Summer 2015

Individual adaptability as a predictor of job performance

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INDIVIDUAL ADAPTABILITY AS A PREDICTOR OF JOB PERFORMANCE

by

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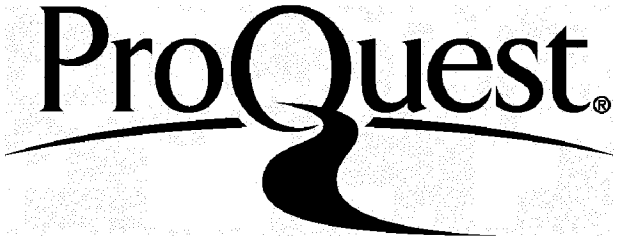
A Dissertation Presented in Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

COLLEGE OF EDUCATION
LOUISIANA TECH UNIVERSITY

August 2015



LOUISIANA TECH UNIVERSITY

THE GRADUATE SCHOOL

June 12, 2015

Date

We hereby recommend that the dissertation prepared under our supervision by Stephanie L. Murphy

entitled Individual Adaptability as a Predictor of Job Performance

be accepted in partial fulfillment of the requirements for the Degree of Doctor of Philosophy

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Dean of the Graduate School

Dean of the College

GS Form 13a
(6/07)

ABSTRACT

In the new global economy, organizations frequently have to adjust to meet challenging demands of customers, competitors, or regulatory agencies. These adjustments at the organizational level often cascade down to employees, and they may face changes in their job responsibilities and how work is performed. I-ADAPT theory suggests that *individual adaptability* (IA) is an individual difference variable that includes both personality and cognitive aspects and has both trait- and state-like properties. As a result, IA may be an acceptable alternative for traditional, stable selection tests for operating within unstable environments. The present paper examined the relationship of individual adaptability, cognitive ability, and personality (conscientiousness) to task performance, citizenship performance, and counterproductive work behaviors. The relationship between an individual's motivational state and IA was also examined. The study was conducted in the form of online surveys, with data being gathered from 313 employees across the United States. As hypothesized, IA was a significant predictor of all three types of performance, and IA was related to state of mind. IA was also a parsimonious predictor of citizenship performance, as stated in the hypotheses. Conscientiousness was found to be related to state of mind. IA was also hypothesized to demonstrate less differential prediction than cognitive ability, but this hypothesis was not supported. Limitations and future research directions are discussed, and practical uses for adaptability tests in the workplace are suggested.

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DEDICATION

I dedicate this paper to my family. Without their love, support, and encouragement, I would not have accomplished all that I have today.

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ACKNOWLEDGEMENTS

Many professors, friends, coworkers, classmates, and family members have helped me through my doctoral studies, and it would take another dissertation to express how grateful I am to everyone. So as briefly as possible, I would like to acknowledge my dissertation chair and graduate advisor, Dr. Mitzi Desselles. You have played an exceptional role in my success, and I am grateful for your continued advice and friendship. To other members of my committee, Dr. Frank Igou, and Dr. Steven Toaddy, your corrections and insights have helped me to develop as a writer (and as a stats enthusiasts). To Dr. Sheets, thank you for challenging me to speak up and have a voice, advice I still use today. I would also like to thank Dr. Kizzy Parks and Dr. Kevin Mahoney for their guidance and support. To my cohort and classmates, there was never a dull moment; thank you for making the years in Ruston fly by with constant entertainment. A special thanks to DeAnn Arnold; I could not have made it through without you!

To my siblings, your support has meant everything to me. Thank you for the phone calls, texts, and simply showing interest in what I do. A special thanks to Mark for going the extra mile to help with Stephen and to be my support system while far away from home. To my parents, words cannot express how grateful I am to both of you. Your love and support has made things that seemed impossible become reality. A special thanks to my mother for her constant trips to Ruston and for being my rock and my best

friend. To my precious little boy, Stephen: you have been such a vital part of my life these last six years. Coming home to your smile after a long day has forced me to be happy, to learn how to turn work off, to live, to be human, and to love. I truly believe I would not have been where I am today if you had not graced the world with your presence. Mommy loves you!

To my fellow I/Os at Dell, Inc., thank you for your patience and understanding as I worked to complete my degree. Thank you for all the advice, shared experiences, and encouragement to push through. Lastly, to all my friends who have stuck around through my missed phone calls, no-shows, and complete absences . . . "you're the real MVP."

CHAPTER ONE

INTRODUCTION

In our dynamic economy, it is becoming increasingly important for organizations to change to meet the requirements of their environments. With technological advances, increased employee diversity, and more mergers and acquisitions than ever before, the workplace has dramatically shifted in recent decades (Townsend, DeMarie, & Hendrickson, 1998). The traditional, stable workplace from the 1950s and 1960s has dissolved, and a new workplace has emerged where organizations must constantly evolve and develop in order to maintain competitive advantage in industries where resources are easily accessible to all organizations (Arthur & Rousseau, 1996). Consequently, people within organizations may need to learn to adapt to these unstable work environments. Many no longer feel the job security they once did because organizations are more volatile (Grunberg, Moore, Greenberg, & Sikora, 2008). They may need to learn how to accept and manage change, and they may personally need to change in order to continue as valuable employees (Hulin & Glomb, 1999). This openness and ability to change are what organizational researchers refer to as *adaptability* (Ployhart & Bliese, 2006; Pulakos, Arad, Donovan, & Plamondon, 2000; Trundt, 2010).

Employers, human resource professionals, and employees all agree that adaptability is one of the most important skills for employees to possess, more so now

than in the past (Society for Human Resource Management, 2008). Organizational researchers have also begun to investigate the role of adaptability in the workplace (Griffin, Neal, & Parker, 2007; Mumford, Campion, & Morgeson, 2007). Despite growing awareness, however, there has been little agreement to date on how adaptability is conceptualized (Baard, Rench, & Kozlowski, 2014). Prior research has diverged into four approaches: the performance-construct approach, the individual-difference approach, the performance-change approach, and the process approach. In the present paper, the individual-difference approach is used to conceptualize adaptability as *individual adaptability (IA),* based on I-ADAPT theory (Ployhart & Bliese, 2006). This approach was chosen because it provides the opportunity to examine the adaptability requirements that may be present within all three dimensions of performance.

I-ADAPT theory suggests that IA is composed of both cognitive and personality aspects, and it is also conceptualized to be both state-like and trait-like (Ployhart & Bliese, 2006). IA is trait-like in that individuals may have tendencies to be more or less adaptable; IA is state-like in that when and how an individual adapts may depend upon their perceptions and motives in the moment. IA, thus, may hold promise for use in the area of selection because it is proposed to be a higher-order construct that encompasses the major constructs (e.g., cognitive ability and personality) currently utilized to predict job performance. In addition, the IA construct is proposed to be more sensitive to change pressures in today's organizations. IA may also have fewer of the problems typically associated with single predictors. For example, IA may have less adverse impact than cognitive ability tests because IA is also influenced by personality. The current research aims to test these propositions and to suggest that IA is not only beneficial in selecting

employees but also addresses several of the problems associated with traditional selection measures. In particular, three main research questions will be explored: 1) does IA predict job performance more effectively and efficiently than cognitive ability and personality, 2) do measures of IA vary depending on the individual's state of mind, and 3) does the use of IA measures in selection address some of the major concerns associated with cognitive ability and personality measures.

At the center of two of these research questions is job performance. Although researchers have debated the dimensions of job performance, most have come to agree that performance consists of task performance, contextual performance, and counterproductive work behaviors (Koopmans et al., 2011). The following sections will review the definition and the dimensions of job performance, and discuss why traditional predictors may be insufficient for predicting job performance.

Job Performance

Definition of Job Performance

The most widely accepted definition of performance is that of Campbell et al. (1990), who defined job performance as "observable things people do (i.e., behaviors) that are relevant for the goals of the organization" (Campbell, McHenry, & Wise, 1990, p. 314). This definition triggered a shift in conceptualizing performance. Definitions of performance changed from focusing on results or outcomes to focusing on individual behaviors or the process that leads to the results (Campbell, 1994; Motowidlo, Borman, & Schmit, 1997). Campbell, McCloy, Oppler, and Sager (1993) made clear distinctions between performance, effectiveness, and productivity. They asserted that performance is the behavior of the individual, effectiveness is the results of that behavior, and

productivity is a comparison between the benefits of results and the cost of the behaviors. Motowidlo and Kell (2012) stated that behavior is what people do, performance is the organizational value of what people do, and results are the states or conditions that have changed as an effect of what people do. The distinctions drawn by these researchers add clarity to what is meant by job performance. Further clarification of job performance as a multi-dimensional construct emerges when the relationships between performance and other constructs are examined.

Dimensions of Job Performance

Job performance is a multidimensional construct, and one of the ways to mitigate errors in criterion measures is to distinguish between the different types of performance being examined. There are numerous conceptualizations of performance in organizational research. Koopmans et al. (2011) found 35 studies that each presented an original conceptual framework of performance. Murphy (1989) developed one of the first taxonomies of performance that consisted of four dimensions: task behaviors, interpersonal behaviors, downtime behaviors, and destructive/hazardous behaviors. In a large-scale military project, Campbell (1990, 1994) developed an eight-dimension taxonomy that including the following: job-specific task proficiency, non-job-specific task proficiency, written and oral communication, demonstrating effort, maintaining personal discipline, facilitating peer and team performance, supervision and leadership, and management and administration.

Borman and Motowidlo (1993) took a less granular approach and categorized all performance behaviors as either task performance or citizenship performance. Maxham, Netemeyer, and Lichtenstein (2008) suggested that there was task performance and

citizenship performance, but citizenship performance was divided into two dimensions based on the intended target (i.e., individuals or the organization). Viswesvaran and Ones (2000) and Rotundo and Sackett (2002) added counterproductive behaviors to the framework by Borman and Motowidlo (1993) to develop a three-dimensional structure of performance. Allworth and Hesketh (1999) and Pulakos et al. (2000) disregarded the counterproductive work behavior dimension and added the adaptive performance dimension. Sinclair and Tucker (2006) included all four dimensions: task, citizenship, counterproductive, and adaptive performance. Although several other frameworks of job performance have been suggested (e.g., Bakker, Demerouti, & Verbeke, 2004; Tett, Guterman, Bleier, & Murphy, 2000; Wisecarver, Carpenter, & Kilcullen, 2007), Koopmans et al. (2011) were able to place all of the facets in these frameworks into the four over-arching dimensions of performance suggested by Sinclair and Tucker (2006).

Researchers have found support for the distinction between task and citizenship performance (Conway, 1996; Johnson, 2001), as well as support for the distinction between citizenship and counterproductive work behavior (Berry, Ones, & Sackett, 2007; Dalal, 2005; Sackett, Berry, Wiemann, & Laczo, 2006). Although researchers have included adaptive performance as a type of performance, empirical and theoretical research has argued against the use of this dimension (Johnson, 2001; Ployhart & Bliese, 2006). Therefore, the proposed work will examine performance based on Viswesvaran and Ones (2000) and Rotundo and Sackett (2002) and operationalize performance as a composite of task, citizenship, and counterproductive behaviors. Task performance are behaviors that lead to the completion of job duties, citizenship performance is behavior aimed towards completing tasks outside of those required for the job, and

counterproductive work behaviors are behaviors that are off ask (Koopmans et al., 2011). It is important to note that although these dimensions are distinct, it is often necessary to combine them into one single performance factor in order to make selection or promotional decisions (Campbell, Gasser, & Oswald, 1996).

Task performance

Almost every conceptual framework of job performance includes an element of task performance (Koopmans et al., 2011). Completing the task required on a job is essential to the goals of organizations, and thus researchers and practitioners have paid special attention to this dimension. Task performance is defined as behavior over a standard period of time that initiates or maintains the transformation of resources into goods and services in order to reach organizational goals (Borman & Motowidlo, 1993; Motowidlo, et al., 1997; Motowidlo & Kell, 2012).

Although many frameworks of performance explicitly propose task performance as a dimension, others have described specific facets of task performance. For example, five of the dimensions in the framework developed by Campbell (1990) may be described as task performance: job-specific task proficiency, non-job specific task proficiency, communication proficiency, supervision, and management. Other frameworks include task performance but under a different label. For example, Murphy (1989) refers to task behaviors, Maxham et al. (2008) and Bakker et al. (2004) refer to in-role performance, and Rollins and Fruge (1992) refer to task proficiency. Examples of task performance include completing specific task related to the job, planning and organizing, solving problems, oral and written communication, decision-making, and working accurately and neatly (Koopmans et al., 2011).

Citizenship performance

Prior research has also provided evidence supporting the contributions that citizenship performance makes to supervisor ratings of overall performance (Borman, White, & Dorsey, 1995; Werner, 1994). In fact, citizenship performance has been just as important to organizational success as task performance (Podsakoff & MacKenzie, 1997). Organ (1988) defined citizenship performance as "individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, and that in the aggregate promotes the effective functioning of the organization" (p. 4). Citizenship performance is an aggregate of behaviors over a specific period of time that improves the social, psychological, and organizational context of work (Borman & Motowidlo, 1993; Motowidlo & Kell, 2012).

Several constructs have been used to describe citizenship behaviors, including organizational citizenship behaviors, contextual performance, citizenship performance, and extra-role performance (Borman & Motowidlo, 1993; Borman, Penner, Allen, & Motowidlo, 2001; Organ, 1988). These constructs and related concepts may be subsumed under the general label of citizenship performance (Borman & Penner, 2001; Coleman & Borman, 2000).

Organ (1988) suggested there were five types of citizenship behaviors, altruism, conscientiousness, sportsmanship, courtesy, and civic virtue. Borman and Motowidlo (1993) suggested there are five categories of citizenship behaviors: voluntarily performing task outside of job requirements, completing job task with enthusiasm and effort, helping and cooperating with others, always following rules and proper procedures, and supporting organizational objectives. Coleman and Borman (2000) had

44 industrial-organizational psychologists sort through 27 contextual behaviors based on these five activities. They found three underlying facets within these five dimensions, which are interpersonal support, organizational support, and job-task conscientiousness. Empirical research supports these three underlying dimensions (Borman et al., 2001); however job-task conscientiousness was changed to conscientious initiative. Examples of behaviors related to these dimensions include being proactive, polite, creative, dedicated, motivated, enthusiastic, and resourceful, completing extra tasks, and having strong interpersonal relationships and organizational commitment (Koopmans et al., 2011).

Counterproductive work behaviors

Like citizenship performance, counterproductive work behaviors (CWBs) have been conceptualized, defined, and labeled many different ways. For example, Crino (1994) referred to employee sabotage behavior, Robinson and Bennett (1995) to deviant work behaviors, Andersson and Pearson (1999) to incivility, while Sackett (2002) used to the most common label, CWBs. Crino (1994) defined CWBs as behaviors that "damage, disrupt, or subvert the organization's operations for the personal purposes of the saboteur by creating unfavorable publicity, embarrassment, delays in production, damage to property, the destruction of working relationships, or the harming of employees or customers" (p. 312). Sackett (2002), however, used a more concise definition, defining CWBs as intentional behaviors viewed by the organization as opposing its key objectives and interests. These behaviors are carried out with the intention of hurting other individuals or the organization and result in negative consequences for the organization (Motowidlo & Kell, 2012).

The dimensions of CWBs have also varied. For example, Hollinger and Clark (1982) suggested there were two categories of CWBs, property deviance and production deviance, with property deviance harming the physical aspects of the organization and production deviance harming the effectiveness of the organization. Gruys (1999) concluded that CWBs have two different dimensions, personal and task. The personal dimension focuses on the direction of the behavior, towards an individual or towards an organization. The task dimension focuses on the degree to which the behavior is related or unrelated to job tasks. Sackett (2002) developed a more specific taxonomy of counterproductive behaviors. He came up with 11 behavioral categories: theft, destruction of property, misuse of information, misuse of time and resources, unsafe behavior, poor attendance, poor-quality work, alcohol use, drug use, inappropriate verbal actions, and inappropriate physical actions. Examples of CWBs include taking too many or too long breaks, complaining, not showing up at work, being rude or gossiping about coworkers, fighting and arguing at work, doing task incorrectly or not doing them at all, and misusing privileges.

Predictors of Job Performance

Understanding the dimensions of performance is important when determining the predictors of job performance. Using individuals' knowledge, skills, abilities, and other characteristics (KSAOs) to predict performance has become an essential task for industrial and organizational psychologists (Murphy, 1996). Over the years, researchers have studied and debated different selection methods. Some of the most popular methods include interviews, biodata, personality tests, assessment centers, intelligence tests, background checks, integrity tests, and references (Breaugh, 2009; Ones, Viswesvaran, &

Schmidt, 1993; Schmidt & Hunter, 1998; Ispas, Ilie, Iliescu, Johnson, & Harris, 2010). Selecting employees based on test scores is one of the oldest topics in organizational research (Cascio, 1992). Since Robert M. Yerkes developed intelligence tests for placing military recruits during the First World War, researchers have been examining ways to help the right people enter the right jobs (Cascio, 1992).

