported above were not included in the average effect size used. Given that each variable, except for agreeableness, was expected to have an effect on motivation to learn, the total effect size used was on the conservative side but represents a moderate to large effect. The results of the first analysis in determining power suggested that a power level at 80% would easily be attained by using a sample size of $N = 100$.

In the second step of the power analysis, the relationship between motivation to learn and development activity was examined. Noe and Wilk (1993) found an average effect size of $\beta = .10$ of motivation to learn on a variety of development activity

outcomes. Birdi et al. (1997) found an average effect size of $\beta = .17$ between motivation to learn and five types of development behavior. Using an average of these results, an effect size of $\beta = .14$ was entered into the power analysis program to anticipate the relationship between motivation to learn and development activity. The results of this analysis also suggested that a power level at 80% would be attained by using a sample size close to $N = 100$.

Procedure

Employees received a cover letter briefly describing the research and inviting them to participate voluntarily in exchange for two hours of credit on their training histories. The data collection procedure included two web-based surveys administered about one month apart. Internet links for each survey were sent to employees via email. Responses were sent back to the researcher automatically. Employees were asked to provide their employee identification number in order to match their responses from both surveys and training information collected from personnel records. Although survey responses were not completely anonymous due to the use of identification numbers, employees did not have to provide their name on the surveys and were told that names would not be used in the data collection, analysis, or reporting process. Confidentiality of responses was protected at all times.

At Time 1, proactive personality and demographic information were collected. At Time 2, motivation to learn was assessed along with a self-report measure of development activities. Each survey took less than 15 minutes to complete and employees were allowed to complete them on company time or after hours. The Big Five personality factors and objective measures of development activities were collected

between Time 1 and Time 2 using existing information archived in company databases in the training and human resources department.

Measures

Proactive personality was measured using a shortened version of Bateman and Crant's (1993) original scale. The ten-item proactive personality scale is included in the Appendix (Seibert et al., 1999). The original 18-item scale demonstrated reliabilities of .89 while the shorter scale demonstrated a reliability of .86. A sample item includes "I am constantly on the lookout for new ways to improve my life." The measure uses a 7-point agreement scale, ranging from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*). The proactive personality scale in this study demonstrated a reliability of .92.

The Big Five factors of personality were measured using the NEO PI-R (Costa & McCrae, 1992), which uses 240 items to assess five major factors and thirty facets of personality. There are six facets within each of the five factors. Each facet is measured by eight items. The measure uses a 5-point agreement scale, ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). Raw scores were transformed into t-scores for analysis. The NEO PI-R has an average demonstrated reliability of .89 across all five factors. A comparison of the Big Five scores of participants in this study with national normative information revealed no differences.

Motivation to learn was measured using a 17-item scale from Noe and Wilk (1993). The scale has demonstrated reliability of .80. A sample item includes, "I am willing to exert considerable effort in training programs in order to improve my skills." The measure uses a 5-point agreement scale, ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). See Appendix for the complete scale. The motivation to learn scale in

this study demonstrated a reliability of .86, with three items removed due to low face validity and low item-total correlations.

Subjective development activity was measured by asking respondents to indicate the number of hours spent in training over a time period covering the most recent six months, the number of training courses completed, the amount of time spent on creating their personal development plans, and the percent of work time spent on development activities (See Appendix). Objective development activity was measured by reviewing company data on number of hours of training over the last six months, number of training courses completed, number of training courses registered for, and the number of development objectives on the personal development plan (See Appendix). These objective measures were collected from an advanced, centralized, web-based, learning management system whereby all-employee training is made available, registered for, and completed. The system allowed for accurate tracking and reporting of training activity by individual employees participating in this study.

RESULTS

Descriptive Statistics

Means, standard deviations, and correlations are shown in Table 1. Proactive personality was significantly correlated with motivation to learn and all of the Big Five factors except agreeableness. Motivation to learn was the only variable significantly related to the objective measure of training hours. All other development outcome variables, subjective or objective, were not included in any other analyses because they were not related to the personality or motivation variables.

