


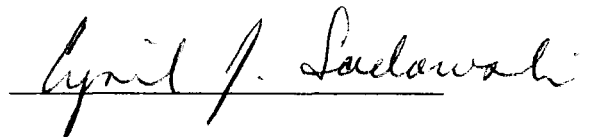
WHAT PERSONALITY CHARACTERISTICS ARE RELATED
TO PERFORMANCE ON STRESSFUL TASKS?

Veronica Vargas

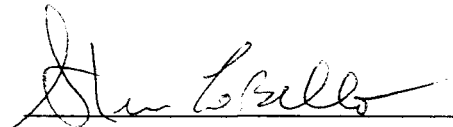
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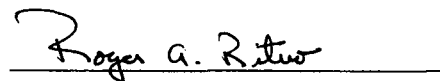
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WHAT PERSONALITY CHARACTERISTICS ARE RELATED
TO PERFORMANCE ON STRESSFUL TASKS?

Veronica Vargas

A Thesis

Submitted to

the Graduate Faculty of

Auburn University Montgomery

in Partial Fulfillment of the

Degree of

Master of Science

Montgomery, Alabama

August 4, 2001

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VITA

Veronica Vargas, daughter of Juan Vargas and Marie (Villalpando) Vargas, was born June 26, 1975, in Chicago, Ill. She attended the University of Georgia in Athens, Georgia and graduated with a Bachelor of Arts in psychology and Spanish in June, 1997. After receiving her degree, she entered the graduate program at Auburn University Montgomery in the Winter of 1999. While there she interned at a center for six months, that works to help expelled inner-city children gain the skills necessary to get back into school. During this internship, she administered, scored, and interpreted IQ tests, conducted individual therapy and group therapy, taught life skill-classes and academic classes. She also worked as an Introductory to Psychology instructor at Auburn University Montgomery for a year and a half. Later, she obtained a full-time job working for a private clinic administering psychological tests to clients, diagnosing, and writing reports under supervision. She was exposed first-hand to many different types of psychological disorders. Likewise, she helped to evaluate individuals who were applying for disability benefits, vocational rehabilitation, and clients in the community. Additionally, she had the opportunity to travel to many different schools in the surrounding regions of Montgomery, Alabama, and administer psychological tests to students to help determine if they should be placed in special education classes or gifted classes.

THESIS ABSTRACT

WHAT PERSONALITY CHARACTERISTICS ARE RELATED TO PERFORMANCE ON STRESSFUL TASK?

Veronica Vargas

Master of Science, August 4, 2001
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Directed by Sheila Mehta

This study investigates the relationship between each trait of the Five Factor Model (Neuroticism, Extraversion, Agreeableness, Conscientiousness, and Openness to Experience) and performance on a stressful task. The goal was to aid in the process of identifying the best candidate for those occupations that require employees to perform tasks under stress. Each trait of the Five Factor Model was reviewed independently. It was hypothesized that Extraversion and Neuroticism would be negatively related to performance under stress, and that Openness to Experience, Conscientiousness and Agreeableness would be positively related to performance under stress.

Data were collected from 142 students from an urban southeastern university. Participants were asked to complete the Big Five Inventory (BFI). Then they completed two timed proof-reading tasks: first a low-stress task, then a high-stress task.

Finally, they completed a questionnaire that requested information pertaining to demographics and the participants' ratings of subjective stress and subjective performance.

The results showed that Conscientiousness was positively related to performance under stress. Neuroticism, Extraversion, Openness to Experience, and Agreeableness were not found to be related to performance under stress. However, Agreeableness and Neuroticism were found to be negatively related to performance on a low-stress task, and Conscientiousness was found to be positively related to performance on a low-stress task. Also, the results indicate that personality is related to evaluations of one's own performance and to subjective evaluation of stress. The results support the general hypothesis that performance under stress is related to personality.

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A special thank you to Dr. Sheila Mehta for her guidance through all phases of this study which included countless valuable comments and suggestions on drafts, data analysis, paper organization, and a shoulder to lean on during the rough times.

