

INDIVIDUAL ADAPTABILITY: TESTING A MODEL OF ITS DEVELOPMENT AND
OUTCOMES

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ABSTRACT

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Researchers have proposed and investigated a variety of concepts similar to adaptability. In recent years, greater attention has been given to viewing adaptability as a trait-based construct relevant to the work context. The purpose of the present study is to propose and test a model of individual adaptability. In the present model, the antecedents of cognitive ability, Conscientiousness, Openness to Experience, and Emotional Stability influence cultural, work stress, interpersonal, learning, and uncertainty dimensions of adaptability. These relationships are moderated by experiences individuals encounter that aid in the development of adaptability. The adaptability dimensions subsequently influence the outcomes of task and contextual performance, emotional adjustment, and efficacy to adapt. These adaptability-outcome relationships are moderated by the changes one encounters in an unfamiliar context. This model is tested in a sample of new undergraduates. Results support the effects of the antecedents on adaptability and of adaptability on the outcomes. The proposed moderators are not supported, but supplemental analyses reveal that experiences predict adaptability incrementally over the antecedents and that changes incrementally predict the outcomes over adaptability. Additionally, adaptability was relatively stable across the two time points of measurement in the study. The results support the viability of the conceptualization of adaptability as a trait-like construct. Theoretical and practical implications of these results are discussed.

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Introduction

Organizations are increasingly faced with a dynamic environment due to changing technology (Hollenbeck & McCall, 1999; Baird & Griffin, 2006), an increased focus on knowledge and service-based work (Hesketh & Neal, 1999), an increase in employee mobility (Wang, Zhan, McCune, & Truxillo, 2011), and increased globalization (Cascio, 2003). These changes have implications for individuals within organizations. For instance, employees faced with new technologies must learn how to use them, and individuals who must deal with individuals from other cultures must be able to do so in an effective manner. If the technology or culture one is encountering is new or different from what he or she has experienced before, the employee must adapt to these changes. Changing work requirements necessitate that one can perform new tasks or alter the manner in which such tasks are performed, and an inability to do so may be detrimental to organizational performance.

The purpose of the present study is to present and test a model of trait-based adaptability. The idea that adaptability is a trait is not new, though its conceptualization has changed over time. The predominant treatment of adaptability in recent years has been as an aspect of performance rather than a trait. Aside from these two conceptualizations, others also have been offered. The first section of this paper will describe these different conceptualizations, followed by a summary that compares and contrasts them. Next, a model of how adaptability develops within a person and eventually affects performance will be discussed. This model is represented by Figure 1. Each of the variables and relationships in the model will be explained in greater detail. Third, a study with the purpose of testing the presented model in a sample of new undergraduates will be outlined. The context of new undergraduates is considered a natural and appropriate context in which to study adaptability for reasons to be explained further.

Conceptualizations of Adaptability

The following two sections describe different views of adaptability-related constructs. Because a number of concepts related to adaptability have been popular in recent years, in the first section, several of these constructs are reviewed. Adaptive performance and the similar notion of adaptive expertise are discussed, followed by reviews of functional flexibility and coping. In the second section, the conceptualization of adaptability as a trait is outlined. Research into adaptability in narrow contexts is first reviewed, followed by more general conceptualizations of work-related trait-based adaptability. After these sections, the differing perspectives are compared and contrasted.

It is important to note that though aspects of the conceptualizations reviewed below are criticized, these conceptualizations are not devoid of value. For instance, a model from Pulakos et al. (2002) is critiqued for its relative simplicity, but a subset of the adaptability dimensions identified through Pulakos' line of research is used in the present investigation. Rather than present an entirely new conceptualization and model of adaptability, the goal of this study is to build upon previous work, including Pulakos' and Ployhart and Bliese's (2006), by drawing from the portions of their adaptability-related research most relevant and valuable to the present investigation. The model utilized in the present study shares many similarities with previous work, but is also distinct in several ways. This is further discussed throughout the introduction and summarized in the section entitled *Similarities to and Differences from Related Articles* toward the end of the introduction.

Concepts Similar to Adaptability

Adaptive Performance.

In most of the extant research into adaptability, it has typically been treated as a characteristic of some types of performance and is often referred to as adaptive performance or adaptation (e.g. Lepine, Colquitt, & Erez, 2000; Kozlowski et al., 2001; Chen, Thomas, & Wallace, 2005; Lang & Bliese, 2009; Jundt, 2010). This performance is often conceptualized as performance on a task following a change or the transfer of skills from one task to another rather than as an individual-level, trait-like construct. For instance, LePine, Colquitt, and Erez (2000) treated adaptability as performance on an aircraft simulation task in which rules had changed, while Kozlowski et al. (2001) operationalized adaptability as one's exhibited generalized knowledge and skills from one task to another. Using this conceptualization, adaptability is defined by performance on a particular task rather than as a broader capacity for performing in situations that require individual adaptability.

Rench (2009) reviews the components of adaptation: a changing task, recognition of the cues indicating the need to change, altering one's cognitions, affect, or behavior, and success after the change. The first element is self-explanatory; for an individual to need to adapt, he or she must encounter an aspect of the task that requires adaptation. Second, even when such a change in the task is present, an individual may not recognize it. A cue, which can be subtle or obvious, signals the individual that a change is necessary. Third, the change occurs. A contribution of Rench's (2009) conceptualization to this line of literature is that the change does not have to be purely behavioral, but can also be cognitive or emotional. Lastly, a change is not considered adaptive if it does not at least maintain performance in the task. That is, if performance decreases, the change is not considered adaptive.

This approach is useful in that it presents adaptation as a general process that should be similar across tasks. If something changes, an individual *must* notice the change to take any

action. To maintain performance in the presence of a task element change, some sort of action *must* be taken. The theory presents a fairly simple linear process. However, this approach has a significant downside. Generalizability of an ability to adapt beyond the task used in a particular study is unclear. The tasks used in such studies (e.g. Lepine, Colquitt, & Erez, 2000; Rench, 2009) may not be similar to those encountered in work situations, and change detection and eventual adaptation to changes in a controlled lab-based task do not necessarily indicate an individual will adapt to work-related challenges. An employer looking to select individuals who can adapt will find this research less useful than that involving a trait-based approach.

Studies utilizing this conceptualization also ignore potential mediating effects. For instance, while some have found support for the effect of personality factors on adaptive performance (e.g. Lepine, Colquitt, & Erez, 2000), the idea that a personality factor directly leads to adaptation is simplistic and conceptually lacking. There is little explanation for why an individual who is open to experiences would simply be better at adjusting behaviors when encountering task changes; processes are sometimes mentioned but are rarely tested. For instance, Lepine et al. (2000) explain that a person high on Openness to Experience may self-monitor better and be more creative, contributing to performance on their adaptability task; however, this is an implicit process that is not tested. One potential explanation is that a person open to experiences has exposed him or herself to a broader range of them and thus has been able to “practice” different approaches to executing and adapting to tasks, providing a greater repertoire from which to draw and increasing trait adaptability; this is a similar explanation to that which is presented in this article. Such a conceptualization allows for testing of this explanation. Individual differences may lead indirectly to adaptation, but this is not the manner

in which studies focusing on adaptation as an outcome test the process. The possibility that adaptability may be a trait that facilitates adaptation is neglected.

A study with many similarities to the present comes from Pulakos' line of research. Pulakos et al. (2002) expanded upon a model of adaptive performance developed by Pulakos, Arad, Donovan, and Plamondon (2000) by studying the predictors of adaptive performance. Military personnel completed experience, interest, and self-efficacy to adapt measures designed to reflect the previously identified (by Pulakos, Arad, Donovan, and Plamondon, 2000) eight dimensions of adaptive performance; these are considered by the authors to be elements of adaptability. Participants also completed personality (Openness to Experience, Emotional Stability and achievement motivation) measures, and cognitive ability scores were derived from ASVAB assessment scores. The intent was to see if the experience, interest, and efficacy measures predicted adaptive performance incrementally above personality and cognitive ability. Soldiers' supervisors completed criterion measures of adaptive performance also designed to reflect the eight-dimensional model. Results indicated that the eight-factor model of adaptability was confirmed for experience, interest, and self-efficacy measures, but not for the adaptive performance (criterion) measure, which was best fit by a single factor. While many adaptability dimensions (i.e. experience, interest, and self-efficacy dimensions) correlated significantly with adaptive performance, no interest or self-efficacy subscales predicted adaptive performance above personality or cognitive ability; the learning subscale of experience, however, did.

This study expands our understanding of adaptability, but it is a relatively simplistic model. Figure 2 represents the model that was tested. Adaptability is not treated as a trait as it is in the present article. Personality and cognitive ability are not antecedents of anything but adaptive performance. While experience in adapting is included in the model, it simply results in

adaptive performance. The implicit assumption is that people will be shaped by these experiences regardless of other individual differences, namely cognitive ability and personality. In the model offered in the present article, these predispositions result in responses to experiences that facilitate the development of adaptability as a capability. While the focus in Pulakos' article is largely on performance that is adaptive in nature, the focus of the present article is on adaptability as a trait-based construct.

Adaptive Expertise.

Another closely related concept to adaptability is that of adaptive expertise. Holyoak (1991) distinguishes between routine experts, who are able to solve problems similar to those they have encountered before using learned strategies and procedures, and adaptive experts, who can create new strategies and procedures when novel problems are encountered. Adaptive expertise is conceptualized similarly to the definition of adaptability as performance. Smith, Ford, and Kozlowski (1997) discuss adaptive performance in the context of tasks and explain that "adaptability or adaptive expertise is evidenced when the individual responds successfully to changes in the nature of the trained task" (p. 93). Individuals recognize changes in a task and alter their strategies to deal with the changes.

As is the case in the view that adaptability is performance, adaptive expertise is not applied to a broad range of situations one might encounter, but rather is applied to specific, frequently simplistic tasks. For instance, adaptive expertise is frequently applied to mathematics education for basic concepts such as addition and subtraction (e.g. Baroody, 2003; Ben-Zeev & Kagan, 2004; Torbeyns, Verschaffel, & Ghesquiere, 2006; Verschaffel, Luwel, Torbeyns, & Van Dooren, 2009; Hickendorff, van Putten, Corneilus, Verhelst, & Heiser, 2010). For the purposes of educating or training an individual on such tasks, adaptive expertise may indeed be useful, but

this would not be useful, for instance, for an organization desiring to hire an individual who has the ability to adapt across a range of situations. Research has demonstrated cognitive ability underlies the ability to alter a strategy (as an adaptive expert would) to some degree (Schunn & Reder, 1998), but it is unclear what other individual differences might facilitate this; it is possible adaptability (conceptualized as a trait) is one of these differences.

Functional Flexibility.

Paulhus and Martin (1988) introduced functional flexibility to this stream of literature. Though some authors have used the term to refer to an organizational-level variable indicating the ability of the organization to deploy employees to fulfill different roles (Desombre, Kelliher, Macfarlane, & Ozbilgin, 2006; van den Berg & van der Velde, 2005; Martinez-Sanchez, Vela-Jiminez, Perez-Perez, & de-Luis-Carnicer, 2008), the traditional conceptualization of functional flexibility as pertaining to interpersonal situations (e.g. Paulhus & Martin, 1988; Baird, Le, & Lucas, 2006; Driskell, Goodwin, Salas, & O'Shea, 2006) will be considered here. Functional flexibility is based on previous conceptualizations of interpersonal flexibility, which is a concept with two components: having a wide range of behaviors one can access, and having the ability to exhibit the behaviors when needed. Traditional measures of interpersonal flexibility, Paulhus and Martin argue, fail to capture these two components because they focus too narrowly on traits (e.g. personality factors) or behaviors that are not strongly linked to flexibility or do not cover the breadth of traits or behaviors that are indeed relevant. In response to the measures' perceived inadequacy, the authors developed the Battery of Interpersonal Capabilities (BIC) Inventory, which purportedly captures the full range of traits and interpersonal behaviors relevant to flexibility in interpersonal situations. Paulhus and Martin's conceptualization of functional

flexibility is valuable in its treatment of flexibility as a combination of an available repertoire of behaviors and a capability to exhibit them; previous authors had suggested this was the case, but their measures did not reflect it. However, their theory is limited in that it only pertains to interpersonal situations. The measure reflects this; for instance, one item asks “How capable are you of being dominant when the situation requires it?” (p. 91). This is adequate for gauging capabilities in interpersonal situations, but individual adaptability occurs in more than interpersonal situations. Because of this, functional flexibility is thus limited in its usefulness.

Coping.

One construct which has similarities to adaptability is coping in response to stressors. According to Sonnentag and Frese (2003), the term “stressors” refers to “conditions and events that evoke strain,” (p. 454) while strain refers to negative physiological, affective, or behavioral reactions to these stressors. Stressors and strain have numerous negative consequences on people (e.g. cardiovascular problems; Schwartz, Pickering, & Landisbergis, 1996; Vrijkotte, van Doornen, & de Geuss, 1999) and organizations (e.g. turnover; Chen & Spector, 1992). Because of these consequences, it is of interest to both individuals and organizations to reduce stressors where possible.

While several theories regarding the cause of strain as a result from stressors have been proposed, one of the most commonly used and most empirically supported grows out of the literature into person-environment fit (Harrison, 1978). This theory contends that stress reactions result from a decrease in person-environment fit; this decrease in fit results from demands at work exceeding one’s abilities or from one’s needs at work exceeding available resources.

Certain psychological attributes, such as one's coping style, self-efficacy, and locus of control are considered to be available resources, referred to by some authors as psychological capital (e.g. Avery, Luthans, & Jensen, 2009). Individuals can use these attributes to deal with stressors and lessen the potential impact of strain. The use of these resources is termed "coping." Coping can either be problem-focused or emotion-focused. Problem-focused coping refers to "behaviors that aim directly to change the stressor, other aspects of the environment, or one's own behavior," while emotion-focused coping "refers to attempts to manage cognitions or emotions directly" (Sonnentag and Frese, 2003 p. 469). While there is some evidence that emotional coping may be effective in response to some stressors, research generally supports the effectiveness of problem-focused coping over emotion-focused coping.

Theories of adaptability and coping are similar in several ways. Both involve an individual encountering something that needs to be dealt with; if whatever is encountered is not dealt with, negative outcomes will result. Both also involve the interplay of individual and environmental characteristics. Some individuals have an easier time accessing necessary resources to adjust strategies and continue performing at an acceptable level, while others do not. A particular event is not a stressor for everyone, just as a particular event does not require everyone to adapt. Still, they are distinct concepts. Stressors are defined by their resultant strain, which is a negative consequence in and of itself because it results in negative health outcomes (Sonnentag & Frese, 2003) even though it may not affect other outcomes such as performance (Tafalla & Evans, 1997). The changes that require adaptability are not innately "bad." In fact, changes are often required for organizations to remain competitive, and one's reaction to these changes is not necessarily negative, at least on a theoretical basis. If one is able to deal with changes effectively, the negative consequences may not result. Stressful events are simply one

kind of event to which an individual may have to adapt. This is evidenced by their inclusion in Pulakos, Arad, Donovan, and Plamondon's (2000) taxonomy of the dimensions of adaptive performance. Coping may be useful when adapting to stressful situations or contexts because an individual may utilize similar strategies to deal with them, but the strategies to reduce strain (i.e. cope with stressors) may not be effective when strain is not present, which may be the case for situations requiring other types of adaptability. Therefore, while stress and coping are part of adaptability, they are not the entirety of this concept.

A concept similar to coping is resilience. Like coping, resilience also is an effective response to negative events, described by Luthar and Cicchetti (2000) as "significant adversity or trauma" (p. 858). Resilience also does not necessarily lead to positive outcomes, but rather may only imply an absence of severe negative outcomes such as psychopathology (Campbell-Sills, Cohan, & Stein, 2006). As discussed above, adaptability does not have to be in response to negative changes or challenges, and a simple avoidance of a serious negative outcome is not sufficient to constitute adaptive behavior. Resilience is useful in the clinical psychology context (where it is most commonly utilized) because avoidance of strong negative outcomes when significant negative events occur is certainly important. In everyday work or academic contexts, however, it does not seem appropriate to describe one's ability to respond effectively to more common challenges or changes.

Trait-based Adaptability

As was mentioned, the general idea that adaptability is a trait is not a recent development. Allport (1924) identified general adaptability as a trait that facilitated adjustment to one's social environment. In his view, an adaptable individual encountering a new social group would attend

to the social norms of the group and alter his or her behaviors to assimilate with the group.

While Allport's focus was on the broad social nature of individuals and not on adaptability, his view of adaptability is important in that it introduced it as a trait that aids individuals in adjusting behaviors when required by a changing environment.

Adaptability in Narrow Work Contexts.

Others have treated adaptability as a trait, implicitly or explicitly, with a focus on a specific work context rather than exploring the general nature of adaptability. Early authors (e.g. Sells, 1956; Trites, Kubala, & Cobb, 1959) utilized and defined adaptability solely within the context of aviation. For instance, Trites, Kubala, & Cobb (1959) defined adaptability as “temperamental and motivational characteristics, such as emotional disturbance or program-oriented motivation deficit, which contribute to a man's success or failure in training and his continued adjustment to military flying” (p. 25). While the nature of adaptability is not explicated in such articles, the definitions suggest a trait-based conceptualization highlighting the ability to learn and perform in a new context (in this case, flying airplanes).

More recent lines of research have also focused on the context rather than the adaptability construct. For instance, some authors have investigated adaptable or flexible leadership. This has been conceptualized as a leader's tolerance for uncertainty (White & Shullman, 2010), adjusting leadership styles as contexts change (Kaiser & Overfield, 2010; Yukl & Mahsud, 2010), leaders' acquisition and application of knowledge to new situations (DeMeuse, Dai, & Hallenbeck, 2010), and the previously discussed concept of adaptive expertise (Nelson, Zaccaro, & Herman, 2010). These definitions differ in their details, but the focus in each is on leaders and how they deal with challenging or dynamic situations.

While this contextual approach may have utility for researchers attempting to understand how pilots or leaders behave in certain situations, these definitions are somewhat limiting when attempting to understand the general nature of adaptability. Do the actions of a pilot faced with an equipment malfunction reflect those individuals in other jobs may exhibit when encountering a problem? Do leaders respond differently than lower-level employees when their position's priorities change? The focus on one particular context makes generalization, along with a more complex understanding of adaptability, difficult.

Morrison and Hall (2002) discuss adaptability in the context of careers. As workers in present times become more mobile and establish weaker ties with their employers, adaptability is becoming more important because it aids workers in changing jobs and careers. Morrison and Hall conceptualize adaptability as a metacompetency, indicating that mastery of it precedes mastery of other competencies. The authors distinguish between adaptability, which is "the capacity to adapt or change" and adaptation, which is the "action process involved in responding to a new situation" (p. 205). They go on to describe adaptability and adaptation in greater detail. Adaptability consists of four elements. The first two are traditional definitional elements of response learning and adaptive motivation, which refer to monitoring the environment and adjusting behaviors to deal with changing situations, and having the motivation to use adaptive competence and exhibit these behaviors. The latter two elements, identity exploration and integrative potential, are less common in definitions of adaptability. Identity exploration involves self exploration for the purpose of matching or modifying one's identity to a situation; integrative potential is ensuring this alignment between identity and the situation. One cannot act in accordance with his or her identity if he or she does not truly know this identity.

Conversely, the authors characterize exploring and knowing this identity without translating it into behavior as “navel gazing.”

This divergent view of adaptability is interesting, but again, its application is limited outside of the career adaptability space. The key point of differentiation between Morrison and Hall’s definition and other conceptualizations of adaptability is the introduction of identity. One could argue that identity is relevant to all forms of adaptability, or all behaviors for that matter; individuals must always be exhibiting behaviors consistent with their identity or must reconcile the differences. However, identity is more relevant to the context of careers than the broader work context. For instance, the importance of matching one’s career to his or her identity is likely greater than the importance of matching one’s response to a copy machine malfunctioning. One’s career is simply a larger and more significant part of his or her life.

Furthermore, Morrison and Hall’s discussion of matching one’s identity seems to fall outside the realm of individual adaptability. Just as Morrison and Hall discuss matching identity to one’s career, the person-environment fit literature (e.g. van Vianen, 2005) discusses matching individuals with jobs, others, and organizations based on characteristics of each. Measurement of individual and career or organizational characteristics may be difficult; one advantage to trait-based adaptability theories is that, theoretically, strong fit may be less important for adaptable individuals because they can adapt to the situation or context even if a strong fit between individual and organizational characteristics is not present. If adaptability is indeed an important individual difference when fit is weak, measurement of adaptability may be an easier and relatively effective alternative to measurement of fit. It may be difficult for individuals to alter their identity, especially as often as situations may necessitate it in today’s world. It is also likely possible individuals can deal with changes to the environment without having to go so far

as to make identity modifications; an ability to adapt is important in that individuals can deal with changing environments without the difficulties that could result from attempting to alter their identities. A match between a person and his or her environment is certainly important, but in the present paper (and the majority of the extant literature), it is not considered an element of adaptability.

While some authors have chosen to focus on a narrow context, others have sought a broader understanding of adaptability. The following section will review work-related trait-based adaptability and then compare and contrast the constructs that have been discussed.

Adaptability at Work.

More recently some researchers (e.g. Ployhart & Bliese, 2006; Wang, Zhan, McCune, & Truxillo, 2011) have begun studying adaptability as a trait applicable to work situations in general rather than as a characteristic of performance or tasks individuals or teams complete, or as a trait only relevant to specific work contexts. It is unclear the extent to which adaptive performance on one task may generalize to other tasks. However, viewing adaptability as an individual-level trait, if an individual possesses the general capacity for adapting, he or she should be more likely to behave in this manner across situations.

Ployhart & Bliese (2006) recently developed a theory of individual adaptability labeled “I-Adapt.” In this theory, adaptability is defined as “... an individual’s ability, skill, disposition, willingness, and/or motivation, to change or fit different task, social, and environmental features” (p. 13). The authors discuss several key features of their conceptualization of adaptability. First, as should be clear, adaptability is an individual difference and is distinguished from adaptive

performance. Like other individual differences, it is a construct that varies among people and influences how they interpret and behave across situations.

Ployhart and Bliese do contend that adaptability may be needed or utilized even when one's environment has not changed but his or her behaviors are not effective in the present situation (i.e. it is proactive as opposed to reactive). This is an interesting claim, but proactive adaptability is not explicitly considered in this study. It is unclear from the description by Ployhart and Bliese's discussion under what circumstances one would need to proactively adapt. If one is performing in a new context, the context has by definition changed, requiring reactive adaptability. If one is performing in a seemingly familiar context, but his or her behaviors (which have been effective previously) are ineffective, the situation or context must have changed, even if the change is not immediately apparent. Consider how an employee may interact with his or her supervisor. Perhaps every day the employee gives the supervisor a friendly ribbing before work. If one day the supervisor reacts negatively to this teasing, something has still changed. Perhaps the manner in which the message is being delivered is different, or perhaps the supervisor is experiencing family troubles that influence his or her mood at work. Again, either possibility will require reactive adaptability regardless of whether the employee knows the source of the changes. If all of the inputs into a system or process are controlled, the same outputs will result; if different outputs are resulting, something has changed. Instances in which adaptability may be required but the environment has not changed are not discussed by Ployhart and Bliese, so it is difficult to know to what the authors are referring. Regardless, the context of this study is one's transition to college, which is assumed to be a context in which much changes. For these reasons, the traditional conceptualization of

adaptability (i.e. as being required in response to contextual or situational changes) will be used in this study.

In the authors' conceptualization, adaptability results from a number of KSAOs. While they posit that cognitive ability and personality may contribute to adaptability, there is little discussion of how adaptability might develop as a result of these KSAOs; this is one of the goals of the present study, and will be discussed in greater detail later. Additionally, contextual and situational change can occur in different areas of work or life; again, this is an element explored in this study that will be discussed in greater detail later.

Consistent with Ployhart and Bliese's (2006) view, adaptability in the present article is conceptualized as a relatively distal trait with regard to its effect on behavior, but more proximal in this regard than the antecedents in the model (i.e. personality, cognitive ability). Traits are thought to lie somewhere along a distal-proximal continuum, and more proximal traits are more malleable, affected by situations, and have a more direct influence on outcomes than more distal traits. This means that a person's ability to adapt is somewhat difficult to learn or change, though because it is not as distal as other trait-like variables such as personality, it retains some malleability. This facilitates its position in the model in the present study; more stable individual differences (i.e. cognitive ability and personality) lead to adaptability, which in turn leads to several outcomes. The idea of traits leading to other traits may seem unnecessarily complex or counterintuitive at first, but viewing them in this manner helps describe the process thought to occur. This process-based view has been applied to other concepts; for instance, Chen, Gully, Whiteman, and Kilcullen (2000) proposed a model in which cognitive ability, general self-efficacy, and goal orientation affect context-specific self-efficacy, which in turn affects performance. The distal-proximal continuum was used to support the placement of the variables

in Chen et al.'s (2000) model. The same is done in the present study. Not all traits are equivalent simply because they are traits, and it is reasonable theoretically that stable, distal traits affect more malleable, proximal traits.