Table 1

Means, Standard Deviations, and Correlations

Variable	M	SD	1	2	3	4	5	6	7	8	9	10
1. Proactive	5.4	.9										
2. Neuroticism	47.4	10.4	-.15									
3. Extraversion	56.6	10.5	.19	-.11								
4. Openness	53.3	10.1	.38	-.09	.02							
5. Agreeableness	50.4	8.7	-.13	-.03	.02	.01						
6. Conscientiousness	54.9	9.8	.16	.01	-.06	.13	-.04					
7. Motivation	4.2	.4	.43	-.04	.23	.35	-.06	.21				
8. Training	25.3	28.5	.08	.06	.01	.13	.01	.13	.24			
9. Age	4.4	.9	-.07	-.09	-.06	.06	.10	-.03	.02	.19		
10. Tenure	10.1	8.0	.05	.03	-.01	.11	.06	.00	-.09	.04	.46	
11. Education	2.7	1.1	.30	-.17	.05	.33	-.05	.21	.27	.06	-.13	-.09

Note. Decimal points were removed from all but the *M* and *SD* columns. Correlations greater than or equal to .15 are significant at $p < .05$. Training refers to the objective number of training hours completed within the last six months.

Tests of Hypotheses

Hypotheses 1-5 predicted that the personality variables were significant predictors of motivation to learn. The results are shown in Table 2. As a set the personality variables explained significant incremental variance in motivation to learn beyond the control variables of age, tenure, and education. An examination of the standardized beta weights indicates that proactive personality, extraversion, openness, and conscientiousness were all positive predictors of motivation to learn. Only neuroticism and agreeableness were not significant. Thus, hypotheses 1, 3, 4, and 5 were supported while hypothesis 2 was not.

Table 2

Variance Explained in Motivation to Learn by Personality Variables

Predictor	β	R^2
Step 1: Control Variables		
Age	.12	
Tenure	-.13	
Education	.27	.07
Step 2: Personality Variables		
Proactive	.28	
Neuroticism	.08	
Extraversion	.18	
Openness	.21	
Agreeableness	-.02	
Conscientiousness	.13	.27

Note. β = Standardized beta coefficients. β s > .125 are significant at $p < .05$. Overall F-statistics for change in R^2 are significant at $p < .001$.

Regression analyses were also conducted to test hypothesis 6 where motivation to learn was expected to partially mediate the relationship between the personality variables and development activity. Using the approach described in Baron and Kenny (1986), three regression equations were to be tested. First, motivation to learn was regressed on the personality variables (see Table 2). Second, the training hours variable was regressed on the personality variables (see Table 3). The results of the second equation revealed that personality was not related to the training hours outcome. Therefore, the third regression equation was not analyzed. The personality variables were only indirectly related to the training hours outcome through motivation to learn which was significantly related to training hours. The final hypothesis was not supported.

Table 3

Variance Explained in Training Hours by Personality Variables

Predictor	β	R ²
Step 1: Personality Variables		
Proactive	.03	
Neuroticism	.08	
Extraversion	.02	
Openness	.11	
Agreeableness	.02	
Conscientiousness	.11	.00
Step 2: Motivation to Learn	.23	.04

Note. β = Standardized beta coefficients. β s > .20 are significant at $p < .05$. Overall F-statistic for R² is not significant in Step 1, but is significant in Step 2 at $p < .01$.

Exploratory Analyses

Three additional exploratory regression analyses were performed to determine the variance explained in motivation to learn by the facets of extraversion, openness, and conscientiousness (Table 4). No previous research has examined the facet level relationships of the Big Five with motivation to learn. Seven of these facets were found to be significant predictors of motivation to learn.