Construct-based selection tests have increased in popularity in recent decades. Sackett and Lievens (2008) suggest the increase is a result of better understanding of criteria. In a review of selection literature, Rotundo and Sackett (2002) concluded that job performance is made up of task performance, citizenship performance, and counterproductive work behaviors. Understanding the dimensions of job performance has allowed researchers and practitioners to use specific construct-based measures to predict the dimension of performance that is most valuable to their organization (Sackett & Lievens, 2008). The higher the validity of a test, the more valuable that test will be to the organization and the less susceptible to litigation (Equal Employment Opportunity Commission, 1978; Schmidt & Hunter, 1998). With the development of meta-analytic methods, many have come to agree that some selection procedures are more valid predictors of performance than others, across a wide array of jobs. For example, Schmidt and Hunter (1998) found that cognitive ability tests were one of the best predictors of performance across organizations, jobs, and industries. Because of the relationship cognitive ability has with task performance, cognitive ability tests quickly became one of the most widely used selection methods in organizations (Schmidt & Hunter, 2004).

Cognitive Ability

Although once thought of as a multi-dimensional construct, researchers agree that cognitive ability (CA) has a single-factor structure, and that factor is often referred to as general cognitive ability (Hunter, 1986; Spearman, 1904). Cognitive ability has been defined in many ways. The most common definition is the ability to process information and to learn new concepts, skills, and knowledge (Hunter, 1986; Kanfer & Ackerman, 1989). Similar to IA, cognitive ability is a compound trait that encompasses more specific factors such as verbal and mathematical skill (Carroll, 1993). It has been a valid predictor of task performance across jobs and industries (Ones Ones, Dilchert, Viswesvaran, & Salgado, 2010; Schmidt & Hunter, 1998). However, there are several concerns with the use of CA as a predictor such as the relationship with other dimensions of performance besides task performance and the differential prediction that often results from the use of CA tests in selection (Avis, Kudisch, & Fortunato, 2002; Hunter & Hunter, 1984).

Cognitive ability and job performance

One issue with cognitive ability tests is the poor predictability these tests have outside of task performance. Little evidence supports the relationship between CA and citizenship performance or CWBs. Task performance is predicted by CA (Hunter & Hunter, 1984; Schmidt, Hunter, Outerbridge, & Goff, 1988), whereas citizenship performance is predicted by personality variables (Cortina, Goldstein, Payne, Davison, & Gilliland, 2000). For example, in a large analysis of 842 supervisor ratings of 2,308 employees, Johnson (2001) found that cognitive ability was strongly related to task performance but not related to citizenship performance at all. As for CWBs, Mount, Ilies, and Johnson (2006) used 141 customer service employees to examine the relationship

between the Big Five personality variables and CWB. They found that agreeableness, conscientiousness, and emotional stability all had significant relationships with CWB. Agreeableness was the best predictor of counterproductive behaviors geared toward individuals and emotional stability and conscientiousness were the best predictors of counterproductive behaviors geared toward the organization.

Differential prediction

Tests that result in subgroup differences based on the race, color, gender, religion, or national origin of a potential employee are considered biased and may be subject to legal scrutiny (Civil Rights Act of 1964). Differences between test scores and performance across subgroups has been referred to as differential prediction (Berry, Clark, & McClure, 2011; Sackett & Wilk, 1994). Cognitive ability tests have frequently been criticized as biased against racial minority groups (Berry et al., 2011; Ng & Sears, 2010). In fact, the controversy of racial differences is so well known that cognitive ability tests are often perceived by test-takers to be unfair (Jensen, 2000).

Although some researchers ignore the differential prediction of cognitive ability tests, there is empirical support for the concern. For example, Ng & Sears (2010) found that the use of cognitive ability tests in selection processes was negatively related to the proportion of racial minorities represented within an organization as a whole and in management positions. The use of personality tests, however, was positively related to the level of racial minority representation. Berry et al. (2011) correlated cognitive ability test scores with performance for Caucasians, African-Americans, Hispanics, and Asians and found the greatest differential prediction was between Caucasians and African-Americans. In other words, the predictive validity of CA tests was lower for African-

Americans than for Caucasians. Organizations operating under federal diversity regulations are less likely to use cognitive ability tests because of the reputation of the tests for causing differential prediction (Ng & Sears, 2010). Racial group differences have been found in personality tests as well as other traditional selection methods such as college GPA and work samples (Ng & Sears, 2010; Roth & Bobko, 2000; Roth, Bobko, McFarland, & Buster, 2008). These few findings, however, do not compare to the volume of research and publicity on the differential prediction of cognitive ability tests.

One issue with cognitive ability tests, however, is that task performance is not the only aspect that makes an individual fit well within an organization (Rotundo & Sackett, 2002). A manager may have the cognitive ability to develop effective business plans, but lack the energy and people skills to keep subordinates motivated and satisfied with their job. Employees should fit within the culture employers are trying to create within the organization (Schneider, 1987). This led to an increase in the use of personality testing in selection. Combined, cognitive ability tests and personality tests make up the majority of research on selection testing (Hough & Oswald, 2000; Hough, Oswald, & Ployhart, 2001; Ones & Anderson, 2002; Roth, Bevier, Bobko, Switzer, & Tyler, 2001; Roth, Huffcutt, & Bobko, 2003;).

Personality Tests

A considerable amount of literature has been published on the use of personality tests in selection (Barrick & Mount, 1991; Costa & McCrae, 1989; Edwards, 1957; Hogan, 1991; Hogan, 2006; Murphy & Dzieweczynski, 2005). Meta-analyses in the 1990s on the personality-job performance relationship sent the use of personality tests soaring to record highs (e.g., Barrick & Mount, 1991). A survey in 2009 (Aberdeen

Group, 2009) revealed that personality assessment was a $500-plus million market with over 2500 personality tests available for purchase. In 2013, the market was worth $2 billion to $4 billion per year ("Personality testing at work: Emotional breakdown," 2013). Rothstein and Goffin (2006) reviewed the literature on personality tests as selection tools and concluded that most of the personality tests in use are based on the five-factor model (FFM; McCrae & Costa, 1987). This model consists of five over-arching factors: conscientiousness, extraversion, agreeableness, neuroticism and openness to experience. Thee FFM is very useful in understand personality traits, however, several concerns arise within the literature on personality testing in selection: the validity of personality tests, the ability of testers to fake information, and inability of personality tests to recognize the influence of situational context (Apter, 2001a; Mischel, 1984; Morgeson et al., 2007; Tett & Burnett, 2003).

Personality and job performance

Although personality has been found to relate to citizenship and CWB (Borman et al., 2001; Hurtz & Donovan, 2000), there is little support for the relationship between personality and task performance. The observed validity coefficients of the relationship between personality tests and task performance have been consistently low over time (Morgeson et al., 2007). The highest and most desirable personality predictor of performance is conscientiousness, and reported validity coefficients have ranged from .10 and .15 (Barrick & Mount, 1991; Hurtz & Donovan, 2000; McFarland & Ryan, 2000; Salgado, 1997). Bing, Whanger, Davison, and VanHook (2004) found, however, that adding contextual aspects to personality tests increased the validity coefficients from .42 to .51 in a sample of 342 participants. The addition of situational context to items on

personality tests is referred to as the frame of reference effect (Smith, Hanges, & Dickson, 2001). Bing et al. (2004) urged researchers and practitioners to conceptualize and measure personality using situational and context specific terms. Other researchers have found that personality becomes more relevant to task performance when the trait is directly related to the situation or job demands (Barrick & Mount, 1991; Hogan & Holland, 2003; Penney, David, & Witt, 2011). These findings suggest that personality tests may be more effective if they are more sensitive to situational factors.

Faking

An estimated 20% to 50% of applicants fake information on personality measures (Arthur, Glaze, Villado, & Taylor, 2010; Griffith, Chmielowski, & Yoshita, 2007; Griffith & Converse, 2011; Hough & Oswald, 2000; McFarland & Ryan, 2006). Ellingson, Sackett, and Hough (1999) found that statistical methods such as correction for social desirability are ineffective and fail to produce a score that is equivalent to an honest score. They therefore concluded it is nearly impossible to eliminate the effects of applicant faking. Several researchers, however, have argued that faking is "valid and interpretable variance" (Bourdeau & Lock, 2005; Ellingson, Smith, & Sackett, 2001; Hogan, 1991). In other words, faking is not random and may result from the context of the situation in which the applicant is answering items.

The situational context

Lewin (1943) suggested that behavior is a function of the person and the environment. When the environment is changing, individuals' behavior may change as well. However, some researchers have suggested that personality is relatively consistent (McCrae & Costa, 1987). The consistency of personality has persistently been debated in

several fields of research. Mischel (1984) found that small alterations in an experimental situation led to large mean differences in behavior suggesting there may be a strong link between behavior and the situation. Wright and Mischel (1987) developed the theory of conditional dispositions that suggests the manifestation of personality traits (i.e., dispositions) is conditional upon the situation. Davis-Blake and Pfeffer (1989) argued that dispositions are a mirage and that the only significant determinants of employee behavior are situational in nature. Fleeson (2001) used experience sampling methods and a state measure of the Big 5 and found that within-person variation in personality was higher than between-person variation in personality. Molenaar and Campbell (2009) found that examining personality changes within individuals versus across individuals altered the factor structure of traditional personality variables. Such noteworthy changes and variations should not be counted as error as they may hold meaningful information about how personality is conceptualized (Apter, 2001a).

Variation in personality and the effects of contextual factors are increasingly being found in the organizational literature, and thus it is important to recognize them in practice as well (Church et al., 2013; Fleeson, 2001; Ryan, La Guardia, Solky-Butzel, Chirkov, & Kim, 2005). The use of personality tests in selection appears to have ignored this variance and role of situations. Many researchers appear to assume that personality tests at one point will predict performance at various other points in the future. However, some theories incorporating inconsistency in the workplace are beginning to surface. For example, affective events theory suggests that job satisfaction is a composed of a pattern of states and the variation in satisfaction is not error but an essential characteristic of human behavior (Weiss & Cropanzano, 1996). Tett and Burnett (2003) developed the

trait-activation theory in which they argue that certain traits are activated by particular situational cues and that these traits are less likely to have an effect when these cues are not present. Kuppens et al. (2007) coined the term "affect spin", which is an assessment of movement from one affective state to another (Kuppens, Van Mechelen, Nezlek, Dossche, & Timmermans, 2007). They suggest that the "sense of spin," or the experience of transition and variability between affective states is meaningful to employees and therefore to organizational research as well. Because personality tests ignore state variation, there may be gaps in predicting performance based on personality, especially due to the variation in individual performance.

Challenges in Predicting Job Performance

Groundbreaking research by Schneider (1987) led organizations to place importance on hiring employees that fit with the overall vision and strategy of the organization. The underlying assumption of person-environment fit was that organizations were relatively stable and so were individuals (Jansen & Kristof-Brown, 1998). However, organizations are susceptible to change, and researchers have come to realize that so are the people within them (Townsend et al., & Hendrickson, 1998). The instability of employee job performance is becoming a relevant topic as researchers begin to understand the episodic nature of the construct (Fisher & Noble, 2004; Stewart & Nandkeolyar, 2006; Weiss & Cropanzano, 1996).

Empirical support for the instability of job performance is growing. For example, Fisher and Noble (2004) used 3500 measurements from 114 people, and they found that perceived skill, task difficulty, interest, and effort predicted momentary task performance. In a large-sample meta-analysis, Sturman, Cheramie, and Cashen (2005) found that not

only is performance inconsistent, but also the longer the time between measurements, the more inconsistent performance becomes. Fluctuations also increased as the complexity of the job increased. With more and more jobs becoming complex, performance is becoming increasingly unstable and difficult to predict. Sturman et al. (2005) also found that objective measures fluctuated more than subjective measures indicating subjective measures may allow circumstances to be taking into account, such as environmental factors.

Fluctuations in performance not only happen over long periods of time, but also short-term as well. For example, Trougakos, Beal, Green, and Weiss (2008) examined eight performance episodes during a three-day period and found that 48% of the variance in performance was accounted for by within-person changes. These short-term fluctuations are not just seen in task performance, but contextual performance and counterproductive behaviors fluctuate as well (Binnewies, Sonnentag, & Mojza, 2009; Dalal, Lam, Weiss, Welch, & Hulin, 2009; Ilies, Scott, & Judge, 2006). For example, Ilies et al. (2006) used 825 data points from 62 individuals for 15 days and found that 29% of the variance in citizenship behaviors was within person. Dalal et al. (2009) found that momentary positive affect leads to citizenship behaviors whereas momentary negative affect leads to counterproductive behaviors. Support for the effect of states on performance is also evident in theory. For example, Weiss and Cropanzano (1996) developed affective events theory that posits performance is episodic and due to changes in affective states throughout the day.

Because states may affect criterion, states should be taken into account when considering predictors. Selection methods that rely on the assumption of stability may no

longer be suited for predicting performance. The present work asserts the need for new measures that recognize the lack of stability of organizations, of performance, and of people. IA may be an effective measure for addressing this issue because of the trait and state-like nature associated with the construct. Several concerns have also emerged in the research involving the use of cognitive ability and personality as selection tests. These concerns heighten the need for new ways to predict job performance. IA includes cognitive ability and personality facets, suggesting it may effectively predict job performance while addressing some of the concerns related to the traditional measures. The present research suggests that selecting employees based on their ability to adapt may be a more effective method than selecting employees based on stable measures such as cognitive ability and personality.

Individual Adaptability

Definition

Although the literature on adaptability is just beginning to expand, many researchers have noted confusion within this body of research (Baard et al., 2014; Ployhart & Bliese, 2006; Pulakos, Dorsey, & White, 2006). The definition of the construct lacks clarity, and researchers have not yet agreed on how to conceptualize and measure adaptability. Allworth and Hesketh (1999) were one of the first to define adaptive performance at work, and they described it as, "behaviors demonstrating the ability to cope with change and to transfer learning from one task to another as job demands vary" (p. 98). Building on their definition, Pulakos et al. (2000) defined adaptability as a performance dimension and describe adaptability as "altering behavior to meet the demands of the environment, an event or a new situation" (p. 615). Another

stream of researchers consider adaptability an individual difference variable and describe it as "an individual's ability, skill, disposition, willingness, and/or motivation to change or fit different task, social, and environmental features" (Ployhart & Bliese, 2006, p. 13). Yet a third body of research conceptualizes adaptability as specific to a particular task and defines it as "using one's existing knowledge base to change a learned procedure, or to generate a solution to a completely new problem" (Ivancic & Hesketh, 2000, p. 1968).

In a recent review article examining all organizational approaches to adaptability, Baard et al. (2014) developed a comprehensive definition of workplace adaptability. They defined it as "cognitive, affective, motivational, and behavioral modifications made in response to the demands of a new or changing environment, or situational demands" (p. 3). However, their definition does not acknowledge changes that occur in anticipation of the demands of new or changing situations. Conceptualizing adaptability as only a response to change ignores individuals' tendency to adapt behaviors before an actual change occurs. For example, if an opportunity for a promotion arises, employees may begin to learn new tasks that will place them in favorable positions. A change has not occurred, but the expectancy of change led the employees to adapt their behaviors. The present paper will rely on the definition suggested by Ployhart and Bliese (2006) in which IA is defined as an individual's tendency to adapt to fit the environment before a change occurs or after a change has occurred.

Theoretical Approaches

Two major perspectives have evolved in the workplace adaptability research: domain-specific and domain-general (Kozlowski & Rench, 2009). The domain-general perspective conceptualizes adaptability as a relatively stable variable that differs from

individual to individual and may be applied to various situations and contexts (Ployhart & Bliese, 2006; Pulakos et al., 2000). This perspective has strong implications for performance processes and has been applied to selecting adaptable employees. The domain-specific perspective focuses on training and development and derives from the research on expertise. This perspective assumes specific knowledge and skills may mitigate declines in performance resulting from change (Kozlowski et al., 2001; Marks, Mathieu, & Zaccaro, 2001).

Baard et al. (2014) found that within these two perspectives are four different approaches to adaptability. The domain-general perspective includes a performance-construct approach and an individual-difference approach. The domain-specific perspective includes a performance-change approach and a process approach. Table 1 compares the conceptualization and measurement of adaptability within the four approaches. Even within these four approaches, however, there are varied definitions and streams of research (e.g., the performance-change approach includes three different operationalization of adaptation). Such a lack of consistency makes it difficult for research in this area to grow and develop as researchers and practitioners have difficulty deciphering which perspective, definition, or operationalization of adaptability to use. Because the current paper focuses on selection, the proposed research will take the domain-general perspective in which adaptability is an individual difference variable. The following sections describe in detail the two approaches within this domain-general perspective and provide a rationale for the use of the individual-difference approach.