Review of Adaptability and Related Constructs

Thus far, trait-based adaptability has been reviewed, as have the related constructs of adaptive performance, functional flexibility, adaptive expertise, and coping. These concepts share similarities. All of these concepts pertain to changing or challenging situations or contexts. Whether on a lab-based task, in an interpersonal situation, or in the presence of a stressor, something happens with which an individual must deal. Second, these concepts have all been applied at the individual level. While adaptive performance has also been applied to the team level, studies have investigated it at the individual level. This distinguishes these concepts from others such as the aforementioned alternative (i.e. not Paulhus and Martin's) definition of functional flexibility which refers to organizational capabilities. As such, another similarity is that these conceptualizations share the idea that there are antecedents (such as personality) to each adaptability-related concept.

As was mentioned in some of these sections, there are significant differences between the concepts presented. First, much research into these has been contextually bound. Adaptability-related concepts have been studied within the contexts of aviation, career choice, leadership, and interpersonal situations. Such conceptualizations are limiting in their generalizability. Even though, for instance, Morrison and Hall's (2002) definition of adaptability does not explicitly refer to careers, they explain that the components of adaptability include identity alteration and matching (with one's career); this limits the usefulness of their conceptualization beyond the

realm of career choice. Coping is similar to these contextually-bound conceptualizations in that it is only one element of a broader theory of trait-based adaptability. As was discussed, individuals may have to adapt to stressful situations, but other situations to which one may have to adapt may not cause stress reactions. Coping is a response to stressful situations, and the strategies used to cope with stressors may not be the same as those used to deal with other situations or contexts requiring adaptability. For this reason, coping seems to be part of adaptability, but it does not comprise the entire concept as it is usually defined.

Additionally, concepts such as adaptive performance and adaptive expertise typically focus on simplistic tasks, such as lab-based and mathematics tasks. These may be useful for understanding finer-grained mental processes that occur under controlled conditions, but they are not as useful beyond the confines of these experiments. If certain individuals exhibit this adaptive performance across such tasks or situations, there may be an underlying construct (adaptability) facilitating performance that would explain such behavioral consistency. These studies also tend to focus solely on task performance; this is not the only type of performance that is of interest to organizations (Borman & Motowidlo, 1997).

The above differences suggest reasons for which trait-based adaptability is advantageous compared to these other conceptualizations. It is true that adaptability as it is defined in the present article pertains to work contexts; however, in I/O psychology, this is typically the broadest context of interest. Additionally, a number of the dimensions included in Pulakos, Arad, Donovan, and Plamondon's (2000) taxonomy of adaptability may be applicable beyond the work context. Individuals encounter stress, uncertainty, interpersonal situations, learning, and other cultures outside of work. For these reasons, the present view of trait-based adaptability is considered less contextually-bound than other concepts.

Additionally, viewing adaptability as an individual difference is also more practically useful for organizations, largely due to the generalization issue. An HR manager may not be confident that one will exhibit adaptability on the job because he or she exhibited adaptive performance on a lab-based task; the range of situations to which the employee may have to adapt is much broader and contains more variety than the lab-based task likely represents. Therefore, it would be difficult to select such a person based on this adaptive performance. If an individual exhibits trait-based adaptability, however, it is more likely this will translate to the breadth and variety of workplace contexts and situations. It may make more sense to select an individual for this capacity.

Because of these advantages, the present article utilizes trait-based adaptability largely as it is conceptualized by Ployhart and Bliese (2006). Adaptability in the present article is conceptualized as a relatively stable trait that results from more distal traits, specifically cognitive ability and personality factors. When individuals encounter a changing or challenging situation or context, adaptability allows them to exhibit appropriate strategy selection and behavior that ultimately leads to positive outcomes. There are differences between Ployhart and Bliese's model and the present model, but these differences will be discussed after presentation of the present model. At this point, the dimensions of Ployhart and Bliese's model will be discussed along with a discussion of which dimensions are relevant to the present study, which is based in the new undergraduate context rather than the workplace.

I-Adapt Model Dimensions

Ployhart and Bliese's model utilizes the eight dimensions identified by Pulakos et al. (2000). These dimensions are crisis, cultural, work stress, interpersonal, physical, creativity,

learning, and uncertainty adaptability. Table 1, which was adapted from Pulakos et al.'s article, presents the definitions of these dimensions. Five of these eight dimensions are included in the model to be investigated in the present article; the crisis, physical, and creativity dimensions are omitted due to their lack of relevance given the context of the study. The crisis dimension pertains to "life threatening, dangerous, or emergency situations" (Pulakos, Dorsey, & White, 2000, p. 617). These situations could indeed affect performance and adjustment, but they are uncommon and relatively unlikely to occur over a semester in college. This adaptability dimension would only be relevant if such situations occurred. The physical dimension pertains to physically challenging environments or tasks. College challenges are likely psychological rather than physical; while it is possible it could, for instance, get very cold, this is unlikely in the fall semester when the research is planned, and also unlikely to be severe enough to affect performance or adjustment. Other challenges, such as having to walk further than one is used to, are possible but should not be severe enough to require significant amounts of physical adaptability. The creativity dimension involves generating unique or innovative ideas, employing creative solutions to problems, and performing when resources are insufficient. This dimension seems more applicable to the work context, in which individuals frequently work with teams and must generate such ideas, and in which resources for performing may be lacking due to (for instance) budget cuts. Similar tasks or situations may occur in a student's first semester, but these are likely infrequent or occur for a minority of students, at least at this stage in college. Early college courses, for instance, are often large lecture-based courses that do not utilize team-based activities. While the creativity dimension may be relevant, the expected infrequency of tasks or situations requiring it support its omission in the present study.

The other five dimensions are conceptually relevant to this context. A student may encounter more difficult academic assignments and material, different work schedules, different types of assignments (regardless of difficulty) than he or she commonly experienced in high school. These may cause stress that needs to be dealt with and may also require learning information in a different manner. This suggests the stress and learning adaptability dimensions are relevant to this context. Additionally, a student may encounter new and different cultural groups and groups of peers who behave and interact differently than those from his or her hometown. Cultural and interpersonal adaptability may then be necessary to make friends and have a satisfying social circle and avoid emotional problems such as feeling isolated. Lastly, uncertainty adaptability involves acting without full information and adjusting one's cognitions and behaviors when necessary. Going into academic and social situations, an individual may not know exactly what to expect and may have to adjust thoughts or behaviors to act appropriately. For this reason, uncertainty adaptability is relevant to this context. The relevance of these dimensions will be further discussed later when the present study's model is described in greater detail.

Wang, Zhan, McCune, and Truxillo (2011) conducted the only published study utilizing the I-Adapt measure from Ployhart and Bliese's article. These authors tested a model in which adaptability led to person-environment (P-E) fit, and P-E fit led to job performance, job satisfaction, and turnover intentions. Wang et al. found that even after controlling for proactive personality and Openness to Experience (two personality variables conceptualized alongside adaptability rather than as antecedents), the adaptability dimensions of culture, work stress, interpersonal, and learning were positively related to P-E fit. P-E fit was in turn related to these work outcomes.

The present study differs from Wang et al.'s in two important aspects. First, though the authors largely adopt Ployhart and Bliese's model, they conceptualize adaptability as a distal personality variable similar to those in the Big Five. In Wang et al.'s model proactive personality and Openness to Experience do not lead to adaptability, but rather are considered to be personality variables covarying with adaptability facets. The authors did not test for antecedents to adaptability and were therefore unable to investigate mediating or moderating elements of the antecedent-adaptability relationship such as experiences that may have resulted in its development. Ployhart and Bliese (2006), along with the present study, conceptualize adaptability as a capacity more proximal to behavior than, and perhaps resulting from, traditional personality variables, allowing for investigation of antecedents and contributing factors to development. Second, Wang et al. propose that adaptability will lead to increased P-E fit and subsequent outcomes regardless of the changes or differences from previous environments one encounters. The present study proposes that simply entering a new context is not a sufficient condition for adaptability to be needed; specific aspects of the context must change to require adaptability. Also, while the authors did consider multiple outcomes (performance, satisfaction, and turnover intentions), they did not distinguish between task and contextual performance as the present study does. As Borman and Motowidlo (1997) explain, distinguishing between these two types of performance and investigating differences among their predictors advances our knowledge of performance and has utility in contexts such as selection.

Components of the Present Model

As was mentioned toward the beginning of this paper, Figure 1 presents a model of adaptability containing antecedents (personality and cognitive ability) of adaptability,

adaptability facets, and four potential outcomes of adaptability. The antecedent-adaptability relationships are moderated by experiences that have the potential to develop adaptability, and the adaptability-outcome relationships are moderated by the perceived changes in college. Each of these components is discussed in further detail below.

Antecedents.

Adaptability is thought to arise from more distal, non-malleable variables. Two likely antecedents are personality and cognitive ability. Cognitive ability is associated with general information processing (Ackerman, 1988), and allows individuals to acquire knowledge in order to apply it in new contexts (Humphreys, 1979). The present study conceptualizes adaptability as resulting from an individual's responses to situations in which adaptability could be beneficial. An intelligent individual who tries different strategies in changing or new contexts or situations will be more able to learn from these situations and apply this knowledge in the future; his or her adaptability will increase because of the interaction between this intelligence and the situation. This interaction is discussed later, but the key idea is that increased cognitive ability will tend to lead to increased adaptability. Cognitive ability has been shown to correlate with adaptive performance in previous research (Pulakos et al., 2002).

Of the five-factor dimensions of personality, it seems most likely that Openness to Experience, Emotional Stability, and Conscientiousness relate to adaptability. Openness to Experience includes being curious, broad-minded, and intelligent (Barrick & Mount, 1991). Such individuals would be willing to try new strategies and behaviors when presented with a situation in which this is possible. For instance, when moving to a new school, if an individual were not getting along with a group of students he or she tried to befriend, he or she could try to interact with a new group of students or try new activities where friendships may be made; this

would be facilitated by Openness to Experience. Openness to Experience was used by Pulakos et al. (2002), Wang et al. (2011), and Lepine et al. (2002); all three studies found that it correlated with either adaptive performance or adaptability dimensions. Emotional Stability involves remaining calm rather than angry or worried when difficult circumstances arise (Barrick & Mount, 1991). If an individual were having difficulty with an assignment, it would require remaining calm to evaluate the strategy being used and to try new strategies. Pulakos et al. (2002) found that Emotional Stability correlated with adaptive performance. Conscientiousness is a personality variable that includes organization and perseverance (Barrick & Mount, 1991). Such a trait would aid an individual in trying new strategies and persisting when troubles are encountered. Interestingly, Lepine et al. (2002) found a negative relationship between Conscientiousness and adaptive performance. However, it is unclear whether performance on this lab-based task is similar to trait-based adaptability, and thus Conscientiousness deserves further study as a predictor. For these reasons, these three personality factors are hypothesized to positively affect adaptability.

Hypotheses 1-4 propose that each of these antecedents will affect all of the adaptability facets to some extent. Cognitive ability is hypothesized to lead to all five facets of adaptability because an individual who has high cognitive ability will be able to acquire and apply knowledge more efficiently than an individual low on cognitive ability. This applies to acquiring knowledge and strategies and applying them in learning, cultural, work stress, interpersonal, and uncertain situations; regardless of the context, cognitive ability should affect whether one can adapt through knowledge and strategy acquisition and application. Openness to Experience would increase one's tendency to try new behaviors or strategies in both interpersonal and learning contexts, and in uncertain situations in general. Remaining calm (through Emotional Stability)

would aid an individual dealing with preparation for a tough exam, homework, a difficult roommate, or an unpredictable situation, or even when encountering an unfamiliar culture. For instance, consider the situation in which a neighbor constantly makes what a college student considers to be unpleasant-smelling food. An emotionally unstable person might get angry about the odor, while a more emotionally stable person may remain calm enough to politely approach the neighbor, or possibly research the nature of the food for a better understanding of its place in the other student's culture. Regarding Conscientiousness, an individual who is disorganized and can't keep a schedule may have trouble with assignments, school-related stressors, and changing situations, but may also endanger interpersonal relationships (such as roommates or floormates) by creating a mess or skipping social activities. The point is that it is conceivable to think of instances in which all adaptability facets would be affected by these antecedents. Because of this, Hypotheses 1-4 propose these relationships.

Despite this, it is expected that certain personality variables will relate more strongly to certain adaptability facets than others. Cognitive ability should relate more strongly to learning adaptability than the other adaptability facets because cognitive ability directly relates to the application of knowledge on exams, papers, and other course activities. Comparatively less knowledge must be acquired and applied in interpersonal situations; the purpose of a course is to acquire and demonstrate knowledge, while this is not the purpose of an interpersonal situation. Curiosity and broad-mindedness (aspects of Openness to Experience) would facilitate interacting with people from unfamiliar cultures and engaging in a variety of social activities in general, resulting in a stronger relationship with cultural and interpersonal adaptability. As mentioned, it is also a personality factor tied to intelligence, which should result in a stronger relationship with learning adaptability. Emotional Stability will be more useful when stressors are encountered

because these are elements that cause strain and need to be dealt with, and will also be important in handling difficult people, resulting in stronger relationships with stress and interpersonal adaptability. Lastly, Conscientiousness should be more directly applicable to learning adaptability, in which students must remain organized and persistent, and interpersonal adaptability, in which individuals must be considerate to others. Hypotheses 1-4 account for these differences in expected relationship strength.

While it is possible that different facets of these personality factors may exhibit relationships of different strengths with adaptability, personality facets are not utilized in the present study. Two of these three personality factors (i.e. Emotional Stability and Conscientiousness) have not been investigated in conjunction with the trait-based adaptability measure used in the present study. It is beneficial to establish a broader understanding of these relationships before investigating the intricacies of each. Also, parsimony is valuable in such a model; the addition of personality, especially in conjunction with the moderator tests (described in the next section) for each relationship, would lead to a large increase in hypotheses at this stage of the model and might decrease focus on relationships in later stages of the model. While not investigated in the present study, the relative effect of different facets of the Big Five constructs is an avenue for future research.

Hypothesis 1: Cognitive ability, Conscientiousness, Openness to Experience, and Emotional Stability will be positively related to cultural adaptability, but Openness to Experience will exhibit a stronger relationship than the other antecedents.

Hypothesis 2: Cognitive ability, Conscientiousness, Openness to Experience, and Emotional Stability will be positively related to stress adaptability, but Emotional Stability will exhibit a stronger relationship than the other antecedents.

Hypothesis 3: Cognitive ability, Conscientiousness, Openness to Experience, and Emotional Stability will be positively related to interpersonal adaptability, but the three personality characteristics will exhibit stronger relationships than cognitive ability.

Hypothesis 4: Cognitive ability, Conscientiousness, Openness to Experience, and Emotional Stability will be positively related to learning adaptability, but cognitive ability, Conscientiousness, and Openness to Experience will exhibit stronger relationships than Emotional Stability.

Hypothesis 5: Cognitive ability, Conscientiousness, Openness to Experience, and Emotional Stability will be positively related to uncertainty adaptability.

Potentially Adaptability-building Experiences.

While it is hypothesized that adaptability results (at least in part) from personality and cognitive ability, individuals high on these characteristics would not develop adaptability without the life experiences to facilitate it. Most researchers now agree that behavior is a result of person-situation interactions rather than a direct result of either (e.g. Kenrick & Funder, 1988). Situations provide the opportunity for person-centered characteristics to be exhibited and for adaptive behavior to result.

Bauer, Bodner, Erdogan, Truxillo, and Tucket (2007) explain that when newcomers enter organizations, they seek information to reduce uncertainty about the situation and undergo a socialization process. These elements lead to newcomer adjustment, which includes learning

how to perform job tasks and becoming socially accepted by peers. Whether entering organizations or other social situations, if tasks or social situations are challenging or unfamiliar, one may try different strategies to learn and perform tasks or interact effectively with others. This is a foundation for adaptability; people who have encountered more of these situations have had more opportunity to utilize strategies to seek information about tasks and socialize with others. They have been able to alter their strategies to see what works and what doesn't, and additionally, if adaptability leads to success, these adaptive strategies will have been reinforced. One's ability to perform in an adaptable manner would increase, and this would likely lead to more exhibition of adaptability in the future.

Different types of events can facilitate each of the identified facets of adaptability. For instance, individuals may encounter tasks with ambiguous instructions at school or their job (uncertainty adaptability), have too many assignments to complete at a given time (stress adaptability), may take AP courses (learning adaptability), may change schools and need to make new friends (interpersonal adaptability), or may encounter others of different ethnicities or religions (cultural adaptability). Experiences in the present study are conceptualized along the dimensions of adaptability, and the experiences associated with a dimension of adaptability are conceptualized to facilitate the development of that particular adaptability dimension. Individuals with more of these experiences should experience a stronger relationship between these antecedents and adaptability than individuals with fewer experiences.

It is hypothesized that these experiences will have a moderating influence rather than a mediating influence; that is, the relationship between the antecedents and adaptability will be moderated by personal experiences. Individuals' personality and cognitive ability do not necessarily lead to them experiencing a certain situation; for instance, these antecedents would

not result in one changing schools or being assigned an ambiguous task. These occur regardless of one's standing on personality and cognitive ability; the antecedents simply affect how one responds in the situation. Thus, these experiences that have the potential to affect adaptability are moderators rather than mediators of the antecedent-adaptability relationship.

Hypothesis 6: Potentially adaptability-building cultural experiences will moderate the relationship between the antecedents and cultural adaptability, such that individuals with more of these experiences should experience a stronger relationship between the antecedents and adaptability.

Hypothesis 7: Potentially adaptability-building work stress experiences will moderate the relationship between the antecedents and stress adaptability, such that individuals with more of these experiences should experience a stronger relationship between the antecedents and adaptability.

Hypothesis 8: Potentially adaptability-building interpersonal experiences will moderate the relationship between the antecedents and interpersonal adaptability, such that individuals with more of these experiences should experience a stronger relationship between the antecedents and adaptability.

Hypothesis 9: Potentially adaptability-building learning experiences will moderate the relationship between the antecedents and learning adaptability, such that individuals with more of these experiences should experience a stronger relationship between the antecedents and adaptability.

Hypothesis 10: Potentially adaptability-building uncertainty experiences will moderate the relationship between the antecedents and uncertainty adaptability, such that individuals with

more of these experiences should experience a stronger relationship between the antecedents and adaptability.

Outcomes.

Adaptability should lead to positive outcomes in a new or changing environment. For new students, going to college is an experience that presents a new environment containing different challenges than have been encountered before. Students must deal with these, and the more adaptable students will likely more easily alter their strategies to do so when necessary. Adaptability is hypothesized to affect performance, emotional adjustment, and one's efficacy to adapt. These outcomes are reviewed below.

Borman and Motowidlo (1997) review two types of performance: task performance and contextual performance. Task performance refers to "activities that contribute to the organization's technical core" (p. 99). These tasks are usually derived from formal job roles and responsibilities. Task performance is typically what is rated in performance evaluations, largely due to the centrality of prescribed tasks to one's job. Contextual performance refers to behaviors that are voluntary, extra-role, helpful, consistent with organizational rules, and in support of organizational objectives (Borman and Motowidlo, 1993). These behaviors are extremely similar to Organizational Citizenship Behaviors (OCBs); indeed, the overlap is strong enough that some authors treat them as synonymous (e.g. Organ, 1997; Kaufman & Borman, 2003).

Though some authors refer to adaptive performance, it is argued in the present study that adaptive performance is not a distinct type of performance but rather is an application of a capability (i.e. adaptability) to instances of performance. As Pulakos, Dorsey, and White (2006) explain, equivalent tasks or jobs may or may not require adaptability. A factory employee may

use the same machine to punch holes in steel sheets for the duration of his or her responsibilities for that particular task. Adaptability may not be required for this specific task. If a new machine is acquired for this task, adaptability may be required for its continued execution. Similarly, an employee may get along well with others at work and help out where possible. If the culture and personnel in the organization change, he or she may find it more difficult to exhibit contextual performance. In such a case adaptability may be required. Such examples support the idea that adaptive performance may or may not be required with regard to task or contextual performance. Adaptability is therefore related to task and contextual performance; if no task or context changes, an individual does not need to adapt.

This is one area where the concept of adaptability exhibits a conceptual advantage over adaptive performance. In the traditional conceptualization of adaptive performance, the focus is frequently not on the task to which an individual is adapting. Employees are not simply exhibiting adaptive performance in a vacuum, independent of work-related tasks or responsibilities; they are exhibiting performance on a task that simply happens to require adaptability at the time. Adaptability facilitates these other types of performance when the situation requires it. For this reason, adaptive performance is not conceptualized as a specific outcome of adaptability, but rather is viewed as a descriptor of performance in certain circumstances.

New undergraduates' "jobs" may require performance on a variety of tasks, such as attendance, class participation, homework, papers, and examinations. The specific components of task performance vary from class to class. Regardless of the components, however, they are typically summarized in the grade point average (GPA) that one receives at the end of a semester. Therefore, a student's GPA is a representation of his or her task performance for a

given semester. It does not include any extra-role behaviors, but is solely a representation of how a student performed on the various required tasks. Just as an employee receives performance appraisal scores, a student receives a “report card” or transcript of his or her performance scores. For this study, GPA will be treated as a representation of task performance for undergraduates.

Aside from the above tasks, new students may also take on a variety of citizenship behaviors. Just as organizations desire performance above or outside of job-required tasks, universities claim to desire behaviors consistent with OCBs from students in their mission statements (Schmitt et al., 2009). These can include helping other students with social or academic problems, defending the university against criticism, and participating in clubs to improve the university. Thus, contextual performance is also an important criterion for evaluating undergraduate success.

In addition to performance, one’s emotional adjustment to college is an important criterion. A student may be able to perform well academically and may engage in citizenship behaviors toward other students or the university, but internal emotional issues may still exist. The transition to college has been found to relate to a number of emotional problems such as anxiety and depression (Gerdes & Mallinckrodt, 1994; Shankland, Genolini, Franca, Guelfi, & Ionescu, 2010). A student who is performing well but is experiencing emotional problems may be more likely to dropout (Tinto, 1993), so it is of interest to universities to consider this outcome alongside performance. Emotional adjustment is thus employed as an outcome in the present study.

Lastly, adaptability should influence one’s self-efficacy to adapt. Self-efficacy broadly refers to one’s belief that he or she is capable of accomplishing some goal (Bandura, 1986). In

the present context, self-efficacy to adapt refers to one's belief that he or she is capable of adapting when necessary. Theoretically, one should recognize his or her ability to adapt, which should increase confidence that one can adapt when the situation requires it. Pulakos et al.'s (2002) efficacy to adapt measure targeted the aforementioned eight dimensions of adaptability and was conceptualized as a predictor of adaptive performance. Each of the efficacy to adapt measures correlated with adaptive performance, but none predicted this outcome incrementally above personality and cognitive ability. A previous examination of academic self-efficacy in college students has suggested that it may take time or experience in the context to develop accurate efficacy beliefs (Zorzie, 2010); similarly, efficacy to adapt may be more accurately conceptualized as an outcome than as a predictor of adaptability. In the present study, each of the adaptability dimensions is hypothesized to positively influence one's efficacy to adapt. Here, efficacy to adapt is conceptualized as a unidimensional construct rather than the multidimensional view of Pulakos et al. (2002). For this reason, all of the adaptability dimensions are hypothesized predictors of efficacy to adapt.

Conceptually, it does not seem that all of the adaptability facets will lead to all of the first three outcomes discussed (i.e., task and contextual performance, emotional adjustment). Rather, specific relationships are proposed between certain adaptability facets and certain outcomes. First, learning adaptability is hypothesized to positively relate to task performance. This scale deals with acquiring new skills, knowledge, and approaches to problems. A person who is high on these activities should be more effective at exhibiting this capability in the form of task performance (which in this study is operationalized as GPA). Additionally, school work can be very stressful, especially types of work one has not encountered before. Handling this stress is

necessary to perform well on tests and assignments. Therefore, stress adaptability is hypothesized to positively affect task performance.

Upon entering college an individual may encounter new cultures. Many students are required to live in dormitories their freshman year and may not have their choice of roommates or floormates. If an individual is not getting along with others socially, he or she will be less likely to exhibit OCBs toward them. He or she may also be less likely to join clubs or groups if the individuals in them are multicultural; this would lead to less integration into the school in general. For this reason, cultural adaptability is hypothesized to positively affect contextual performance.