For extraversion facets, Activity and Positive Emotions were significantly related to motivation to learn. Activity is described as the pace at which individuals prefer to keep active. Positive Emotions is described as the tendency to experience positive emotions such as joy, happiness, and optimism. The results suggest those individuals preferring a faster pace in life and those who experience more positive emotions are also more likely to be motivated to learn.

For openness facets, Ideas and Values were significantly related to motivation to learn. Ideas is described as intellectual curiosity and an openness to consider unconventional ideas. Values is described as readiness to reexamine social, political, and religious values and is related to how conservative an individual is. The results suggest those individuals with greater intellectual curiosity and those who are more liberal in values are also more likely to be motivated to learn.

Table 4

Variance Explained in Motivation to Learn by Big Five Facets

Predictor	β	R ²
Facets of Extraversion		
E1: Warmth	-.06	
E2: Gregariousness	-.06	
E3: Assertiveness	.01	
E4: Activity	.17	
E5: Excitement Seeking	.08	
E6: Positive Emotions	.30	.12
Facets of Openness		
O1: Fantasy	.05	
O2: Aesthetics	.12	
O3: Feelings	.10	
O4: Actions	-.04	
O5: Ideas	.21	
O6: Values	.16	.14
Facets of Conscientiousness		
C1: Competence	.33	
C2: Order	.09	
C3: Dutifulness	-.22	
C4: Achievement Striving	.26	
C5: Self-Discipline	-.08	
C6: Deliberation	-.06	.14

Note. β = Standardized beta coefficients. $\beta \geq .160$ are significant at $p < .05$. Overall F-statistics for R² are significant in each equation at $p < .001$.

Finally, for conscientiousness facets, Competence, Dutifulness, and Achievement Striving were significantly related to motivation to learn. Competence is described as how capable and well prepared an individual feels. Dutifulness is described as dependability in fulfilling obligations. Achievement Striving is described as the level of aspirations and amount of goal orientation. The results suggest those individuals who feel

highly capable and goal-oriented are also more likely to be motivated to learn, while those who feel more compelled to fulfill their obligations may be less motivated to learn.

DISCUSSION

The purpose of this study was to determine the extent to which proactive personality and the Big Five factors of personality predict motivation to learn. The results show that these relationships do exist for proactive personality, extraversion, openness, and conscientiousness. Neuroticism and agreeableness were not related to motivation to learn. This study also demonstrated that seven of the thirty facets within the Big Five are predictive of motivation to learn which is an important contribution to existing research.

Individuals with higher levels of proactive personality are more likely to be motivated to learn. Past research has demonstrated the relationship between proactive personality and career success (Seibert et al., 1999; Seibert et al., 2001). It is possible that the increased likelihood of motivation to learn resulting from proactive personality is one of the mechanisms through which these individuals are able to gain more knowledge and skills in their job, which may then translate into greater career success. These individuals may also view learning as a strategy to affect greater amounts of change in their environments.

Higher levels of extraversion, openness, and conscientiousness also were associated with greater motivation to learn. One interesting possibility is that each of these factors has a different underlying rationale for being predictive of motivation to learn and the development behavior that follows. Consistent with Katz's (1960) functionalist theory where the same behavior may be performed by different people to serve different functions, motivation to learn may have underlying causes that build from one's personality. Functionalism has already been applied to motivation in the context of volunteerism (Clary et al., 1998), where people were found to volunteer for different