Table 1

Comparison of the Approaches *to* Adaptability

Approach	Conceptualization	Measurement
Performance-construct (Pulakos et al., 2000, 2002)	Adaptive performance describes situations in which individuals modify their behavior to meet the demands of a new situation or event or a changed environment.	Job Adaptability Inventory
Individual-difference (Ployhart & Bliese, 2006)	Individual adaptability is not only an ability to respond to a changing environment but also a set of abilities, skills, and motivations that an individual has to be proactive or reactive to changes in different situations.	I-ADAPT Measure
Performance-change (Heimbeck, Frese, Sonnentag, & Keith, 2003)	Adaptive performance is seen in how well individuals address the gap between learning and transfer tasks that are more ill-structured and novel.	Experimenter ratings
Process (Kozlowski & Bell, 2006; Kozlowski et al., 2001)	Adaptive performance is evident in transfer situations where knowledge and skills learned during training must be adapted to effectively perform in new or more complex situations.	Computer-based scenarios

Note. Adapted from Baard, S. K., Rench, T. A., & Kozlowski, S. W. J. (2014). Performance adaptation: A theoretical integration and review. Journal of Management, 40(1), 48-99.

Performance-construct approach

The performance-construct approach focuses on adaptability as a global, stand-alone outcome measure separate from performance specifics or as one of several facets of performance referred to as adaptive performance (Allworth & Hesketh, 1999; Pulakos et al., 2000). In other words, adaptability may be included along with other performance criteria such, as task and contextual performance. Allworth and Hesketh (1999) were the first to conceptualize adaptability as a distinct performance dimension that did not fit within

previous frameworks of performance. However, most of this research stems from military research conducted by Pulakos et al. (2000; 2002) and White et al. (2005). They consider adaptive performance to be the aggregate of behaviors modified to meet the demands of new situations over a particular period of time (Pulakos et al., 2000). Adaptability may be a performance dimension that requires individuals to effectively change behaviors. (Motowidlo & Kell, 2012).

Pulakos et al. (2000) were the first to explore and develop a taxonomy of adaptive performance. Through a detailed examination of almost 10,000 critical incidents, they were able to categorize over 700 incidents into eight dimensions of adaptive performance: crisis, learning, uncertainty, handling stress, creativity, physical, cultural, and interpersonal. The crisis dimension refers to skill in handling emergencies or crisis situations. An individual is considered adaptable in this dimension when he or she can think under pressure, quickly examine an emergency situation and strategize how to deal with the danger, and do so why remaining level-headed and emotionally in control. Second, the learning dimension involves learning new tasks, technologies, and procedures. An individual is considered adaptable in this dimension when he or she can adjust to new systems with enthusiasm, quickly acquire the knowledge and skills necessary to complete new tasks, notice where there may be performance deficiencies, and take actions (e.g., training) to improve them. Third, the uncertainty dimension involves dealing with ambiguous or unpredictable work situations. Adaptable individuals can quickly adjust plans and actions to meet new demands, can act on situations without having all the information, and can easily switch gears to fit current circumstances.

Fourth, handling work stress involves dealing well with work tensions, staying calm under pressure, effectively managing frustration or exhaustion, and remaining professional in stressful situations. Fifth, the creativity dimension involves solving problems in an innovative way. This dimension includes examining complex situations or problems and generating unique solutions, thinking outside the norm, and discovering new ways to obtain and use resources. Sixth, the physical dimension refers to skill in dealing with different physical conditions, adjusting to changes within the physical environment (e.g., temperatures or noise), and building strength, adjusting weight, and pushing limits to meet the demands of physical tasks. Seventh, the cultural dimension involves learning about the needs and values of others, understanding cultural differences, and adjusting to clients and coworkers of different cultures by changing mannerisms or behaviors to respect those differences. Finally, the interpersonal dimension involves listening to and being mindful of the thoughts and opinions of others, being open to negative feedback from peers and subordinates, being flexible and incorporating others' ideas into decisions, being flexible enough to get along with individuals with diverse personalities, and having the ability to persuade and influence others in order to work more effectively with them. A confirmatory factory analysis using over 3,000 participants confirmed this 8-factor structure with internal consistencies ranging from .89 to .97. Correlations between scales were moderate suggesting that all eight factors measure an underlying theme of adaptability, yet each measures a unique aspect of the construct (Pulakos et al., 2002).

Many researchers have come to accept the performance-construct approach and accept adaptability as a distinct aspect of job performance (Campbell, 2012). The

majority of the performance-construct research focuses on discovering predictors of adaptive performance. For example, Pulakos et al. (2002) found that cognitive ability and achievement orientation were predictors of adaptive performance within a sample of 739 military personnel, with achievement motivation being the strongest. Huang, Ryan, Zabel, and Palmer (2014) conducted a meta-analysis and discovered that emotional stability was associated with adaptive performance.

Although predicting adaptive performance is important, the performance-construct research still raises several concerns. One criticism of the performance-construct approach is that Pulakos et al (2000) seem to have developed a list of situations that require individuals to adapt their task, contextual, or CWBs (Motowidlo & Kell, 2012). In other words, adaptability may not be a separate dimension of performance, but instead, individuals are faced with situations that require adaptations in their performance. For example, a crisis is a situation that requires changes in an individual's task performance. Johnson (2001) provides support for the overlap between adaptive and contextual performance. Specifically, after conducting a confirmatory factor analysis using 842 supervisors and performance ratings of 2,308 employees, it was found that adaptability dimension of handling work stress did not load on a third factor of performance. Instead, it loaded with contextual performance. Johnson (2001) suggests handling crisis situations, solving problems creatively, and demonstrating physically adaptability may be included in task performance due to the task-oriented nature of the dimensions. He also suggested interpersonal adaptability and cultural adaptability may be included in contextual performance due to the social nature of the dimensions. Ployhart and Bliese (2006) suggest that all eight dimensions may be included within other

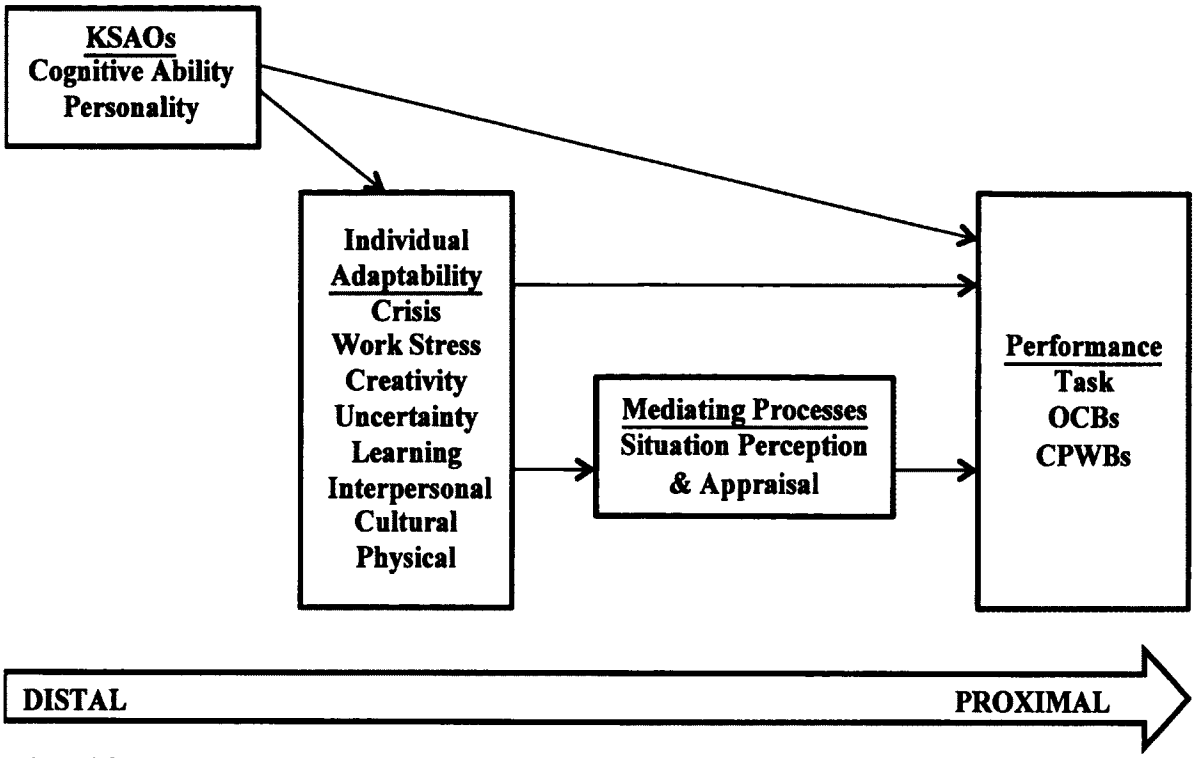
established dimensions of performance. They developed a new theory and measure of adaptability based on this hypothesis. Their work has fueled the individual-difference approach to adaptability.

Individual-difference approach

The individual-difference approach conceptualizes adaptability as *individual adaptability* (Ployhart & Bliese, 2006). This approach suggests adaptability is an individual difference variable instead of a comprehensive outcome variable. Individual adaptability (IA) is considered to be a distinct construct that predicts several performance criteria rather than being a type of performance criteria. In other words, IA is viewed as a predictor of task performance, contextual performance, and CWB. Motowidlo and Kell (2012) define adaptability as a set of independent capabilities that drive behavioral responses to environmental change. This approach has implications for training, selection, and performance due to the emphasis placed on individual differences (Baard et al., 2014). For example, a measure of adaptability may be used to select employees and to predict future performance. In addition, adaptability is more proximal than traditional predictor variables such as cognitive ability, and individuals may be trained to become more adaptability (Ely, Zaccaro, & Conjar, 2009; Nelson, Zaccaro, & Herman, 2010).

Fugate, Kinicki, and Ashforth (2004) were among the first to use a measure of adaptability as a predictor variable, referring to it as employability. The majority of research in this approach, however, stems from the Ployhart and Bliese (2006) I-ADAPT theory. The theory focuses on an individual's ability or disposition to adapt to changes in the workplace. It involves "affecting the environment, reconfiguring oneself, and degrees between fit" (Ployhart & Bliese, 2006, p. 14). The theory suggests that IA is not a

specific knowledge, skill, ability, or other predictor (KSAO) but instead it is a composite of several KSAOs. Adaptability includes cognitive, emotional, social, and personality components (Ployhart & Bliese, 2006; Trundt, 2010). In other words, IA is a compound trait or metacompetency (Hough & Schneider, 1996; Motowidlo & Kell, 2012). It is viewed as more proximal than other KSAOs such as cognitive ability and personality because of the linkage between adaptability and the situation. In other words, unlike cognitive ability and personality, IA refers to individuals' tendency to behave a certain way in specific situations. Adaptability is stable and trait-like in that it includes aspects of cognitive ability and personality, but yet it is state-like in that it is specific to particular moments. It is thus a unique combination of individual differences and the requirements of the environment. Ployhart and Bliese (2006) suggest that because IA is proximal, it is more closely related to performance than traditional predictor variables. However, the influence of personality and cognitive ability make IA an individual difference variable (see Figure 1).



Adapted from Ployhart and Bliese (2006)

Figure 1 *Individual Adaptability (I-ADAPT) Theory*

I-ADAPT theory also suggests there are two types of adaptability: proactive and reactive. The most researched type is reactive adaptability, which refers to an individual adapting as a response to a change in the environment. Reactive adaptability is hypothesized to have a direct relationship with performance (Ployhart & Bliese, 2006) Proactive adaptability refers to an individual adapting to an anticipated need to change, regardless of whether there is an actual change in the environment. The proactive form of adaptability is why IA may be important even in stable environments. For example, if the opportunity for a promotion arises, an individual may adapt their behavior to put themselves in a better position to be promoted. The environment has not changed, and the behavior is not in a response to a change; however, these proactive adaptive behaviors would have a strong impact on performance. Huang et al. (2014) provided evidence for

the reactive and proactive distinction when they discovered emotional stability was predictive of reactive adaptability, whereas ambition was predictive of proactive adaptability. In other words, different aspects of personality predicted reactive and proactive adaptability suggesting the two are distinct constructs.

Rationale for the use of the individual-difference approach

Although the performance-construct and individual-difference approaches to adaptability have their strengths and weaknesses, I-ADAPT theory (an individual-difference approach) will be the model followed in the proposed research for several reasons. First, the performance-construct approach suggests adaptability as a separate dimension of performance. In contrast, the individual-difference approach suggests that any dimension of performance can be adaptive. For example, an employee notices communication between departments is dysfunctional and develops a new system for communication, or an employee stays late after work to help a new coworker learn the processes involved in their job. Both of these require adaptability, and both are citizenship behaviors. Counterproductive behaviors, on the other hand, could be the result of not being adaptive. For example, an employee does not like the noise the fax machine makes, and turns it off, thereby limiting communications with customers, or an employee cannot handle the stress of a new project and begins drinking during lunch breaks. These behaviors are counterproductive behaviors arising from not being unable to adapt to stressful situations and physical conditions. Thus, using I-ADAPT theory will allow the examination of the adaptability requirements that may be present within all three dimensions of performance.

Second, I-ADAPT theory acknowledges that the situation may not change, but a person's behavior may need to change. In other words, the environment can be static yet employees may still be engaging in adaptive behaviors. Assessing adaptability based on outcome behaviors does not address the proactive form of adaptability. Lastly, because of the proximal position suggested in the I-ADAPT research, IA is a construct that may be trained (Ely et al., 2009), unlike cognitive ability or personality. Therefore, using an adaptability test based on I-ADAPT theory may be beneficial beyond selection. Not only may adaptability tests be used to predict future performance, but also the tests may be used for performance management, career development, and training needs (Nelson et al., 2010).

Some researchers, however, have argued against individual-difference approach to adaptability. For instance, Pulakos et al. (2006) argued that the performance approach to adaptability is more operational than the individual-difference approach because not all jobs require adaptability. They noted that measuring the outcome of adaptive behaviors is more effective than predicting the outcome of adaptive behaviors that may not even occur. Pulakos et al. (2006) suggest instead the use of several possible predictors of adaptive performance: cognitive ability, practical intelligence, originality, domain-specific knowledge, openness, cognitive flexibility, emotional stability, cooperativeness, achievement motivation, sociability, and social intelligence. However, there are issues with this suggestion. First, the growing need for adaptability in the workplace across jobs is evident in research and practice (Griffin et al., 2007; Mumford et al., 2007; Ployhart & Bliese, 2006; Pulakos et al., 2000; Society for Human Resource Management, 2008). With more multinational companies, increased workplace diversity, and less-traditional

management and workplaces, most jobs will require some form of adaptability. Second, it may be argued that not every job requires sociability, originality, openness or the other suggested predictors. For example, a plant job that involves a routine task may not require originality. An accountant working from the home may not require socialability or cooperativeness. Using these variables to predict adaptive performance still leaves the employer with the issue that it may not be a variable required for every job. This is why validation studies for selection procedures are vital in organizations, and the same procedures used to validate traditional selection tests are needed to validate adaptability tests.

Third, the predictors Pulakos et al. (2006) suggest are strikingly similar to the definitions of the actual dimensions of adaptability. For example, the definition used for cooperativeness is working effectively with others to achieve goals, and the definition provided for their dimension of interpersonal adaptability is being able to adjust interpersonal styles to work with others to achieve goals. Another example is the similarity between the predictor emotional stability and the dimension handling work stress. Emotional stability is defined as remaining calm and levelheaded when confronted with difficult or stressful situations, and handling work stress is described in precisely the same manner. Instead of using predictors of adaptability that are one step removed, one direct measure of the construct itself seems beneficial. Thus, rather than suggesting employers use predictors similar to the eight dimensions of adaptability, the present research proposes using the adaptability dimensions in the unified form of the I-ADAPT measure (I-ADAPT-M) to predict job performance.

Measures of Adaptability

Different adaptability researchers have tended to develop their own measures leaving measurement of adaptive performance confusing and inconsistent (Baard et al., 2014). Instruments measuring adaptability are developed to fit the purpose and perspectives held by the researchers. The inconsistent measurement is most evident within the performance-construct stream of research, leaving findings in adaptive performance research confusing and inconsistent (Baard et al., 2014). Without established measures of adaptive performance, these studies may be predicting different aspects of the criterion domain. Baard et al. (2014) argued that the lack of consistent measurement is one of the weaknesses of the performance-construct approach. The Job Adaptability Inventory (JAI) developed by Pulakos et al. (2000, 2002), however, seems to be the measure in the performance-construct approach with the most validity. The JAI was developed to assess the adaptability requirements of military jobs. The 68-item instrument was created from over a thousand critical incidents and validated using 3,422 participants from various jobs and military branches. The JAI is useful as a job analysis instrument to determine the adaptive dimensions required for a specific job. Such use would be analogous to how the NEO Job Profiler and the Personality-Related Position Requirements Form are being used in job analysis to determine personality requirements of a job (Costa, McCrae, & Kay, 1995; Raymark, Schmit, & Guion, 1997).