Interpersonal adaptability involves flexibility and open-mindedness when interacting with others. A person with low interpersonal adaptability may have trouble interacting with others, making friends, and joining clubs or groups, and may also lead to emotional distress. Thus, interpersonal adaptability is hypothesized to relate to both contextual performance and emotional adjustment.

Lastly, uncertainty adaptability involves dealing with change and unpredictable situations and conditions more broadly. The transition to college includes much change and unpredictability in academics, social and interpersonal situations, and potentially in terms of the resources available (e.g. friends, family) for an individual to manage his or her emotions. For these reasons, it is hypothesized that uncertainty adaptability will relate positively to task performance, contextual performance, and emotional adjustment.

Hypothesis 11: Learning, work stress, and uncertainty adaptability will be positively related to task performance.

Hypothesis 12: Cultural, interpersonal, and uncertainty adaptability will be positively related to contextual performance.

Hypothesis 13: Interpersonal and uncertainty adaptability will be positively related to emotional adjustment.

Hypothesis 14: Each of the adaptability dimensions will be positively related to efficacy to adapt.

Change.

To the extent that the environment and responsibilities encountered at a university are different from those encountered prior to entering the university, a student will need to adapt. From this, the following hypothesis is derived: Students high on adaptability will exhibit stronger task and contextual performance and emotional adjustment than students low on adaptability only when changes relevant to these outcomes are perceived. Figure 3 illustrates the hypothesized interaction. When an individual is high on adaptability, it does not matter whether the tasks or environment changes substantially; he or she has the capacity to deal with the need for change and will perform the same regardless of this need. Individuals low on adaptability will perform at a similar level when changes do not occur, but when changes do occur, they will not be able to adapt and performance and adjustment will suffer. Similar to the manner in which adaptive performance is treated by other authors (e.g. Rench, 2009), adapting in this study is represented by successful maintenance of performance and adjustment when challenges are encountered. No moderated relationships are proposed between the adaptability dimensions and efficacy to adapt; though it is hypothesized that more adaptable individuals will perform and adjust better when greater change occurs, it is expected that individuals high on adaptability will

believe in their capability to adapt regardless of such changes, so only the (previously described) direct relationships between adaptability and this outcome are proposed.

Hypothesis 15a: Perceived academic change will moderate the relationship between learning adaptability and task performance, such that the relationship between adaptability and task performance will be stronger when perceived academic change is greater.

Hypothesis 15b: Perceived academic change will moderate the relationship between stress adaptability and task performance, such that the relationship between adaptability and task performance will be stronger when perceived academic change is greater.

Hypothesis 15c: Perceived academic change will moderate the relationship between uncertainty adaptability and task performance, such that the relationship between adaptability and task performance will be stronger when perceived academic change is greater.

Hypothesis 16a: Perceived social change will moderate the relationship between cultural adaptability and contextual performance, such that the relationship between adaptability and contextual performance will be stronger when perceived social change is greater.

Hypothesis 16b: Perceived social change will moderate the relationship between interpersonal adaptability and contextual performance, such that the relationship between adaptability and contextual performance will be stronger when perceived social change is greater.

Hypothesis 16c: Perceived social change will moderate the relationship between uncertainty adaptability and contextual performance, such that the relationship between adaptability and contextual performance will be stronger when perceived social change is greater.

Hypothesis 17a: Perceived emotional/supportive change will moderate the relationship between interpersonal adaptability and emotional adjustment, such that the relationship between adaptability and contextual performance will be stronger when perceived emotional/supportive change is greater.

Hypothesis 17b: Perceived emotional/supportive change will moderate the relationship between uncertainty adaptability and emotional adjustment, such that the relationship between adaptability and contextual performance will be stronger when perceived emotional/supportive change is greater.

Adaptability as a Mediator

Until this point, the present paper has focused on the relationships between personality and cognitive ability and the adaptability facets, the relationships between the adaptability facets and the specified outcomes, and moderator effects for each of these relationships. Implicit in this model is the mediating effect of adaptability on the relationships between the antecedents of personality and cognitive ability and the outcomes. This is one of the contributions of the present model over previous models (e.g. Pulakos et al., 2002), and the nature of this mediating effect is discussed in this section.

Motowidlo, Borman, and Schmidt (1997) theorized that both personality and cognitive ability affect both task and contextual performance, but that personality is more strongly related to contextual performance while cognitive ability is more strongly related to task performance. Theoretically, cognitive ability affects one's ability to acquire knowledge and skills for exhibiting performance. Personality factors influence the behaviors in which one engages, and these behaviors result in performance (or a lack thereof) for college students (Rothstein,

Paulonen, Rush, & King, 1994). Conscientious individuals are more dependable and achievement striving, emotionally stable individuals regulate emotions and handle stress better, and individuals high on Openness to Experience are more broad-minded and creative. Such attributes should facilitate performing academic work and engaging in positive discretionary behaviors at college. Academic assignments, along with contextual behaviors such as volunteering and helping others, can require thoughtfulness and dependability, dealing with stress, and creativity or broad-mindedness.

Support for the relationship between cognitive ability and the outcomes of task performance (e.g. Schmidt, 2002; Lepine & Van Dyne, 2001) and GPA (e.g. Rhode & Thompson, 2007) is robust, but relationships between cognitive ability and contextual performance tend to be small and non-significant (Lepine & Van Dyne, 2001; Chan & Schmitt, 2002). Conscientiousness has demonstrated strong and consistent relationships with task (Barrick, Mount, & Judge, 2001) and contextual (Hogan, Rybicki, Motowidlo, & Borman, 1998) performance in the organizational context and GPA (O'Connor & Paunonen, 2007) in the academic context. Emotional Stability tends to be a relatively consistent (but less strong) predictor of task and contextual performance, while Openness to Experience tends to be only a weak predictor of task and contextual performance (Barrick, Mount, & Judge, 2001; Hertz & Donovan, 2000). Meta-analytic results indicate both Emotional Stability and Openness to Experience exhibit small positive relationships with GPA (O'Connor & Paunonen, 2007), though many studies produce contradictory (i.e. positive and negative) findings in this regard. While support is inconsistent for the relationships between cognitive ability and contextual performance and between GPA and the personality factors of Emotional Stability and Openness to

Experience, they are theoretically relevant for the reasons mentioned above, and it is expected they will exhibit positive relationships with the performance outcomes.

Emotional adjustment is also an outcome of interest in the present study. An individual's resources are crucial to dealing with stressful situations (Sonnentag & Frese, 2003). Similarly, individuals with high cognitive ability have a greater capacity to assess challenging situations encountered when entering college and effectively select strategies to deal with these challenges emotionally; emotional adjustment should result from this greater ability. Research suggests cognitive ability does predict strategy selection for dealing with job stressors (Pratt, 2006). There is also evidence that Big Five factors influence emotional responses to stressful or challenging situations. Emotional Stability is the personality factor that is conceptually most closely related to the outcome of emotional adjustment because emotionally stable individuals experience less anxiety, depression, and other negative emotions than emotionally unstable individuals (McCrae & Costa, 1987). Of the Big Five factors, Emotional Stability relates most strongly to problematic coping and to overall negative emotions, though Conscientiousness and Openness to Experience are related to decreased negative emotions such as fear and shame (Penley & Tomaka, 2002). This may be at least partially due to how people view challenging or stressful tasks; individuals higher on Openness to Experience and Conscientiousness perceive greater control over such tasks (Penley & Tomaka, 2002).

As the model suggests, the relationships between these antecedents and outcomes are hypothesized to be mediated by adaptability. The antecedents affect performance and emotional adjustment through their previously discussed effects on adaptability. In this theory, for instance, greater cognitive ability does not simply result in better performance or emotional adjustment. Individuals with greater cognitive ability learn more from changing or challenging

experiences about which strategies are effective and which are not, and subsequently select and apply these strategies more efficiently than individuals with low cognitive ability. This ability to adapt results in better performance and adjustment in situations that require adaptability.

Similarly, individuals high on Openness to Experience are more willing to try new strategies and engage in adaptability-building experiences, increasing adaptability which in turn should affect these outcomes. Individuals high on Emotional Stability remain calmer when faced with changing or challenging situations, which facilitates the development of adaptability.

Individuals higher on Conscientiousness have more organization and perseverance. More organized and persevering individuals will try a greater number of methods when dealing with challenges, which should lead to more effective performance and adjustment. The general idea is that possessing cognitive ability and beneficial personality traits facilitates the development of adaptability, which in turn affects performance and emotional adjustment. Recognizing the influence of adaptability is important for understanding the relationships between the antecedents and outcomes. The adaptability facets hypothesized (hypotheses 10-12) to relate to each outcome will be used as mediators of the antecedent-outcome relationships. From this, the following hypotheses are derived:

Hypotheses 18a: Learning, stress, and uncertainty adaptability will mediate the relationships between the antecedents of cognitive ability, Conscientiousness, Emotional Stability, and Openness to Experience and the outcome of task performance.

Hypothesis 18b: Cultural, interpersonal, and uncertainty adaptability will mediate the relationships between the antecedents of cognitive ability, Conscientiousness, Emotional Stability, and Openness to Experience and the outcome of contextual performance.

Hypothesis 18c: Interpersonal and uncertainty adaptability will mediate the relationships between the antecedents of cognitive ability, Conscientiousness, Emotional Stability, and Openness to Experience and the outcome of emotional adjustment.

Stability of Adaptability

As was discussed, the present conceptualization of adaptability posits that the construct is to some degree malleable (e.g. by life experiences) but generally relatively stable. It thus makes sense to investigate the stability of adaptability over the course of a student's first semester. It is likely that adaptability will remain stable, but also possible that college experiences are strong enough to alter adaptability in some ways. Therefore, the following research question is proposed:

Research Question 1: To what extent does adaptability change over the course of a semester?

Similarities to and Differences from Related Articles

The present study exhibits most similarity with three other published works. Most obviously, the first is Ployhart and Bliese's (2006) chapter describing the I-Adapt theory. The present conceptualization of adaptability shares much with theirs, though there are some differences (e.g. the proactive vs. reactive distinction described earlier). The model described is also somewhat similar to that which appears in their chapter. The authors call for researchers to test the propositions they offer, a call that has been largely unheeded since the chapter's publication. Even so, the present model differs and expands upon theirs in several ways. First, Ployhart and Bliese do expand upon the traditional performance domain utilized in adaptive

performance studies by suggesting contextual performance also be included (as do Pulakos et al., 2002). Performance is not the only outcome of interest, though, and the present study includes emotional adjustment and efficacy to adapt as criteria of interest. Considering outcomes other than performance would be useful for studies of adaptability in the future.

Though Ployhart and Bliese posit antecedents to adaptability, they do not discuss *how* these antecedent elements might affect adaptability; these relationships are conceptualized as direct. The present study explicates these relationships by investigating how they might develop through certain experiences. Because the model presented in their chapter explains adaptability as a process, it is important to explain the mechanisms through which the variables at one stage of the model affect variables at the next stage, and the present study represents an attempt to do so.

There are other conceptual differences as well. For instance, Ployhart and Bliese graphically depict that performance will be ineffective for individuals low on adaptability regardless of whether the environment is dynamic or static, and that adaptability will improve performance rather than simply maintaining it. The present study posits that adaptability will aid an individual when the environment or context is dynamic, and similar to Rench's (2009) conceptualization, will at least maintain positive outcomes (e.g. task performance) rather than necessarily improving these outcomes. Additionally, Ployhart and Bliese do not consider possible forms of change, but rather just refer to an environment being dynamic or static. The present study considers dynamism in the context of academics, social elements, and supportive relationships.

The next article among those with relatively strong similarities to the present is Pulakos et al.'s (2002) study of adaptive performance, the model of which was presented in Figure 2.

Though the authors label their experience, interest, and self-efficacy scales adaptability, they do not use the trait-based approach employed in this article. Of these three elements that the authors label adaptability, self-efficacy to adapt is most similar to the present conceptualization of adaptability. Self-efficacy involves the belief one can adapt, while adaptability involves an actual capability to adapt; one can believe he or she can adapt but not be able to do so. One could argue that this distinction is lost in measurement of these variables, but the conceptual difference is important. Additionally, Pulakos et al. (2002) utilize cognitive ability, Openness to Experience, and Emotional Stability in their model, finding they do correlate with adaptive performance. Despite these similarities, the authors' model posits a set of direct relationships rather than describing a process that explains why these variables might affect adaptive performance. As was mentioned, the authors also recognize the shortcoming of focusing only on task performance and recommend that the performance domain be expanded in future studies, which the present study aims to do.

The last article among those with similarities to the proposed work is Wang, Zhan, McCune, and Truxillo's (2011) study using the I-Adapt measure. Because this article and the differences between it and the present study were described in greater detail earlier, they will not be discussed again. However, in summary, the authors of this study conceptualized adaptability differently and used a different model than is being used in the present study.

Implications for I/O

The construct of adaptability has much value in the field of I/O psychology; indeed, the theory of trait-based adaptability in the present study is rooted in work. Jobs frequently require employees to be adaptable; for instance, on a project (Huth & Zorzie, 2010) this author has

previously worked on, a consulting group was looking for a way to identify which employees would be good at adjusting to a new environment when relocating from the consulting group's offices to the workplace of some of their larger clients. This was essentially a question of adaptability; which employees are able to adapt to a new environment (of which the characteristics are likely unknown) more effectively? In selection, it is easier, and likely more generalizable across situations, for an organization to select on trait adaptability rather than on an adaptive performance task (e.g. the computer-based tasks that have been used in previous studies of adaptive performance). Aside from its inherent theoretical value, the explication of adaptability and a demonstration of its validity in predicting desired outcomes is a necessary step before the construct can be useful in an applied setting.

The present study investigates this adaptability in the undergraduate context. This begs the question: why test a theory of work-related adaptability in such a context? First, there have been recent calls (e.g. Salas, 2011) to apply I/O psychology research in underexplored contexts, specifically educational ones (Schmitt, 2011). Just as employees must adapt to new contexts, so must students. Second, this context lends itself well to the adaptability construct. While new employees may have come from other organizations and have had similar experiences, the vast majority of new college students come from high school, which is arguably very different from the collegiate context. Moving away from home is in and of itself an activity that likely requires one to adjust to his or her surroundings. Thus, one's entry into college provides a natural context in which to study adaptability. Third, while the traditional organizational context and the undergraduate context may seem dissimilar, Munson and Rubenstein (1992) argue that they are very similar based on task, situational, and environmental similarities. As Zorzie (2010) explains in reviewing Munson and Rubenstein's points, "Types of schoolwork can be categorized along

the same dimensions of data, people and things on which other work is categorized (e.g. O*NET). Students are attracted to and are successful in different areas of schoolwork just as workers outside the classroom are in various careers. [In addition], both students and these workers must operate under stressful conditions, perform tasks they would rather not, follow directions, and work with others.” For these reasons, the new undergraduate experience is especially appropriate for the study of adaptability.

Thus far, the present paper has described trait-based adaptability and its similarities to and differences from other related concepts. In addition, it has described the components of a model of adaptability that illustrates how adaptability develops and ultimately results in positive outcomes in situations that require it. In this model the antecedents of cognitive ability, Openness to Experience, Conscientiousness, and Emotional Stability positively affect the adaptability facets. These relationships are moderated by life experiences that provide the opportunity for adaptability to develop. Adaptability leads to task and contextual performance, emotional adjustment, and efficacy to adapt. The adaptability-performance and adaptability-emotional adjustment relationships are moderated by changes students experience in the transition to college. The next section outlines the present study, which is designed to test these relationships.

Method

Procedure and Sample Characteristics

Students in their first semester at a large Midwestern university were solicited to participate through the Human Participation in Research participant system. In exchange for course credit, participants completed cognitive ability, personality, experiences, and adaptability measures at time 1, which spanned the length of September, 2011. Students in this sample received an e-mail in early November, 2011 soliciting further participation (i.e. to complete the change, performance, and emotional adjustment measures). Grade point average and SAT/ACT scores were obtained from the University after the semester concluded in December, 2011. Students received course credit and a small gift card to an online retailer for participation at this second time point.

Five-hundred two students accessed the survey, 479 of whom responded to the survey in its entirety. Of these 479 respondents at time 1, 428 accessed the survey at time 2, 403 of whom responded to the survey in its entirety. GPA data were obtained for 362 participants and SAT/ACT data were obtained for 379 participants. Of the 403 students in the final sample, 77 (19.1%) identified as male and 325 (80.6%) identified as female; 1 individual did not indicate gender. Two-hundred eighty (69.7%) were aged 17-19, 108 (26.9%) were aged 20-22, and 12 (2.8%) were aged 23-29. Regarding ethnicity, 7 participants (1.7%) identified as Hispanic, 4 (1.0%) identified as Latino, and 353 (87.6%) identified as neither Hispanic nor Latino. Thirty-nine participants (9.7%) did not respond to the ethnicity item. Regarding race, 349 participants (86.6%) identified as White, 23 (5.7%) as Asian, 17 (4.2%) as Black or African American, 1 (.2%) as Native Hawaiian or Other Pacific Islander, and 14 (3.5%) as “Other” or two or more

races. The demographics of participants in the time 1 survey (e.g. 78.7% female, 83% White) did not appear to differ greatly from those in the final sample.

Measures

Cognitive ability. Cognitive ability was operationalized as one's SAT/ACT score. As Boudreau, Boswell, Judge, and Bretz (2001) write in explaining their use of SAT scores to represent cognitive ability:

A standardized test score, such as the SAT or GMAT, is a valid and simple way to assess an individual's intelligence, shown to be predictive of a number of different types of intellectual performance (Jensen, 1980), and has been used in previous research (O'Reilly & Chatman, 1994; Wright, McCormick, McMahan, & Smart, 1995). Gottfredson and Crouse (1986) concluded in their review of the use of SAT scores that it is a reasonable measure of general cognitive ability. (p. 36)

Cognitive ability was measured through self-report items asking respondents their SAT/ACT score, as well as through records obtained from the university.

Personality. Openness to Experience, Conscientiousness, and Emotional Stability were assessed using 10-item scales available from the International Personality Item Pool (Goldberg, 2011).

Each item represented a phrase descriptive of a person, such as, "Make a mess of things."

Participants rated the extent to which they believed each phrase reflected their personalities on a 5-point Likert-type scale ranging from 1 (very inaccurate) to 5 (very accurate). The Openness to Experience ($\alpha = .84$), Conscientiousness ($\alpha = .79$), and Emotional Stability ($\alpha = .86$) scales have all demonstrated good reliability in past research (Goldberg, 2011). See Appendix A.

Potentially adaptability-developing experiences. Experiences through which adaptability may develop were informed by two sources: Pulakos et al.'s (2002) measure of past experiences adapting and a focus group conducted with current students. Items from Pulakos et al.'s measure were adapted to the college context where appropriate. In addition, the verb tense of items were changed from present to past. Additionally, a focus group was conducted with ten undergraduates. Participants listed experiences they had prior to college in which they had to be adaptable. Subsequently, the researcher led a discussion about these experiences in which participants spoke about their experiences and how they required and developed adaptability; this discussion generated additional experiences, which were also recorded. The information obtained through this focus group was used to add items to and remove items from the instrument. After the instrument was created, the researcher conducted a session in which 15 raters were trained about the nature of the dimensions. These raters then sorted each item into one of the adaptability dimensions. Five items were sorted to their a-priori category with less than 50% success, and two additional items were sorted with less than 66% success; these seven items were removed from the final instrument. The final instrument contained 37 items and is presented in Appendix B. The items that were removed are identified in this appendix.

Adaptability. Five of the eight subscales from Ployhart and Bliese's (2006) I-Adapt measure were adapted for use in the present study. The crisis, physical, and creativity subscales were excluded because of their conceptual inapplicability to the aspects of the collegiate context being investigated. The remaining five subscales were measured with a total of 38 items. The learning subscale was modified to reflect the academic context rather than the traditional work context. For instance, "I enjoy learning new approaches for conducting work" was modified to "I enjoy learning new approaches for tasks or problems in school" and "I take action to improve work

performance deficiencies” was modified to “I take action to improve school performance deficiencies.” Items were rated on a 5-point Likert-type scale ranging from 1 (very inaccurate) to 5 (very accurate). See Appendix C.

Change. Perceived changes were measured with a 25 item measure developed by the researcher. In the second part of the aforementioned focus group, participants listed academic, social, and supportive changes they encountered upon coming to college. The researcher then led a discussion about these changes to generate additional ideas. The results of this focus group were used to generate the items in the perceived changes scale. Items were rated on a 5-point Likert-type scale ranging from 1 (very inaccurate) to 5 (very accurate). See Appendix D.

Task performance. Task performance is operationalized as a student’s grade point average (GPA) for the first semester of college. GPA was obtained through a self-report item (“What is your current GPA?”) as well as from the university after the semester concluded.

Contextual performance. Contextual performance (conceptualized as Organizational Citizenship Behaviors) was measured with a 10-item instrument developed by the College Board research team at Michigan State University (e.g. Schmitt et al., 2007; Schmitt et al., 2009). Individuals rated the frequency with which they performed each behavior on a 5-point scale ranging from 1 (Very infrequently/never) to 5 (Very frequently/always). Schmitt et al. (2009) reported acceptable reliability ($\alpha = .80$) for this scale. See Appendix E.

Emotional adjustment. Emotional adjustment was measured with the emotional adaptation subscale of the Student Adaptation to College (SAC) Questionnaire (Baker & Siryk, 1984; Baker & Siryk, 1986). This instrument has been used extensively to assess emotional, academic, social, adjustment to college, along with institutional attachment. Items were rated on a 5-point Likert-

type scale ranging from 1 (very inaccurate) to 5 (very accurate). Reliability for the emotional subscale typically ranges from $\alpha = .79$ to $.85$ (Smith, 2008). See Appendix F.

Efficacy to adapt. Efficacy to adapt was measured with an eight-item instrument developed by the researcher. Items were designed to reflect one's belief that he or she can handle college challenges. Items were rated on a 5-point Likert-type scale ranging from 1 (very inaccurate) to 5 (very accurate). See Appendix G.

Results

The results are divided into several sections. First, scale modification based on examination of alpha reliabilities and factor analyses is reviewed. The revised descriptive statistics are then presented. Next, the hypotheses are tested in the order in which they were presented in the introduction. Lastly, the research question pertaining to the stability of adaptability is tested.

Scale Modification

Prior to hypothesis testing, analyses were conducted to examine the measurement of the variables in the study. First, alpha reliabilities and item-total correlations were examined for each scale. Except for the change variables and the uncertainty dimension of the experience measure, all alphas were above $\alpha=.70$; the scales with $\alpha<.70$ were the first targeted for improvement. Uncertainty experiences contained three items with low item-total correlations (i.e. $\leq .20$). When these items were removed, alpha improved from $\alpha=.65$ to $\alpha=.68$. The removal of no other items would have improved the alpha of this scale. This revised structure was used in subsequent analyses, and the items that were removed from the scale are identified in Appendix B.

The academic ($\alpha=.58$), social ($\alpha=.30$), and emotional ($\alpha=.59$) change scales each demonstrated poor alpha reliability. Removing two items with low item-total correlations from the academic change scale improved reliability to $\alpha=.67$. Removing one item with a low item-total correlation from the emotional change scale improved reliability to $\alpha=.62$. With such low reliability, most of the items in the social change scale exhibited low item-total correlations. When the two items with the lowest item-total correlations (i.e. $<.07$) were removed, the reliability improved to $\alpha=.43$. The remaining item-total correlations ranged from .14 to .36, and

the removal of any item would not have improved reliability. Although the reliability of this scale was poor, this improved structure was used in subsequent analyses. Items removed from the change dimensions are identified in Appendix D.

Lastly with regard to reliability analyses, the statistics for all of the other scales were examined. The work stress experiences ($\alpha=.71$) and uncertainty adaptability ($\alpha=.77$) scales each had one item that exhibited a low item-total correlation (i.e. $<.20$), and the interpersonal experiences ($\alpha=.73$) scale had three such items. Because there was not strong theoretical justification for keeping these items despite their low item-total correlations, they were removed. The reliabilities of the work stress experiences ($\alpha=.75$), interpersonal experiences ($\alpha=.81$), and uncertainty adaptability ($\alpha=.80$) scales improved. These modified scales were used in subsequent analyses. The items that were removed from the experience and uncertainty adaptability scales are identified in Appendix B and Appendix C respectively.