reasons such as exercising knowledge, building relationships with others, or enhancing one's career. In the case of motivation to learn, it seems likely that personality factors as different from each other as openness and proactive personality may be connected to different functions as well that combine to predict motivation to learn. For example, individuals higher in openness may be more motivated to learn simply for the sake of learning or to indulge their natural intellectual curiosity. Highly conscientious or proactive individuals on the other hand may be more motivated to learn for instrumental reasons, meaning that the more they learn, the more they can accomplish with those additional knowledge and skills. A recent study (Simmering, Colquitt, Noe, & Porter, 2003) found that highly conscientious individuals were more likely to participate in development when there was a lack of person-environment fit, defined as a difference in amount of desired and actual autonomy. The conclusion being that these conscientious individuals viewed development as a means to improve their own fit with their organization. Finally, highly extraverted individuals may be more motivated to learn because they enjoy the stimulation associated with development activities and training, especially those of a more social or collaborative nature typically found in a classroom setting. Overall, these findings support those of previous research involving extraversion and conscientiousness (Colquitt et al., 2000; Colquitt & Simmering, 1998) and contribute further by highlighting the importance of openness and proactive personality. The study also contributes by demonstrating the lack of a linkage between neuroticism and agreeableness and motivation to learn.

Implications

Motivation to learn is likely to be a distinguishing characteristic among those individuals who are successful in today's work environment. Changing psychological contracts between employers and employees (Arthur & Rousseau, 1996) and increased use of self-paced training both seem to require greater personal drive on the part of employees in the realm of learning. Individuals more motivated to learn are expected to be more flexible when it comes to careers, seeking out and taking advantage of new opportunities to refresh their current skills or even broadening their skill set in anticipation of different career challenges. Individuals more motivated to learn are also expected to be more willing and able to complete self-paced learning opportunities being offered more and more as an efficient type of training delivery.

Other implications of these findings also emerge which can have long-term benefits for employees and organizations. Training needs analysis and design can be further improved by emphasizing the characteristics of the employees in addition to identifying skill gaps. By understanding the audience for a training intervention in this way, trainers can greatly increase the likelihood of overall training effectiveness. For example, if the audience possessed higher levels of motivation to learn, along with higher extraversion, the design could incorporate more interactions among employees and less lecture material. If the audience was higher in proactive personality or conscientiousness, the benefits of the training could be communicated in ways that clarify how the employees may use the new knowledge and skills to generate change or accomplish more challenging goals. Likewise, an audience high in openness may benefit from a design where discussion can focus on theoretical aspects of the topic or encourage employees to

use their creativity in devising new ways to apply or think about the topic. Audiences without some of these personality traits, that might be less motivated to learn, would benefit from designs that incorporate more contextual support before and after the training. The training itself may need to be delivered in even shorter segments and possibly broken up into modules that occur at different times to accommodate a less motivated audience.

Any training intervention may benefit by including an individual self-assessment of motivation to learn at the beginning so that trainees can become aware of the natural energy levels they may normally devote to learning. This self-awareness would then allow them to change their approach or expectations for the training in order to make it more meaningful. Finally, audiences with mixed levels of motivation to learn, as may typically be the case, would benefit from increased variety of delivery methods and activities within a single intervention or could take advantage of strategically pairing employees up to learn from each other. Regardless of the situation, training designers would be afforded a greater opportunity for success if they understood their audience at this level of detail.

Another implication of this study includes an organization's increased ability to help employees more actively manage their own careers. With limited time and resources, employees may be treated as though they are all the same when it comes to careers or possibly not given any career assistance at all. By understanding employees' motivation to learn, organizations can help identify which employees are interested and motivated in progression and career exploration and those that are satisfied with where they are. This would allow the same amount of career development resources to be

applied in a more focused way for those employees who desire it. In today's work environment, organizations may have the philosophy of "if we simply make career planning resources available, those who want it will take advantage of it." This may be a false assumption however, because highly motivated to learn employees may have other obstacles in front of them, which prevent career progression. Such obstacles may include a manager who is uninterested in coaching or a highly routine job that rarely includes challenging or highly visible projects. Understanding motivation to learn gives organizations the ability to help this group of employees help themselves and prepare for the future.

In an economy where knowledge workers are highly valued and are considered a key component of learning organizations (James, 2003), motivation to learn appears to be a highly relevant characteristic in determining continuous learning behaviors.