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Literature Review

Introduction to the Problem

Many aspects of our personalities affect the decisions we make from day to day. These choices influence our families, our jobs, and our health. Specifically, in the workplace, certain personality characteristics may be important in the identification of the best candidate for a job. In particular, the ability to cope with stress is important to job success. Understanding which personality characteristics are related to coping with stress can help employers search for the best applicants during the interview process, and thus help prevent turnover and illness that may be related to unsuccessful stress coping. Poor stress management may be detrimental to an individual's health and lead to high blood pressure, propensity for heart attack, and emotional responses, such as anxiety, depression, and hostility (Verlander, Benedict, & Hanson, 1999). "Personality mediators ... might affect which kind of response is chosen to handle a particular stressor. These mediators include sense of time pressure, driven behavior, need for high achievement, stress-vulnerable role definitions, and the ability to relax" (Verlander et al., 1999 p. 894). In general, researchers agree that personality can be utilized to predict job performance (Hurtz & Donovan, 2000). Those individuals who best manage stress tend to remain longer in a position and to cope better with unexpected events.

Coping with Stress

Stress may be defined in three ways. It may be defined as exposure to a stimulus; a more intense stressor will create greater stress. Secondly, stress may be defined as the body's response to a demand placed upon it, or thirdly, it may be defined as a transaction

between the person and the environment (Verlander et al., 1999). The important point is that “an individual’s coping strategies and appraisal of a stressor will influence how the individual will react” (Verlander et al., 1999, p.893). The way individuals perceive a situation can also lead to how much control they believe they have over a particular task. “According to the dynamic equilibrium theory, stress results from a broad system of variables that include personality characteristics” (Hart, 1999, p.565). Part of the way in which one can see an individual’s distinct behavior toward a stressor is by simply observing the different actions taken by workers given the same task. “Many occupational stress models emphasize the point that two people who experience the same work environment may interpret the environment differently” (Bliese & Jex, 1999, p. 2). Individual behavior in the workplace occurs due to the intricate relationship between the characteristics of the environment and the individual. However, there must be some similar reactions portrayed by individuals who have shared compatible environments (Bliese & Jex, 1999). When individuals encounter a stressful event in the workplace, their responses will be largely determined by their personality characteristics and the stressor they must control in the environment.

The Big Five: An Overview

One way to determine how an individual will cope with a stressful task is to investigate how personality traits are related to performance on a stressful task. The personality traits that will be reviewed in this study were derived from Cattell’s multidimensional model of personality structure (Cattell, 1943). This model, with its many traits, was simplified into five major categories by several investigators. This more

recent model is currently known as the Five-Factor Model (John & Srivastava, 1999).

The Five Factor Model divides personality into five major categories that include

Extraversion, Neuroticism, Agreeableness, Openness to Experience, and

Conscientiousness; all five traits help to define our overall personality. By understanding

how these traits are related to stress, a better understanding of coping will be attained.

For example,

“[T]emperamental traits such as Neuroticism and Extraversion...have a direct and powerful role in the stress process...[N]euroticism is an enduring disposition to experience psychological distress which has pervasive effects on the way individuals perceive themselves and the world...[N]euroticism has been shown to influence perceptions of stress, ways of coping, satisfaction with social supports, psychological well-being, and somatic complaints” (Costa & McCrae, 1990, pp.22-23).

In a study conducted by Costa and McCrae (1990), subjects were asked to give examples of their own losses, threats, and challenges. It was found that subjects high in Neuroticism were more likely to behave in a hostile manner in reaction to a stressor and blame themselves for any shortcomings. Individuals high in Extraversion were more rational in their actions and positive in their thinking. In sum, “Neuroticism seems to correlate more strongly with negative life experiences, emotion focused coping, and indexes of psychological distress,... whereas Extraversion correlates more strongly with positive experiences, problem-focused coping, and indexes of well-being” (Hart, 1999, p. 565). Consequently, a person high in Neuroticism would be less successful at stressful

tasks, while a person high in Extraversion would be more successful at coping with stressful tasks. However, if an Extravert is given a stressful task to complete, he or she may perform poorly on this task due to speed and carelessness (Socan & Bucik, 1998).