Despite extensive studies by Pulakos et al. (2000; 2002), however, researchers taking the performance-construct approach to adaptability continue to develop and use their own measures. For example, Shoss, Witt, and Vera (2012) developed a 4-item supervisor rating scale of general adaptive performance while Griffin and Hesketh (2003)

used a 20-item supervisor rating scale. The problem with these measures is that they are developed once for a specific study and may not generalize to other situations and jobs. These measures are typically based on Pulakos' eight dimensions of adaptability (Zaccaro, Banks, Kiechel-Koles, Kemp, & Bader, 2009; Tucker & Gunther, 2009).

Pulakos' taxonomy of adaptability has been accepted in both the performance-construct and the individual-difference approaches to adaptability. For example, among researchers that conceptualize adaptability as an individual difference variable, Griffin and Hesketh (2003) used Pulakos' eight-dimension taxonomy of adaptability to develop an experience-based biodata measure. Ployhart and Bliese (2006) were the first in the individual difference stream to release a comprehensive 55-item scale to assess adaptability based on Pulakos' eight dimensions, the I-ADAPT-M. In a conference presentation, Ployhart, Saltz, Mayer, and Bliese (2002) discussed the development and validity of the I-ADAPT-M. Starting with 160 items, they used a sample of 2,990 ROTC candidates in a leadership assessment center.

A confirmatory factor analysis revealed the eight factor structure was a good fit, and reliabilities were .70 and higher with the exception of the uncertainty and physical dimensions. Overall, the measure was successful in predicting leadership performance, thus providing evidence of criterion-related validity. Interestingly, the uncertainty factor of adaptability predicted performance in more of the leadership dimensions than the other adaptability factors. In a second study, Ployhart et al. (2005) sought to establish the construct validity of the measure. Using 261 undergraduates, they found support for the construct validity of the I-ADAPT-M with neuroticism and coping being the most consistent correlates. All in all, Ployhart et al. (2005) provided decent support for the

validity of the I-ADAPT-M. Since this research, items have been added and deleted to increase the reliability of the uncertainty, learning, and physical dimensions (Ployhart & Bliese, 2006).

In contrast to the diverse measures used by researchers in the performance-construct stream, research stemming from I-ADAPT theory has incorporated the use of the I-ADAPT-M, with few exceptions (Van Dam, 2011). Almahamid, McAdams, and Al Kalaldeh (2010) used the I-ADAPT-M and found that adaptability related to knowledge sharing, satisfaction, and learning commitments. Hamtiaux and Houssemand (2012) explored the discriminant and convergent validity of the I-ADAPT-M by relating it to cognitive flexibility, rigidity, and personal need for structure. They found support for the validity of I-ADAPT-M with a positive relationship with cognitive flexibility and a negative relationship with personal need for structure. Some researchers have only used subscales of the I-ADAPT-M. For example, Wessel, Ryan, and Oswald (2008) used a sample of 198 college students and two subscales of the I-ADAPT-M. They found that learning and uncertainty predicted students' perceived fit with major. They also found that these dimensions were related to affective commitment, academic self-efficacy, and institutional satisfaction. Ironically, the learning and uncertainty dimensions were found to have negative relationships with the probability of a student changing majors. This finding indicates that adaptable students can adjust to unforeseen challenges and new tasks that may arise throughout their coursework.

Wang, Zhan, McCune, and Truxillo (2011) used the cultural, stress, learning, interpersonal, and uncertainty dimensions of the I-ADAPT-M to test the effects of newcomers' adaptability on perceived person-environment fit. With a sample of 671

newly-hired employees, they found that adaptability predicted perceived person-environment fit after three months on the job. They also found that the effects of adaptability on important work-related outcomes such as job performance, job satisfaction, and turnover intentions were mediated by person-environment fit. Wang et al. (2011) also included a measure of proactive personality as a control variable within their study and found evidence of discriminant validity between it and adaptability as measured by the I-ADAPT-M. In summary, the I-ADAPT-M has a strong theoretical foundation and growing empirical support. Baard et al. (2014) encourage further use of the I-ADAPT theory and measure in order to progress IA research.Individual adaptability as a predictor of job performance. IA may have strong implications in the area of selection. Combining cognitive ability and personality facets along with situational characteristics, IA may be thought of as a higher-order construct that encompasses the major constructs currently utilized to predict job performance. Each low-order construct, however, may weigh differently on certain KSAOs. For example, CA may relate to learning a new job task but not to adapting to working in new physical conditions. Dispositional traits such as resilience may relate more to handling work stress than to adapting to a coworker of a different culture. This may be negative because not all eight constructs will be related to all dimensions of performance at all times, and like all selection measures, it is not always known which predictors will be the best indicators of performance. Although some researchers have suggested using the KSAOs associated with IA to predict adaptive performance (Pulakos et al., 2002; Pulakos et al., 2000), using a measure of IA allows for a combination of KSAOs to be used under a single construct to predict task, citizenship, and CWB (Ployhart & Bliese, 2006). Also, its compound

nature makes it more likely to be useful across more situations, jobs, and performance types. It may also address some of the concerns related to CA and personality. The expected relationships between CA, conscientiousness, and IA and the dimensions of job performance can be seen in Figure 2.

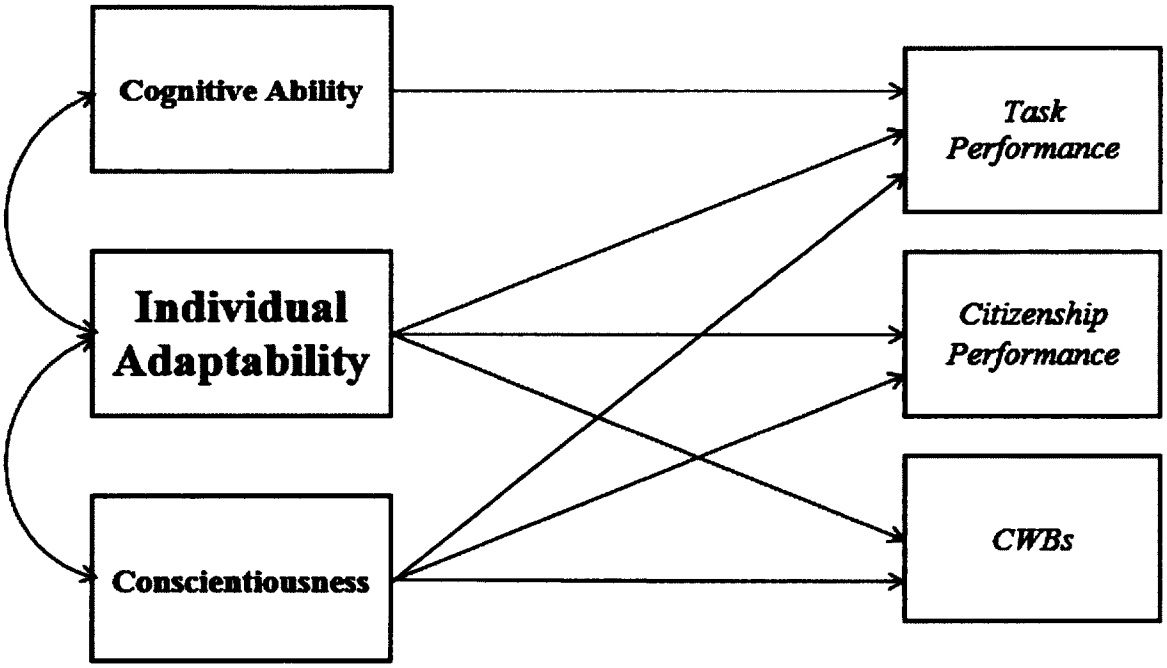


Figure 2 *Individual Adaptability, Personality, and Cognitive Ability as Predictors of Job Performance*

Individual Adaptability and Differential Prediction

One way to decrease the differential prediction in a selection system that includes a CA test is to supplement the test with non-cognitive measures (Hough et al., 2001; Hunter & Hunter, 1984). IA is a composite of cognitive and non-cognitive KSAOs; therefore, it is expected there will be less differential prediction for a measure, such as the I-ADAPT-M. For example, Grim (2010) found that was no differential prediction caused by the use of an IA to predict supervisor ratings of performance, and the subgroup differences were

lower than that of CA. Therefore, in the current paper, IA is hypothesized to have less differential prediction than CA.

Individual Adaptability and Task Performance

Adaptability is related to several personality constructs including openness to experience (Griffin & Hesketh, 2005; LePine, Colquitt, & Erez, 2000), conscientiousness (Griffin & Hesketh, 2005; Lepine et al., 2000; Shoss et al., 2012), and achievement motivation (Pulakos et al., 2000; Pulakos et al., 2002). However, the cognitive and situational aspects of IA link the construct more to task performance than personality. For example, Shoss et al. (2012) used a sample of 92 call center employees and found that IA was positively related to task performance. Chan and Schmitt (2002) found adaptability was significantly correlated with task and contextual performance. They also found that adaptability provided more incremental validity when supplemented with CA than the Big Five personality traits and job experience. Therefore, personality is hypothesized to predict IA, and IA will be more strongly to task performance than personality. IA is also proposed to be more situational than personality because of the conceptualization of the construct as a response to change (Ployhart & Bliese, 2006).

Individual Adaptability and the Situational Context

As more and more researchers discover the instability of performance, the use of stable predictors to predict performance becomes more questionable. A more proximal predictor such as IA may be advantageous because it measures an individual's response to environmental factors, and thus may account for some of the instabilities of employee performance. By using a measure of IA to predict performance, individual responses to different situations, under different conditions can be gauged. Cultural confrontations,

emergencies, dealing with the unknown, and learning new technologies are all things that employees are increasingly facing in today's organizations. Predicting how potential applicants will respond in these situations gives employers a better understanding of the volatility of all three types of applicant performance instead of stable, task idealistic performance. Selecting employees based on their ideal performance is not an accurate assessment of typical performance (Sackett, Zedeck, & Fogli, 1988), but by using the I-ADAPT-M to select employees, a more accurate picture of employee responses to different day-to-day situations may be assessed. The present research tests the relationship between state and IA by suggesting responses to the I-ADAPT-M will vary depending on their motivational state.

Testing the Relationship Between State and Individual Adaptability

The performance-construct approach to adaptability assumes that adaptability is only relevant in unstable or uncertain environments (Pulakos et al., 2000). In contrast, the individual-difference approach emphasizes proactive adaptability that can occur without the presence of an organizational change (Ployhart & Bliese, 2006). Ployhart and Bliese (2006) propose proactive adaptability occurs in anticipation of change, and it stems from individual differences in current perceptions. The way an individual recognizes and understands their surroundings can change behavioral responses; in fact, contextual factors can affect behavior more strongly than personality (Mischel, 1968; Fleeson & Noftle, 2008). For example, Fleeson (2007) found that within individual variation was related to changes in situational context thus suggesting changes in personality are due to changes in the situation. However, this perspective ignores dispositions, and the possibility that some people may behave differently even within the same situation. If

individuals are presented with the same context but in a different state of mind, their state may color the way they view the situation and lead them to behave in a different manner (Apter, 2001a). The difficulty arises in making sense of the unpredictability of states and understanding how states change behavior. However, there are theories that aid in understanding this phenomenon (Apter, 2001b; Deci & Ryan, 2000; Weiss & Cropanzano, 1996).

One such theory that adds meaning to state perceptions is *reversal theory* (RT; Apter, 2001b, 2007). Reversal theory is a theory of motivation, personality, and emotion (Smith & Apter, 1975). Apter posits that individuals' personalities are inconsistent. The theory differs from situational theories by suggesting that people can change states regardless of their situational context. In fact, an individual may be in the same situation and behave completely different based on which state they are in. RT hypotheses eight different states, each state has a polar opposite: telic and paratelic, conforming and negativistic, autic and alloic, and sympathy and mastery. Each pair of opposites makes up a domain (means-end, rules, orientation, and interaction, respectively). The theory further proposes that an individual must be in one of the states in each domain pair at any particular time. For example, an individual may be in the telic, rebellious, other-oriented, and mastery states, but then reverse to the paratelic, conformist, self-oriented, sympathy states. This would represent four reversals as states changed in all four domains. According to the theory, an individual's motivation state colors the way he or she views everything at that moment. It is similar to having eight different lenses, and each lens changes the way the environment is perceived. Each state influences emotional and physical responses to the environment (Apter, 2007).

There is empirical support for the eight states as well as other basic assumptions of reversal theory (Walters, Apter, & Svebak, 1982; Lindner & Kerr, 2000; Legrand & Apter, 2004; Legrand & Thatcher, 2011; Murphy & Desselles, 2011; Desselles, Murphy, & Theys, 2014). For example, Walters et al. (1982) found that certain colors evoked specific motivational states in employees at work. Specifically, arousing colors such as red, orange, and yellow were associated with the telic state and de-arousing colors such as blue, indigo, and violet were associated with the paratelic state. Lindner and Kerr (2000), using a sample of over 3000 students, found that there were differences in state-dominance between students who participated in sports versus those who did not. In other words, individuals who participated in sports generally spent more time in the telic and other-oriented states than nonparticipants. More recently, Murphy and Desselles (2011) found support for the assumption that individuals are inconsistent, and inconsistency is associated with positive affect. Through the use of an ecological momentary assessment method, collected real-time measures of motivational state five times over the course of two days from each respondent. With over 300 data points, they found that changing states had an impact on affect. Specifically, the more individuals' reversed between certain states throughout the day, the more positive affect and the less negative affect they reported for that day.

RT does not ignore the fact that there are individual differences in personality. In fact, trends in motivational states are what make up personality (Apter, 2001a). Reversal theory takes the state and trait perspectives and synthesizes them into something meaningful. Variance in trait-based personality becomes interpretable through the acknowledgement of state reversals. An individual's tendency to change or reverse is

what is dispositional rather than personality aspects. This is why there is variation in personality, but aggregated, there is still underlying consistency (Fleeson, 2001; La Guardia, Ryan, Couchman, & Deci, 2000). From the perspective of RT, ignoring the temporal nature of personality ignores important variance that is key to understanding individual personality.

To understand what leads individuals to adapt and how proactive behaviors can affect performance, an understanding of individuals' state of mind should be assessed (Ployhart & Bliese, 2006). The state concept of RT can add understanding to proactive adaptability because an individuals' motivational states colors the way they perceive their environment; thus, IA should be affected by motivational state. In the proposed study, participants will be given a battery of pre-employment tests that include a CA test, personality test, and the I-ADAPT-M. It is expected that an individual's motivational state when they take the battery of tests will predict their response to the adaptability assessment.

Hypotheses

Hypotheses Regarding the Relationship Between Predictors

IA is a construct that consists of cognitive ability and personality aspects such as conscientiousness (Trundt, 2010; Ployhart & Bliese, 2006; Chan, 2000). Thus, it is hypothesized that cognitive ability and conscientiousness will be positively related to IA in the proposed study.

Hypothesis 1. Cognitive ability will be positively related to individual adaptability.

Hypothesis 2. Conscientiousness will be positively related to individual adaptability.

Hypotheses Regarding Predictors of Job Performance

Cognitive ability has been found to be the strongest predictor of task performance. However, it typically has a small-to-none relationship with other types of performance such as citizenship and CWBs (Hunter & Hunter, 1984; Schmidt et al., 1988). Personality factors such as conscientiousness have been found to be a better predictor of citizenship and counterproductive behaviors than of task behaviors (Judge, LePine, & Rich, 2006; Penney et al., 2011). Conscientiousness more strongly relates to behaviors that are not specific to the job, such as interacting with coworkers and arriving to work on time (Motowidlo & Schmit, 1999; Organ, 1997). Because IA includes both CA and personality components, it is expected to predict task performance, citizenship performance and CWBs. It is also expected that IA alone will be the most parsimonious measure when predicting job performance. Thus, the following hypothesis are proposed.

Hypothesis 3. Individual adaptability will predict citizenship performance.

Hypothesis 4. Cognitive ability and conscientiousness will not contribute a significant amount of explained variance in citizenship performance after accounting for the variance attributed to individual adaptability.

Hypothesis 5. Individual adaptability will predict counterproductive work behavior.

Hypothesis 6. Cognitive ability and conscientiousness will not contribute a significant amount of explained variance in counterproductive work behaviors after accounting for the variance attributed to individual adaptability.

Hypothesis 7. Individual adaptability will predict task performance.

Hypothesis 8. Cognitive ability and conscientiousness will not contribute a significant amount of explained variance in task performance after accounting for the variance attributed to individual adaptability.

Hypotheses Regarding Differential Prediction

Subgroup differences are common when CA tests are used for selection. For example, McKay and McDaniel (2006) conducted the largest meta-analysis to date examining racial differences in performance, and they found mean racial differences favored Caucasians in comparison to African-Americans. Personality, however, has been found to be less susceptible to problems of differential prediction (Hough et al., 2001; Schmitt & Hunter, 2004). Because IA includes aspects of personality, it is hypothesized that IA will result in less differential prediction than CA. This hypothesis is exploratory due to the lack of extant research.

Hypothesis 9. Individual adaptability will show less differential prediction when predicting task performance than cognitive ability.