Organizations valuing knowledge workers are theorized to expect entrepreneurial and innovative behaviors from their employees (Flood, Turner, Ramamoorthy, & Pearson, 2001), including the updating of job skills. At the same time, knowledge workers, like many other types of employees, are expected to take responsibility for their own development. Therefore, motivation to learn plays a pivotal role in helping these types of employees succeed in knowledge-work environments.

An organization's ability to create and maintain a learning culture (Senge, 1990) is yet another implication of these findings. Organizations could improve selection processes by incorporating these aspects of personality and motivation. As mentioned earlier, employees who are highly motivated to learn also have more flexible work-role attitudes (Birdi et al., 1997) that can be leveraged when organizations need to introduce

significant change. On the other hand, the question of fit should be considered strongly, especially within organizations that do not value continuous learning and improvement. In these types of environments, employees highly motivated to learn may find more dissatisfaction than satisfaction because their natural behaviors will be the exception rather than the norm. Taken to an extreme, development behavior may even be viewed as counterproductive in organizations that only expect employees to be able to perform their current jobs and not prepare for the future.

Future Research

Many avenues for future research exist as a result of this study. It has been suggested that there may be different reasons why proactive personality, extraversion, openness, and conscientiousness are predictive of motivation to learn. Future research should explore the possible differences as to why these particular relationships exist. For example, research designs could include measures of different possible outcomes resulting from development and determine which personality characteristics are most associated with placing higher value on those outcomes. Proactive personality and conscientiousness may be most predictive of valuing development outcomes related to achievement or change. However, openness may be most predictive of valuing development outcomes involving increased knowledge. Extraversion is likely to be associated with valuing development outcomes related to social interaction.

The effectiveness of different training designs needs to be better understood when taking audience characteristics into consideration. Existing research (Quinones, 1997) has established best practices for training design given adult learning styles, but has not adequately taken personality and motivation characteristics into account that would help

refine these practices. Ford and Oswald (2003) suggest a need to further investigate how individual differences, like personality and motivation, and learning situations interact. Training design characteristics that can compensate for lower levels of motivation to learn are required. Another possibility is that individuals with more or less motivation to learn may simply prefer different types of training delivery (e.g., instructor-led, web-based, self-study). As noted earlier, motivation to learn and personality may actually interact in the determination of training delivery preferences.

The interaction between an employee's motivation to learn and that of his or her supervisor may also be extremely important to understand. Research has shown that supervisory support is an important antecedent of motivation to learn (Clark et al., 1993; Colquitt et al., 2000; Mathieu et al., 1992; Noe & Wilk, 1993; Tharenou, 1997). Interestingly, some research has further separated the effects of support coming from different sources (Faction, Dobbins, Russell, Ladd, & Kudisch, 1995). Specifically, supervisors were the only sources of support positively related to employees' pretraining motivation as compared to peers, direct reports, and top management. The next step is to identify why some supervisors are more supportive than others. It may be that supervisor support stems from a supervisor's own motivation to learn. For example, it is possible that a less motivated to learn supervisor might offset a highly motivated employee when it comes to development due to a lack of supervisory training support provided. Conversely, a highly motivated to learn supervisor may have a profound positive impact on a less motivated employee because of extra training support and encouragement.

Potential Study Limitations

Several potential limitations exist in this study that need to be considered when generalizing these findings. First, all participants were employees within the same organization. This is a limitation to the extent that the organization has a strong or consistent learning climate that may have impacted either the motivation to learn variable or actual development behavior. Second, the sample used in this study was highly homogeneous with respect to ethnicity. Finally, the survey design included use of employee identification numbers to match up responses with training and Big Five data. While no participants mentioned any concerns of anonymity and the overall participation rate was considerably high, the study was not purely anonymous. Requiring identification numbers could have resulted in participants responding to the surveys in a biased way, intentionally or unintentionally, out of concerns over who might see the results. The bias would likely have been towards social desirability where one appears to have positive or favorable attitudes about learning or proactive personalities even though one does not. The means and standard deviations of both the proactive personality and motivation to learn scales were consistent with past research. The existence of significant, differential relationships among the variables suggests that this possible limitation did not occur in any prevalent way.