Similarly, individuals who are high in Openness to Experience dislike routine and welcome new and innovative ideas. They seek out new experiences and are curious about new situations (McCrae & Costa, 1997). When given a stressful task to complete, these individuals would probably approach the situation with a positive and optimistic mind. Agreeable persons would also cope well under stress because they are cooperative, selfless, empathic, and unemotional. These individuals are low-stress to soothe when stressed because they do not act with high levels of emotional arousal when placed in a stressful situation (Graziano & Eisenberg, 1997). Finally, those high in Conscientiousness are achievement striving, show concern for their job, and want to do good work (Hogan & Ones, 1997). The Conscientious individual would probably find an efficient way to cope with his or her stress to promote good performance.

Through this study, we hope to gain a better understanding of those personality characteristics that promote success in performance. Specifically, this study should help identify those aspects of an individual's personality which help him or her cope constructively when placed in a situation where they must cope with a stressful task. Stress is a complex construct which has many causes, and a better understanding of it requires an overview of certain variables in an individual's personality.

The Five Factor Model of personality provides a template that researchers can use to assess trait characteristics. The broad range that each trait encompasses allows

researchers to gain insight into the domains of human functioning (Watson & Hubbard, 1996). “But neither the model itself nor the body of research findings with which it is associated constitutes a theory of personality. A theory organizes findings to tell a ... story [and] to focus [on] those issues and phenomena that can and should be explained” (McCrae & Costa, 1999, p. 140) The Five-Factor Model is an attempt to conduct such a theory that coincides with current knowledge about personality. McCrae and John (1992) argue that the Five Factor Model, although not a theory of personality, demonstrates characteristics of a theory because it points out enduring patterns in human behavior that can be quantitatively measured. In sum, the Five Factor Model can be used in the classification and assessment of personality characteristics (Watson & Hubbard, 1996).

For the purposes of the current study,

the Five Factor Model provides the following important advantages: (a) it is a very parsimonious taxonomy; (b) it is a framework for integrating results of many studies carried out to investigate the relationships between personality and work behaviors; and (c) it advances understanding of job performance by offering some personality dimensions related to all jobs and criteria (Salgado, 1997, p.39).

Barrick and Mount (1991) stated that there is a relationship between job performance and each of the divisions of the Five Factor Model. Hertz and Donovan (2000) reported that since the 1990's there has been an increase in research on the Big Five in personnel selection. The present study will investigate the relationship between the five factors of personality and coping with a stressful task. The transactional theory of stress and

coping holds that the way an individual appraises a situation helps to decide his or her coping strategies. Similarly, another perspective states that an individual's personality disposition helps to decide his or her method of coping (David & Suls, 1999). For these reasons the Five Factor Model will be utilized as a guide into finding some insight into stress and coping.

Extraversion

Extraversion is one important personality characteristic that helps to determine how an individual will react under stressful situations. For instance, according to Eysenck's theory of arousal, "Extraverts' performance on mental speed tasks should...be better in 'high-arousing' conditions, and Introverts should prefer 'low-arousing' conditions. In general, [E]xtraverts should respond more quickly, [but] less accurately than [I]ntroverts" (Socan & Bucik, 1998, p. 36). In other words, this theory suggests that Extraverts can cope better under stressful conditions and respond more quickly, however such speed leads to more incorrect responses on tasks due to impulsiveness (Socan & Bucik, 1998). The more Extraverted individuals are, the better they emotionally cope with stressful tasks, however they will still perform poorly due to a fast pace and careless responding. Although Socan and Bucik (1998) found no evidence to confirm the speed-accuracy trade-off between Extraverts and Introverts, other theorists did find evidence to suggest a relationship. These theorists defined impulsiveness as a tendency to make rapid decisions which they considered a defining characteristic of Extraversion. For example, Edman, Schalling and Levander (1983), found that impulsive subjects, had shorter reaction times and made more errors than less impulsive individuals. Likewise, Goh and