Hypotheses Regarding the Relationship Between State and IA

Personality testing has been criticized for neglecting to address situational components and for its susceptibility to faking (Morgeson et al., 2007). One way that researchers have found to mitigate the effects of faking, and increase the validity coefficients of the personality-task performance relationship, is through adding a frame of reference or situational aspect to items on personality tests (Bing et al., 2004). Because Ployhart and Bliese (2006) propose IA to be more proximal than personality, it is expected IA will be more susceptible to state perceptions such as motivational state.

Specifically, an individual's current motivational state is hypothesized to relate to responses on the I-ADAPT-M. It is expected there will be differences in relationships with motivational states and specific IA dimensions; however, these relationships will be exploratory due to the lack of extant research to make theoretically or empirically based hypothesis.

Hypothesis 10. Motivational state will be related to IA, such that individuals experiencing different motivational states will respond differently on measures of IA.

CHAPTER TWO

METHOD

Participants

The sample consisted of 313 working adults employed in a wide array of industries (i.e., technology, healthcare, administrative, services, marketing and sales, professional services, and general labor) and organizations across the United States. The sample included 47% male respondents and 53% female respondents. A variety of age groups were represented; 29% were under 30 years, 38% were 30 to 39 years, and 32% were 40 years or older (see Table 2). About 74% of the sample worked full-time, and 87% worked the day shift. Three-fourths of the sample considered their job level to be entry or intermediate. The average tenure in their current position was approximately 5 years (M = 59.3 months, SD = 51.6). The majority of participants were White/Caucasian (83%) although a diverse mix of minorities also took part (7% Black/African-American, 7% Asian, and 3% Hispanic). Only English-speaking employees participated in this research. Descriptive statistics on the demographic measures and reversal theory states are presented in Table 2.

Table 2

Frequency Distribution of Age, Gender, Race/Ethnicity, and Reversal Theory States

Variable	*N*	%	Cum %
Age			
18-20	8	2.6	2.6
21-29	83	26.7	29.1
30-39	119	38.0	67.1
40-49	54	17.3	84.3
50-59	42	13.4	97.8
60 or older	7	2.2	100.0
Gender			
Male	147	47.0	47.1
Female	165	52.7	100.0
Race/Ethnicity			
White/Caucasian	259	82.7	82.7
Black/African American	23	7.3	90.1
Asian	21	6.7	96.8
Hispanic/Latino/a	8	2.6	99.4
Other	2	.6	100.0
Reversal Theory States			
Telic	202	64.5	64.5
Paratelic	111	35.5	100.0
Conforming	279	89.1	89.1
Rebellious	34	10.9	100.0
Self-Mastery	79	25.2	25.2
Other-Mastery	56	17.9	43.1
Self-Sympathy	36	11.5	54.6
Other-Sympathy	142	45.5	100.0

Measures

I-ADAPT Measure

As previously discussed, the I-ADAPT-M was used to measure adaptability (Ployhart & Bliese, 2006). The 55-item scale is based on the taxonomy developed by

Pulakos et al. (2000, 2002). Responses are reported on a Likert-type scale from 1 (disagree) to 5 (agree) with some reverse-scored items within each subscale. Ployhart et al. (2002) developed and validated the I-ADAPT-M; their confirmatory factor analysis revealed that the eight factor structure was a good fit, and reliabilities were found to be .70 and higher with the exception of the uncertainty and physical dimensions. In the present study, the obtained reliability of the cumulative adaptability scale was found to be .95. Reliability estimates for the eight subscales of adaptability were found to be .81, .91, .86, .86, .84, .91, .72, and .80 for creativity, crisis, cultural, work stress, interpersonal, learning, physical, and uncertainty, respectively. A sample item from the crisis subscale includes "I think clearly in times of urgency." The list of I-ADAPT-M items may be found in Appendix A.

International Personality Item Pool - Conscientiousness Scale

The International Personality Item Pool (IPIP) is an open-source collection of personality scales and items (Goldberg, 1999). Measures of conscientiousness have consistently predicted job performance across occupations and criteria (Barrick & Mount, 1991; Barrick, Mount, & Strauss, 1993; Hough, Eaton, Dunnette, Kamp, & McCloy, 1990). Therefore, conscientiousness was the only personality trait examined in this research. Conscientiousness refers to a pattern of behavior that is "responsible, dependable, persistent, and achievement-oriented" (Barrick et al., 1993, p. 111). It has been shown to be a reliable scale with internal consistency typically around .81 (Goldberg, 1999). In this study, the Cronbach alpha for the conscientiousness scale was .95. Example items in this 20-item scale include "carry out my plans" and "waste my time," and ten items are reversed scored. Responses are recorded on a Likert-type scale

from 1 (disagree) to 5 (agree). See Appendix B for the list of IPIP-Conscientiousness items included in this research.

Wonderlic Personnel Test – Quicktest

Cognitive ability was assessed using the Wonderlic Personnel Test - Quickest (WPT-Q; Wonderlic & Associates, 2002). The WPT-Q, a short version of the Wonderlic Personnel Test, is a 30-item instrument measuring verbal, quantitative-, and logical-reasoning skills. Specific item types include verbal analogies, vocabulary, number series, spatial problems, and arithmetic problems. The WPT is one of the oldest and most widely used measures of CA, and there is extensive validity evidence for the measure (Schraw, 2001; Schmidt & Hunter, 2004). Test-retest reliabilities for the WPT usually range from .82 to .94 (Geisinger, 2001), and Dodrill and Warner (1988) found a correlation of .91 between the WPT scores and the Wechsler Adult Intelligence Scale (Wechsler, 2008). The WPT-Q was administered through a third-party site, and only raw composite scores were available to the researcher. Participants were given 8 minutes to complete the assessment, and the items were arranged in ascending order of difficulty. As with most commercial tests, copyright restrictions prevent individual items on the WPT-Q from being analyzed or reproduced.

In-Role-Behavior Scale

Because of the large variety of occupations represented in the sample, a general measure of task performance was used. Williams and Anderson (1991) developed the 7-item in-role-behavior scale (IRB), which measures broadly applicable behaviors required for work. Employees rated their own performance on the items using a frequency scale from 1 (never) to 5 (every day). Sample items include "adequately completed assigned

duties" and "neglected aspects of the job he/she was obligated to perform" (see Appendix C). The scale has been widely used in organizational research and the reliability of this scale is normally relatively high (over .90; Sparrowe, Liden, Wayne, & Kraimer, 2001; Williams & Anderson, 1991). However, Sparrowe et al. (2001) and Williams and Anderson (1991) have reported that one item ("engaged in activities that directly affected his/her performance evaluation") had a low inter-item correlation, and they omitted this item from their analyses. In the present study, this item was also removed after examination of the item-total statistics and factor loadings following a varimax rotation, this item was deleted. The Cronbach alpha of the remaining 6-items used in the present study was .78.

Organizational Citizenship Behavior Checklist – Abbreviated

The Organizational Citizenship Behavior - Checklist (OCB-C) was used to measure citizenship performance (Fox, Spector, Goh, Bruursema, & Kessler, 2012). Employees rated themselves using the 10 items related to employee citizenship performance on a frequency response scale from 1 (never) to 5 (every day). Spector, Bauer, and Fox (2010) found frequency responses to be the most effective format for ratings of citizenship behaviors. The items were developed using 214 critical incidents, and specifically avoided the use of CWB antithetical items. Eliminating antithetical items minimized multicollinearity and cross loadings on the two variables (Spector et al., 2010). The scale was found to have acceptable internal consistency in the present study with an obtained reliability estimate of .82. This is consistent with previous research reported an obtained reliability estimate of .94 (Fox et al., 2012). Sample items include

"picked up meal for others at work" and "helped a co-worker who had too much to do" (see Appendix C).

Counterproductive Work Behavior Checklist – Abbreviated

A 10-item short version of the Counterproductive Work Behavior - Checklist (CWB-C) was used to measure CWBs (Spector et al., 2006). As was the case for the OCB measure, the CWB measure was developed without the use of antithetical items because such items are found to cross load on OCB factors (Spector et al., 2010). The facets in the CWB-C include abuse, production deviance, sabotage, theft, and withdrawal; however, the CWB-C is scored as a single-factor. A frequency response format is used, ranging from 1 (never) to 5 (every day), which has been suggested by Spector et al. (2010) as more accurate for measuring CWBs than agreement formats (i.e., 5-point Likert-type agree-disagree scale). The reliability estimates reported for the CWB-C are usually between .84 and .98 (Spector et al., 2006; Fox et al., 2012). In the present study, the Cronbach alpha was .82. An example item includes "came to work late without permission" (see Appendix C).

Reversal Theory State Measure – Bundled

The Reversal Theory State Measure - Bundled (RTSM-B) was used to measure motivational state (Desselles et al., 2014). The RTSM-B consists of three forced-choice items used to accurately capture momentary states (see Appendix D). The first item presents the choice between telic and paratelic states while the second presents the choice between conforming and rebellious states. The third item presents four options in which the self- and other-oriented states are combined with the mastery and sympathy states: self-mastery, self-sympathy, other-mastery, and other-sympathy. Although the measure is

brief, Desselles et al. (2014) found that the bundled version results in similar conclusions to longer measures of motivational state with the benefit of being more sensitive to individual differences and being conceptually well grounded. The longer version on which the bundled version is based was shown to have a clearly interpretable 8-factor structure as hypothesized.

Additional Measures

Job complexity alters the relationship between individual differences and job performance (Hunter & Hunter, 1984). Therefore, occupation and industry information was collected in the present study. Because there may be significant differences in physical and mental health between day- and night-shift workers (Knutsson, 2003), information on job shift was also collected. A short, 13-item form of the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960) developed by Reynolds (1982) was used to control for possible faking effects. The scale has been shown to have acceptability reliability (.76; Reynolds, 1982). This is consistent with the obtained alpha in the current study, .74. The scale is rated using a Likert-scale from 1 (disagree) to 5 (agree). A sample item of this scale is "I have never been irked when people expressed ideas very different from my own," and the remainder of the items can be found in Appendix E. A short demographic questionnaire (see Appendix F) was given to all participants and included items regarding race, age, gender, and employment status.

Procedure

Data collection was initially attempted at 11 assisted living and medical facilities across the United States. Employee participants were asked to fill out an online questionnaire taking approximately 45 minutes. Participation was voluntary, and an

incentive was offered. At the completion of the survey, participants were provided a link through which they would be entered into a drawing for an Apple iPad. Supervisor participants are asked to fill out an online questionnaire for each of their employees regarding performance. The employee performance survey took approximately five minutes per employee. All responses were sent directly to the researcher. Only 27 employees completed the surveys out of a total pool numbering over 900 (0.3% response rate). Subsequent investigation into possible reasons for the low response rate revealed that employee access to computers was much lower than originally estimated. Several employees expressed interest in a mobile version of the surveys, but the WPT-Q was not available in this format from the publisher. Participation from supervisors was higher. Twelve out of an estimated 35 managers completed ratings on their employees (34% response rate). However, the responses from employees were not able to be matched with supervisory ratings; the employees responding to the survey were not the same individuals for whom supervisory ratings were available. As a result, the data obtained from the healthcare organization was not suitable for the present study. After consultation with the supervising dissertation committee and university's human use committee, the participant recruitment procedure was changed. The responses collected from the healthcare organization were discarded.

The revised recruitment procedure was to obtain participants through Amazon Mechanical Turk, which has been shown to produce responses equal if not better to other convenience samples (www.mturk.com; Casler, Bickel, & Hackett, 2013). Amazon designates some respondents in their panel as "master" respondents. These are individuals who have demonstrated high-quality responses with high approval ratings

from multiple researchers (Peer, Vosgerau, & Acquisti, 2013). In the present study, only master-level respondents were recruited. Participants were informed they had to be English speaking, employed, and at least 18 years of age. Participants were able to search for and opt in to participate in the research and were paid $3.00 if they completed each section of the survey (e.g., if participants did not click the link to be transferred to the Wonderlic site to take the CA test, they did not receive the reward for participation).

Participants completed an online questionnaire that took approximately 45 minutes. In order to match the survey responses with the third-party CA test, participants were asked to enter the last five digits of their Mechanical-Turk identification number. At the completion of the survey, each participant was provided a code number to enter into Mechanical Turk to redeem the reward.

Because both the selection tests (predictors) and the performance ratings (outcomes) were collected from the same source, several precautions were taken to minimize the effects of common method bias (CMB) and fatigue (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Participants selected the link to an online survey with a state measure and the three selection tests. The social desirability scale items were dispersed among these items as fillers, and all the items were randomized. At the half-way point between these items, participants were given the option to take a ten-minute break to reduce fatigue. A link to the WPT-Q was embedded within the survey, and it led employees to the Wonderlic website to complete the CA test. At the completion of the CA test, demographic questions were asked to separate the predictors from the outcome variables. This was done in accordance with the proximal remedies to CMB suggested by Podsakoff et al. (2003). The 29 items related to performance were administered following

the demographic questionnaire. These items included all items from the IRB, OCB-C, and CWB-C scales, as well as three items measuring overall performance.

Data Screening

Prior to screening, the sample consisted of 474 participants. The dataset was screened for missing responses on the measures of adaptability, conscientiousness, organizational citizenship, counterproductive behaviors, motivational state, CA, in-role behaviors, and work performance. List-wise deletion of respondents with missing data was used because the measures omitted most often were central to multiple hypotheses, and including different people in different analyses may have unintended effects on the analyses that are difficult to detect (Hair, Black, Babin, Anderson, & Tatham, 2006). One hundred and sixty one respondents (13%) were omitted because they did complete an entire measure or their answers were indicative of inattentive responding. As an example of inattentive responding, tenure was asked in both years and months. If respondents entered "100" for years or "56" for months, they were excluded under the assumption that they did not carefully read and respond to the items. The majority of those removed from the sample (96 out of a total of 161 removed or 60%) were dropped due to not completing the WPT-Q. Items for the predictors and outcomes scales were mandatory so there were no scales with 1-2 items missing. The demographic questions were voluntary, and no participants were excluded for not responding to the demographic questions. Only one respondent opted not to answer the demographic questions. Following screening, the sample consisted of 313 participants (474 minus 161). Power analysis based on the sample size of 313 indicated a 30% chance of detecting a small effect size (0.02) and a

99% chance of detecting a medium effect size (0.15) for each multiple regression (Cohen, 1988).

The measures of adaptability, conscientiousness, task performance, citizenship performance, CWB, and social desirability were comprised of subscales. Subscales were combined into a composite score for each construct, consistent with previous research (Goldberg, 1999; Ployhart & Bliese, 2006; Sparrowe et al., 2001; Spector et al., 2010; Williams & Anderson, 1991).

Composite scores were screened for violations of the assumptions for hierarchical linear regressions (i.e., independence of cases, linearity, normality, homoscedasticity, and multicollinearity). Scatterplots were examined to test assumptions of linearity and homoscedasticity, and visual inspection determined these assumptions were met for all variables except CWB and task performance. Durbin-Watson tests (Durbin & Watson, 1951) were used to examine the independence of cases, and all resulting statistics were close to 2.00 (ranging from 1.973 to 2.046), indicating there was independence of residuals. Examination of the correlations indicated that none of the predictors could be characterized as highly correlated following the guidelines described by Field (2012), whom described correlations of .80 to .90 as being highly correlated; no correlation in the present study was above .58. All variance-inflation factor (VIF; Bowerman & O'Connell, 1990) scores were much smaller than 10 (average VIF = 1.365), indicating multicollinearity was not found to be a cause for concern.

Histograms as well as skewness and kurtosis statistics were examined to test the normality of the data. Skewness and kurtosis statistics greater than two times the standard error are considered non-normal distributions (Tabachnick & Fidell, 1996). All variables

were normally disturbed with the exceptions of task performance and CWBs. As expected, the task performance scores were severely negatively skewed (-2.56, *SE* = .14) and CWB scores were positively skewed (1.73, *SE* = .14). Both also showed evidence of leptokurtosis (6.87, *SE* = .28; 3.67, *SE* = .28, respectively). Various transformations were attempted, but none succeeded in normalizing the distributions or remediating skewness and kurtosis. However, *F*-test were used to tests the majority of hypotheses in this study and past research suggests these tests or robust (Glass, Peckham, & Sanders, 1972). Skewed distributions in most circumstances do not hinder the performance of robust tests, and transformations are often more time-consuming than helpful (Field, 2012; Games & Lucas, 1966). As a result, the original, untransformed variables were used in all subsequent analyses.

CHAPTER THREE

RESULTS

Correlations between the composite scores of each dimension of performance and the single-item-manipulation-check measures of overall performance in each dimension were examined for convergence. The correlations indicated significant overlap ($r = .34, p < .01$; $r = .45, p < .01$; and $r = .40, p < .01$ for task performance, citizenship performance, and CWBs, respectively). Means, standard deviations, and correlations for predictor, outcome, and control variables may be found in Table 3.