Next, confirmatory factor analyses were conducted to further investigate the extent to which the data fit the a-priori structure of each variable. For these analyses, the chi-squared, the CFI, and the RMSEA are reported in accordance with recommendations from some researchers (e.g. McDonald & Ho, 2002; Garson, 2009). Additionally, the relative chi-squared (χ^2_r ; i.e. the ratio of the chi-square value to the degrees of freedom) is reported to provide another gauge of relative fit. Common “rules of thumb” dictate that the CFI should be $\geq .95$ for good fit, the RMSEA should be $\leq .06$ for good fit or $\leq .08$ for fair fit (Hu & Bentler, 1999), and the relative chi-squared should be ≤ 5 (Kline, 2005, p. 137).

First, the structure of the personality variables was investigated through separate CFAs of each personality dimension. Openness to Experience demonstrated poor fit ($\chi^2(36)=307.59$, $p<.01$, $\chi^2_r=8.54$, CFI=.71, RMSEA=.14), with indicator loadings ranging from .34-.72.

Conscientiousness demonstrated similar fit ($\chi^2(36)=302.42$, $p<.01$, $\chi^2_r=8.64$, CFI=.75, RMSEA=.14), with indicator loadings ranging from .33-.72. Emotional Stability also demonstrated poor fit ($\chi^2(36)=314.65$, $p<.01$, $\chi^2_r=8.74$, CFI=.81, RMSEA=.14). A test of all three personality constructs simultaneously (but as separate latent variables) revealed poor model fit as indicated by the CFI but better model fit as indicated by the RMSEA and relative chi-squared ($\chi^2(404)=1761.14$, $p<.01$, $\chi^2_r=4.25$, CFI=.65, RMSEA=.09). Despite questionable model fit, there is a long history of theoretical justification for these personality scales and a lack of theoretical justification of their modification in the present study; therefore, the structure of these scales was retained.

The next set of variables examined using confirmatory factor analysis was the group of experiences measures. Learning experiences demonstrated poor fit ($\chi^2(27)=208.50$, $p<.01$, $\chi^2_r=7.71$, CFI=.74, RMSEA=.13) with indicator loadings ranging from .28-.65. Because of this poor fit, an exploratory factor analysis (EFA) was conducted to investigate the structure of the scale. This analysis revealed three conceptually meaningful factors: a three-item factor focusing on feedback-seeking behaviors, a three-item factor focusing on work-related initiative, and a two-item factor focusing on taking difficult courses. Item 8, which refers to using varied study strategies, loaded on the feedback-seeking factor; because this did not make conceptual sense, it was discarded from this factor. Cross-loadings were low (i.e. $\leq .24$) for all items. A CFA of the three-factor structure revealed good fit ($\chi^2(17)=44.14$, $p<.01$, $\chi^2_r=2.60$, CFI=.95, RMSEA=.06). Thus, scale scores were created of these factors, and the hypotheses utilizing the learning

experiences scale were analyzed using both the a-priori structure and the three-factor structure. The items belonging to each factor are identified in Appendix B.

Uncertainty experiences demonstrated good fit ($\chi^2(9)=23.16$, $p=.01$, $\chi^2_r=2.57$, CFI=.96, RMSEA=.06) with indicator loadings ranging from .24-.69. Work stress experiences also demonstrated good fit ($\chi^2(14)=37.48$, $p<.01$, $\chi^2_r=2.68$, CFI=.96, RMSEA=.06) with indicator loadings ranging from .40-.79. Interpersonal experiences demonstrated fit slightly below recommended cutoffs ($\chi^2(14)=74.40$, $p<.01$, $\chi^2_r=5.31$, CFI=.92, RMSEA=.10) with indicator loadings ranging from .48-.70. Cultural experiences demonstrated poor fit ($\chi^2(20)=179.93$, $p<.01$, $\chi^2_r=9.00$, CFI=.80, RMSEA=.14) with indicator loadings ranging from .33-.75. An EFA of this dimension revealed two factors, but two items had high cross-loadings (i.e. $\geq .39$), so the a-priori structure was retained. A simultaneous test of the five experience variables revealed a low CFI but an acceptable RMSEA and relative chi-squared ($\chi^2(619)=1261.66$, $p<.01$, $\chi^2_r=2.04$, CFI=.81, RMSEA=.05). Modification indices indicated that no path addition would result in a chi-squared reduction of more than 29. The structure for these variables was retained.

Regarding the first administration of the adaptability measures, the uncertainty dimension exhibited fit indices below the recommended cutoffs ($\chi^2(20)=151.46$, $p<.01$, $\chi^2_r=7.57$, CFI=.91, RMSEA=.11) with indicator loadings ranging from .26-.85. Work stress adaptability demonstrated good fit ($\chi^2(5)=28.94$, $p<.01$, $\chi^2_r=5.79$, CFI=.98, RMSEA=.06) with indicator loadings ranging from .71-.85. Learning adaptability demonstrated acceptable fit ($\chi^2(14)=57.23$, $p<.01$, $\chi^2_r=4.09$, CFI=.95, RMSEA=.08) with indicator loadings ranging from .52-.76.

Interpersonal adaptability demonstrated poor fit ($\chi^2(14)=221.47$, $p<.01$, $\chi^2_r=15.82$, CFI=.86, RMSEA=.17) with indicator loadings ranging from .44-.78. Because of this poor fit, an EFA was performed to identify if multiple factors better represented the interpersonal dimension. This analysis revealed two factors that were somewhat intuitive, but also revealed high cross-loadings (i.e. $\geq .40$) for two items. Due to the lack of clarity in the factors, the a-priori structure was retained. Cultural adaptability demonstrated good fit ($\chi^2(5)=18.60$, $p<.01$, $\chi^2_r=3.72$, CFI=.99, RMSEA=.07) with indicator loadings ranging from .49-.77. A simultaneous test of the five adaptability dimensions produced a poor CFI but acceptable RMSEA and relative chi-squared ($\chi^2(454)=1456.43$, $p<.01$, $\chi^2_r=3.21$, CFI=.86, RMSEA=.07). Modification indices indicated that the greatest chi-squared drop (χ^2 drop=56.41) would result by freeing the path between the second uncertainty item (“I become frustrated when things are unpredictable”) and the latent variable representing stress adaptability. No other modification would result in a chi-squared drop of greater than 29. Because the modification indices did not provide strong evidence for modification, the a-priori structure of all adaptability dimensions was retained.

Because the experience and adaptability measures targeted the same life-oriented dimensions (i.e. uncertainty, work stress, learning, interpersonal, and cultural), a confirmatory factor analysis was conducted on the 10 variables from these measures simultaneously. Similarly to the separate analyses of experiences and adaptability, the simultaneous test produced a poor CFI but good relative fit indices ($\chi^2(2232)=4308.06$, $p<.01$, $\chi^2_r=1.93$, CFI=.79, RMSEA=.05). When the CFA was performed using the modified structure of learning experiences, fit was very similar ($\chi^2(2144)=4058.40$, $p<.01$, $\chi^2_r=1.89$, CFI=.81, RMSEA=.05). Modification indices

revealed that the chi-squared drops from freeing any path between an experience item and an adaptability construct or between an adaptability item and an experience construct were all less than 20. Therefore, no modifications were made.

Additionally, to investigate the potential similarities of personality and adaptability, a CFA was conducted on the five adaptability dimensions and the three personality dimensions simultaneously. Similarly to the separate analyses of personality and adaptability, the CFI was poor but the relative fit indices were better ($\chi^2(1801)=5163.26$, $p<.01$, $\chi^2_r=2.87$, CFI=.74, RMSEA=.06). Modification indices revealed that the largest chi-squared drop from freeing a path between either a personality item and an adaptability construct or between an adaptability item and a personality construct was 33.93, which would result from freeing the path between the second uncertainty adaptability item (“I become frustrated when things are unpredictable”) and the emotional stability construct. Given the limited evidence for modifying the scales based on these indices, the a-priori structures were retained.

Next, CFAs were conducted on the change variables. Academic changes exhibited fit indices below the recommended cutoffs ($\chi^2(20)=90.12$, $p<.01$, $\chi^2_r=4.51$, CFI=.84, RMSEA=.09); indicator loadings ranged from .23-.67. Social changes exhibited good fit ($\chi^2(5)=6.02$, $p>.05$, $\chi^2_r=1.20$, CFI=.99, RMSEA=.02), with indicator loadings ranging from .15-.74. Emotional changes exhibited poor fit ($\chi^2(9)=70.66$, $p<.01$, $\chi^2_r=7.85$, CFI=.77, RMSEA=.13), with indicator loadings ranging from .21-.84. An EFA of the emotional changes items revealed two factors, but these factors were not conceptually meaningful; thus, the structure was maintained.

Finally, confirmatory factor analyses were performed on the outcome variables. The organizational citizenship behavior scale demonstrated poor fit ($\chi^2(35)=546.11$, $p<.01$,

$\chi^2_r=15.60$, CFI=.57, RMSEA=.18), with indicator loadings ranging from .36-.72. Because of this poor fit, an EFA was performed on these items. This analysis revealed three factors. The first factor focused on positive behaviors toward other students. The second factor focused on showing support for one's school to others outside of the school. The third factor focused on behaviors that would improve one's school. Because of perceived similarities between the first and third factors, a second EFA was conducted in which the analysis was restricted to produce two factors. Indeed, the two items from the third factor (in the previous EFA) loaded onto the first factor. Cross-loadings between items in the two factors were generally low; only one item exhibited a cross-loading higher than .18 (i.e. the ninth contextual performance item, which loaded .61 on the first factor and .34 on the second factor). A CFA of the two-factor structure revealed improved fit ($\chi^2(34)=185.10$, $p<.01$, $\chi^2_r=5.44$, CFI=.87, RMSEA=.09). Though dimensions of OCBs and contextual performance have been proposed in the past (e.g. Organ, 1988; Williams & Anderson, 1991; Borman & Motowidlo, 1997), the factors identified in the present study did not appear to match these previously-proposed dimensions. The final two factors were labeled "internal" and "external" because they focused on behaviors directed at those within the school and those outside of the school, respectively. Hypotheses utilizing the contextual performance items were conducted using both the a-priori structure and the two-factor structure. The items belonging to each factor are identified in Appendix E.

The emotional adjustment scale demonstrated fit slightly below the generally recommended cutoffs ($\chi^2(77)=272.10$, $p<.01$, $\chi^2_r=3.53$, CFI=.90, RMSEA=.07), with indicator loadings ranging from .34-.81. The efficacy to adapt scale demonstrated poor fit ($\chi^2(20)=241.93$, $p<.01$, $\chi^2_r=12.10$, CFI=.83, RMSEA=.15), with indicator loadings ranging from .46-.81. An EFA

was performed on the efficacy to adapt scale, but it revealed two factors that were not intuitive and contained multiple items with high cross-loadings (i.e. .42-.56), so the a-priori structure was retained.

A CFA of the second administration of the adaptability measure was very similar to the CFA of the first administration ($\chi^2(454)=1429.29$, $p<.01$, $\chi^2_r=3.15$, CFI=.85, RMSEA=.07). Due to the similarity of the overall factor analyses, CFA results for the individual adaptability dimensions are not reported here. However, because the adaptability dimensions and efficacy to adapt both targeted aspects of adaptability, they were tested jointly in a single CFA. This revealed similar fit to the adaptability CFA reported above ($\chi^2(725)=2167.82$, $p<.01$, $\chi^2_r=2.99$, CFI=.81, RMSEA=.08); modification indices revealed that freeing the path between the final efficacy to adapt item (“I know I can get along with people from cultures that are different than mine”) and cultural adaptability would have reduced the chi-squared statistic by 76.89. This was the only path addition that would have resulted in a reduction greater than 50. This chi-squared drop was not as great as some researchers have indicated is necessary for path modification (e.g. 100; Garson, 2009), and conceptually, this item refers to one’s efficacy to interact effectively with people from other cultures rather than an ability or disposition to do so; therefore, it was retained only in the efficacy to adapt scale.

Descriptive Statistics

Means, SDs, and intercorrelations of the variables in the present study are presented in Table 2. The statistics in this table reflect changes made to variables as a result examining alpha reliabilities or from confirmatory or exploratory factor analysis.

Antecedent-Adaptability Relationships

Hypotheses 1-5 proposed relationships between the antecedents and each adaptability dimension. To test these relationships, zero-order correlations were examined and multiple regressions were conducted. Regression results are presented in Table 3; the correlations in this table are slightly different than those in Table 2 due to the exclusion of participants with missing data in the regression. Hypothesis 1 stated that each of the antecedents would be related to cultural adaptability, but that Openness to Experience would demonstrate a stronger relationship than the other antecedents. The zero-order correlations revealed significant relationships between cultural adaptability and Openness to Experience ($r=.25, p<.01$), Conscientiousness ($r=.11, p<.05$), and Emotional Stability ($r=.11, p<.05$). A multiple regression of cultural adaptability on these antecedents revealed that the antecedents significantly predicted this outcome ($R^2=.08, F(4, 373)=7.76, p<.01$). Openness to Experience ($\beta=.23, p<.01$) and Emotional Stability ($\beta=.10, p<.05$) emerged as significant predictors. Though the beta weight for Openness to Experience was the strongest of the antecedents, a test of the differences between beta weights revealed it was significantly stronger than only cognitive ability ($p<.01$).

Hypothesis 2 stated that each of the antecedents would be related to stress adaptability, but that Emotional Stability would demonstrate a stronger relationship than the other antecedents. The zero-order correlations revealed a significant relationship between stress adaptability and Emotional Stability ($r=.65, p<.01$). A multiple regression of stress adaptability on these antecedents revealed that the antecedents significantly predicted this outcome ($R^2=.44, F(4, 374)=72.21, p<.01$). Emotional Stability ($\beta=.66, p<.01$) emerged as the only significant predictor. A test of the differences between the beta weights revealed that Emotional Stability was a significantly stronger predictor than each of the other antecedents ($p<.01$).

Hypothesis 3 stated that each of the antecedents would be related to interpersonal adaptability, but that Conscientiousness, Openness to Experience, and Emotional Stability would demonstrate stronger relationships than cognitive ability. The zero-order correlations revealed significant relationships between interpersonal adaptability and Openness to Experience ($r=.35$, $p<.01$) and Conscientiousness ($r=.16$, $p<.01$). A multiple regression of interpersonal adaptability on these antecedents revealed that the antecedents significantly predicted this outcome ($R^2=.14$, $F(4, 374)=15.72$, $p<.01$). Conscientiousness ($\beta=.12$, $p=.01$) and Openness to Experience ($\beta=.36$, $p<.01$) emerged as significant predictors. A test of the differences between the beta weights revealed that both Conscientiousness and Openness to Experience were stronger predictors than cognitive ability ($p<.01$).

Hypothesis 4 stated that each of the antecedents would be related to learning adaptability, but that cognitive ability, Conscientiousness, and Openness to Experience would demonstrate stronger relationships than Emotional Stability. The zero-order correlations revealed significant relationships between learning adaptability and Conscientiousness ($r=.42$, $p<.01$), Openness to Experience ($r=.38$, $p<.01$), and cognitive ability ($r=.13$, $p<.05$). A multiple regression of learning adaptability on these antecedents revealed that the antecedents significantly predicted this outcome ($R^2=.29$, $F(4, 374)=38.35$, $p<.01$). Cognitive ability ($\beta=.09$, $p=.05$), Conscientiousness ($\beta=.40$, $p<.01$), and Openness to Experience ($\beta=.32$, $p<.01$) emerged as significant predictors. A test of the differences between the beta weights revealed that both Conscientiousness and Openness to Experience were stronger predictors than Emotional Stability ($p<.01$).

Hypothesis 5 stated that each of the antecedents would be related to uncertainty adaptability. The zero-order correlations revealed significant relationships between uncertainty adaptability and Openness to Experience ($r=.36$, $p<.01$) and Emotional Stability ($r=.42$, $p<.01$).

A multiple regression of uncertainty adaptability on these antecedents revealed that the antecedents significantly predicted this outcome ($R^2=.31$, $F(4, 373)=43.21$, $p<.01$). Openness to Experience ($\beta=.35$, $p<.01$) and Emotional Stability ($\beta=.43$, $p<.01$) emerged as significant predictors.

Experience Moderation

Hypotheses 6-10 concerned the extent to which the experience dimensions moderated the relationships between each antecedent and the adaptability dimensions. A separate moderated regression was run utilizing each predictor and each pair of related experience and adaptability dimensions (e.g. cultural experiences and cultural adaptability, learning experiences and learning adaptability, etc.). Given four predictors and five experience/adaptability dimensions, this totaled 20 moderated regressions. To test these hypotheses, first, the relevant variables were mean-centered to aid interpretation of any moderating effects. In each regression, the antecedent and moderator were entered in the first block and the interaction term, which was a multiplication of the centered antecedent and moderator variables, was entered in the second block. The results of these regressions are presented in Table 4.

The first set of moderator analyses assessed moderating effects of uncertainty experiences on uncertainty adaptability (i.e. Hypothesis 6). Only the relationship between Conscientiousness and uncertainty adaptability was moderated by uncertainty experiences ($\Delta R^2=.01$, $p=.05$), though the overall regression was not significant ($R^2=.01$, $F(3, 399)=1.72$, $p>.05$). The standardized regression coefficient for the interaction term was $\beta=.10$ ($p=.05$). This moderation is graphically depicted in Figure 4. At one standard deviation below the mean on conscientiousness, individuals low on uncertainty experiences demonstrated slightly more

uncertainty adaptability than individuals high on uncertainty experiences (low uncertainty $x = 3.49$ vs. high uncertainty $x = 3.41$). At one standard deviation above the mean on conscientiousness, individuals low on uncertainty experiences demonstrated less uncertainty adaptability than individuals high on uncertainty experiences (low uncertainty $x = 3.33$ vs. high uncertainty $x = 3.48$). Thus, individuals higher on uncertainty experiences demonstrated a positive relationship between conscientiousness and uncertainty adaptability, while individuals lower on uncertainty experiences demonstrated a negative relationship between conscientiousness and uncertainty adaptability.

The second set of moderator analyses assessed moderating effects of work stress experiences on stress adaptability (i.e. Hypothesis 7). Only the relationship between cognitive ability and work stress adaptability was moderated by work stress experiences ($\Delta R^2 = .02, p < .01$); the overall regression was significant ($R^2 = .05, F(3, 375) = 7.96, p < .01$). The standardized regression coefficient for the interaction term was $\beta = -.15 (p < .01)$. This moderation is graphically depicted in Figure 5. At one standard deviation below the mean on cognitive ability, individuals low on work stress experiences demonstrated slightly higher work stress adaptability than individuals high on work stress experiences (low work stress $x = 3.48$ vs. high work stress $x = 3.38$). At one standard deviation above the mean on cognitive ability, individuals low on work stress experiences demonstrated even higher work stress adaptability than individuals high on work stress experiences (low work stress $x = 3.76$ vs. high work stress $x = 3.10$). Thus, individuals low on work stress experiences demonstrated a positive relationship between cognitive ability and work stress adaptability, while individuals high on work stress experiences demonstrated a negative relationship between cognitive ability and work stress adaptability. This moderating effect was in the opposite direction of the prediction of the associated hypothesis.

The third, fourth, and fifth sets of moderator analyses assessed moderating effects of learning experiences (both as a unidimensional construct and using the three-factor structure) on learning adaptability, interpersonal experiences on interpersonal adaptability, and cultural experiences on cultural adaptability respectively. No relationships between the antecedents and these adaptability dimensions were moderated by the experience dimensions.

It is also possible that experiences contribute to adaptability in addition to the antecedents rather than moderating the relationship between antecedents and adaptability. The cultural ($r=.38$), interpersonal ($r=.28$), and learning experiences ($r=.39$) measures correlated positively and significantly ($p<.01$) with their respective adaptability dimensions. Work stress experiences were negatively related ($r=-.19$) to work stress adaptability. To further investigate this possibility, the regressions from Hypotheses 1-5 were run adding the dimensionally-related experience variables for each (e.g. cultural experiences were added to the regression predicting cultural adaptability). These regressions are presented in Table 5. The results indicate that the addition of cultural experiences, interpersonal experiences, and learning experiences to the regressions involving their respective adaptability dimensions significantly increased the R^2 between .06 and .11. The betas for these experience variables ranged from .25 to .34. However, the addition of work stress experiences and uncertainty experiences to their respective regressions did not increase the variance accounted for in the adaptability outcomes.

Adaptability-Outcome Relationships

Hypotheses 11-14 proposed that a subset of the adaptability dimensions would be related to each outcome. Regression analyses regarding these hypotheses are presented in Table 6.

Hypothesis 11 stated that learning, work stress, and uncertainty adaptability would be positively

related to task performance. The zero-order correlations revealed that learning adaptability was significantly related ($r=.13$, $p=.01$) to task performance, but work stress ($r=-.01$, $p>.05$) and uncertainty adaptability ($r=.05$, $p>.05$) were not. Neither of the adaptability dimensions that were not hypothesized to relate to task performance (i.e., cultural and interpersonal) was significantly correlated with this outcome. In a multiple regression of task performance on the hypothesized predictors, only the beta weight for learning adaptability was significant ($\beta=.12$, $p<.05$), and the overall regression was not significant ($R^2=.02$, $F(3, 358)=2.15$, $p>.05$).

Hypothesis 12 stated that cultural, interpersonal, and uncertainty adaptability would be positively related to contextual performance. The zero-order correlations revealed significant relationships between contextual performance and cultural ($r=.28$, $p<.01$), interpersonal ($r=.22$, $p<.01$), and uncertainty adaptability ($r=.15$, $p<.01$). Though it was not hypothesized, learning adaptability was significantly correlated ($r=.37$, $p<.01$) with contextual performance. Work stress adaptability had no relationship ($r=.00$) with contextual performance. In a multiple regression of contextual performance on the hypothesized predictors, cultural ($\beta=.22$, $p<.01$) and interpersonal adaptability ($\beta=.13$, $p=.01$) were significant predictors. The overall regression was significant ($R^2=.10$, $F(3, 398)=15.09$, $p<.01$). Because learning adaptability exhibited a significant bivariate relationship with contextual performance, a second regression was performed in which this dimension was included with the hypothesized predictors. In this regression, only interpersonal ($\beta=.17$, $p<.01$) and learning adaptability ($\beta=.29$, $p<.01$) were significant predictors. The overall regression was significant ($R^2=.16$, $F(4, 397)=19.54$, $p<.01$).

When the contextual performance scale was divided into internal and external facets, the same pattern of correlations was exhibited for bivariate relationships with internal contextual

performance, but the pattern slightly differed for relationships with external contextual performance. Cultural ($r=.24$, $p<.01$), interpersonal ($r=.19$, $p<.01$), uncertainty ($r=.15$, $p<.01$), and learning ($r=.36$, $p<.01$) adaptability exhibit significant relationships with internal contextual performance. With regard to external contextual performance, uncertainty adaptability ($r=.08$, $p>.05$) does not exhibit a significant correlation, but cultural ($r=.19$, $p<.01$), interpersonal ($r=.16$, $p<.05$), and learning adaptability ($r=.17$, $p<.05$) do exhibit significant correlations. These correlations were uniformly weaker than those with internal contextual performance. In a multiple regression of internal contextual performance on the hypothesized predictors and learning adaptability, cultural ($\beta=.14$, $p=.01$) and learning adaptability ($\beta=.30$, $p<.01$) were significant predictors. The overall regression was significant ($R^2=.15$, $F(4, 397)=17.30$, $p<.01$). In a multiple regression of external contextual performance on the hypothesized predictors and learning adaptability, only cultural adaptability ($\beta=.13$, $p=.01$) was a significant predictor. The overall regression was significant ($R^2=.06$, $F(4, 397)=5.80$, $p<.01$).

Hypothesis 13 stated that interpersonal and uncertainty adaptability would be positively related to emotional adjustment. The zero-order correlations revealed that uncertainty adaptability correlated significantly ($r=.15$, $p<.01$) with emotional adjustment, but interpersonal adaptability did not ($r=-.05$, $p>.05$). Of the adaptability dimensions not hypothesized to relate to emotional adjustment, only work stress adaptability exhibited a significant correlation ($r=.33$, $p<.01$). In a multiple regression of emotional adjustment on the hypothesized predictors, only uncertainty adaptability emerged as a significant predictor ($\beta=.18$, $p<.01$). The overall regression was significant ($R^2=.03$, $F(2, 400)=6.44$, $p<.01$), but only accounted for 3% of the variance in emotional adjustment. A second regression was conducted with work stress adaptability added as

a predictor. In this analysis, only the beta weight for work stress adaptability was significant ($\beta=.33, p<.01$). The overall regression was significant ($R^2=.11, F(3, 399)=17.07, p<.01$), accounting for 11% of the variance in emotional adjustment.