Farley (1977) “hypothesized that [I]ntroverts perform more accurately than [E]xtraverts, on the argument that...[I]ntroverts have an obsessional tendency to check and recheck their answers..., and [E]xtraverts tend to be more impulsive and careless than [I]ntroverts” (p. 113). Goh and Farley (1977) found evidence to support Eysenck’s theory of arousal in that they found Extraverts performed faster than Introverts.

Brebner and Cooper (1974) proposed a model to explain the ‘drive’ behind the Introvert and the Extravert. The Brebner-Cooper model proposes that Extraverts derived excitation from response organization and Introverts from stimulus-analysis, while Extraverts are inhibited by stimulus-analysis and Introverts by response organization. The model predicts that Extraverts will perform faster, but make more errors, than those low in Extraversion (Introverts) (Stelmack, Houlihan & Roberts, 1993). This theory suggests that Introverts and Extraverts process information differently. Katsikitis and Brebner (1980) explained that when observing individual differences, Introverts tend to inspect stimuli longer than Extraverts. Likewise, Introverts react strongly to simple physical stimulation, “an effect that may be featured in a disposition to inactivity, silence, and reclusiveness” (Stelmack, et al., 1993, p.400). Introverts spend more time making sure responses are correct, and thus take longer to complete a task, whereas Extraverts work fast and do not worry about checking their responses.

In a study conducted by Katsikitis and Brebner (1980), participants performed a task under crowded and uncrowded conditions. The researchers found that invading personal space increased the arousal level. This method also allowed the researchers to compare the effect of increased arousal on the performance of different personality traits.

The researchers had subjects look through four pages of English prose. On the first two pages of prose, they were asked to cross out every letter “A” in seven minutes. Next they were given a more difficult task to complete. They were given fourteen minutes to cross out four letters, “W,” “M,” “N,” and “C,” from the second two pages of prose. The findings supported the Brebner-Cooper model. “[E]xtraverts performed better than introverts in the low-stress task, but as the requirements for stimulus analysis from the task and stimulation from the closeness of other people increased, their performance worsened dramatically, while that of [I]ntroverted subjects changed only slightly” (Katsikitis & Brebner, 1980, p. 8).

Neuroticism

Neuroticism is another personality trait that can help determine the effectiveness of performance on a stressful task. Individuals high in Neuroticism may make more errors under stressful conditions because “one could consider Neuroticism as a distracting disposition, since autonomic and emotional reactions act as an additional set of stimuli which interfere with external stimuli and therefore disturb cognitive functioning” (Socan & Bucik, 1998, p.37). Eysenck (1967), reported that Neuroticism appeared to add to arousal level. Those high in Neuroticism will be less able to cope under stress and will perform poorly on tasks. Highly Neurotic persons have ineffective coping strategies because this factor may be defined by anxiety, anger, hostility, insecurity, and depression (Barrick & Mount, 1991). In other words, they lack the necessary skills to face a challenge optimistically and productively. If highly Neurotic individuals are placed in a stressful situation, one would expect inevitably poor

performance on a task based on the coupling effect of the stressor and the individual's disposition. This idea is supported by the Yerkes-Dodson Law which "suggests that moderate arousal increase will be beneficial to subjects low in Neuroticism but detrimental to subjects high in Neuroticism" (Farmer, Hunter, & Belyavin, 1984, p. 876). Terry, Fore, and Haase (1993) and Socan and Bucik (1998) explained that the arousal levels of Neurotics was higher than the average levels of cortical arousal, thus further arousal caused by a stressful task would catapult the highly Neurotic individual over the optimal point. Therefore, the highly Neurotic individual would perform poorly on a stressful task. Goh and Farley (1977) also utilized the Yerkes-Dodson principle to explain that "the combination of high Neuroticism and experimentally generated anxiety (i.e., time stress) would be expected to interfere with effective performance" (p. 113). For these reasons, a person high in Neuroticism will be less successful at difficult and stressful tasks.