CONCLUSIONS

A greater understanding of how personality impacts motivation to learn has been demonstrated in this study. Although many individual and environmental antecedents exist, few can substitute for the influence one's inherent personality structure has on motivation to learn. The major contributions of this study include the new findings associated with proactive personality and openness, the confirmation of relationships for extraversion and conscientiousness, and the identification of several Big Five facets that are all predictive of motivation to learn.

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APPENDIX

RESEARCH MEASURES

Demographic Measures

1. Age
2. Gender (collected from company database)
3. Race (Caucasian, African-American, Asian, Hispanic, Other)
4. Geographical location (Northeast, Southeast, Northcentral, Midwest, Southwest, West) (collected from company database)
5. Tenure (Years)
6. Educational level (High school, Associates, Bachelors, Masters, Doctorate, Other)
7. Position type (Administration, Professional, Technical, Sales, Managerial, Other)
8. Level within the company (Front-line staff, Front-line management, Middle management, Senior management)

Note. Gender and Geographical Location were collected from the company database because the data were easily available and doing so minimized confidentiality concerns on the surveys. Subject codes were used to identify the correct information on these two variables.

Proactive Personality Scale

1. I am constantly on the lookout for new ways to improve my life.
2. Wherever I have been, I have been a powerful force for constructive change.
3. Nothing is more exciting than seeing my ideas turn into reality.
4. If I see something I don't like, I fix it.
5. No matter what the odds, if I believe in something I will make it happen.
6. I love being a champion for my ideas, even against others' opposition.
7. I excel at identifying opportunities.
8. I am always looking for better ways to do things.
9. If I believe in an idea, no obstacle will prevent me from making it happen.
10. I can spot a good opportunity long before others can.

Note. From Seibert et al. (1999). Responses range from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*)

APPENDIX

RESEARCH MEASURES (Continued)

Motivation To Learn Scale

1. I try to learn as much as I can from training programs.
2. I believe I tend to learn more from training programs than most people do.
3. When I'm involved in training sessions and I can't understand something, I get so frustrated I stop trying to learn. (R)
4. I am usually motivated to learn the skills emphasized in training programs.
5. I would like to improve my skills.
6. I am willing to exert considerable effort in training programs in order to improve my skills.
7. I believe I can improve my skills by participating in training programs.
8. I believe I can learn the material presented in most training programs.
9. My present job performance satisfies my personal expectations and goals. (R)
10. Participation in training programs is of little use to me because I have all the knowledge and skill I need to successfully perform my job.(R)
11. I am willing to invest effort to improve skills and competencies related to my current job.
12. I am willing to invest effort to improve skills and competencies just for the sake of learning.
13. I am willing to invest effort to improve skills and competencies in order to prepare myself for promotion.
14. Taking training courses and seminars is not a high priority for me. (R)
15. I want to try to change habits and routines that interfere with my work effectiveness.
16. I am willing to invest effort on my personal time to develop technical skills related to my job.
17. I am willing to invest effort on my personal time to develop my interpersonal skills.

Note. From Noe & Wilk (1993). Responses range from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). (R) indicates items that are reverse-scored. Items 3, 9 and 15 were excluded during analyses due to low item-total correlations and low face validity.

*APPENDIX**RESEARCH MEASURES (Continued)**Development Activity Measures*

Subjective - Collected From Self-Report Survey at Time 2

1. Number of hours spent in training per year
2. Number of training courses completed per year
3. Time spent creating personal development plan
4. Percent of work time spent on development activities

Objective - Collected From Corporate Training Database

1. Number of hours of completed training per year
 2. Number of training courses completed per year
 3. Number of courses registered for per year
 4. Number of objectives on personal development plan
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