Hypothesis 14 predicted that the adaptability dimensions would be positively related to one's efficacy to adapt. The zero-order correlations revealed significant correlations between efficacy to adapt and cultural ($r=.30, p<.01$), work stress ($r=.31, p<.01$), interpersonal ($r=.18, p<.01$), learning ($r=.32, p<.01$), and uncertainty adaptability ($r=.34, p<.01$). A multiple regression of efficacy to adapt on the adaptability facets revealed significant beta weights for cultural ($\beta=.19, p<.01$), work stress ($\beta=.21, p<.01$), learning ($\beta=.20, p<.01$), and uncertainty ($\beta=.15, p=.01$) adaptability, but not interpersonal adaptability. The overall regression was significant ($R^2=.23, F(5, 395)=24.09, p<.01$).

Change Moderation

To investigate moderating effects of academic, social, and emotional/supportive changes on the relationships between adaptability dimensions and the outcomes (i.e. Hypotheses 15-17), moderated regressions were conducted. These were conducted in the same manner as the analyses conducted to assess the moderating effects of the experience variables. None of the moderated regressions indicated that academic, social, or emotional changes were moderators of any adaptability-outcome relationships. These analyses are presented in Table 7.

While conducting these analyses, it was observed that academic change correlated negatively ($r=-.15, p<.01$) with task performance, emotional change correlated negatively ($r=-.38, p<.01$) with emotional adjustment, and both social and emotional change correlated negatively (social change $r=-.21, p<.01$; emotional change $r=-.19, p<.01$) with efficacy to adapt.

This suggests that greater changes negatively affect these outcomes; exploratory analyses were conducted to further examine this possibility. To investigate the incremental impact of these changes above the adaptability dimensions, the regressions run in hypotheses 11-14 were conducted with the relevant change dimensions added as predictors. Though moderated relationships were not hypothesized between adaptability and efficacy to adapt, an exploratory analysis was also conducted with the social and emotional/supportive change dimensions (which both correlated significantly with efficacy to adapt) as additional predictors. However, because social change did not correlate with contextual performance, a regression was not conducted involving these variables. These regressions, which appear in Table 8, indicate that adding these variables to the regressions significantly increased the variance explained in each of the outcomes. The prediction of task performance was increased ($\Delta R^2=.02$, $p<.01$) by academic change ($\beta=-.16$, $p<.01$), the prediction of emotional adjustment was increased ($\Delta R^2=.09$, $p<.01$) by emotional/supportive change ($\beta=-.31$, $p<.01$), and the prediction of efficacy to adapt was increased ($\Delta R^2=.02$, $p<.01$) by social change ($\beta=-.13$, $p<.01$). These analyses indicate that increased change from high school to college negatively affects task performance, emotional adjustment, and efficacy to adapt beyond one's level of adaptability.

Mediation

To test Hypotheses 18a-18c, mediation analyses were conducted. Baron and Kenny's (1986) procedure for assessing mediating effects was used. This method consists of four steps. First, the relationships between the predictors and an outcome are established. The general consensus of current researchers is that this first step is not necessary to establish mediation

(Kenny, 2011). Second, the relationships between the predictors and mediator are established. Third, a relationship between the mediator and outcome is established after controlling for the predictors. Fourth, the effect of the predictor on the outcome is examined controlling for the mediator; the lack of a relationship between the predictor and outcome establishes complete mediation, while a reduction in the relationship but maintenance of statistical significance from 0 establishes partial mediation. Because the first step (establishing a relationship between the predictors and the outcome) was not considered necessary in the present analyses, mediation of an insignificant predictor-outcome relationship was considered partial. Finally, because Baron and Kenny's method has been criticized for being an incomplete test of the mediator's significance, bootstrapping (Preacher and Hayes, 2004) was used to test the strength of the indirect effect of the mediation. Bootstrapping was conducted using 1000 samples, and confidence intervals were established at the 95% level. Kenny (2011) recommends guidelines of small $\geq .01$, medium $\geq .09$, and large $\geq .25$ for assessing the effect sizes of indirect effects.

In these analyses, the mediating effects of a single adaptability variable on the relationships between all antecedents and a single outcome were tested. It should be noted that the MEDIANTE dialogue (Hayes and Preacher, 2011) for SPSS was used to conduct these analyses. This dialogue conducts each step of the mediation analyses in a single run and uses listwise deletion *across* analyses. Thus, for some analyses that follow, results will differ to a small extent from those presented earlier because they are based on slightly smaller samples. As Hayes (2011) states, "... it would be inappropriate to piece together a causal model using tests of significance when the analyses for different paths are based on different subsets of the data."

Task Performance.

Hypothesis 18a stated that learning, work stress, and uncertainty adaptability would mediate the relationships between the antecedents of cognitive ability, Conscientiousness, Emotional Stability, and Openness to Experience and the outcome of task performance. Due to the fact that in prior analyses only learning adaptability was related to task performance, learning adaptability was the only mediator considered in this analysis. Total, direct, and indirect effects are displayed in Table 9. The first step of this mediation analysis, which consisted of a regression of task performance on the four antecedents, revealed that cognitive ability ($\beta=.44$, $p<.01$) and Emotional Stability ($\beta=.13$, $p=.01$) were significantly related to task performance. The overall total effect of the antecedents on task performance was significant ($R^2=.19$, $F(4, 336)=20.18$, $p<.01$). The second step, which consisted of a regression of learning adaptability on the four antecedents, revealed that cognitive ability ($\beta=.12$, $p=.01$) Openness to Experience ($\beta=.32$, $p<.01$) and Conscientiousness ($\beta=.44$, $p<.01$) were significantly related to learning adaptability. The third step, in which learning adaptability was added as a predictor to the regression of the first step (i.e. the regression of task performance on the antecedents), revealed that learning adaptability did not significantly predict task performance ($\beta=.07$, $p>.05$) when controlling for the antecedents. Because this relationship was not supported, mediation could not be established, and no further analyses are reviewed here.

Contextual Performance.

Hypothesis 18b stated that cultural, interpersonal, and uncertainty adaptability would mediate the relationships between the antecedents of cognitive ability, Conscientiousness, Emotional Stability, and Openness to Experience and the outcome of contextual performance. Separate analyses were conducted focusing on each mediator in this hypothesis. Total, direct,

and indirect effects for the mediation analyses involving contextual performance are displayed in Table 10. The first mediator tested was cultural adaptability. The first step of this mediation analysis, in which contextual performance was regressed on the four antecedents, revealed that Openness to Experience ($\beta=.14$, $p=.01$), Conscientiousness ($\beta=.13$, $p=.01$) and Emotional Stability ($\beta=.11$, $p<.05$) were significantly related to contextual performance. The overall total effect of the antecedents on contextual performance was significant ($R^2=.05$, $F(4, 373)=5.34$, $p<.01$). The second step, in which cultural adaptability was regressed on the four antecedents, revealed that Openness to Experience ($\beta=.23$, $p<.01$) and Emotional Stability ($\beta=.10$, $p=.05$) were significantly related to cultural adaptability. The third step, in which cultural adaptability was added as a predictor to the regression of the first step, revealed that cultural adaptability significantly predicted contextual performance ($\beta=.23$, $p<.01$) when controlling for the antecedents. The beta weights for Openness to Experience ($\beta=.08$, $p>.05$) and Emotional Stability ($\beta=.08$, $p>.05$) were nonsignificant; however, the combined direct effect of the predictors in this analysis was significant ($R^2=.03$, $F(4, 372)=2.98$, $p<.05$). Only Openness to Experience had an indirect effect ($IE=.05$) for which the confidence interval did not include zero. Thus, while cultural adaptability completely mediated the relationships between contextual performance and both Openness to Experience and Emotional Stability based on changes in statistical significance, only the indirect effect of Openness to Experience was significantly different from 0.

The second mediator tested with regard to Hypothesis 18b was interpersonal adaptability. The first step of this analysis is the same as it was for the test of cultural adaptability. The second step, in which interpersonal adaptability was regressed on the four antecedents, revealed that Openness to Experience ($\beta=.36$, $p<.01$) and Conscientiousness ($\beta=.12$, $p=.01$) were significantly

related to interpersonal adaptability. The third step, in which contextual performance was regressed on the antecedents and interpersonal adaptability, revealed that interpersonal adaptability significantly predicted contextual performance ($\beta=.18$, $p<.01$) when controlling for the antecedents. The beta weight for Openness to Experience ($\beta=.08$, $p<.05$) was nonsignificant and the beta weight for Conscientiousness ($\beta=.11$, $p>.05$) was slightly reduced but remained significant. The combined direct effect of the predictors in this analysis was significant ($R^2=.03$, $F(4, 373)=3.18$, $p<.05$). Only Openness to Experience had an indirect effect ($IE=.06$) for which the confidence interval did not include zero. Thus, interpersonal adaptability completely mediated the relationship between contextual performance and Openness to Experience and partially mediated the relationship between this outcome and Conscientiousness based on changes in statistical significance. However, only the indirect effect of Openness to Experience was significantly different from 0.

The third mediator tested with regard to Hypothesis 18b was uncertainty adaptability. The first step of this analysis is the same as it was for the tests of cultural and interpersonal adaptability. The second step, in which uncertainty adaptability was regressed on the four antecedents, revealed that Openness to Experience ($\beta=.34$, $p<.01$), Conscientiousness ($\beta=-.13$, $p<.01$), and Emotional Stability ($\beta=.42$, $p<.01$) were significantly related to uncertainty adaptability. The third step, in which uncertainty adaptability was added as a predictor to the regression of the first step, revealed that uncertainty adaptability did not significantly predict contextual performance ($\beta=.11$, $p>.05$) when controlling for the antecedents. Because this relationship was not supported, mediation could not be established, and no further analyses are reviewed here.

To further examine the hypotheses related to contextual performance, the above analyses were repeated using internal contextual performance and external contextual performance as outcomes. Because the results of these analyses were highly similar to those presented above, they are not reviewed in their entirety here. These results can be found in Tables 11 and 12. As was the case with the analyses in which contextual performance was represented as a unidimensional construct, only Openness to Experience demonstrated significant indirect effects on both internal and external contextual performance when either cultural or interpersonal adaptability was used as a mediator. The only differences were observed in the analyses involving the mediator of uncertainty adaptability. Both Openness to Experience (IE=.05) and Emotional Stability (IE=.06) exhibited significant indirect effects (i.e., had confidence intervals that did not include 0) when external contextual performance was used as an outcome. Uncertainty adaptability was not significantly related to either internal contextual performance or overall contextual performance when controlling for the antecedents.

Emotional Adjustment.

Hypothesis 18c stated that interpersonal and uncertainty adaptability would mediate the relationships between the antecedents of cognitive ability, Conscientiousness, Emotional Stability, and Openness to Experience and the outcome of emotional adjustment. Because interpersonal adaptability did not demonstrate a significant relationship with emotional adjustment, but work stress adaptability did, mediating effects of work stress adaptability were tested instead of interpersonal adaptability. Total, direct, and indirect effects for mediation analyses involving emotional adjustment are displayed in Table 13. In the first step of the mediation test of work stress adaptability, emotional adjustment was regressed on the

antecedents. In this test, cognitive ability ($\beta=.13$, $p=.01$), Conscientiousness ($\beta=.21$, $p<.01$), and Emotional Stability ($\beta=.47$, $p<.01$) emerged as significant predictors. The overall total effect of the antecedents on emotional adjustment was significant ($R^2=.28$, $F(4, 374)=36.86$, $p<.01$). The second step, in which work stress adaptability was regressed on the antecedents, revealed that only Emotional Stability was a significant predictor ($\beta=.66$, $p<.01$). The third step, in which emotional adjustment was regressed on the antecedents and work stress adaptability, revealed that work stress adaptability did not significantly predict emotional adjustment ($\beta=.07$, $p>.05$) when controlling for the antecedents. Because this relationship was not supported, mediation could not be established, and no further analyses are reviewed here.

The second mediator tested with regard to Hypothesis 18c was uncertainty adaptability. The first step of this analysis is the same as it was for the test of work stress adaptability. The second step, in which uncertainty adaptability was regressed on the antecedents, revealed that Openness to Experience ($\beta=.35$, $p<.01$), Conscientiousness ($\beta=-.13$, $p<.01$), and Emotional Stability ($\beta=.42$, $p<.01$) were significantly related to uncertainty adaptability. The third step, in which uncertainty adaptability was added as a predictor to the regression in the first step, revealed that this adaptability dimension did not significantly predict emotional adjustment ($\beta=-.02$, $p>.05$) when controlling for the antecedents. Because this relationship was not supported, mediation could not be established, and no further analyses are reviewed here.

Efficacy to Adapt.

Hypothesis 18d stated that each of the adaptability dimensions would mediate the relationships between the antecedents of cognitive ability, Conscientiousness, Emotional Stability, and Openness to Experience and the outcome of efficacy to adapt. Total, direct, and

indirect effects for the mediation analyses involving efficacy to adapt are displayed in Table 14. The first mediator tested with regard to this hypothesis was cultural adaptability. The first step of this analysis, in which efficacy to adapt was regressed on the antecedents, revealed that cognitive ability ($\beta=.16$, $p<.01$), Conscientiousness ($\beta=.16$, $p<.01$), Openness to Experience ($\beta=.13$, $p=.01$), and Emotional Stability ($\beta=.36$, $p<.01$) were significantly related to this outcome. The overall total effect of the antecedents on efficacy to adapt was significant ($R^2=.23$, $F(4, 372)=27.59$, $p<.01$). The second step, in which cultural adaptability was regressed on the antecedents, revealed that Openness to Experience ($\beta=.23$, $p<.01$) and Emotional Stability ($\beta=.10$, $p=.05$) were significant predictors. The third step, in which cultural adaptability was added as a predictor to the regression from the first step, revealed that this dimension of adaptability was significantly related to efficacy to adapt ($\beta=.23$, $p<.01$) when controlling for the antecedents. The beta weight for Openness to Experience was nonsignificant ($\beta=.07$, $p>.05$), and the beta weight for Emotional Stability was slightly reduced but remained significant ($\beta=.34$, $p<.01$). The combined direct effect of the predictors in this analysis was significant ($R^2=.18$, $F(4, 371)=22.99$, $p<.01$). Only Openness to Experience had an indirect effect ($IE=.05$) for which the confidence interval did not include zero. Thus, cultural adaptability completely mediated the relationship between efficacy to adapt performance and Openness to Experience and partially mediated the relationship between this outcome and Emotional Stability based on changes in statistical significance. However, only the indirect effect of Openness to Experience was significantly different from 0.

The second mediator tested with regard to this hypothesis was work stress adaptability. The first step in this analysis is the same as it was for the test of cultural adaptability. The second step, in which stress adaptability was regressed on the antecedents, revealed that Emotional

Stability was a significant predictor ($\beta=.65, p<.01$). The third step, in which work stress adaptability was added as a predictor to the regression from the first step, revealed that work stress adaptability was a significant predictor of efficacy to adapt ($\beta=.12, p<.05$). The beta weight for Emotional Stability was reduced but was significant ($\beta=.29, p<.01$). The combined direct effect of the predictors in this analysis was significant ($R^2=.14, F(4, 372)=17.15, p<.01$). However, the lower bound of the confidence interval of the indirect effect of Emotional Stability ($IE=.08$) was 0. Therefore, work stress adaptability partially mediated the relationship between efficacy to adapt and Emotional Stability based on changes in statistical significance, but the indirect effect was not different from 0.

The third mediator tested with regard to this hypothesis was interpersonal adaptability. The first step in this analysis is the same as it was for the test of cultural adaptability. The second step, in which interpersonal adaptability was regressed on the antecedents, revealed that Conscientiousness ($\beta=.12, p<.05$) and Openness to Experience ($\beta=.36, p<.01$) were significant predictors. The third step, in which efficacy to adapt was regressed on the antecedents and interpersonal adaptability, revealed this dimension of adaptability significantly predicted efficacy to adapt ($\beta=.12, p=.01$). The beta weight for Conscientiousness was slightly reduced but remained significant ($\beta=.15, p<.01$), and the beta weight for Openness to Experience was nonsignificant ($\beta=.09, p>.05$). The combined direct effect of the predictors in this analysis was significant ($R^2=.21, F(4, 372)=25.78, p<.01$). Though interpersonal adaptability partially mediated the relationship between Conscientiousness and efficacy to adapt and completely mediated the relationship between Openness to Experience and efficacy to adapt based on changes in statistical significance, neither indirect effect was different from 0 based on the bootstrapped confidence intervals.

The fourth mediator tested with regard to this hypothesis was learning adaptability. The first step in this analysis is the same as it was for the test of cultural adaptability. The second step, in which learning adaptability was regressed on the predictors, revealed that cognitive ability ($\beta=.09$, $p<.05$), Conscientiousness ($\beta=.40$, $p<.01$), and Openness to Experience ($\beta=.31$, $p<.01$) were significant predictors. The third step, in which learning adaptability was added as a predictor to the regression from the first step, revealed that learning adaptability was a significant predictor ($\beta=.26$, $p<.01$) when controlling for the antecedents. The beta weight for cognitive ability was slightly reduced but was significant ($\beta=.14$, $p<.01$). The beta weights for Conscientiousness ($\beta=.06$, $p>.05$) and Openness to Experience ($\beta=.05$, $p>.05$) were nonsignificant. The combined direct effect of the predictors in this analysis was significant ($R^2=.15$, $F(4, 372)=20.37$, $p<.01$). The confidence intervals for the indirect effects of Conscientiousness ($IE=.10$) and Openness to Experience ($IE=.08$) did not include 0. Therefore, while learning adaptability partially mediated the relationship between cognitive ability and efficacy to adapt based on changes in statistical significance, the indirect effect was not different from 0. Learning adaptability completely mediated the relationships between efficacy to adapt and both Conscientiousness and Openness to Experience.

The fifth mediator tested with regard to this hypothesis was uncertainty adaptability. The first step in this analysis is the same as it was for the test of cultural adaptability. The second step, in which uncertainty adaptability was regressed on the predictors, revealed that Conscientiousness ($\beta=-.13$, $p<.01$), Openness to Experience ($\beta=.35$, $p<.01$), and Emotional Stability ($\beta=.42$, $p<.01$) were significant predictors. The third step, in which efficacy to adapt was regressed on the antecedents and uncertainty adaptability, indicated that this dimension of adaptability was a significant predictor when controlling for the antecedents ($\beta=.23$, $p<.01$). The

beta weight for conscientiousness increased ($\beta=.20$, $p<.01$). This variable exhibits what Cohen and Cohen (1988) call cooperative suppression. This occurs when two predictors exhibit a negative bivariate relationship with each other but both exhibit positive bivariate relationships with the dependent variable, causing the beta weight in a regression for one predictor to be stronger than the zero-order correlation between the predictor and the outcome. In the present analysis, Conscientiousness and uncertainty adaptability are negatively related (though not significantly; $r=-.05$, $p>.05$), but both Conscientiousness ($r=.17$, $p<.01$) and uncertainty adaptability ($r=.34$, $p<.01$) are positively related to efficacy to adapt. This causes the beta weight for Conscientiousness in this analysis to be stronger than the zero-order correlation with efficacy to adapt. Openness to Experience exhibited a nonsignificant beta weight ($\beta=.05$, $p>.05$). The beta weight for Emotional Stability was reduced but remained significant ($\beta=.27$, $p<.01$). The combined direct effect of the predictors in this analysis was significant ($R^2=.14$, $F(4, 372)=18.02$, $p<.01$). The confidence intervals for the indirect effects of both Openness to Experience ($IE=.08$) and Emotional Stability ($IE=.10$) did not include 0. Thus, uncertainty adaptability completely mediated the relationship between Openness to Experience and efficacy to adapt and partially mediated the relationship between Emotional Stability and efficacy to adapt.

Stability of Adaptability

Though no specific hypotheses were presented, a research question concerned the stability of adaptability. To examine this, statistics from the first administration of adaptability were compared to statistics from the second administration. The means, standard deviations, and test-retest reliabilities were presented earlier in Table 1, but for ease of comparison, these are

presented again in Table 15. In this table, Cohen's d values are also presented to show sample mean differences in SD units. D values ranged from -.12 to .15; thus, none reached Cohen's guideline for a small d (i.e. $d=.20$). Test-retest reliabilities that have been corrected for measurement error are presented; these are all $\geq .70$ except for interpersonal adaptability for which $r_{\text{corrected}}=.61$. These statistics indicate that the adaptability dimensions do exhibit some variability over time, but this variability is not great.

Lastly in this table, percentages of individuals who have demonstrated score increases or decreases based on the Reliable Change Index (RCI; Christenson & Mendoza, 1986) are presented. The RCI estimates the likelihood that an individual's difference from measurement at time 1 to measurement at time 2 is due to measurement error or due to meaningful changes in the construct. The RCI is defined as an individual's difference score divided by the standard error of the difference, which itself is an extension of the standard error of measurement based on test-retest reliability. Specifically,

$$\text{RCI} = (x_2 - x_1) / (\sqrt{2}S_E), \text{ where}$$

x_2 = individual score at time 2,

x_1 = individual score at time 1, and

$S_E = s \sqrt{(1-r_{XX})}$, in which s = standard deviation of scores, and r_{XX} = test-retest reliability.

From the RCI, it can be determined how many individuals experienced negative change, no change, or positive change for each dimension. RCI values greater than 1.96 or less than -1.96 are considered unlikely to have occurred due to measurement error. For each adaptability dimension, between 94% and 97% of individuals in this study exhibited score differences that can be accounted for by measurement error in the test. This analysis suggests that few

individuals meaningfully changed on the adaptability dimensions from the first data collection to the second data collection.

Discussion

In this section, I will discuss each set of analyses in the order in which they were presented in the preceding (“Analyses”) section. I will then provide a broader discussion of the model in general and the implications of the findings, followed by an acknowledgement of the study’s limitations and ideas for future research.

Antecedent-adaptability Relationships

Hypotheses 1-5 proposed relationships between each of the antecedents and the adaptability dimensions, also suggesting differences in strength between these relationships. Support for these hypotheses is summarized in Table 16. First, cultural adaptability exhibited significant relationships with the three personality dimensions at the bivariate level and was significantly predicted by Openness to Experience and Emotional Stability in a regression. Though it was hypothesized that Openness to Experience would be a stronger predictor than the other antecedents, it was a stronger predictor than only cognitive ability. Stress adaptability exhibited a significant relationship only with Emotional Stability. As hypothesized, Emotional Stability was a stronger predictor than the other antecedents. Interpersonal adaptability demonstrated significant relationships with Conscientiousness and Openness to Experience at the bivariate level and in the regression equation. As hypothesized, these antecedents were more strongly related to this adaptability dimension than cognitive ability. Learning adaptability exhibited significant relationships with cognitive ability, Conscientiousness, and Openness to Experience at the bivariate level and in the regression equation. As hypothesized, Conscientiousness and Openness to Experience were stronger predictors than Emotional

Stability. Lastly with regard to this set of hypotheses, uncertainty adaptability was significantly related to Conscientiousness and Openness to Experience.

In general, the results support the idea that some combination of antecedents significantly predicts each of the adaptability dimensions, both at the bivariate level and in regression equations. Openness to Experience was the most consistent predictor, demonstrating significant relationships with four adaptability dimensions (the exception being stress adaptability) at the bivariate level and in the regressions. These results suggest that Openness to Experience, which describes individuals who are broad-minded, facilitates adaptability with regard to learning, interpersonal and uncertain situations, and to some extent comfortableness with other cultures. This is intuitive for the reasons described where these hypotheses were presented. An individual who exposes himself or herself to new experiences (i.e. is open to experience) likely is more willing to try new strategies and behaviors and also has more experiences from which to draw when encountering unfamiliar contexts, facilitating adaptability. The relationship between Openness to Experience and adaptability is consistent with previous research (Wang et al., 2011).

Emotional Stability and Conscientiousness also exhibited somewhat consistent relationships with the adaptability dimensions. Emotional Stability exhibited significant positive relationships with work stress, uncertainty, and cultural adaptability at the bivariate level and in regressions. The strong relationship between Emotional Stability and work stress adaptability is intuitive; an individual who is calmer in stressful situations should be able to adapt better. Uncertain situations may also require evaluating options in a calm manner. It is less clear why Emotional Stability significantly predicted cultural adaptability but not interpersonal or learning adaptability, though it is recognized this relationship was not very strong. Perhaps unfamiliar

cultural situations provoke more stress or anxiety than interpersonal, learning, or generally uncertain situations. Regardless, it is valuable to uncover these relationships, as the relationship between Emotional Stability and trait-based adaptability has not been investigated in prior research.

Conscientiousness exhibited significant positive bivariate relationships with cultural, interpersonal, and learning adaptability; the betas were significant for only interpersonal and learning adaptability. The strongest relationship was with learning adaptability. Conscientious individuals exhibit organization and perseverance, which should be beneficial when encountering difficulties in an unfamiliar learning context. The relationships with interpersonal and cultural adaptability were weaker, but suggest that some elements of Conscientiousness aid in adapting in these contexts. The relationship between Conscientiousness and adaptability has been studied only to a small extent in the past. Though Lepine et al. (2002) found a negative relationship between Conscientiousness and adaptive performance, the authors used a lab-based task to measure adaptive performance; the present study therefore highlights a potential difference between trait-based adaptability and the concept of adaptive performance. The present findings suggest a more consistent, positive relationship between this personality dimension and adaptability.