Summary of Extraversion and Neuroticism

There is a large amount of research that focuses on the combination of Extraversion and Neuroticism (e.g., Goh & Farley, 1977; Socan & Bucik, 1998; Terry, Fore & Haase, 1993), however, the present study will be looking at Neuroticism and Extraversion in isolation. Basically, the literature on Extraversion and Neuroticism suggests that individuals high in Extraversion will be better able to cope under stressful conditions when compared to neurotic individuals, however, both will perform poorly. Although Extraverts cope better under stressful conditions, they will make errors due to their haste and their not being careful at the tasks they are trying to complete. Likewise,

both Neurotics and Extraverts will commit errors due to the overstimulation they experience when placed in a stressful situation (Socan & Bucik, 1998). Therefore, I suspect that individuals high in Extraversion will perform poorly on stressful tasks. Similarly, those individuals who are high in Neuroticism will also produce much failure under straining conditions. In sum, I propose that high levels of Neuroticism and high levels of Extraversion will lead to poor performance on stressful tasks.

Openness to Experience

Another dimension of an individual's personality that is identified in the Five Factor Model is Openness to Experience. Individuals who express high levels of Openness to Experience have been described as creative, original, and having an "active imagination, aesthetic sensitivity, intellectual curiosity, broad scope and intensity of interests, and independent of judgement" (Lindley & Borgen, 2000, p.23). Due to these qualities, those high on Openness to Experience may have less difficulty coping with difficult situations. Individuals high on Openness to Experience should be able to approach a stressful task optimistically and this attitude should in turn lead to success on a stressful task. In fact, those high on Openness to Experience have flexible coping strategies and are able to tailor their coping tactics with the demands of a stressor (O'Brien & DeLongis, 1996). Costa and McCrae (1992) stated that those who score high on Openness to Experience tend to be more flexible and imaginative than low scorers. High scorers should, therefore, demonstrate a greater ability to find ways to cope under stress. Likewise, individuals high on Openness to Experience are characterized as having little concern over a structured work environment and are more interested in the

Based on the findings that those high on Conscientiousness are careful and meticulous, one would suspect that these individuals cope well under stress because they devise cautious methods to help themselves under these conditions (Watson & Hubbard, 1996). According to Watson and Hubbard (1996), Conscientious individuals engage in active planning and problem solving. Similarly, individuals high on Conscientiousness are characterized as being alert, determined, hard-working, self-disciplined, and reliable (David & Suls, 1999; Watson & Hubbard, 1996). Therefore, Conscientious people are most likely to be able to perform well on a stressful task, because “people with high [Conscientiousness] scores tend to use more problem-focused coping strategies including active coping, planning, suppression of competing activities, and restraint coping” (David & Suls, 1999, p.269).

Likewise, of the five personality traits that form the Five Factor Model, Conscientiousness has been shown to most closely predict how a person will perform at work (Gellatly, 1996). In fact, most researchers believe that Conscientiousness represents the primary personality dimension to use in personnel selection (Hurtz & Donovan, 2000). Barrick and Mount (1991) found results to indicate that Conscientiousness is related to job performance for different types of occupational groups such as professionals, managers, sales, and the skilled/ semi-skilled. Consequently, managers may profit from learning about the relationship between Conscientiousness and task performance, especially if they wish to promote these behavioral traits in their employees (Gellatly, 1996). A study conducted by Gellatly (1996) found that high Conscientious individuals believe that they can perform a task successfully and therefore set higher

personal goals for themselves when compared to those low on Conscientiousness.

Therefore, we suspect that those high on Conscientiousness will be better able to perform successfully when placed under a stressful task.