Table 3

Means, Standard Deviations, and Correlations

Variable	*M*	*SD*	1	2	3	4	5	6	7
Outcome Variables									
1) Task performance	28.21	3.06	--						
2) Citizenship performance	28.01	6.81	.13*	--					
3) Counterproductive work	13.82	4.19	-.56**	.04	--				
Predictor Variables									
4) Adaptability	206.93	25.96	.37**	.43**	-.31**	--			
5) Conscientiousness	81.89	13.11	.45**	.32**	-.40**	.58**	--		
6) Cognitive Ability	25.69	4.60	.19**	-.07	.02	-.01	.01	--	
Control Variable									
7) Social Desirability	41.77	7.47	.22**	.25**	-.38**	.43**	.41**	-.18**	--

Note. N = 313. * p< .05. **p < .01

One-way zero-order correlations were examined to test the relationships between cognitive ability and IA (Hypothesis 1) and conscientiousness and IA (Hypothesis 2). As seen in Table 3, Hypothesis 1 was not supported (r = -.01, *ns*); however, Hypothesis 2 was supported (r = .58, p < .01). Six separate hierarchical linear regression analyses (forced entry) were used to test IA as a parsimonious predictor of performance (Hypotheses 3 through 8). Social desirability was entered in Step 1 of all six regressions as a control variable. The second step was the addition of IA to the model. For hypothesis 4, 6, and 8, CA and conscientiousness were added in Step 3 in order to examine whether CA and conscientiousness contribute a significant amount of explained variance in task performance, citizenship performance, and CWBs beyond IA. A Bonferroni-type adjustment (Feller, 1968) was used to correct for multiple comparisons with the critical p value of 0.0083 used (.05 divided by 6).

Predicting Citizenship Performance

Hypothesis 3 stated that IA would predict citizenship performance, and Table 4 contains full details of the regression model. In support of Hypothesis 3, the addition of IA in Step 2 (Model 2) resulted in a statistically significant overall model, $F(1, 310) = 36.82$, $p < .001$, and represented a significant increase in R^2 over Model 1. The overall model accounted for 19% of the variability in citizenship performance, and the increase in R^2 between Model 1 and 2 was .13, $F(1, 310) = 49.13$, $p < .001$. This indicates that IA is a good predictor of citizenship performance and that IA contributes significant incremental explanatory power above that of social desirability alone.

Table 4

Hierarchical Multiple Regression Predicting Citizenship Performance from IA

	Citizenship Performance			
	Model 1		Model 2	
Variable	B	β	B	β
Constant	18.38**		3.32	
Control Variable				
Social Desirability	.23**	.25	.08	.08
Predictor Variable				
Individual Adaptability			.10**	.40
R^2	.06		.19	
F	21.23**		36.82**	
ΔR^2	--		.13	
ΔF	--		49.13**	

Note. N = 313. * p < .0083, ** p < .001.

Hypothesis 4 explored whether cognitive ability and conscientious explained incremental variance in citizenship performance above IA, after controlling for social desirability. Table 5 displays full details of the three-step hierarchical regression. All three models were significant ($p < .001$). Adding adaptability to the model in Step 2 increased R^2 by .13; $F(2, 310) = 49.13$, $p < .001$. The addition of cognitive ability and conscientiousness (Model 3) did not contribute a statistically-significant amount of change in variance explained, $R^2 = .01$, $F(4,308)$, *ns*, thus supporting Hypothesis 4.

Table 5

Hierarchical Multiple Regression Predicting Citizenship Performance from Individual Adaptability, Cognitive Ability, and Conscientiousness

	Citizenship Performance					
	Model 1		Model 2		Model 3	
Variable	B	β	B	β	B	β
Constant	18.38**		3.32		5.15	
Control Variable						
Social Desirability	.23**	.25	.08	.08	.05	.05
Predictor Variables						
Individual Adaptability			.10**	.40	.09**	.36
Conscientiousness					.05	.09
Cognitive Ability					-.09	-.06
R^2	.06		.19		.20	
F	21.23**		36.82**		19.23**	
ΔR^2	--		.13		.01	
ΔF	--		49.13**		1.52	

Note. N = 313. * p < .0083, ** p < .001.

Predicting Counterproductive Work Behaviors

Table 6 displays the full details of the regression analysis to test Hypothesis 5. The addition of IA in Step 2 resulted in a statistically-significant overall model, $F(2, 310) = 35.45$, $p < .001$, supporting Hypothesis 5 that IA is a predictor of CWBs. This model accounted for 17% of the variability in CWBs, as indicated by the adjusted-R^2 statistic. The addition of IA in Model 2 led to a significant increase in R^2; $F(1, 310) = 9.34$, $p = .002$. These results indicate that IA predicts CWBs and contributes significant incremental explanatory power above that of social desirability alone. However, the increase in R^2 from Model 1 to Model 2 was small (.02).

Table 6

Hierarchical Multiple Regression Predicting Counterproductive Work Behaviors from Individual Adaptability

	Counterproductive Work Behaviors			
	Model 1		Model 2	
Variable	B	β	B	β
Constant	22.80**		26.89**	
Control Variables				
Social Desirability	-.22**	-.38	-.17**	-.31
Predictor Variable				
Individual Adaptability			.03*	-.18
R^2	.15		.17	
F	53.41**		35.45**	
ΔR^2	-		.02	
ΔF	-		9.34*	

Note. N = 313. * p < .0083, ** p < .001.

Table 7 displays the full details of the analyses conducted to test Hypothesis 6. This hypothesis focused on whether CA and conscientious explained incremental variance in CWBs beyond IA, after controlling for social desirability. All three models were significant ($p < .001$). Adding adaptability in Step 2 accounted for 2% more of the variance, $F(1, 310) = 6.01$, $p = .002$, while conscientiousness and CA accounted for an additional 5% of the variance in CWBs, $F(2, 308) = 10.16$, $p < .001$. Thus, Hypothesis 6 was not supported.

Table 7

Hierarchical Multiple Regression Predicting Counterproductive Work Behaviors from Individual Adaptability, Cognitive Ability, and Conscientiousness

	Counterproductive Work Behaviors					
	Model 1		Model 2		Model 3	
Variable	B	β	B	β	B	β
Constant	22.08**		22.89**		29.80**	
Control Variable						
Social Desirability	-.22**	-.38	-.17**	-.31	-.15**	-.27
Predictor Variables						
Individual Adaptability			-.03*	-.18	-.01	-.04
Conscientiousness					-.08**	-.27
Cognitive Ability					-.06	-.06
R^2	.15		.17		.22	
F	53.40**		32.08**		21.97**	
ΔR^2	--		.02		.05	
ΔF	--		6.01*		10.16**	

Note. N = 313. * p < .0083, ** p < .001.

Predicting Task Performance

Hypothesis 7 examined the relationship between IA and task performance, and the full details of this regression are shown in Table 8. Model 2 was statistically significant $F(2, 310) = 25.33$, $p < .001$, indicating that IA is a good predictor of citizenship performance. Thus, Hypothesis 7 was supported. This model accounted for 14% of the variability in task performance, as indicated by the adjusted R^2 statistic. The addition of IA to the model in Step 2 led to a statistically significant increase in R^2 of .09;

$F(1, 310) = 33.26, p < .001$. These results indicate that IA predicts task performance and contributes significant incremental explanatory power above that of social desirability alone.

Table 8

Hierarchical Multiple Regression Predicting Task Performance from Individual Adaptability

	Task Performance			
	Model 1		Model 2	
Variable	B	β	B	β
Constant	24.45**		18.71**	
Control Variable				
Social Desirability	.09**	.22	.03	.08
Predictor Variable				
Individual Adaptability			.04**	.34
R^2	.05		.14	
F	15.76**		25.33**	
ΔR^2	--		.09	
ΔF	--		33.26**	

Note. N = 313. * p < .0083, ** p < .001.

Hypothesis 8 explored the amount of variance in task performance explained by CA and conscientious above that accounted for by IA, after controlling for social desirability. The full details of this regression are shown in Table 9. Models 1, 2, and 3 were all statistically significant. Adding IA (Model 2) accounted for 9% more of the variance in task performance, $F(1, 310) = 33.26, p < .001$. However, adding conscientiousness and CA (Model 3) increased the R^2 by .11, $F(2, 308) = 23.59, p < .001$. Thus, Hypothesis 8 was not supported.

Table 9

Hierarchical Multiple Regression Predicting Task Performance from Individual Adaptability, Cognitive Ability, and Conscientiousness

	Task Performance					
	Model 1		Model 2		Model 3	
Variable	B	β	B	B	B	β
Constant	24.45**		18.71**		13.82	
Control Variables						
Social Desirability	.09**	.22	.03	.08	.02	.05
Predictor Variables						
Individual Adaptability			.04**	.34	.02	.24
Conscientiousness					.03**	.36
Cognitive Ability					.02	.10
R^2	.05		.14		.26	
F	15.76**		25.33**		26.31**	
ΔR^2	--		.09		.11	
ΔF	--		33.26**		23.59**	

Note. N = 313. * $p < .0083$, ** $p < .001$.

Differential Prediction

In Hypothesis 9, the differential prediction associated with CA tests was compared to that associated with adaptability tests. It should be noted that the Asian population was excluded from analysis, consistent with the majority of research on differential prediction which focuses on black and Hispanic minorities (Berry et al., 2011; Chan, 1997; Chan, Schmitt, DeShon, Clause, & Delbridge, 1997; Ng & Sears, 2010). Correlations between CA and task performance were computed for majority (white; n = 259, r = .16, p = .01) and minority (black, Hispanic, other; n =33, r = .23, *ns*) participants. Fisher's (1915, 1921) r-to-Z transformation was used to standardize the correlations. A z-test was then used to compare the correlations between majority and

minority races for the CA-task performance (z = -0.20, SEM = 0.15, *ns*). A z-obtained of 2.44 or higher would be statistically significant using a Bonferroni-type adjustment (critical p value of .025). The correlations between CA and task performance were not significantly different for majority versus minority races.

The correlations between IA and task performance by subgroup were as follows: majority participants (n = 259, r = .31, p < .001) and minority participants (n = 33, r = .80, p < .001). As described above, a Fisher's (1915, 1921) r-to-Z transformation was used to standardize the correlations between IA and task performance. A z-test with a Bonferroni-type adjustment was used to compare the correlations between majority and minority groups. The minority correlation between IA and task performance was significantly higher than the majority correlation (z = -4.03, SEM = 0.19, p < .025). Thus, Hypothesis 9 was not supported; differential prediction of task performance was not found for CA but was found for IA.

The Relationship Between State and Individual Adaptability

Two t-tests and a one-way analysis of variance (ANOVA) were used to test Hypothesis 10. The predictors were the reversal theory motivational states: telic and paratelic; rebellious and conformist; and self-mastery, self-sympathy, other-mastery, and other-sympathy. The outcome variable in all three analyses was IA. The guidelines for effect sizes suggested by Cohen (1988) were used to determine whether the effects (η^2) were small (.01), medium (.06), or large (.14). A Bonferroni-type adjustment (Feller, 1968) was used to correct for multiple comparisons with the critical p-value of 0.017 as the significance cutoff. For telic and paratelic, there was a significant effect of state on IA; $t(311) = 2.50$, $p = 0.01$, $\eta^2 = .02$. Those who were in the telic state (n = 202, M =

209.62, $SD = 26.89$) scored significantly higher on adaptability than those in the paratelic state ($n = 111$, $M = 202.02$, $SD = 23.50$). When examining the conforming and rebellious states, there was also a significant effect of state on IA; $t(311) = 2.34$, $p = 0.01$, $\eta^2 = .02$]. Those who were in the conforming state ($n = 279$, $M = 208.06$, $SD = 26.21$) scored significantly higher on adaptability then those in the rebellious state ($n = 34$, $M = 197.59$, $SD = 22.01$). Lastly, there was a significant effect among the transactional states (self-mastery, self-sympathy, other-mastery, and other-sympathy) on IA ($F(3, 309) = 5.56$, $p < 0.01$, $\eta^2 = .05$). *Post hoc* comparisons using the Tukey HSD test indicated that those who were in the self-mastery state ($n = 79$, $M = 209.75$, $SD = 26.41$), the other-mastery state ($n = 56$, $M = 214.32$, $SD = 22.84$), and the other-sympathy state ($n = 142$, $M = 205.96$, $SD = 26.20$) scored significantly higher on adaptability then those in the self-sympathy state ($n = 36$, $M = 193.03$, $SD = 23.63$). Thus, the hypothesis that IA was significantly related to participants' state of mind (Hypothesis 10) was supported.

CHAPTER FOUR

DISCUSSION

Management scholars have commented on the accelerating rate of change in organizations in response to their environments (e.g., Arthur & Rousseau, 1996). Such turbulence within and outside organizations has led to calls for greater attention to adaptability when discussing performance and its predictors (Ployhart & Bliese, 2006; Pulakos et al., 2000). There are several theories and approaches to adaptive behaviors in organizational research, and each provides a unique conceptualization of the construct (see Table 1). The individual-difference approach, based on I-ADAPT theory (Ployhart & Bliese, 2006), conceptualizes adaptability as a higher-order metacompetency (Hough & Schneider, 1996; Motowidlo & Kell, 2012). The major constructs that IA is suggested to encompass are CA and personality; both constructs have been widely investigated as potential predictors of job performance (Breaugh, 2009; Ispas et al., 2010; Ones et al., 1993; Schmidt & Hunter, 1998). I-ADAPT theory also suggests that IA is both a state-like and trait-like construct; individuals have overall tendencies to be more adaptable than others, but when and how individuals adapt depends upon their perceptions of the situation and their motives in the moment. Ployhart & Bliese (2006) also propose that IA may be more sensitive to changes arising from the situation than predictors are more closely associated with the individual (e.g., CA). Given the increasingly dynamic and

fast-paced nature of work, measures of IA may be more useful in selecting applicants than traditional assessments of CA and personality.

These assertions regarding IA have received only limited testing in previous research. Some research has tested the predictive power of IA but using only one or two of the eight subscales (Wessel et al., 2008). Other researchers used the full composite measure of IA but focused exclusively on predicting task performance (Wang et al., 2011) and neglected to study other dimensions of performance (e.g., citizenship performance and counterproductive work behaviors). The current research contributes to the existing literature by testing the relationship between a composite score of IA (i.e., all eight subscales) and three dimensions of job performance. Specifically, three questions were addressed in this research: 1) does a composite measure of IA predict job performance more effectively and efficiently than CA and personality, 2) do measurements of IA fluctuate such that IA scores vary depending on the individual's state of mind, and 3) does the use of adaptability in selection (as measured by I-ADAPT-M) address some of the major concerns associated with CA and personality measures (viz. adverse impact of CA tests and failure to account for situational effects)? To explore these questions, ten hypotheses were proposed and tested.

IA as a Metacompetency: Relationships Among the Predictor Variables

A composite score of adaptability was correlated with CA and conscientiousness to explore the proposition that IA is a metacompetency. IA was found not to be significantly related to CA (Hypothesis 1 not supported) but was significantly related to conscientiousness (Hypothesis 2 supported). One possible explanation may be that the

relationships between IA, CA, and conscientiousness may differ depending on weights assigned to the subscales of IA (Ployhart & Bliese, 2006). In the present research, all subscales were equally weighted, consistent with other empirical research (Almahamid et al., 2010; Hamtiaux & Houssemand, 2012; Ployhart et al., 2002). However, Ployhart and Bliese (2006) list twenty propositions about I-ADAPT theory, three of which refer to a weighting matrix for the subscales of IA. They propose that KSAOs such as CA and conscientiousness will weigh differently on each subscale. In the present study, *post hoc* analysis using bivariate correlations revealed that none of the eight subscales of IA were significantly related to CA. These findings indicate that IA may not be as strongly related to CA as originally hypothesized. While nonlinear analyses were beyond the scope of the present study, the relationship between IA and CA may be nonlinear. As Le et al. (2011) described the nonlinear relationship between personality and performance, there may be "too much of a good thing" when it comes to predictors. Very high CA may lead to overthinking problems and thus reduce nimble adaptiveness.

Conscientiousness was, as proposed in I-ADAPT theory and stated in Hypothesis 2, significantly correlated with all I-ADAPT-M subscales ($p < .001$). Correlation coefficients ranged from .35 to .54 for the dealing with work stress subscale and the cultural sensitivity subscale, respectively. These correlations differ from each other in a statistically-significant manner, based on a Hotelling-Williams *t*-test ($t(310) = -3.36$, $p < .001$). These results provide some support for the proposition of different weights for different subscales of the I-ADAPT-M measure, as discussed by Ployhart and Bliese (2006).

Individual Adaptability as a Predictor of Job Performance

A series of hierarchical regressions were used to test whether IA predicted citizenship performance (Hypothesis 3), CWBs (Hypothesis 5), and task performance (Hypothesis 7). All of these hypotheses were supported. These findings provide evidence in support of adaptability as a potential predictor of job success in a selection context and not just as an outcome measure (i.e., adaptive performance). The findings also provide support for the individual-difference approach to adaptability (Ployhart & Bliese, 2006). However, the incremental variance explained by IA differed across the three types of job performance. The explanatory contribution of IA (after controlling for the effects of social desirability) was lowest for CWBs (2%) and higher for citizenship performance (13%) and task performance (9%). Interestingly, social desirability became non-significant when IA was added to the model (Model 2) predicting task performance; the same occurred when citizenship performance was the outcome variable. In the case of CWBs, however, social desirability (entered first in the model) accounted for the majority of the total variance explained (15% out of 17%). One interpretation of this finding is that CWBs are may be more influenced by the desire to follow socially-accepted norms than it is influenced by adaptability.