Cognitive ability was significantly related to only learning adaptability. This relationship is also intuitive; individuals with greater intelligence should be more able to learn strategies and apply them in situations that require adaptability such as the academic context. Though it was plausible that this ability to learn and apply strategies would be applicable to other adaptability dimensions, the data did not support these relationships. All relationships of cognitive ability and adaptability dimensions, including learning adaptability, were relatively weak. This may reflect

the imperfect measurement of cognitive ability. Though ACT/SAT scores are a proxy for cognitive ability, they reflect knowledge of certain subject matter and one's ability to study to some extent as well. It would be useful to investigate these relationships with a more direct cognitive ability test.

Experience Moderation

Despite the large number of analyses conducted investigating moderating effects of experiences, only two were significant. One was in the expected direction and one was in the unexpected direction, and both of these effects were weak. If adjustments were made to the level of statistical significance based on the number of analyses conducted, neither would have been significant. The evidence suggests that the significant moderating effects can be attributed to chance.

One possibility is that both the antecedents and experiences exert a direct influence on adaptability. The supplemental regressions revealed that experiences positively predict cultural, interpersonal, and learning adaptability incrementally beyond the antecedents. The bivariate relationship between work stress experiences and work stress adaptability was negative, indicating these experiences may be detrimental to the development of adaptability, or that individuals who perceive more work stress experiences may perceive themselves as less able to deal with stressful work situations. In the full regression, though, the beta for work stress experiences was nonsignificant. These results suggest that Pulakos et al.'s (2002) model, in which experiences were a direct antecedent of adaptive performance, may more accurately describe the relationship between experiences and trait-based adaptability than the model proposed in the present article. Regardless of one's personality or cognitive ability, certain

experiences appear to positively influence adaptability in cultural, interpersonal, and learning contexts.

Adaptability-outcome Relationships

Support for the adaptability-outcome relationships is also summarized in Table 16. Regarding task performance, the findings suggest that learning adaptability may be useful on its own for predicting this outcome. Individuals who demonstrate an ability to acquire skills and strategies and take responsibility for their own learning exhibit better performance. Though the beta was significant in the full regression equation, the overall R^2 was not, so it may not be as useful to consider other adaptability dimensions when attempting to predict task performance.

With regard to contextual performance, cultural, interpersonal, learning, and uncertainty adaptability all exhibited significant bivariate relationships with this outcome. However, only cultural and learning adaptability were significant predictors in the full regression. This indicates individuals who are better at adjusting to others from new cultures and dealing with academic changes exhibit more behaviors directed at improving their university and helping the other students at the university. Interestingly, contextual performance directed within the school was better predicted than behaviors directed externally. Though all adaptability dimensions were weaker predictors (in both correlations and regression) of external than internal contextual performance, learning adaptability exhibited the largest difference. This is logical given the items in this scale; students able to adapt to the learning environment would be more likely to be able to assist other students having difficulties in this new environment, which is largely the content of the internally-directed items. These results suggest that a bidimensional conceptualization of contextual performance in the present context is appropriate. Future research should recognize

this and, if appropriate for an investigator's purpose, attempt to represent both in instruments designed to measure contextual performance in this context.

The third outcome tested was emotional adjustment. Though both work stress and uncertainty adaptability were related to this outcome at the bivariate level, only work stress adaptability exhibited a significant beta in the full regression. This suggests that work stress adaptability is the most important predictor of this outcome. Individuals who are better able to remain calm and deal with stressful work situations are also able to handle unfamiliar stressful situations in college.

Lastly, all of the adaptability dimensions correlated significantly with efficacy to adapt; this outcome was the best-predicted outcome. All dimensions but interpersonal adaptability exhibited significant betas in the full regression. These results indicate that individuals appear to recognize their ability to adapt, which positively influences their belief that they can adapt when necessary.

Change Moderation

The analyses investigating the moderating effects of perceived changes did not reveal any significant effects. The poor reliability of the change scales may have contributed to the inability to detect these effects. It is also possible that the change items do not capture the most relevant changes, despite efforts to ensure item content reflected changes that students viewed as important. Yet another possibility is that regardless of the actual amount of change occurring, less adaptable individuals perceive more changes because they adapt to changes less easily, and thus, the changes are more salient to them. Indeed, the majority of the change dimension-adaptability relationships are negative (though not all significantly so), and one explanation for

this is that less adaptable individuals may simply attend to changes to greater extent than more adaptable individuals. Even if changes are occurring equally for individuals of varying adaptability levels, the perception of these changes could make detection of moderating effects difficult. The supplemental analyses, in which changes were added to the regressions of the outcomes on the adaptability dimensions, suggest that individuals who perceive these changes experience more negative outcomes regardless of their standing on adaptability. Thus, the perception of changes appears to be detrimental in general to new college students. While the hypothesized moderation was not supported, it is valuable to recognize the negative effects of potentially difficult changes in college.

Mediation

Support for mediation analyses is summarized in Table 17. Because learning adaptability did not significantly predict task performance incrementally beyond the antecedents, and because work stress and uncertainty adaptability did not predict emotional adjustment beyond the antecedents, mediation could not be established between the antecedents and these outcomes. These results suggest that the antecedents have a more direct influence on task performance and emotional adjustment. Cognitive ability and Emotional Stability had a positive significant effect on task performance, with cognitive ability having the strongest effect. Cognitive ability, Conscientiousness, and Emotional Stability significantly predicted emotional adjustment, with Emotional Stability having the strongest effect.

Because examination of indirect effects is a more complete assessment of mediation than relying on changes in statistical significance, indirect effects will be the focus of the discussion of mediation effects. With regard to the outcome of contextual performance, results indicate that

cultural and interpersonal adaptability mediate the relationship between Openness to Experience and this outcome. This is the case whether contextual performance is utilized in its unidimensional or bidimensional form. In addition, uncertainty adaptability mediates the relationship between the antecedents of Openness to Experience and Emotional Stability and the outcome of external contextual performance. While all indirect effects pertaining to this outcome were small (i.e. $.01 < IE < .09$), the results indicate that Openness to Experience exerts its influence on contextual performance through these mediators. Students who are more broad-minded experience increased cultural adaptability, which in turn positively influence contextual performance. When only considering citizenship behaviors directed externally, Openness to Experience and Emotional Stability exert influence through uncertainty adaptability. Though the relationships between Emotional Stability and contextual performance and between Conscientiousness and contextual performance were mediated by cultural and interpersonal adaptability (respectively) according to changes in significance, the indirect effects suggest these antecedents directly affect the outcome.

The relationship between Openness to Experience and efficacy to adapt exhibited three mediators: cultural, learning, and uncertainty adaptability. These effects were small but approached the guideline for a medium indirect effect (i.e. $.09$). This personality characteristic leads to an ability to adapt in these contexts, and this in turn increases one's efficacy that he or she can adapt. Additionally, learning adaptability mediated the relationship between Conscientiousness and efficacy to adapt and uncertainty adaptability mediated the relationship between Emotional Stability and efficacy to adapt. These effects were of medium strength (both $IEs = .10$). This suggests that Conscientiousness and Emotional Stability affect these adaptability dimensions, which in turn increase one's efficacy to adapt.

Stability of Adaptability

The final analyses concerned the stability of adaptability. These results demonstrate that few individuals changed on the adaptability dimensions from the first data collection to the second to an extent unlikely due to chance. Previous research has only addressed the stability of adaptability at a theoretical level, but the present results suggest it is somewhat stable.

The idea that distal traits such as personality lead to the more proximal trait of adaptability is largely tied to malleability question. The stability of these traits supports their position on the distal-proximal continuum, which in turn supports the placement of the variables in the model. For this reason, more research is needed into the stability of adaptability and how it compares to the stability of personality. It is possible that adaptability exhibits greater change over a longer time span, but the relatively short length of time between the first and second data collections was not long enough for the construct to change to a large extent. Administrations of an adaptability instrument at longer time intervals would provide more evidence about the stability of this construct and the conceptualization of adaptability as a trait-like construct resulting from other traits.

Overall Results

In summary, the ideas that personality affects adaptability and that adaptability affects relevant outcomes were supported. Openness to Experience was the most consistent predictor of adaptability, but Conscientiousness and Emotional Stability were also related to some of the adaptability dimensions. Though the hypothesized adaptability-building experiences did not moderate the relationships between the antecedents and adaptability, these experiences did

incrementally predict cultural, interpersonal, and learning adaptability beyond the hypothesized antecedents. Subsets of the adaptability dimensions predicted the outcomes of task and contextual performance, emotional adjustment, and efficacy to adapt. Academic, social, and emotional/supportive change did not moderate the relationships between adaptability and the outcomes, but subsets of these change dimensions incrementally predicted task performance, emotional adjustment, and efficacy to adapt. Regarding the mediated model, the relationship between Openness to Experience and contextual performance was mediated by cultural and interpersonal adaptability (when considering indirect effects). When contextual performance is divided into internal and external facets, the aforementioned mediation was replicated, but the relationships between the predictors of Openness to Experience and Emotional Stability and the outcome of external contextual performance were mediated by uncertainty adaptability. Lastly, the relationships between each of the antecedents and the outcome of efficacy to adapt were mediated by various adaptability dimensions.

These results suggest that more distal personality dimensions, along with adaptability-building experiences, aid an individual in developing adaptability. Each personality dimension was a significant predictor of at least three adaptability dimensions (either in bivariate relationships or in regression analyses), suggesting each personality dimension contributes to the development of adaptability. In turn, adaptable individuals are more likely to experience positive outcomes in the undergraduate context. The model that most accurately describes the present data includes these variables in such an order, but also includes experiences as a direct antecedent to adaptability and changes as a direct antecedent to the outcomes.

Research Implications

The present study expands upon the extant literature in several ways. First, it provides information about the nature of the construct of adaptability. Factor analyses indicate that it is distinct from other constructs such as the personality dimensions measured in this study. Though other similar conceptualizations of adaptability, such as adaptive performance and coping, have been more extensively studied, the growing research into trait-based adaptability suggests it is a viable conceptualization. Additionally, the results suggest adaptability is relatively stable, at least over the short time period of this study. This supports Ployhart and Bliese's (2006) view regarding the stability of adaptability.

Second, it expands upon the research into trait-based adaptability by explicating its antecedents and outcomes. Many of these relationships were supported in the present study, which both provides evidence for previously proposed but largely untested relationships (e.g. the antecedent-adaptability relationships) and provides evidence for relationships not proposed prior to this study (e.g. the adaptability-emotional adjustment relationship). Additionally, though the moderation hypotheses were not supported, supplemental analyses provide evidence that experiences play a role in enhancing adaptability and that changes negatively affect outcomes. The results in general support a model in which the antecedents of personality and experiences positively affect adaptability, which, along with changes, subsequently influences performance, emotional adjustment, and efficacy to adapt. If this study were to be replicated, it would be more appropriate to propose such a model rather than the model proposed in the present paper.

Third, it supports the utility of adaptability beyond the traditional organizational work context. The subjects in this study were first-year undergraduates. Given the aforementioned similarities and differences between the academic and organizational contexts, the supported findings can be interpreted to bolster the contention that the contexts are indeed similar (Munson

& Rubenstein, 1992) and also to support the notion that adaptability is generalizable across contexts.

Practical Implications

The results of this study also have practical implications. First, the finding that experiences lead to adaptability suggests that parents and educators should encourage exposure to such experiences. For some experiences this may not be possible (e.g. moving or living in other countries), but for others it may be (e.g. leaving uncertainty in how to complete a task, allowing failure and encouraging a student to learn from it). Educators could incorporate strategies based on adaptability into lessons and their interactions with students, leading to more adaptable individuals. Second, it could be useful for universities to measure adaptability and perceived changes, as these both affected important outcomes. Students who are low on adaptability or perceive many changes could receive counseling to help ensure negative outcomes do not result. Lastly, universities could use adaptability for selection purposes. Other research such as an investigation of the extent to which adaptability measures are faked would be valuable in supporting such a use, but it appears students higher on adaptability will experience more positive outcomes than students lower on adaptability. Selecting for adaptable students could have other implications for the make-up of the student body depending on correlations of adaptability with other individual characteristics; future research into the construct of adaptability and its relationship to other constructs would provide more information regarding this possibility.

Limitations

Though this study produced valuable findings, they are limited by the fact that the data in the study are correlational. Theory dictated the order in which the variables appear in the model, but it cannot be concluded that any variables cause any other variables. Arguments could be made for models in which the variables were arranged differently. For instance, self-efficacy to adapt correlated with a number of variables. It is possible this could be a mediator of adaptability-outcome relationships rather than simply being an outcome of adaptability. Additionally, the timing of measurement was constrained for logistical reasons. Ideally, the first data collection would have been conducted prior to entry into college, but many subjects did not respond to the first survey until late in the first month of the semester. Given that adaptability is thought to be somewhat malleable, measurement prior to college entry would be more appropriate because college experiences would not have the opportunity to affect one's standing on the construct. The second data collection ideally would have been conducted at the conclusion of the semester, but the data were collected prior to Thanksgiving. Later administration of this follow-up would provide more ability to detect change that occurs over the semester. It also may be possible that following up with these students at the end of a year of college would produce different results; again, the timing of the measurement was largely constrained by logistics. Lastly, the measurement of some variables was not optimal. For instance, though the change scales were developed from student responses, the scales did not exhibit acceptable reliability. The learning experiences and contextual performance measures exhibited multiple factors. Better measurement of such variables could influence the results of analyses involving the variables and allow for greater confidence in the accuracy of the results.

Future Directions

Future research could improve the measurement of some constructs or the research design, explore the model in different contexts, and expand upon the model. First, as was mentioned, the measurement of certain constructs was not optimal. CFAs of the change variables revealed poor fit, and the measurement of the personality variables was not optimal. The items used to measure these constructs could be improved in future research. Also, measuring facets of the personality dimensions could provide more clarity regarding the relationships between personality and adaptability. The global measures of personality may have obscured more nuanced relationships between facets and adaptability. Regarding the research design, as was discussed in the limitations section, logistics constrained the time at which variables were measured. Measurement over a longer timespan could provide additional evidence about the relationships investigated in the present study and further information regarding the stability of adaptability.

Second, this model of adaptability could be applied to other contexts. The present model mainly draws off literature regarding adaptability in the work context. The supported relationships could be investigated in the work context, or possibly even in other life contexts. For instance, it seems plausible that personality and experiences contribute to work adaptability and that adaptability and changes from one's previous work context affect outcomes in the workplace. Outside the workplace, adaptability dimensions, such as interpersonal and stress adaptability could affect one's ability to maintain friendships. Such findings could support the generalizability of the adaptability construct.

Lastly, additional antecedents and outcomes of adaptability and additional adaptability dimensions could be investigated. The present study attempted to capture the most plausible antecedents and a number of outcomes, but these were not exhaustive of the possibilities; other

variables could account for additional variance in adaptability or that the adaptability dimensions would predict other valued outcomes. Also, not all eight dimensions identified by Pulakos, Arad, Donovan, and Plamondon (2000) were utilized in the present study. Though the dimensions employed were chosen because they were theoretically more relevant to the undergraduate context, it is possible others (e.g. creativity adaptability) could demonstrate relationships with the antecedents and outcomes.

Conclusion

The purpose of this study was to expand upon the current literature by developing a model of adaptability and applying it to the undergraduate context. The results suggest that personality and experiences lead to adaptability and that adaptability, in conjunction with perceived changes, influence outcomes relevant to this context. Adaptability also appears to be a relatively stable construct. Though there were some limitations with regard to the measurement of the variables, many of the hypotheses were supported. These findings build upon the existing research, but also provide possibilities for future research into the model. The present results, along with future research, can increase our understanding of the construct of adaptability and potentially lead to its use in an applied context.

APPENDICES

Appendix A. Personality measures

IPIP Personality Items

Instructions: *On the following pages, there are phrases describing people's behaviors. Please use the rating scale below to describe how accurately each statement describes you. Describe yourself as you generally are now, not as you wish to be in the future. Describe yourself as you honestly see yourself in relation to other people you know of the same sex as you are and roughly your same age. Please read each statement carefully and then fill in the bubble that corresponds to the number on the scale.*

1	2	3	4	5
Very inaccurate	Moderately inaccurate	Neither accurate nor inaccurate	Moderately accurate	Very accurate

1. Have a rich vocabulary (O+)
2. Have difficulty understanding abstract ideas (O-)
3. Follow a schedule (C+)
4. Get chores done right away (C+)
5. Make a mess of things (C-)
6. Leave my belongings around (C-)
7. Change my mood a lot (ES-)
8. Often forget to put things back in their proper place (C-)
9. Am full of ideas (O+)
10. Pay attention to details (C+)
11. Shirk (i.e. skip out on) my duties (C-)
12. Am always prepared (C+)
13. Get irritated easily (ES-)
14. Have excellent ideas (O+)
15. Use difficult words (O+)
16. Get stressed out easily (ES-)
17. Get upset easily (ES-)
18. Do not have a good imagination (O-)
19. Am relaxed most of the time (ES+)
20. Often feel blue (ES-)
21. Have frequent mood swings (ES-)
22. Spend time reflecting on things (O+)
23. Have a vivid imagination (O+)
24. Am not interested in abstract ideas (O-)
25. Like order (C+)
26. Seldom feel blue (ES+)
27. Worry about things (ES-)
28. Am exacting in my work (C+)
29. Am quick to understand things (O+)
30. Am easily disturbed (ES-)

Appendix B. Potentially adaptability-developing experiences

1	2	3	4	5
Very infrequently/ never	Infrequently	Neither frequently/ nor infrequently	Frequently	Very frequently/ always

Uncertainty

1. Encountered an ambiguous situation in which the directions or expectations were undefined.
2. Had little control over the work you or your group could produce in a high school task. (REMOVED)
3. Your teacher changed in the middle of the school year.
4. Your supervisor changed during the time you worked at a high school job.
5. Needed direction on a project or assignment at a time when the teacher could not be reached.
6. The duties or responsibilities you were assigned at a high school job changed without warning.
7. Worked on a team at a high school job where coworkers were absent and you had insufficient personnel to accomplish the task.
8. Your parents let you make your own decision when the consequences were potentially negative. (REMOVED)
9. Your teachers forced you to figure out a method to solve a problem rather than providing a method. (REMOVED)

Stress

10. Had a workload at school that was very much more than normal.
11. Had a workload at a job that was very much more than normal.
12. Had several tasks to complete but not enough time to complete all of them.
13. Had too little time to complete school assignments in the way that you thought they should be done.
14. People you were working with on a group project failed to complete their assigned tasks.
15. Participated in extracurricular activities that conflicted with school work.
16. Had a job during the school year. (REMOVED)
17. Got very little sleep because you were working on assignments.

Learning

18. Took on tasks in school that required you to do extra reading or other work. (WORK INITIATIVE)
19. Worked on tasks or assignments that required you to seek out advice or information from others. (WORK INITIATIVE)
20. Had to investigate in organizations, libraries, or external information sources to complete an assignment. (WORK INITIATIVE)

21. Met with a teacher outside of class for help with an assignment or to learn more about a topic. (FEEDBACK)
22. Took more difficult classes than what was required (e.g. AP courses). (COURSES)
23. Took college-level courses while in high school. (COURSES)
24. Inquired further as to why you received a poor grade on a test or assignment. (FEEDBACK)
25. Used multiple methods (e.g. flash cards, group study sessions) to study for a test.
26. Sought feedback from teachers on projects even when you did well or the feedback had no impact on your grade. (FEEDBACK)

Interpersonal

27. Had to smooth things over with someone who was angry with you for something they think you did.
28. Had to figure out someone's priorities in order to deal with him/her effectively.
29. Had to change the way you approached or dealt with another person based on his/her personality.
30. Mediated between two of your friends who were in conflict with each other.
31. Were criticized by a teacher. (REMOVED)
32. Developed consensus among a group of individuals who disagreed with each other.
33. Dealt with people who had emotional problems.
34. Had to change your way of doing something to accommodate someone else.
35. Had to make new friends after changing to a new school. (REMOVED)
36. Attended a sleep-away camp without friends from home. (REMOVED)

Cultural

37. Worked with people from different racial or ethnic backgrounds at school or your job.
38. Lived in a foreign country (more than a month).
39. Moved to different cities or regions in the U.S.
40. Made friends with people from different countries.
41. Ate foods with which you were completely unfamiliar.
42. Made friends with people whose religious backgrounds were different from yours.
43. Participated in customs or rituals which were unfamiliar.
44. Worked with persons whose clothing was very different from yours.

Appendix C. The I-Adapt (modified)

1	2	3	4	5
Very inaccurate	Moderately inaccurate	Neither accurate nor inaccurate	Moderately accurate	Very accurate

Cultural

1. I enjoy learning about cultures other than my own
2. I work well with diverse others
3. It is important to me that I respect others' culture
4. I enjoy the variety and learning experiences that come from working with people of different backgrounds
5. I feel comfortable interacting with others who have different values and customs

Work Stress

6. I usually over-react to stressful news
7. I feel unequipped to deal with too much stress
8. I am easily rattled when my schedule is too full
9. I am usually stressed when I have a large workload
10. I often cry or get angry when I am under a great deal of stress

Interpersonal

11. I believe it is important to be flexible in dealing with others
12. I tend to be able to read others and understand how they are feeling at any particular moment
13. My insight helps me to work effectively with others
14. I am open-minded person in dealing with others
15. I am perceptive of others and use that knowledge in interactions
16. I try to be flexible in dealing with others
17. I adapt my behavior to get along with others

Learning

23. I take responsibility for acquiring new skills
24. I enjoy learning new approaches for tasks or problems in school
25. I take action to improve school performance deficiencies
26. I often learn new information and skills to stay ahead of my classmates
27. I quickly learn new methods to solve problems
28. I am continually learning new skills in school in preparation for my future job
29. I read ahead in textbooks for classes I take

Uncertainty

30. I need for things to be "black and white"
31. I become frustrated when things are unpredictable

32. I am able to make effective decisions without all relevant information
33. I tend to perform best in stable situations and environments (REMOVED)
34. When something unexpected happens, I readily change gears in response
35. I can adapt to changing situations
36. I perform well in uncertain situations
37. I easily respond to changing conditions
38. I can adjust my plans to changing conditions

Appendix D. Perceived Changes

1	2	3	4	5
Very inaccurate	Moderately inaccurate	Neither accurate nor inaccurate	Moderately accurate	Very accurate

Academic

1. Assignments in college are much different than assignments were at my high school.
2. I feel well-prepared for college work because of my work in high school. (REVERSE)
3. The exams I have taken in college thus far follow a different format than my high school exams typically did.
4. I feel like I am much more responsible for my own academic success than I was in high school.
5. Professors in college teach with a much different style than high school teachers.
6. I had more 1-on-1 relationships with my high school teachers than I do in college.
7. My parents allowed me to skip some classes in high school if I wanted to. (REVERSE; REMOVED)
8. The extracurricular activities in which I participated in high school conflicted with coursework more than they do in college. (REMOVED)
9. My high school classes typically had much smaller numbers of students than college courses.
10. College seems more academically competitive than my high school was.

Social

11. There are more clubs that fit my interests in college than there were in high school.
12. It is more difficult to find friends in college than it was in high school.
13. The town/city I lived in prior to college had a greater variety of activities in which to participate than East Lansing/Lansing.
14. My hometown and East Lansing are very similar. (REVERSE; REMOVED)
15. I crave foods from my hometown I cannot find in this area.
16. My parents helped me manage my time (i.e. balance social activities with school work) in high school.
17. I am more responsible for my own transportation in college than I was in high school (e.g. to extracurricular or social activities). (REMOVED)

Emotional/Supportive/Familial

18. I have less emotional support from my family now that I am in college.
19. I have less emotional support from my friends now that I am in college.
20. The person/people I used to “vent” to are not with me at college.
21. I have to change how I deal with my emotions now that I am in college.
22. I cope with stress the same way I did in high school despite my move to college. (REVERSE; REMOVED)

23. The activities in which I used to engage to relax are more difficult in college (e.g. taking a bath, reading in quiet surroundings, etc.).
24. I have more experiences in college that are difficult to discuss with my parents than I had in high school.