Agreeableness

Agreeableness is the last trait of the Five Factor Model that further helps to describe human personality. However, the literature on Agreeableness and stress is limited. In fact, numerous studies reveal that Agreeableness is an underlying factor of personality when discussing descriptions of the self and peers (Graziano & Eisenberg, 1997). Some theorists have even suggested that Agreeableness is not a personality characteristic because it is concerned with social relationships (Graziano, Hair, & Finch, 1997). However, most theorists agree that this personality dimension does exist and is associated with traits such as “being courteous, flexible, trusting, good-natured, cooperative, forgiving, soft-hearted, and tolerant” (Barrick & Mount, 1991, p. 4).

Even though the literature on Agreeableness and stress is limited, the findings on the nature of Agreeableness provide insight into possible implications for coping strategies under a stressful task. Individuals who demonstrate high levels of Agreeableness are good-natured, cooperative and trusting (Neuman & Wright, 1999). Costa and McCrae (1989) stated that Agreeableness can be defined by six characteristics. The first suggests that Agreeable people trust others and avoid seeing others as having malicious or vindictive qualities. Secondly, they are straightforward and frank. Thirdly, they display altruistic qualities in which they show care and concern for others. Fourthly they are compliant people. Agreeable individuals seek to cooperate, especially when

trying to avoid conflict. A fifth characteristic is that they are modest. They are not arrogant or haughty in nature, and instead choose to demonstrate social humility. Finally, Agreeable individuals are tender-minded. They are able to sympathize and empathize with others.

In sum, “Agreeableness concerns the degree to which individuals are cooperative, warm, and agreeable versus cold disagreeable and antagonistic” (Salgado, 1997, p. 30). Highly Agreeable people are more highly motivated to maintain social harmony. Therefore, I hypothesize that those high in Agreeableness will perform successfully on a stressful task because they have characteristics that suggest they are cooperative, amiable, and avoid negative thoughts and consequences.

Purpose of the study

The purpose of this research is to identify and to better understand how different aspects of personality affect performance on stressful tasks. In particular, the study is concerned with determining how the traits of the Five Factor Model, Extraversion, Neuroticism, Openness to Experience, Conscientiousness, and Agreeableness, help or hinder a person’s performance on a stressful task. Research participants will be asked to complete two different tasks. The first task they perform will be low-stress and the second task will be more difficult. They will be given the same amount of time to complete each task. This design will enable the determination of those traits that are associated with coping the best under a stressful condition, and therefore, make it possible to identify individuals who are more prone to reach an optimal level of performance at stressful tasks.

Explanation of Hypotheses

It is assumed that better performance on a stressful task indicates good coping skills, because participants are able to succeed in unfavorable conditions. Likewise, poor performance on a stressful task indicates poor coping because these individuals are unable to perform well at a stressful task. Therefore, for the purpose of this study, I define coping as being able to perform well under stressful conditions. Performance is defined as accuracy on a stressful task. I propose that the more Extraverted the individual, the more poorly he or she will perform on a high-stress task. As mentioned previously in Farmer et al. (1984), under levels of high stress, Extraverts will make errors on tasks due to a fast pace in work, while Introverts perform well under stressful conditions because they inspect the task longer and take more time trying to get correct responses. Therefore, Extraverts will not be careful in responding correctly due to haste.

Additionally, it is hypothesized that the more Neurotic individuals are, the more poorly they will perform under high-stress conditions. Mehrabian (1977), suggested that those high in Neuroticism do not screen out irrelevant information. Therefore, these individuals may spend more time focusing on material that eventually will lead to incorrect responses. As suggested by Socan and Bucik (1998), Neurotics already have a distracting disposition in which their emotional and psychological states disturb cognitive functioning, and basically, their mentality interferes with any task they may have to perform, especially those high in stress. “[W]orry and susceptibility to stress, which are regarded as important elements of Neuroticism, [may] adversely influence

cognitive performance” (Stelmack, et al., 1993, p.401). Consequently, I propose that the higher the Neuroticism, the poorer the performance under conditions of high stress.