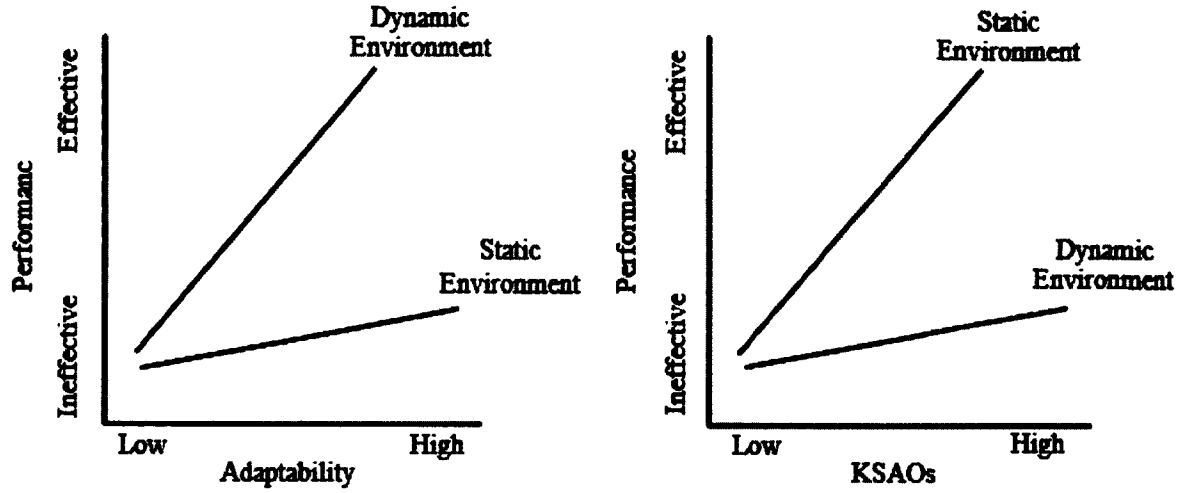
Individual Adaptability as a Parsimonious Predictor of Job Performance

CA and conscientiousness should not contribute additional, significant explanatory power when predicting job performance if IA is in fact a parsimonious predictor. As hypothesized, the addition of conscientiousness and CA did not add significant incremental explained variance above IA for citizenship performance

(Hypothesis 4 supported). However, conscientiousness and CA accounted for a statistically significant additional 5% of the variance in CWBs (Hypothesis 6 not supported) and a statistically significant additional 11% of the variance in task performance (Hypothesis 8 not supported).

One explanation why IA parsimoniously predicted citizenship but not CWBs may be found within the definitions of the constructs. IA may be more closely aligned with citizenship performance than IA is with task performance, in that both IA and citizenship may include competencies for monitoring and assessing the situation and using that information to effectively adjust behavior. For example, an employee may notice a coworker has a heavy workload and is having trouble with work-life balance. The first employee may look around at how work is accomplished and consider several alternatives before deciding how to help the coworker. In the case of CWBs, there may also be monitoring and assessment of the situation, but perhaps conscientiousness and social desirability make it less likely that these counterproductive behaviors will be expressed. For example, two employees who do not get along may be assigned to the same project. The employees may want to sabotage each other, but they are both conscientious. In this situation, the need to finish what they start may prevent the counterproductive behaviors from occurring. When CA and conscientiousness are added to the model after social desirability and IA (Model 3), only social desirability and conscientiousness had significant regression coefficients; both were negatively related to CWBs as expected. Conscientiousness "replaced" IA in predicting CWBs. The implication is that CWBs are better explained by social desirability and conscientiousness than CWBs are explained by adaptability.

One possible explanation for why IA did not parsimoniously predicts task performance is related to the strong, relatively independent contribution of CA as a predictor of task performance. An additional explanation is that the relationships between IA and task performance may be nonlinear. A nonlinear analysis of the relationship between IA and task performance was beyond the scope of the present study, but should be considered in future research. Le et al. (2011) found that not only were the relationships between predictors and performance non-linear, but that job complexity moderated the curvilinear relationships such that high levels of the traits were needed more for high-complexity jobs than low-complexity job. Because the data collected in the current study included individuals from a variety of jobs, job complexity may have played a role in the relationship between task performance and IA. For example, certain jobs may exist within dynamic environments, in which adaptability may be more important to achieve effective performance. In static environments, inherently stable characteristics (such as CA) may be more closely linked to effective performance. Ployhart and Bliese (2006) discussed the moderating effects of a dynamic or static environment on the relationship between performance and IA as well as the relationship between performance and KSAOs (see Figure 3). In the present study, 20 different jobs were represented in the sample. The number of participants in each job category was too small to support the use of job category as a control variable in the analyses; the number of participants in each job category ranged 1 to 55 ($M = 17.4$, $SD = 17.0$).



Adapted from Ployhart and Bliese (2006)

Figure 3 *Adaptability and KSAOs in Static and Dynamic Environments*

Differential Prediction

As stated in Hypothesis 9, IA was expected to exhibit less differential prediction than CA when the outcome variable was task performance. The results were different than expected as CA was found not to show evidence of differential prediction, while IA did show evidence differential prediction. The IA measure was more strongly associated with the task performance of minority participants than majority. In order to check to see if the observed differences in prediction by race may be related to other demographic characteristics, we examined the age distribution within the minority and majority participant groups. Previous research has found that age was related to adaptability, such that younger age groups may be more adaptable to changes in the workplace than older age groups (Niessen, Swarowsky, & Leiz, 2010). In the present study, 79% of the minority group was below age 40 compared to 64% of the majority group; the difference between minority and majority groups was not significant ($z = 1.72$, ns). Thus, age may

not be the cause for the observed differences between groups defined on the basis of race, and future researchers should explore other possible explanations for these differences.

The Relationship Between State and Individual Adaptability

The final hypothesis in the present study (Hypothesis 10) was that motivational state will be related to IA scores, such that individuals experiencing different motivational states will respond differently on measures of IA. As expected, there were significant differences in responses to the I-ADAPT-M for the telic-paratelic pair, the conforming-rebellious pair, and the crossed pairs of transactional states (i.e., self-mastery, self-sympathy, other-mastery, and other-sympathy). Individuals in the telic or conforming state when taking the I-ADAPT-M scored higher than those in the paratelic or rebellious states. In addition, those in the self-sympathy state scored significantly lower on adaptability than those in the self-mastery, other-mastery, or other-sympathy states.

When interpreting these findings, three possible explanations exist. The first is that the observed differences are due to confounds arising from the research environment which induces particular states. In this argument, the research environment (MTurk) may have created a particular state of mind in each participant, and any measure taken in that environment was susceptible to being influenced by that state of mind. For example, participants who were telic may have been focused on the end goal of completing the task and collecting their award. They may have been more likely to follow the rules and instructions (conforming) for completing the tasks within MTurk. They also may have perceived they were taking the tests to help the researcher collect data, and thus the other-sympathy state of mind. If this argument is valid, results would show all measures were

influenced by state. For example, reversal theory states would have a significant effect on each of the assessments participants took as a part of this research. *Post hoc* ANOVA, however, did not show such as pattern; only conscientiousness and IA were affected by state, while CA was not.

The second possible explanation is that individuals who are more adaptable respond to the research environment in ways different from less adaptable people, such that they are more likely to be in certain states than others. Instead of testing whether people in different states have different levels of IA (first possibility), one would test whether people with different levels of IA were in different states. This would require further research investigating how people of different levels of IA respond to a variety of environments. For example, do high-IA individuals experience different states than do low-IA individuals while at work or at play? Both within- and between-person designs should be utilized.

The third possible explanation is that the observed variance in IA reflects meaningful, true variance in the construct of adaptability triggered by state. In this argument, state-like constructs (IA) would be expected to vary by motivational state while trait-like, dispositional constructs (e.g., CA) would not. The pattern of results in the present work is consistent with this explanation in that conscientiousness and IA were related to state, while CA was not. Constructs such as conscientiousness have typically been viewed as traits (McCrae & Costa, 1987), although many researchers have argued they may have state-like qualities (Apter, 2001b; Davis-Blake, & Pfeffer, 1989; Fleeson, 2001; Mischel, 1984). In order to determine more conclusively whether adaptability is triggered by state, two possible designs appear promising. The first is a within- person

design in which one would expect to observe naturally-occurring changes in states to be associated with changes in IA. The second is a between-person designs in which the state of the individual is experimentally manipulated to assess whether changes in IA result from the manipulation.

Limitations

As with, arguably, all research (Shadish, Cook, & Campbell, 2002), the present study has limitations. First, the original plan for data collection did not yield a usable number of participants. Challenges in data collection included poor employee access to technology, which led to low response rates. The decision to obtain a sample from Amazon Mechanical Turk was seen as a viable alternative, based on previous research. For example, Casler et al. (2013) compared samples of in-person college campuses, participants solicited via social media, and MTurkers. They found no significant differences between the samples. Hauser and Schwarz (2015) compared MTurkers to a collegiate sample in three separate studies and found that MTurkers were more attentive to instructions than were college students. Therefore, comparisons of convenience samples from MTurk to other convenience samples indicate that MTurk samples are as good if not better at responding attentively and have the added benefit of more diverse samples (Casler et al., 2013; Hauser & Schwarz, 2015). However, the sample may have been too diverse in terms of occupation and industry. Job category could not be included as a control variable in this study due to the wide range of occupations within the sample. Being unable to control for job category may have left substantial variability unexplained in the hierarchical linear regressions. In comparisons of group differences,

disproportionate numbers of individuals of each job type may have appeared in some groups and may have confounded conclusions.

The extent of missing data and inattentive responding may appear to be a limitation of the present study. In order to determine whether data screening created a systematic bias, the characteristics of those who were removed from the study were compared with those who were retained. The two groups were examined for differences in adaptability, conscientiousness, reversal theory states, age, race, job level, shift, and employee status. No significant differences were found between the removed respondents and the retained respondents, based on *z*-tests of proportions and correcting for inflated Type I error by adjusting the critical value of p using a Bonferroni-type adjustment (critical value of $p = .01$). These results provide some evidence that the removal of the 161 respondents may not have had an effect on the findings reported in this study.

An additional limitation of the study was that some of the assumptions for conducting hierarchical linear regression analyses were not met. Composites scores for task performance and CWBs were significantly skewed and showed evidence of leptokurtosis. Such non-normality is frequently observed in self-report ratings of performance (Berry, Carpenter, & Barratt, 2012). Transformations of scales that appeared non-normal failed to normalize the distributions. However, regression has been shown to be fairly robust with respect to violations of normality (Glass et al., 1972). Skewed distributions in most circumstances do not hinder the performance of robust tests, and transformations can often cause more harm than good (Field, 2012; Games & Lucas, 1966). This limitation and the others mentioned above, however, may be corrected in future research.

Future Research

To address the issue of non-normality in the task performance and CWB measures, future researchers may want to consider using performance metrics that show less skewness and kurtosis. Supervisory or peer ratings have been shown to have similar issues with normality (Berry et al., 2012). However, objective performance measures (e.g., sales figures, productivity) or forced-distribution supervisory ratings may more closely approximate normality. Researchers may also consider the use of nonlinear regression and other non-parametric tests to address the normality concerns with these constructs. These analytical procedures that do not assume that variables are normally distributed may also yield new insights into the effect sizes and explained variance percentages observed in the present study. If small effect sizes and modest levels of explained variance are replicated in subsequent research using nonlinear analyses, we may have greater confidence these are an accurate reflection of the impact of these variables.

In addressing limitations of the sample, researchers should replicate this study within a field sample, using a single organization or job. Although self-selection bias will be present in both a convenience and a targeted sample, a targeted sample may better control for variation in job complexity and other environmental factors that may have affected results in the present study. Researchers may also want to examine the extent to which the relationships in the present study differ in both static and dynamic work environments. Although racial diversity was examined in for this sample in the context of differential prediction, a promising direction for subsequent research may be to examine

other possible biases associated with adaptability. Examination of differential prediction involving other protected classes may be a productive line of inquiry.

As for future research regarding the method and measures within this study, researchers may want to consider replicating the current study using weighted subscales of IA rather than the aggregate score, as discussed by Ployhart & Bliese (2006). Regressions weights may be sample-specific, and the present study only included one sample. Future researchers may want to consider using multiple samples or weights from previous studies to examine the impact of weighted subscales.

Researchers might also choose to examine the relationships between IA and other personality variables besides conscientiousness. For example, Ployhart and Bliese (2006) suggested that IA may be related to all of the Big Five personality factors, as well as to individuals' values, interests, and physical ability. With regard to method, future research should consider examining the relationship between state of mind and IA using within-person designs (in contrast to the between-person design used in the present work). In other words, a repeated-measures design would be useful in testing whether an individual's responses to the I-ADAPT-M change when in different reversal theory states.

Lastly, the adaptability literature is relatively new to organizational research, and future researchers should continue to test the models and approaches to the construct not examined in this work. For example, Jundt, Shoss, and Huang (2014) discussed how researchers are beginning to understand the antecedents and outcomes of adaptability, but not the process of adapting. They developed a five-step process of what occurs during the "black box" of adaptability: detecting, diagnosing, strategizing, learning, and performing.

Future research should examine this model and other models that consider the process of adapting in order to gain a better understanding of the construct.

Implications for Researchers

One of the purposes of this study was to test several of the assumptions of I-ADAPT theory. Based on the findings, there are a few recommendations for adaptability researchers to consider. The individual-difference approach is an important conceptualization of adaptability, and researchers should continue to emphasize adaptability as both an outcome variable and a predictor variable. IA researchers should also reconsider the relationship between IA and CA, as results suggests neither the composite score nor any of the subscales of IA were significantly related to CA. Researchers may want to consider conceptualizing IA as personality variable but should also continue testing IA as a metacompetency. As Ployhart and Bliese (2006) suggest, a composite score of the I-ADAPT-M with uniquely weighted subscales of IA may be a more sufficient predictor of outcome variables than a composite with all subscales weighted equally.

Besides implications for I-ADAPT theory, there are additional analytical considerations researchers should keep in mind, based on the present findings. When predicting CWBs, researchers may want to control for the effects of social desirability and conscientiousness. As the relationship with IA and CWBs was weakened by the effects of these two variables, researchers may want to consider new measures of adaptability that reflect the desire to adapt versus actual adaptive behavior. The environment may limit the opportunities individuals have to adapt. Lastly, personality researchers may want to consider re-conceptualizing conscientiousness as a state rather

than a trait. Findings in the present research raise the possibility that personality facets traditionally viewed as stable may be susceptible to changes in an individual's current state of mind. Such a possibility warrants further investigation, given the potential implications for the theory and practice of industrial-organizational psychology.

Implications for Organizations

The findings in the present study that conscientiousness was related to state of mind raise concerns about use of personality measures for selection. Previous researchers have also asserted that personality measures (such as conscientiousness) may not always be appropriate in the selection context, based on the assertion that such instruments measure traits that are less amenable to change (Apter, 2001a; Davis-Blake & Pfeffer, 1989; Fleeson, 2001; Mischel, 1984). As empirical evidence grows supporting the existence of fluctuations in job performance, it appears reasonable to investigate predictors of performance that reflect these fluctuations (Binnewies et al., 2009; Dalal et al., 2009; Ilies et al., 2006; Trougakos et al., 2008). Measures of personality designed to capture its fluidity and relatively-transient nature may be quite different from existing measures designed based on a more static model of personality. However, the real-world challenges of building a selection system may necessitate being able to differentiate between people in durable ways, making a shift from trait to state conceptualization of personality difficult in practice.

Results from the present study also point to the potential utility of the I-ADAPT-M in selection testing. Whereas, generally, CA tests have only past research have only predicted task performance and personality tests typically best predict citizenship performance and CWBs, the I-ADAPT-M in the present study appears to be an

acceptable predictor of all three dimensions of performance. When predicting whether applicants will go the extra mile for a company (i.e., citizenship performance), IA is a significant predictor, with little added explanatory power from traditional selection tests. Although CA and conscientiousness added some explanatory power beyond IA in task performance and CWBs, it does not take away from the potential the I-ADAPT-M has as a parsimonious predictor. Organizations need to decide if the additional variance CA and conscientiousness may explain is worth the investment when assembling a selection system.

Another argument in favor of incorporating IA into a selection system is the finding that that IA did not demonstrate differential prediction of task performance for minority participants whereas CA did. Thus, selection systems using IA rather CA may be less susceptible to litigation. This conclusion must be tempered by the caveat that, as with any selection process, legally defensible evidence should be obtained to show the job-relatedness of the construct (Equal Employment Opportunity Commission, 1978).