Appendix E. Contextual Performance (OCBs)

Indicate how frequently you have performed each of the behaviors listed below SINCE ENTERING THIS UNIVERSITY

1	2	3	4	5
Very infrequently/ never	Infrequently	Neither frequently nor infrequently	Frequently	Very frequently/ always

1. Gone out of your way to help other students from your school with social problems (INTERNAL)
2. Gone out of your way to make new students feel welcome at school (INTERNAL)
3. Shown genuine concern and courtesy towards other students (INTERNAL)
4. Helped tutor other students struggling with their assignments (INTERNAL)
5. Helped students who have been absent from class (INTERNAL)
6. Defended your school when others tried to criticize it (EXTERNAL)
7. Encouraged friends and family to support your school (EXTERNAL)
8. Shown school spirit (e.g., worn a school t-shirt or put a school decal on your car) (EXTERNAL)
9. Did things to improve your school (INTERNAL)
10. Participated in student government or other clubs that try to make your school a better place (INTERNAL)

Appendix F. Emotional Adjustment to College

Student Adaptation to College Questionnaire- Emotional Subscale

For each statement, please encircle one number at the point along the continuum which best represents your judgment concerning how closely the statement applies to you at the present time (i.e., within the last several days).

1	2	3	4	5
Very inaccurate	Moderately inaccurate	Neither accurate nor inaccurate	Moderately accurate	Very accurate

1. I have been feeling tense or nervous lately. (REVERSE)
2. Lately I have been feeling blue and moody a lot. (REVERSE)
3. I have felt tired much of the time lately. (REVERSE)
4. Being on my own, taking more responsibility for myself, has not been easy. (REVERSE)
5. I haven't been able to control my emotions very well lately. (REVERSE)
6. My appetite has been good lately.
7. I have been having a lot of headaches lately. (REVERSE)
8. I've given a lot of thought lately to whether I should ask for help from the MSU counseling center or from a psychotherapist outside of the University. (REVERSE)
9. I've put on (or lost) too much weight recently. (REVERSE)
10. I have been getting angry too easily lately. (REVERSE)
11. I haven't been sleeping very well. (REVERSE)
12. Sometimes my thinking gets muddled up too easily. (REVERSE)
13. I worry a lot about my university expenses. (REVERSE)
14. I have been feeling in good health lately.

Appendix G. Efficacy to Adapt.

1	2	3	4	5
Very inaccurate	Moderately inaccurate	Neither accurate nor inaccurate	Moderately accurate	Very accurate

1. I am confident in my ability to deal with changing situations.
2. When circumstances change, I have the ability to alter my behavior appropriately.
3. I am confident that I can adjust to changes in academic requirements at the college level.
4. No matter the different kinds of assignments I get in my college courses, I know I can master them.
5. I know that I can adjust to the way in which my roommates and friends may behave.
6. I know that I can take care of the many things my parents used to do for me.
7. I believe I can handle college stressors.
8. I know I can get along with people from cultures that are different than mine.

Appendix H. Tables.

Table 1. Definitions of Adaptive Performance Dimensions by Pulakos et al (2006).

Dimension Title	Definition
Crisis	Reacting with appropriate and proper urgency in life threatening, dangerous, or emergency situations; quickly analyzing options for dealing with danger or crises and their implications; making split-second decisions based on clear and focused thinking; maintaining emotional control and objectivity while keeping focused on the situation at hand; stepping up to take action and handle danger or emergencies as necessary and appropriate.
Work Stress	Remaining composed and cool when faced with difficult circumstances or a highly demanding workload or schedule; not overreacting to unexpected news or situations; managing frustration well by directing effort to constructive solutions rather than blaming others; demonstrating resilience and the highest levels of professionalism in stressful circumstances; acting as a calming and settling influence to whom others look for guidance.
Creativity	Employing unique types of analyses and generating new, innovative ideas in complex areas; turning problems upside-down and inside-out to find fresh, new approaches; integrating seemingly unrelated information and developing creative solutions; entertaining wide-ranging possibilities others may miss, thinking outside the given parameters to see if there is a more effective approach; developing innovative methods of obtaining or using resources when insufficient resources are available to do the job.
Uncertainty	Taking effective action when necessary without having to know the total picture or have all the facts at hand; readily and easily changing gears in response to unpredictable or unexpected events and circumstances; effectively adjusting plans, goals, actions, or priorities to deal with changing situations; imposing structure for self and others that provide as much focus as possible in dynamic situations; not needing things to be black and white; refusing to be paralyzed by uncertainty or ambiguity.
Learning	Demonstrating enthusiasm for learning new approaches and technologies for conducting work; doing what is necessary to keep knowledge and skills current; quickly and proficiently learning new methods or how to perform previously unlearned tasks; adjusting to new work processes and procedures; anticipating changes in the work demands and searching for and participating in assignments or training that will prepare self for these changes; taking action to improve work performance deficiencies.

Table 1 continued.

Interpersonal	Being flexible and open-minded when dealing with others; listening to and considering others' viewpoints and opinions and altering own opinion when it is appropriate to do so; being open and accepting of negative or developmental feedback regarding work; working well and developing effective relationships with highly diverse personalities; demonstrating keen insight of others' behavior and tailoring own behavior to persuade, influence, or work more effectively with them.
Cultural	Taking action to learn about and understand the climate, orientation, needs, and values of other groups, organizations, or cultures; integrating well into and being comfortable with different values, customs, and cultures; willingly adjusting behavior or appearance as necessary to comply with or show respect for others' values and customs; understanding the implications of one's actions and adjusting approach to maintain positive relationships with other groups, organizations, or cultures.
Physical	Adjusting to challenging environmental states such as extreme heat, humidity, cold, or dirtiness; frequently pushing self physically to complete strenuous or demanding tasks; adjusting weight and muscular strength or becoming proficient in performing physical tasks as necessary for the job.

Table 2. Means, SDs, and intercorrelations among the variables.

	Mean	SD	1	2	3	4	5	6	7	8	9
1. Cognitive ability	24.82	3.60	--								
2. Conscientiousness	3.77	0.58	-.07	.81							
3. Openness to Experience	3.69	0.51	.22**	.07	.78						
4. Emotional Stability	3.11	0.70	.01	.07	.07	.75					
5. Cultural Experiences	2.62	0.67	.03	-.07	.20**	-.02	.77				
6. Work Stress Experiences	2.95	0.66	.01	.03	.09	-.24*	.22**	.75			
7. Interpersonal Experiences	3.16	0.56	.01	-.10*	.22**	-.21*	.25**	.36**	.81		
8. Learning Experiences	3.17	0.56	.13**	.21**	.16**	-.11*	.28**	.36**	.27**	.72	
9. Learning Experiences-Feedback	3.00	0.76	-.09	.21**	.14**	-.07	.15**	.21**	.19**	.76**	.61
10. Learning Experiences- Work Initiative	3.16	0.62	.03	.13**	.17**	-.06	.27**	.33**	.26**	.72**	.43**
11. Learning Experiences- Courses	3.31	1.13	.35**	.03	.09	-.09	.17**	.21**	.13**	.63**	.16**
12. Uncertainty Experiences	2.31	0.58	-.02	-.13**	.01	-.08	.19**	.36**	.37**	.15**	.14**
13. Cultural Adaptability	4.25	0.67	.07	.11*	.25**	.11*	.38**	.03	.10*	.20**	.09
14. Work Stress Adaptability	2.84	0.96	.00	.00	.08	.65**	.08	-.19**	-.13**	-.12	-.10*
15. Interpersonal Adaptability	4.14	0.53	.01	.16**	.35**	.04	.13**	.07	.28**	.14**	.14**
16. Learning Adaptability	3.59	0.63	.13**	.42**	.38**	.08	.17**	.09	.08	.39**	.36**
17. Uncertainty Adaptability	3.42	0.59	.04	-.05	.36**	.41**	.19**	-.05	.11*	.06	.09

Table 2 continued.

	Mean	SD	1	2	3	4	5	6	7	8	9
18. Academic Change	3.92	0.54	-.20**	.00	-.05	-.05	-.04	.01	.17**	-.09	-.07
19. Social Change	2.59	0.68	-.11*	-.09	-.08	-.20**	.10*	.11*	.10*	.05	.03
20. Emotional/Supportive Change	3.24	0.68	-.01	-.06	.01	-.27**	.09	.18**	.18**	.07	.03
21. GPA (Task Performance)	3.24	0.55	.40**	.06	.02	.13**	-.04	.01	-.08	.15**	.10**
22. OCBs	3.32	0.54	.01	.16**	.14**	.08	.23**	.19**	.17**	.38**	.36**
23. OCBs- Internal	3.03	0.62	-.01	.13**	.14**	.12*	.25**	.17**	.14**	.33**	.35**
24. OCBs- External	4.01	0.79	.04	.12**	.05	-.02	.07	.13**	.11*	.26**	.16**
25. Emotional Adjustment	3.21	0.73	.11*	.21**	.03	.48**	-.09	-.20	-.19**	-.01	-.01
26. Self Efficacy to Adapt	3.92	0.58	.18**	.17**	.20**	.39**	.08	.00	-.04	.15**	.05
27. Cultural Adaptability-Follow-up	4.15	0.69	.13**	.10*	.22**	.10	.27**	.03	.05	.16**	.08
28. Work Stress Adaptability- Follow-up	2.91	0.91	.06	.05	.12*	.52**	.04	-.15**	-0.12*	-.09	-.10*
29. Interpersonal Adaptability- Follow-up	4.17	0.52	.07	.18**	.28**	.15**	.12**	.05	.12*	.21**	.12*
30. Learning Adaptability- Follow-up	3.54	0.59	.10	.32**	.33**	.20**	.18**	.07	.06	.28**	.22**
31. Uncertainty Adaptability- Follow-up	3.50	0.59	.11*	.01	.29**	.42**	.17**	.04	.04	.10*	.04

Table 2 continued.

	10	11	12	13	14	15	16	17	18	19
10. Learning Experiences- Work Initiative	.62									
11. Learning Experiences- Courses	.23**	<i>r=.51</i>								
12. Uncertainty Experiences	.19**	.03	.68							
13. Cultural Adaptability	.20**	.12*	-.06	.89						
14. Work Stress Adaptability	-.11	-.01	-.07	.07	.87					
15. Interpersonal Adaptability	.18**	-.01	.03	.32**	-.01	.87				
16. Learning Adaptability	.33**	.13**	.08	.31**	.04	.42**	.80			
17. Uncertainty Adaptability	.06	-.02	.02	.19**	.48**	.27**	.28**	.80		
18. Academic Change	.01	-.10*	.06	.04	-.11*	.11*	.00	-.05	.67	
19. Social Change	.02	.01	.18**	-.11*	-.12*	-.02	-.06	-.10*	.04	.43
20. Emotional/Supportive Change	.08	.08	.16**	-.04	-.26**	.00	-.07	-.19**	.25**	.24**
21. GPA (Task Performance)	.02	.15**	-.11*	-.01	-.01	-.07	.13**	.05	-.15**	-.14**
22. Context. Perf.	.31**	.11*	.14**	.28**	.00	.22**	.36**	.15**	.11*	-.06
23. Context. Perf- Internal	.27**	.06	.17**	.24**	.05	.19**	.36**	.15**	.06	-.04
24. Context. Perf.- External	.21**	.13**	.01	.19**	-.10	.16**	.17**	.08	.15**	-.06

Table 2 continued.

	20	21	22	23	24	25	26	27
20. Emotional/Supportive Change	.62							
21. GPA (Task Performance)	-.08	--						
22. Context. Perf.	.03	.06	.79					
23. Context. Perf.- Internal	.02	.11*	.90	.76				
24. Context. Perf.- External	.03	-.05	.62**	.23**	.81			
25. Emotional Adjustment	-.38**	.25**	-.02	-.02	.00	.87		
26. Self Efficacy to Adapt	-.19**	.16**	.26**	.19**	.25**	.40**	.83	
27. Cultural Adaptability- Follow-up	-.04	.02	.29**	.23**	.24**	.07	.42**	.91
28. Work Stress Adaptability- Follow-up	-.33**	.01	.00	.04	-.06	.55**	.41**	.07
29. Interpersonal Adaptability- Follow-up	.01	.05	.25**	.16**	.27**	.08	.48**	.47**
30. Learning Adaptability- Follow-up	-.11*	.20**	.40**	.40**	.19**	.24**	.51**	.40**
31. Uncertainty Adaptability- Follow-up	-.15**	.08	.22**	.20**	.14**	.30**	.58**	.28**

Table 2 continued.

	28	29	30	31
28. Work Stress Adaptability- Follow-up	<i>.86</i>			
29. Interpersonal Adaptability- Follow-up	.09	<i>.87</i>		
30. Learning Adaptability- Follow-up	.24**	.44**	<i>.79</i>	
31. Uncertainty Adaptability- Follow-up	.56**	.38**	.44**	<i>.79</i>

Note: * $p \leq .05$. ** $p \leq .01$. Italicized values (i.e., those on the diagonal) represent alpha reliabilities. Intercorrelations reflect scale modifications based on reliability examination and factor analysis. Context.= Contextual. Perf= Performance. Correlations involving GPA but not cognitive ability had sample sizes ranging from N=360 to N=362. Correlations involving cognitive ability but not GPA had sample sizes ranging from N=377 to N=379. The correlation between GPA and cognitive ability had a sample size of N=341. All other correlations had sample sizes ranging from N=401 to N=403.

Table 3. Multiple regression analyses of the adaptability dimensions on the antecedents.

	Cultural Adapt.		Work Stress Adapt.		Inter. Adapt.		Learning Adapt.		Uncertainty Adapt.	
	b	r	b	r	b	r	b	r	b	r
Cognitive Ability	.02	.07	-.03	.00	-.06	.01	.09*	.13**	-.05	.04
Conscientiousness	.09	.11*	-.07	-.02	.12**	.15**	.40**	.41**	-.06	-.08
Openness to Experience	.23**	.24**	.06	.08	.36**	.35**	.32**	.36**	.35**	.35**
Emotional Stability	.10*	.12**	.66**	.65**	.01	.04	.03	.07	.43**	.43**
R ²	.08**		.44**		.14**		.29**		.31**	
N	378		379		379		379		379	

Note: *p≤.05. **p≤.01. Adapt.=Adaptability. Inter.=Interpersonal.

Table 4. Moderating effects of experiences.

	Uncertainty Adapt.	Work Stress Adapt.	Learning Adapt.	Learning Feedback	Learning Work Initiative
	b	b	b	b	b
Cognitive Ability	.03	.00	.08	.16**	.12**
Experience					
Dimension	.05	-.20**	.41**	.38**	.33**
Moderator Term	.05	-.15**	-.05	-.03	-.04
R ² Change from					
Mod.	.00	.02*	.00	.00	.00
Overall R ²	.01	.06**	.18**	.16**	.12**
Conscientiousness					
Experience					
Dimension	-.04	.00	.36**	.36**	.38**
Moderator Term	.03	-.19**	.32**	.29**	.28**
R ² Change from					
Mod.	.10*	-.05	-.03	-.04	-.04
Overall R ²	.01*	.00	.00	.00	.00
	.01	.03	.28**	.26**	.26**
Openness to					
Experience					
Experience					
Dimension	.36	.10*	.33**	.33**	.34**
Moderator Term	.02	-.20**	.35**	.31**	.28**
R ² Change from					
Mod.	.06	.03	-.07	-.06	-.04
Overall R ²	.00	.00	.01	.00	.00
	.13**	.05**	.26**	.24**	.22**
Emotional Stability					
Experience					
Dimension	.42	.64**	.12**	.10*	.09
Moderator Term	.06	-.04	.41**	.36**	.33**
R ² Change from					
Mod.	.03	-.03	-.02	-.01	-.05
Overall R ²	.00	.00	.00	.00	.00
	.18**	.42**	.17**	.14**	.12**

Table 4 continued.

	Learning Courses	Inter. Adapt.	Cultural Adapt.
	b	b	b
Cognitive Ability Experience Dimension	.08 .12*	.01 .29**	.06 .35**
Moderator Term	.00	-.06	-.03
R ² Change from Mod.	.00	.00	.00
Overall R ²	.03**	.09	.13**
Conscientiousness Experience Dimension	.41** .11*	.19** .30**	.14** .39**
Moderator Term	.06	-.08	.01
R ² Change from Mod.	.00	.01	.00
Overall R ²	.19**	.12**	.16**
Openness to Experience Experience Dimension	.37** .10*	.30** .21**	.18** .34**
Moderator Term	.01	-.08	-.03
R ² Change from Mod.	.00	.01	.00
Overall R ²	.16**	.17**	.18**
Emotional Stability Experience Dimension	.09 .13**	.10* .30**	.11** .39**
Moderator Term	-.01	.00	.05
R ² Change from Mod.	.00	.00	.00
Overall R ²	.02*	.09**	.16

Note: *p≤.05. **p≤.01. Adapt.=Adaptability. Inter.=Interpersonal. For cultural adaptability, experience dimension = cultural experiences. For work stress adaptability, experience dimension = work stress experiences. For interpersonal adaptability, experience dimension = interpersonal experiences. For learning adaptability, experience dimension = learning experiences. For uncertainty adaptability, experience dimension = uncertainty experiences.

Table 5. Multiple regression analyses of the adaptability dimensions on the antecedents and experiences.

	Cultural Adapt.		Work Stress Adapt.		Inter. Adapt.		Learning Adapt.		Uncertainty Adapt.	
	b	r	b	r	b	r	b	r	b	r
Cognitive Ability	.03	0.07	-0.03	0	-.05	0.01	.05	.13**	-0.05	0.04
Conscientiousness	.13**	.11*	-0.07	-0.02	.15**	.15**	.33**	.41**	-.13**	-0.08
Openness to Experience	.16**	.24**	0.06	0.08	.29**	.35**	.28**	.36**	.35**	.35**
Emotional Stability	.10*	.12**	.65**	.65**	.06	0.04	.06	0.07	.43**	.43**
Experience dimension	.34**	.38**	-.04	-.19**	.25**	.28**	.29**	.39**	.06	.02
R ² Change	.11**		.00		.06**		.08*		.00	
Overall R ²	.19**		.44**		.19**		.37*		.31**	
N	376		377		377		377		377	

Note: *p≤.05. **p≤.01. Adapt.=Adaptability. Inter.=Interpersonal.

Table 6. Multiple regression analyses of the outcomes on the adaptability dimensions.

	Task Performance		Contextual Performance		Contextual Performance (w/ learning)		Contextual Performance Internal		Contextual Performance External	
	b	r	b	r	b	r	b	r	b	r
Cultural Adapt.	--	--	.22**	.28**	.17**	.28**	.14**	.24**	.13**	.19**
Work Stress Adapt	-.03	.00	--	--	--	--	--	--	--	--
Inter. Adapt. Learning	--	--	.13**	.22**	.04	.22**	.01	.19**	.08	.16**
Adapt. Uncertainty	.12*	.13**	--	--	.29**	.36**	.30**	.36**	.10	.17**
Adapt.	.03	.05	.08	.15**	.03	.15**	.03	.15**	.01	.08
R ²	.02		.10**		.16**		.15**		.06**	
N	362		402		402		402		402	

Table 6 continued.

	Emotional Adjustment		Emotional Adjustment (w/ work stress)		Efficacy to Adapt	
	b	r	b	r	b	r
Cultural Adapt.	--	--	--	--	.19**	.30**
Work Stress Adapt	--	--	.33**	.33**	.21**	.30**
Inter. Adapt.	-.10	-.05	-.05	-.05	.00	.18**
Learning Adapt.	--	--	--	--	.20**	.32**
Uncertainty Adapt.	.17**	.15**	.01	.15**	.15**	.34**
R^2	.03**		.11**		.23**	
N	403		403		401	

Note: * $p \leq .05$. ** $p \leq .01$. Adapt.=Adaptability. Inter.=Interpersonal.

Table 7. Moderating effects of changes.

	Task Performance	Context. Performance	Emotional Adjustment
	b	b	b
Cultural Adaptability	--	.28**	--
Change Dimension	--	-.03	--
Moderator Term	--	-.01	--
R ² Change from Mod.	--	.00	--
Overall R ²	--	.08**	--
Work Stress Adaptability	-.03	--	.25**
Change Dimension	-.16**	--	-.32**
Moderator Term	.01	--	-.06
R ² Change from Mod.	.00	--	.00
Overall R ²	.03*	--	.21**
Interpersonal Adaptability	--	.22**	-.05
Change Dimension	--	-.06	-.38**
Moderator Term	--	-.01	.00
R ² Change from Mod.	--	.00	.00
Overall R ²	--	.05**	.15**
Learning Adaptability	.13**	.36**	--
Change Dimension	-.15**	-.04	--
Moderator Term	.04	.00	--
R ² Change from Mod.	.00	.00	--
Overall R ²	.04**	.14**	--
Uncertainty Adaptability	.05	.15**	.09
Change Dimension	-.16**	-.05	-.36**
Moderator Term	-.09	-.01	-.02
R ² Change from Mod.	.01	.00	.00
Overall R ²	.03**	.03**	.15**

Table 7 continued.

	Contextual Performance- Internal	Contextual Performance- External
	b	b
Cultural Adaptability	.24**	.20**
Change Dimension	-.02	-.04
Moderator Term	.01	-.05
R ² Change from Mod.	.00	.00
Overall R ²	.06**	.04**
Work Stress Adaptability	--	--
Change Dimension	--	--
Moderator Term	--	--
R ² Change from Mod.	--	--
Overall R ²	--	--
Interpersonal Adaptability	.19**	.16**
Change Dimension	-.04	-.06
Moderator Term	-.02	.02
R ² Change from Mod.	.00	.00
Overall R ²	.04**	.03**
Learning Adaptability	.36**	.17**
Change Dimension	-.02	-.05
Moderator Term	.02	-.05
R ² Change from Mod.	.00	.00
Overall R ²	.13**	.04**
Uncertainty Adaptability	.15**	.08
Change Dimension	-.03	-.06
Moderator Term	-.01	-.01
R ² Change from Mod.	.00	.00
Overall R ²	.02*	.01

Note: *p≤.05. **p≤.01. For task performance, change dimension= academic changes. For contextual performance, change dimension= social changes. For emotional adjustment, change dimension= emotional/supportive changes.

Table 8. Regressions of task performance, emotional adjustment, and efficacy to adapt on adaptability and change.

	Task Performance		Emotional Adjustment		Efficacy to Adapt	
	b	r	b	r	b	r
Cultural Adapt.	--	--	--	--	.19**	.30**
Work Stress Adapt	-.03	.00	.33**	.33**	.21**	.30**
Inter. Adapt.	--	--	-.05	-.05	.00	.18**
Learning Adapt.	.12*	.13**	--	--	.20**	.32**
Uncertainty Adapt.	.03	.05	.01	.15**	.15**	.34**
Academic Change	-.16**	-.15**	--	--	--	--
Social Change	--	--	--	--	-.13**	-.21**
Emotional/Supportive Change	--	--	.31**	-.38**	-.06	-.19**
R ² Change	.02**		.09**		.02**	
Overall R ²	.03**		.20**		.24**	
N	360		401		399	

Note: *p≤.05. **p≤.01. Adapt.=Adaptability.

Table 9. Mediating effects of learning adaptability on the relationship between the antecedents and task performance.

	Mediator				Lower CI	Upper CI
	Total Effect	as Outcome	Direct Effect	Indirect Effect		
Cognitive Ability	.44**	.12**	.43**	.01	.00	.03
Conscientiousness	.09	.44**	.06	.03	-.02	.08
Openness to Experience	-.09	.32**	-.11*	.02	-.01	.06
Emotional Stability	.13**	.04	.12**	.00	.00	.02
Learning Adaptability			.07			
R ² /Total Indirect Effect	.19**	.33**	.18**	.02	-.01	.06
N	340					

Note: *p≤.05. **p≤.01. CI=Confidence Interval.

Table 10. Mediating effects of the adaptability dimensions on the relationship between the antecedents and contextual performance.

	Mediator					
	Total Effect	as Outcome	Direct Effect	Indirect Effect	Lower CI	Upper CI
Cognitive Ability	-.01	.02	-.02	.01	-.02	.03
Conscientiousness	.13**	.09	.11*	.02	.00	.05
Openness to Experience	.14**	.23**	.09	.05	.02	.10
Emotional Stability	.11*	.10*	.08	.02	.00	.05
Cultural Adaptability			.23**			
R^2 /Total Indirect Effect	.05**	.08**	.03*	.02	.01	.04
N	377					
Cognitive Ability	-.01	-.06	.00	-.01	-.03	.01
Conscientiousness	.13**	.12*	.11*	.02	.00	.05
Openness to Experience	.14**	.36**	.08	.06	.02	.11
Emotional Stability	.11*	.01	.11*	.00	-.02	.02
Interpersonal Adaptability			.18**			
R^2 /Total Indirect Effect	.05**	.14**	.03**	.02	.01	.05
N	378					
Cognitive Ability	-.01	-.06	-.01	-.01	-.02	.00
Conscientiousness	.13**	-.13**	.14**	-.01	-.04	.00
Openness to Experience	.14**	.35**	.10	.04	.00	.09
Emotional Stability	.11*	.42**	.05	.05	.00	.10
Uncertainty Adaptability			.11			
R^2 /Total Indirect Effect	.05**	.31**	.04**	.03	.00	.08
N	378					

Note: * $p \leq .05$. ** $p \leq .01$. CI=Confidence Interval.