Similarly, I hypothesize that the more Conscientious the individual the better he or she will perform under stressful conditions, because those high in Conscientiousness are hard-working, meticulous, and careful. Those high on Conscientiousness cope well under stressful conditions because they use problem-focused coping rather than emotion-focused coping (O’Brien & DeLongis, 1996). In other words, they concentrate on solving the problem, that in turn removes the stressor, rather than placing too much personal value on a problem, which may not prove to be constructive in completing a task successfully.

Likewise, I propose that the more Open to Experience individuals are, the better their performance under stressful conditions. People high on Openness to Experience demonstrate broad minded and curious views about the world around them (Barrick & Mount, 1991). Therefore, one can assume that those high in Openness to Experience would approach a stressful task optimistically and with interest, and they would consequently perform well.

Finally, I hypothesize that the more Agreeable the individual, the better the performance on a stressful task. Those high in Agreeableness are good-natured, warm, and empathic (Barrick & Mount 1991). Likewise, these individuals are trusting. (Neuman & Wright, 1999). All of these characteristics suggest that someone high in Agreeableness will cope well under stressful conditions because they avoid negative and self-defeating

thoughts. Consequently, I hypothesize that those individuals who display higher levels of Agreeableness will perform well under a stressful task.

Hypotheses

In conclusion, this study will attempt to help explain how an individual's personality traits are related to performance on a stressful task. Individuals who volunteer to participate will be asked to complete a low-stress task and a high-stress task. The time limit will be held constant. It is expected that the difficult task will create a high-stress situation for participants, and that the simple task will create a low-stress situation. The hypotheses for the current study are:

1. Extraversion will be negatively related to performance under stress.
2. Neuroticism will be negatively related to performance under stress.
3. Openness to Experience will be positively related to performance under stress.
4. Conscientiousness will be positively related to performance under stress.
5. Agreeableness will be positively related to performance under stress.

This study should determine those personality traits that are associated with successful performance of a stressful task.

Method

Participants

Data were collected from 142 students from an urban southeastern university. Females comprised 70% of the sample. The majority of the participants were freshman and sophomores (73%). The ethnic composition was Caucasian (56 %), African American/ Black (37%), Asian/Pacific Islander (3 %), and Latino (3 %). The ages of participants ranged from 18 to 65. The median age was 20. The mean was 23.7.

Materials

This study required participants to complete a personality inventory (Appendix A), two clerical tasks: a low-stress one and a high-stress one (Appendices B & C), and a questionnaire (Appendix D). The personality inventory used for the present study was The Big Five Inventory (BFI) as constructed by John, Donahue and Kentle (1991). The BFI was utilized to determine their levels of Extraversion, Neuroticism, Conscientiousness, Openness to Experience, and Agreeableness. The clerical tasks consisted of crossing out target letters in a page of text. The time allowed on both tasks was four minutes. The samples of English prose for the low-stress task and the difficult task were taken from *The Norton Anthology English Literature, 7th Edition, Volume 2* (Abrams & Greenblatt, 2000). On the low-stress task, participants were asked to read through a page of English prose and cross out every letter “A.” On the difficult task, participants were asked to cross out four letters, “W,” “M,” “N,” and “C,” as was modeled after the experiment of Katsikitis and Brebner (1980). A stop watch with a

beeper was used to announce the end of the allowed time. At the end of the timed tasks, the announcer said “stop.” Tasks were administered in a classroom setting.