In addition, IA may be a more proximal predictor than CA and conscientiousness in that IA may be more related to the situation. Because IA may not be entirely inherent, individuals may be trained to become more adaptable (Ely et al., 2009; Nelson et al., 2010). Organizations may want to consider using adaptability measures when assessing candidate potential, as IA takes into account the possibility of growth. Using an assessment instrument that is not entirely stable may seem questionable. However, some researchers have argued that performance outcomes may not be stable (Fisher & Noble, 2004; Stewart & Nandkeolyar, 2006; Weiss & Cropanzano, 1996). Perhaps using non-stable predictors such as knowledge-based tests may be appropriate. For example,

hospitals may use a situational-judgment test with relevant healthcare items in a selection process for nurses. Knowledge about health care can vary over time within an individual just as IA may vary over time within an individual.

The finding that IA is related to state of mind raises the possibility that IA may be a promising substitute for personality when predicting fluctuating performance. The temporal instability of IA may be in sync with variations in performance. The ultimate promise of IA may be that it predicts multiple dimensions of performance, while also reflecting how people change to fit the world around them, which is vital in today's workplace.

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APPENDIX A

I-ADAPT MEASURE

ADAPTABILITY: The following questions are about your preferences, styles, and habits at work. Read each statement carefully. Then, for each statement select the corresponding number that best represents your opinion. There are no right or wrong answers. Please respond as accurately as possible.	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree
I am able to maintain focus during emergencies. (Crisis)	1	2	3	4	5
I enjoy learning about cultures other than my own. (Cult)	1	2	3	4	5
I usually over-react to stressful news. (WS)	1	2	3	4	5
I believe it is important to be flexible in dealing with others. (Intp)	1	2	3	4	5
I take responsibility for acquiring new skills. (Lrng)	1	2	3	4	5
I work well with diverse others. (Cult)	1	2	3	4	5
I tend to be able to read others and understand how they are feeling at any particular moment. (Intp)	1	2	3	4	5
I am adept at using my body to complete relevant tasks. (Phys)	1	2	3	4	5
In an emergency situation, I can put aside emotional feelings to handle important tasks. (Crisis)	1	2	3	4	5
I see connections between seemingly unrelated information. (Creat)	1	2	3	4	5
I enjoy learning new approaches for conducting work. (Lrng)	1	2	3	4	5
I think clearly in times of urgency. (Crisis)	1	2	3	4	5
I utilize my muscular strength well. (Phys)	1	2	3	4	5
It is important to me that I respect others' culture. (Cu)	1	2	3	4	5
I feel unequipped to deal with too much stress. (WS-R)	1	2	3	4	5
I am good at developing unique analyses for complex problems. (Creat)	1	2	3	4	5
I am able to be objective during emergencies. (Crisis)	1	2	3	4	5
My insight helps me to work effectively with others. (Intp)	1	2	3	4	5
I enjoy the variety and learning experiences that come from working with people of different backgrounds. (Cult)	1	2	3	4	5
I can only work in an orderly environment. (Phys-R)	1	2	3	4	5
I am easily rattled when my schedule is too full. (WS-R)	1	2	3	4	5
I usually step up and take action during a crisis. (Crisis)	1	2	3	4	5
I need for things to be "black and white." (Uncert-R)	1	2	3	4	5
I am an innovative person. (Creat)	1	2	3	4	5
I feel comfortable interacting with others who have different values and customs. (Cult)	1	2	3	4	5
If my environment is not comfortable (e.g., cleanliness), I cannot perform well. (Phys-R)	1	2	3	4	5
I make excellent decisions in times of crisis. (Crisis)	1	2	3	4	5
I become frustrated when things are unpredictable. (Uncert-R)	1	2	3	4	5
I am able to make effective decisions without all relevant information. (Uncert)					
I am an open-minded person in dealing with others. (Intp)	1	2	3	4	5
I take action to improve work performance deficiencies. (Lrng)	1	2	3	4	5
I am usually stressed when I have a large workload. (WS-R)	1	2	3	4	5
I am perceptive of others and use that knowledge in interactions. (Intp)	1	2	3	4	5
I often learn new information and skills to stay at the forefront of my profession. (Lrng)	1	2	3	4	5
I often cry or get angry when I am under a great deal of stress. (WS-R)	1	2	3	4	5

When resources are insufficient, I thrive on developing innovative solutions. (Creat)	1	2	3	4	5
I am able to look at problems from a multitude of angles. (Creat)	1	2	3	4	5
I quickly learn new methods to solve problems. (Lrng)	1	2	3	4	5
I tend to perform best in stable situations and environments. (Uncert-R)	1	2	3	4	5
When something unexpected happens, I readily change gears in response. (Uncert)	1	2	3	4	5
I would quit my job if it required me to be physically stronger. (Phys-R)	1	2	3	4	5
I try to be flexible when dealing with others. (Intp)	1	2	3	4	5
I can adapt to changing situations. (Uncert)	1	2	3	4	5
I train to keep my work skills and knowledge current. (Lrng)	1	2	3	4	5
I physically push myself to complete important tasks. (Phys)	1	2	3	4	5
I am continually learning new skills for my job. (Lrng)	1	2	3	4	5
I perform well in uncertain situations. (Uncert)	1	2	3	4	5
I can work effectively even when I am tired. (Phys)	1	2	3	4	5
I take responsibility for staying current in my profession. (Lrng)	1	2	3	4	5
I adapt my behavior to get along with others. (Intp)	1	2	3	4	5
I cannot work well if it is too hot or cold. (Phys-R)	1	2	3	4	5
I easily respond to changing conditions. (Uncert)	1	2	3	4	5
I try to learn new skills for my job before they are needed. (Lrng)	1	2	3	4	5
I can adjust my plans to changing conditions. (Uncert)	1	2	3	4	5
I keep working even when I am physically exhausted. (Phys)	1	2	3	4	5

APPENDIX B

IPIP - CONSCIENTIOUSNESS

CONSCIENTIOUSNESS: This group of questions are about how you describe yourself in general. Describe yourself as you generally are now, not as you wish to be in the future. Describe yourself as you honestly see yourself. Indicate for each statement whether it is 1. Very Inaccurate, 2. Moderately Inaccurate, 3. Neither Accurate Nor Inaccurate, 4. Moderately Accurate, or 5. Very Accurate as a description of you. Please respond as accurately as possible.	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree
Am always prepared.	1	2	3	4	5
Pay attention to details.	1	2	3	4	5
Get chores done right away.	1	2	3	4	5
Carry out my plans.	1	2	3	4	5
Make plans and stick to them.	1	2	3	4	5
Complete tasks successfully.	1	2	3	4	5
Do things according to a plan.	1	2	3	4	5
Am exacting in my work.	1	2	3	4	5
Finish what I start.	1	2	3	4	5
Follow through with my plans.	1	2	3	4	5
Waste my time. (R)	1	2	3	4	5
Find it difficult to get down to work. (R)	1	2	3	4	5
Do just enough work to get by. (R)	1	2	3	4	5
Don't see things through. (R)	1	2	3	4	5
Shirk my duties. (R)	1	2	3	4	5
Mess things up. (R)	1	2	3	4	5
Leave things unfinished. (R)	1	2	3	4	5
Don't put my mind on the task at hand. (R)	1	2	3	4	5
Make a mess of things. (R)	1	2	3	4	5
Need a push to get started. (R)	1	2	3	4	5

APPENDIX C

IN-ROLE BEHAVIOR SCALE

TASK PERFORMANCE: The following questions are about your performance on your job. Please respond as accurately as possible. Try to consider your performance over the past 90 days. How often have you done each of the following things at work?	Never	Once or Twice	Once or Twice per month	Once or twice per week	Every day
Adequately completed assigned duties. (TP)	1	2	3	4	5
Fulfilled responsibilities specified in job description. (TP)	1	2	3	4	5
Performed tasks that were expected of him/her.(TP)	1	2	3	4	5
Met formal performance requirements of the job. (TP)	1	2	3	4	5
Neglected aspects of the job he/she was obligated to perform. (TP-R)	1	2	3	4	5
Failed to perform essentials duties. (TP- R)	1	2	3	4	5

APPENDIX D

OCB CHECKLIST

CITIZENSHIP PERFORMANCE: The following questions are about your performance on your job. Please respond as accurately as possible. Try to consider your performance over the past 90 days. How often have you done each of the following things at work?	Never	Once or Twice	Once or Twice per month	Once or twice per week	Every day
Went out of the way to give co-worker encouragement or express appreciation. (OCB)	1	2	3	4	5
Decorated, straightened up, or otherwise beautified common work space. (OCB)	1	2	3	4	5
Picked up meal for others at work. (OCB)	1	2	3	4	5
Helped co-worker learn new skills or shared job knowledge. (OCB)	1	2	3	4	5
Helped new employees get oriented to the job. (OCB)	1	2	3	4	5
Offered suggestions to improve how work is done. (OCB)	1	2	3	4	5
Helped a co-worker who had too much to do. (OCB)	1	2	3	4	5
Volunteered for extra work assignments. (OCB)	1	2	3	4	5
Said good things about organization in front of others. (OCB)	1	2	3	4	5
Gave up meal and other breaks to complete work. (OCB)	1	2	3	4	5

APPENDIX E

CWB CHECKLIST

COUNTERPRODUCTIVE WORK BEHAVIOR: The following questions are about your performance on your job. Please respond as accurately as possible. Try to consider your performance over the past 90 days. How often have you done each of the following things at work?	Never	Once or Twice	Once or Twice per month	Once or twice per week	Every day
Purposely wasted the employer's materials/supplies. (CWB)	1	2	3	4	5
Came to work late without permission. (CWB)	1	2	3	4	5
Taken a longer break than he/she was allowed to take. (CWB)	1	2	3	4	5
Purposely worked slowly when things needed to get done. (CWB)	1	2	3	4	5
Took supplies or tools home without permission. (CWB)	1	2	3	4	5
Been nasty or rude to a client or customer. (CWB)	1	2	3	4	5
Insulted someone about their job performance. (CWB)	1	2	3	4	5
Made fun of someone's personal life. (CWB)	1	2	3	4	5
Ignored someone at work. (CWB)	1	2	3	4	5
Started an argument with someone at work. (CWB)	1	2	3	4	5

APPENDIX F

PERFORMANCE MANIPULATION CHECKS

Rate the degree to which you agree or disagree with the following statements about the employee.	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree
I am one of the best performers at my organization. (Task)	1	2	3	4	5
I am always going above and beyond to help my organization. (OCB)	1	2	3	4	5
I engage in behaviors that lead to negative consequences for my organization. (CWB)	1	2	3	4	5

APPENDIX G

REVERSAL THEORY STATE MEASURE - BUNDLED

Please enter the last 5 digits of your MTurk ID: _____

Not everyone is motivated by the same things. In fact, the same person may be motivated by different things at different times, depending on the situation or their state of mind. You will be shown pairs of statements. You decide which of the statements in each pair best describes what you wanted immediately before taking this survey.

The following are some groups of statements that may describe what you wanted immediately before taking this survey. For each group, please indicate which statement best describes your motivation at that time. There are no right or wrong answers, and no particular response is better than any other. Please indicate which ONE group of statements best describes your motivation immediately before taking this survey.

I WANTED TO... *(Choose ONE)*

Accomplish something for the future Do something serious Do something crucial	Enjoy myself at the moment Do something playful Do something of no great concern

I WANTED TO... (Choose ONE)

Do what I'm supposed to do Do what's expected of me Do my duty	Do what I'm not supposed to do Do the opposite of what's expected of me Be defiant
Be powerful Be in control Dominate	Help others to succeed Help others to be powerful Strengthen others
Be cared for Be helped Be looked after	Care for others Show consideration for others Be loving towards others

I WANTED TO... *(CHOOSE ONE)*

APPENDIX H

MARLOWE-CROWNE SOCIAL DESIRABILITY SCALE

SOCIAL DESIRABILITY: This survey asks a number of questions about how you are in general. Read each statement carefully. Then, for each statement select the corresponding number that best represents who you are. There are no right or wrong answers. All of your responses go directly to the researcher. Your responses will be used to improve your organization. Please respond as accurately as possible.	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree
It is sometimes hard for me to go on with my work if I am not encouraged. (R)	1	2	3	4	5
I sometimes feel resentful when I don't get my way. (R)	1	2	3	4	5
On a few occasions, I have given up doing something because I thought too little of my ability. (R)	1	2	3	4	5
There have been times when I felt like rebelling against people in authority even though I knew they were right. (R)	1	2	3	4	5
No matter who I'm talking to, I'm always a good listener.	1	2	3	4	5
There have been occasions when I took advantage of someone.	1	2	3	4	5
I'm always willing to admit it when I make a mistake.	1	2	3	4	5
I sometimes try to get even rather than forgive and forget. (R)	1	2	3	4	5
I am always courteous, even to people who are disagreeable.	1	2	3	4	5
I have never been irked when people expressed ideas very different from my own.	1	2	3	4	5
There have been times when I was quite jealous of the good fortune of others. (R)	1	2	3	4	5
I am sometimes irritated by people who ask favors of me. (R)	1	2	3	4	5
I have never deliberately said something that hurt someone's feelings.	1	2	3	4	5

DEMOGRAPHIC INFORMATION: Please answer a few demographic questions for research purposes.	
Are you male or female?	□ Yes □ No
Which category below includes your age?	□ 17 or younger *(Exluded)* □ 18-20 □ 21-29 □ 30-39 □ 40-49 □ 50-59 □ 60 or older
Which of the following best describes your race or ethnicity?	□ White □ Black or African-American □ American Indian or Alaskan Native □ Asian □ Hispanic/Latino/a □ From multiple races
Which of the following best describes the principal industry of your organization?	□ Advertising & Marketing □ Agriculture □ Airlines & Aerospace (including Defense) □ Automotive □ Business Support & Logistics □ Construction, Machinery, and Homes □ Education □ Entertainment & Leisure □ Finance & Financial Services □ Food & Beverages □ Government □ Healthcare & Pharmaceuticals □ Insurance □ Manufacturing □ Nonprofit □ Retail & Consumer Durables □ Real Estate □ Telecommunications, Technology, Internet & Electronics □ Utilities, Energy, and Extraction □ I am currently not employed

APPENDIX I

DEMOGRAPHIC INFORMATION

Which of the following best describes your current occupation?	□ Admin - Clerical □ Marketing □ Customer Service □ Mental Health □ Design □ Nurse □ Discharge Planner □ Nurse Assistant □ Facilities/Maintenance □ Nutritionalists □ General Labor □ Professional Services □ Hospitality □ Food Services □ Human Resources □ Sales □ Information Technology □ Therapy □ Management □ Transportation
Which of the following best describes your current job level?	□ Owner/Executive/C-Level □ Senior Management □ Middle Management □ Intermediate □ Entry Level
Which of the following categories best describes your employment status?	□ Employed, working full-time □ Employed, working part-time □ Contracted, working full-time □ Contracted, working part-time
Do you work the day or night shift?	□ Day shift □ Night shift
About how long have you been in your current position?	_____ years _____ months

APPENDIX J

HUMAN USE APPROVAL LETTER

LOUISIANA TECH
UNIVERSITY

MEMORANDUM

OFFICE OF UNIVERSITY RESEARCH

TO: Ms. Stephanie Murphy and Dr. Mitzi Desselles

FROM: Dr. Stan Napper, Vice President Research & Development

SUBJECT: HUMAN USE COMMITTEE REVIEW

DATE: May 1, 2014

In order to facilitate your project, an EXPEDITED REVIEW has been done for your proposed study entitled:

"Individual Adaptability as a Predictor of Performance"

HUC 1213

The proposed study's revised procedures were found to provide reasonable and adequate safeguards against possible risks involving human subjects. The information to be collected may be personal in nature or implication. Therefore, diligent care needs to be taken to protect the privacy of the participants and to assure that the data are kept confidential. Informed consent is a critical part of the research process. The subjects must be informed that their participation is voluntary. It is important that consent materials be presented in a language understandable to every participant. If you have participants in your study whose first language is not English, be sure that informed consent materials are adequately explained or translated. Since your reviewed project appears to do no damage to the participants, the Human Use Committee grants approval of the involvement of human subjects as outlined.

Projects should be renewed annually. ***This approval was finalized on May 1, 2014 and this project will need to receive a continuation review by the IRB if the project, including data analysis, continues beyond May 1, 2015.*** Any discrepancies in procedure or changes that have been made including approved changes should be noted in the review application. Projects involving NIH funds require annual education training to be documented. For more information regarding this, contact the Office of University Research.

You are requested to maintain written records of your procedures, data collected, and subjects involved. These records will need to be available upon request during the conduct of the study and retained by the university for three years after the conclusion of the study. If changes occur in recruiting of subjects, informed consent process or in your research protocol, or if unanticipated problems should arise it is the Researchers responsibility to notify the Office of Research or IRB in writing. The project should be discontinued until modifications can be reviewed and approved.

If you have any questions, please contact Dr. Mary Livingston at 257-2292 or 257-5066.