Table 11. Mediating effects of the adaptability dimensions on the relationship between the antecedents and internal contextual performance.

	Mediator		Direct Effect	Indirect Effect	Lower CI	Upper CI
	Total Effect	as Outcome				
Cognitive Ability	-.04	.02	-.04	.00	-.02	.03
Conscientiousness	.09	.09	.07	.02	.00	.04
Openness to Experience	.14**	.23**	.09	.04	.02	.08
Emotional Stability	.13**	.10*	.11*	.02	.00	.04
Cultural Adaptability			.19**			
R^2 /Total Indirect Effect	.05**	.08**		.01	.00	.03
N	377					
Cognitive Ability	-.04	-.06	-.03	-.01	-.03	.01
Conscientiousness	.09	.12**	.08	.02	.00	.04
Openness to Experience	.14**	.36**	.09	.05	.01	.10
Emotional Stability	.13**	.01	.13**	.00	-.01	.02
Interpersonal Adaptability			.14**			
R^2 /Total Indirect Effect	.05**	.14**	.03*	.02	.00	.04
N	378					
Cognitive Ability	-.04	-.05	-.04	.00	-.02	.00
Conscientiousness	.09	-.13**	.11*	-.01	-.03	.01
Openness to Experience	.14**	.35**	.12*	.02	-.02	.07
Emotional Stability	.13**	.42**	.11	.03	-.02	.08
Uncertainty Adaptability			.06			
R^2 /Total Indirect Effect	.05**	.31**		.02	-.02	.06
N	378					

Note: * $p \leq .05$. ** $p \leq .01$. CI=Confidence Interval.

Table 12. Mediating effects of the adaptability dimensions on the relationship between the antecedents and external contextual performance.

	Mediator					
	Total Effect	as Outcome	Direct Effect	Indirect Effect	Lower CI	Upper CI
Cognitive Ability	.04	.02	.03	.00	-.02	.03
Conscientiousness	.12**	.09	.11*	.02	.00	.04
Openness to Experience	.07	.23**	.02	.04	.01	.08
Emotional Stability	.00	.10*	-.01	.02	.00	.04
Cultural Adaptability			.18**			
R^2 /Total Indirect Effect	.02	.08**	.01	.01	.00	.03
N	377					
Cognitive Ability	.04	-.06	.05	-.01	-.03	.00
Conscientiousness	.12**	.12**	.11*	.02	.00	.04
Openness to Experience	.07	.36**	.01	.05	.01	.09
Emotional Stability	.00	.01	.00	.00	-.01	.02
Interpersonal Adaptability			.15**			
R^2 /Total Indirect Effect	.02	.14**	.01	.02	.00	.04
N	378					
Cognitive Ability	.04	-.05	.04	-.01	-.03	.01
Conscientiousness	.12**	-.13**	.14**	-.02	-.05	.00
Openness to Experience	.07	.35**	.02	.05	.01	.10
Emotional Stability	.00	.42**	-.06	.06	.01	.12
Uncertainty Adaptability			.14**			
R^2 /Total Indirect Effect	.02	.31**	.02	.04	.01	.09
N	378					

Note: * $p \leq .05$. ** $p \leq .01$. CI=Confidence Interval.

Table 13. Mediating effects of the adaptability dimensions on the relationship between the antecedents and emotional adjustment.

	Mediator					
	Total Effect	as Outcome	Direct Effect	Indirect Effect	Lower CI	Upper CI
Cognitive Ability	.13**	-.06	.12**	.00	.00	.02
Conscientiousness	.21**	.12**	.21**	-.01	-.03	.00
Openness to Experience	-.01	.36**	.02	-.03	-.06	.01
Emotional Stability	.47**	.01	.47**	.00	-.01	.01
Work Stress Adaptability			-.08			
R^2 /Total Indirect Effect	.28**	.14**		-.01	-.03	.00
N	378					
Cognitive Ability	.13**	-.05	.13**	.00	-.01	.01
Conscientiousness	.21**	-.13**	.20**	.00	-.01	.02
Openness to Experience	-.01	.35**	-.01	-.01	-.04	.03
Emotional Stability	.47**	.42**	.47**	-.01	-.05	.04
Uncertainty Adaptability			-.02			
R^2 /Total Indirect Effect	.28**	.31**	.25**	.00	-.03	.03
N	378					

Note: * $p \leq .05$. ** $p \leq .01$. CI=Confidence Interval.

Table 14. Mediating effects of the adaptability dimensions on the relationship between the antecedents and efficacy to adapt.

	Mediator					
	Total Effect	as Outcome	Direct Effect	Indirect Effect	Lower CI	Upper CI
Cognitive Ability	.16**	.02	.16**	.00	-.02	.03
Conscientiousness	.16**	.09	.15**	.02	.00	.05
Openness to Experience	.13**	.23**	.08	.05	.02	.09
Emotional Stability	.36**	.10*	.34**	.02	.00	.05
Cultural Adaptability			.23**			
R^2 /Total Indirect Effect	.23**	.08**	.18**	.02	.00	.04
N	376					
Cognitive Ability	.16**	-.04	.16**	.00	-.02	.01
Conscientiousness	.16**	-.07	.17**	-.01	-.02	.00
Openness to Experience	.13**	.06	.12**	.01	.00	.02
Emotional Stability	.36**	.65**	.29**	.08	.00	.17
Work Stress Adaptability			.12*			
R^2 /Total Indirect Effect	.23**	.44**	.14**	.05	.00	.11
N	377					
Cognitive Ability	.16**	-.06	.17**	-.01	-.02	.01
Conscientiousness	.16**	.12*	.15**	.01	.00	.04
Openness to Experience	.13**	.36**	.09	.04	.00	.09
Emotional Stability	.36**	.01	.36**	.00	-.01	.02
Interpersonal Adaptability			.12**			
R^2 /Total Indirect Effect	.23**	.14**	.21**	.02	.00	.05
N	377					

Note: * $p \leq .05$. ** $p \leq .01$. CI=Confidence Interval.

Table 14 continued.

	Total Effect	Mediator as Outcome	Direct Effect	Indirect Effect	Lower CI	Upper CI
Cognitive Ability	.16**	.09*	.14**	.02	.00	.05
Conscientiousness	.16**	.40**	.06	.10	.05	.16
Openness to Experience	.13**	.31**	.05	.08	.04	.13
Emotional Stability	.36**	.03	.36**	.01	-.02	.04
Learning Adaptability						
R^2 /Total Indirect Effect	.23**	.29**	.16**	.07	.04	.12
N	377					
Cognitive Ability	.16**	-.06	.17**	-.01	-.04	.01
Conscientiousness	.16**	-.13**	.20**	-.03	-.06	.00
Openness to Experience	.13**	.35**	.05	.08	.04	.13
Emotional Stability	.36**	.42**	.27**	.10	.05	.16
Uncertainty Adaptability			.23**	.07		
R^2 /Total Indirect Effect	.23**	.14**	.14**	.07	.03	.12
N	377					

Note: * $p \leq .05$. ** $p \leq .01$. CI=Confidence Interval.

Table 15. Stability of adaptability from Time 1 to Time 2.

	Time 1 Mean	Time 1 SD	Time 2 Mean	Time 2 SD	Mean Diff.	Cohen's d	Test- Retest	Corrected r	% Decreased	% Un- changed	% Increased
Cultural Adaptability	4.25	0.67	4.15	0.69	-0.10	-.15	.70	.78	0.50	95.51	3.99
Work Stress Adaptability	2.84	0.96	2.91	0.91	0.08	.08	.68	.79	2.99	95.26	1.99
Interpersonal Adaptability	4.14	0.53	4.17	0.52	0.03	.06	.53	.61	1.50	97.01	1.50
Learning Adaptability	3.59	0.63	3.54	0.59	-0.05	-.07	.57	.72	2.74	94.01	3.24
Uncertainty Adaptability	3.42	0.59	3.50	0.59	0.08	.13	.56	.70	2.00	94.01	3.74

Table 16. Summary of Support for Direct Relationships.

Hyp.	Relationship	Bivariate	Regression	Strength
H1	CA - Cultural Adapt.	No	No	--
	Conscientiousness - Cultural Adapt.	Yes	No	--
	Openness to Experience - Cultural Adapt.	Yes	Yes	Partial
	Emotional Stability - Cultural Adapt.	Yes	Yes	--
H2	CA - Stress Adapt.	No	No	--
	Conscientiousness - Stress Adapt.	No	No	--
	Openness to Experience - Stress Adapt.	No	No	--
	Emotional Stability - Stress Adapt.	Yes	Yes	Yes
H3	CA - Interpersonal Adapt.	No	No	--
	Conscientiousness - Interpersonal Adapt.	Yes	Yes	Yes
	Openness to Experience - Interpersonal Adapt.	Yes	Yes	Yes
	Emotional Stability - Interpersonal Adapt.	No	No	No
H4	CA - Learning Adapt.	Yes	Yes	No
	Conscientiousness - Learning Adapt.	Yes	Yes	Yes
	Openness to Experience - Learning Adapt.	Yes	Yes	Yes
	Emotional Stability - Learning Adapt.	No	No	--
H5	CA - Uncertainty Adapt.	No	No	--
	Conscientiousness - Uncertainty Adapt.	No	No	--
	Openness to Experience - Uncertainty Adapt.	Yes	Yes	--
	Emotional Stability - Uncertainty Adapt.	Yes	Yes	--

Table 16 continued.

Hyp.	Relationship	Bivariate	Regression
H11	Learning Adapt. - Task Performance	Yes	Yes
	Work Stress Adapt. - Task Performance	No	No
	Uncertainty Adapt. - Task Performance	No	No
H12	Cultural Adapt. - Context. Performance	Yes	Yes
	Interpersonal Adapt. - Context. Performance	Yes	No
	Uncertainty Adapt. - Context. Performance	Yes	No
NH	Learning Adapt. - Context. Performance	Yes	Yes
H13	Interpersonal Adapt. - Emotional Adjustment	No	No
	Uncertainty Adapt. - Emotional Adjustment	Yes	Yes
NH	Work Stress Adapt. - Emotional Adjustment	Yes	Yes
H14	Cultural Adapt. - Efficacy to Adapt	Yes	Yes
	Stress Adapt. - Efficacy to Adapt	Yes	Yes
	Learning Adapt. - Efficacy to Adapt	Yes	Yes
	Interpersonal Adapt. - Efficacy to Adapt	Yes	No
	Uncertainty Adapt. - Efficacy to Adapt	Yes	Yes

Note: Hyp.= Hypothesis. CA= Cognitive Ability.

Table 17. Summary of Supported Mediation Hypotheses.

Hyp.	Predictor	Mediator (Adapt. Dimension)	Outcome	P Changes	Indirect Effect	Size of IE
H18b	Openness to Experience	Cultural	Contextual Perf.	Complete	Yes	.05
	Emotional Stability	Cultural	Contextual Perf.	Complete		
	Openness to Experience	Interpersonal	Contextual Perf.	Complete	Yes	.06
	Conscientiousness	Interpersonal	Contextual Perf.	Partial		
	Openness to Experience	Cultural	Internal Context. Perf.	Complete	Yes	.04
	Emotional Stability	Cultural	Internal Context. Perf.	Complete		
	Openness to Experience	Interpersonal	Internal Context. Perf.	Complete	Yes	.05
	Conscientiousness	Interpersonal	Internal Context. Perf.	Partial		
	Openness to Experience	Cultural	Internal Context. Perf.	Partial	Yes	.04
	Emotional Stability	Cultural	External Context. Perf.	Partial		
	Openness to Experience	Interpersonal	External Context. Perf.	Partial	Yes	.05
	Conscientiousness	Interpersonal	External Context. Perf.	Partial		
	Openness to Experience	Uncertainty	External Context. Perf.	Partial	Yes	.05
	Emotional Stability	Uncertainty	External Context. Perf.	Partial	Yes	.06
H18c	Openness to Experience	Cultural	Efficacy to Adapt	Complete	Yes	.05
	Emotional Stability	Cultural	Efficacy to Adapt	Partial		
	Emotional Stability	Work Stress	Efficacy to Adapt	Partial		
	Conscientiousness	Interpersonal	Efficacy to Adapt	Partial		
	Openness to Experience	Interpersonal	Efficacy to Adapt	Complete		
	Cognitive Ability	Learning	Efficacy to Adapt	Partial		
	Conscientiousness	Learning	Efficacy to Adapt	Complete	Yes	.10
	Openness to Experience	Learning	Efficacy to Adapt	Complete	Yes	.08
	Openness to Experience	Uncertainty	Efficacy to Adapt	Complete	Yes	.08
	Emotional Stability	Uncertainty	Efficacy to Adapt	Partial	Yes	.10

Note: Hyp.= Hypothesis. Perf.= Performance.

Appendix I. Figures

Figure 1. The hypothesized model.

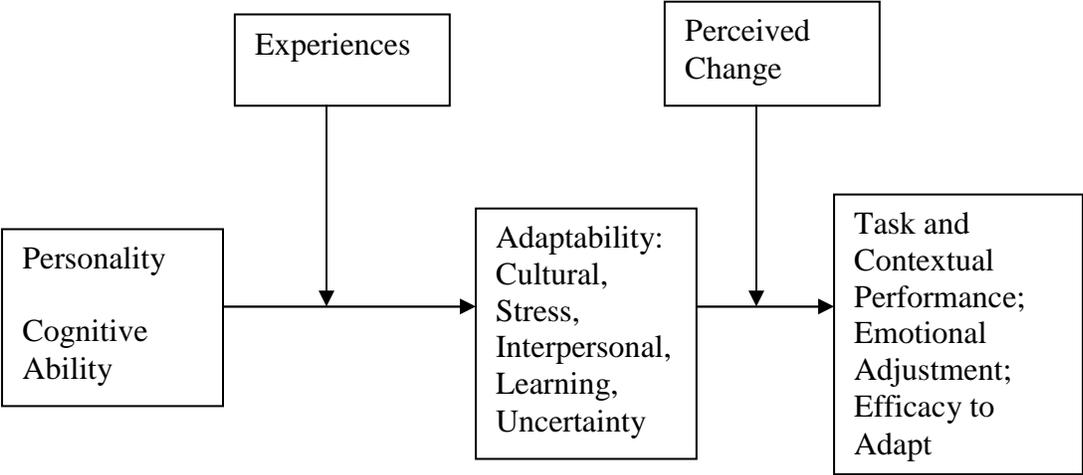


Figure 2. Pulakos et al.'s (2002) tested model of adaptive performance.

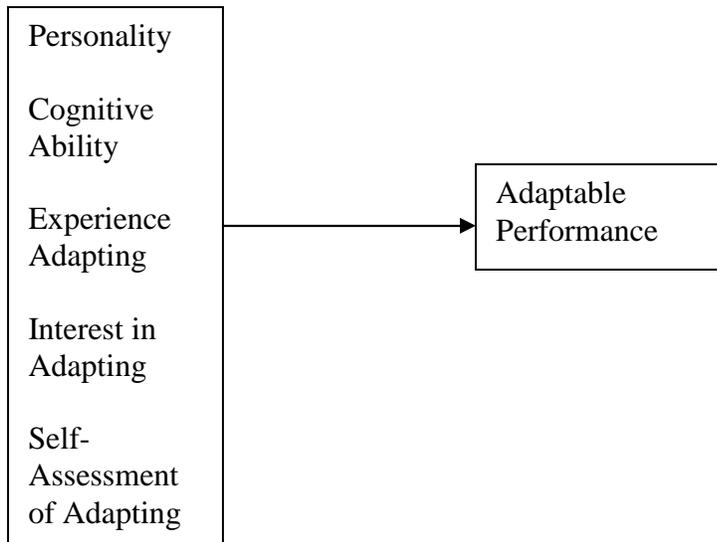


Figure 3. The hypothesized interaction between adaptability and perceived change.

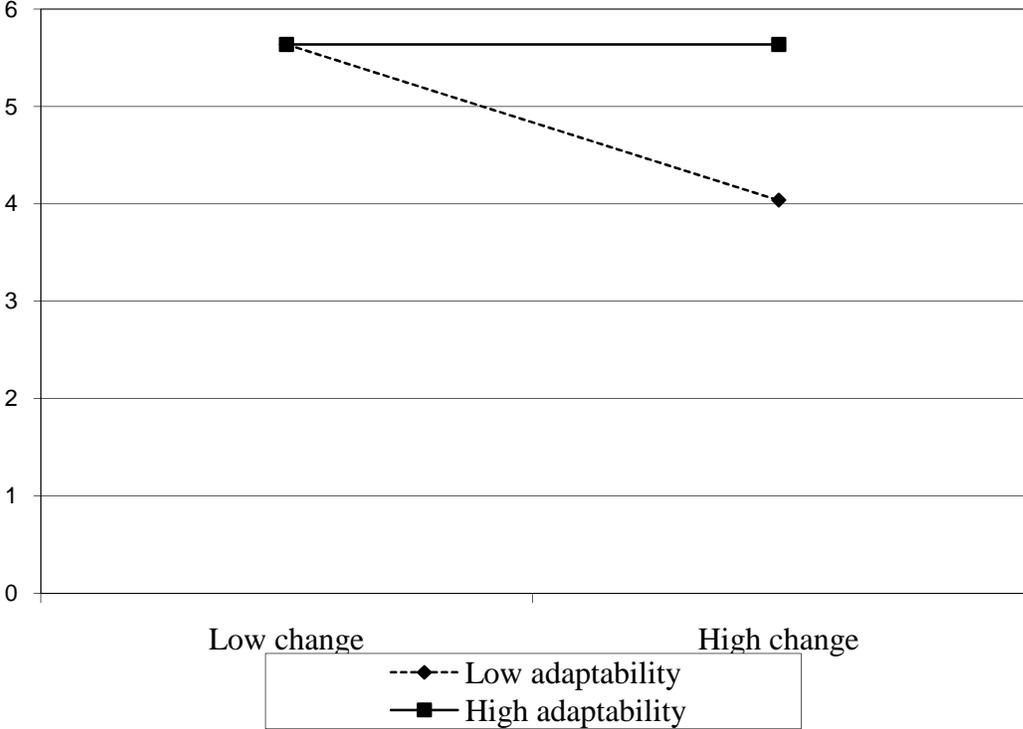


Figure 4. The moderating effect of uncertainty experiences on the relationship between Conscientiousness and uncertainty adaptability.

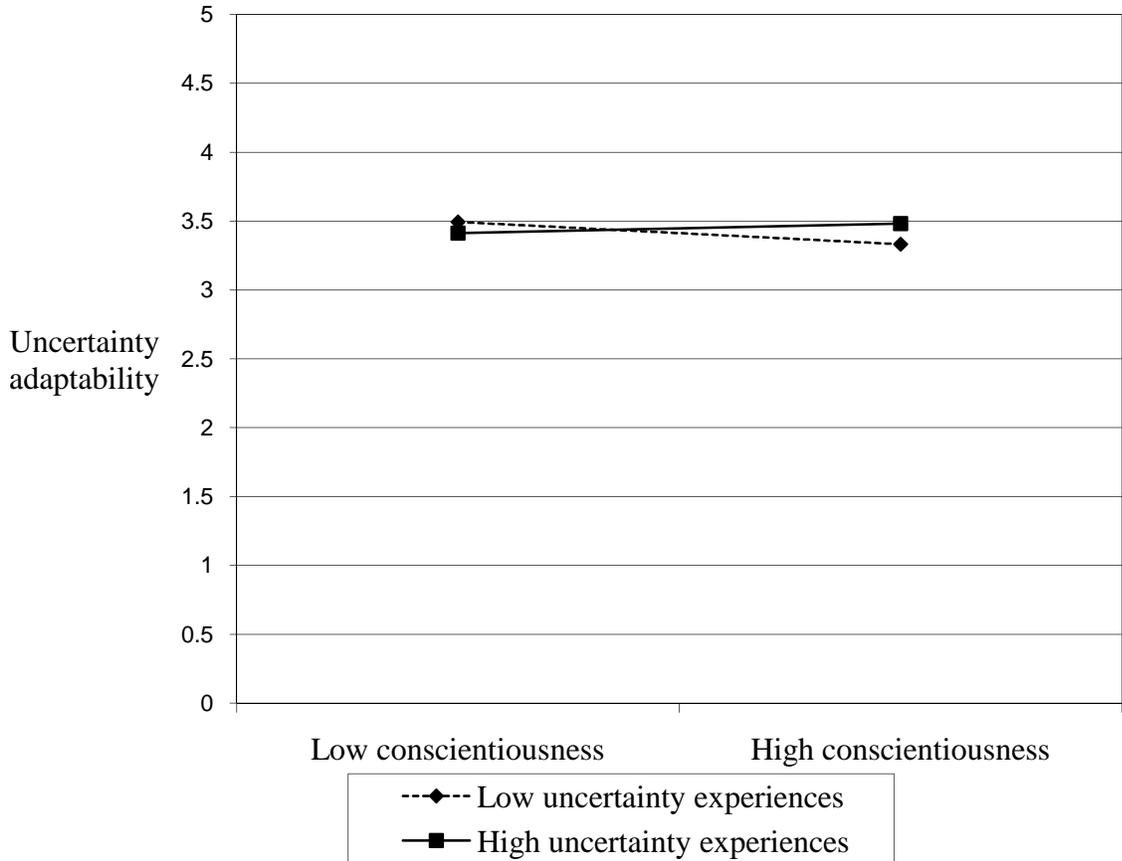
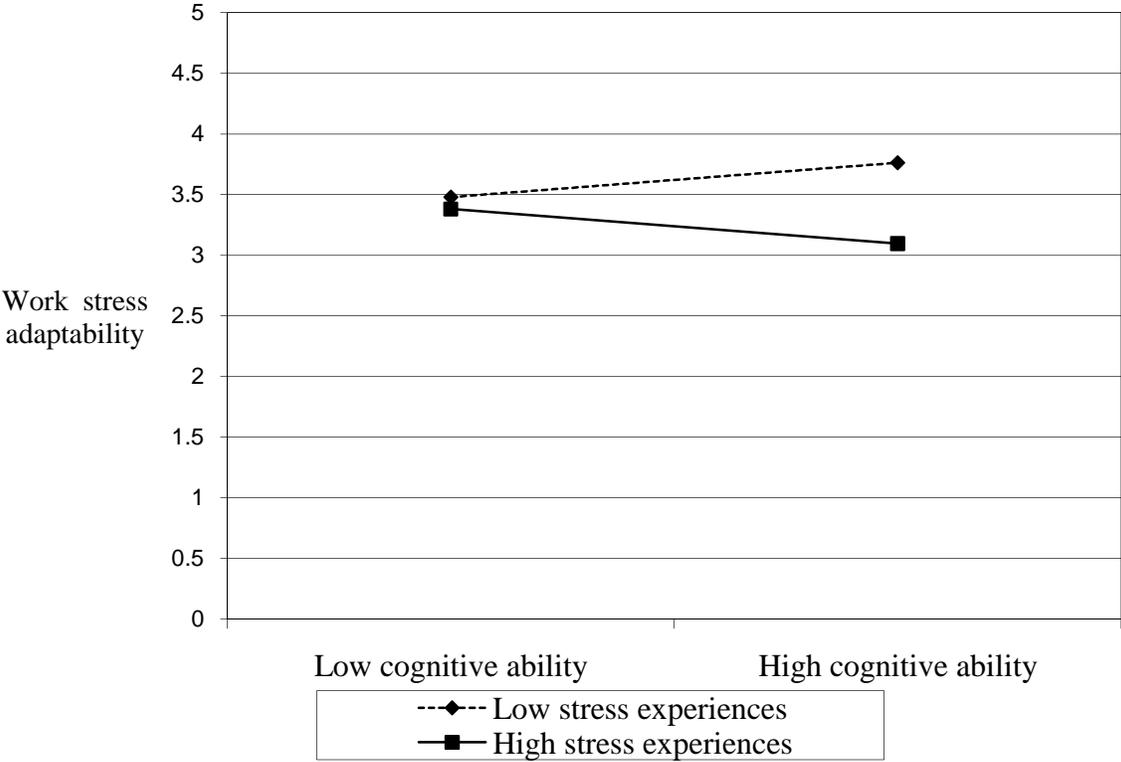


Figure 5. The moderating effect of work stress experiences on the relationship between cognitive ability and work stress adaptability.



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