Procedure

This study included several groups of undergraduate participants. Each group contained approximately 15-20 individuals. All groups were first given an informed consent form, in which they were told that their participation is voluntary and they may withdraw at any time without penalty (See Appendix E). Then, participants were asked to complete the Big Five Inventory (BFI), after which, they were asked to complete two proofreading tasks, and finally, they filled out a questionnaire. After the BFI was completed, participants were given four minutes to complete a low-stress task. The low-stress task consisted of crossing through all the letters “A” on a page of English prose. Once this first task was completed, participants were told to flip the page to the second task. They were asked to sit up in their chairs or position themselves in a way in which they knew they could write fast. They were also told that the second task was a “race against the clock” and would help to assess the visual motor skills of college students. The administrator began the task with the words, “on your marks, get set, go!” The second task was the high-stress task. Participants were given four minutes to mark a line through all the letters “W,” “M,” “N,” and “C” within a page of English prose. The two tasks were not counterbalanced to avoid a carry-over affect from the high-stress task to the low-stress task. Therefore, the order of task administrations was held constant. The tasks were administered in a classroom setting.

Measures

The Big Five Inventory (BFI) was selected for various reasons. First of all, the BFI measures Conscientiousness, Neuroticism, Extraversion, Openness to Experience, and Agreeableness. The BFI has a coefficient alpha reliability of .83 and a confirmatory factor analysis (CFA) average of .92 (John & Srivastava, 1999). This standardized validity coefficient suggests that the BFI “captures the core characteristics of the Big Five” (John & Srivastava, 1999, p. 118). “In U.S. and Canadian samples the alpha reliabilities of the BFI scales typically range from .75 to .90 and average above .80; three-month test-retest reliabilities range from .80 to .90 with a mean of .85” (John & Srivastava, 1999, p.115). Likewise, the BFI is a brief, flexible, and efficient tool that takes approximately 5 minutes of administration time (John & Srivastava, 1999). It contains 44 short statements about personality. Participants are asked to rate each statement on a five-point scale from 1(disagree strongly) to 5 (agree strongly). The BFI is presented in its entirety in Appendix A.

Performance on the tasks was scored by taking the number of target letters correctly crossed out and subtracting by the number of wrong letters crossed out. Then that number was divided by the total number of target letters for that task. The low-stress task had a total of 178 target letters and the high-stress task had a total of 321 target letters. The tasks are presented in Appendices B and C.

Finally, all research participants were also asked to complete an 8-item questionnaire constructed by the author. The questionnaire included demographic information regarding age, sex, class standing, and ethnic background. Included were

four subjective questions. Two of the questions asked how stressful the participant found the low-stress task and how stressful he or she found the high-stress task. The remaining two questions asked how well participants believed they performed on the low-stress task and how well they believed they performed on the high-stress task. Participants were asked to rate each item on a six-point scale from 1(not at all stressful / not at all well) to 6 (extremely stressful / extremely well). The questionnaire is presented in Appendix D.

Results

The results of the current study support the general hypothesis that performance under stress is related to personality. Conscientiousness is positively related to performance under stress. The four hypotheses, regarding Neuroticism, Extraversion, Openness to Experience, and Agreeableness were not supported.

A Cronbach coefficient alpha was used to determine the reliability of the BFI based on the present sample. The findings were similar to those of John and Strivasta (1999), with only a few discrepancies. They found the BFI scales ranged from .75 to .90 and that Extraversion, Conscientiousness, and Neuroticism were most reliably measured, whereas Agreeableness and Openness to Experience were less reliable. The data from this study show that Extraversion had a reliability of .80, Agreeableness of .78, Conscientiousness of .75, Neuroticism of .82, and openness of .81, indicating that the subscales were sufficiently reliable.

Manipulation Check

Participants were asked to complete a low-stress task and a mildly stressful task that is referred to as the high-stress task. To assess whether the researcher was successful in creating two distinct conditions, three measures were used. First, participants' performance on the two tasks were compared. The means and standard deviations can be seen in Table 1. A paired t-test was used to compare performance on the low-stress task to performance on the high-stress task. Results of this paired t-test indicate that participants performed better on the low-stress task (mean=76.11) than they did on the high-stress task (mean=34.47), $t(141)=41.32$, $p<.0001$. Second, participants' subjective

performance on the low-stress task was compared to their subjective performance on the high-stress task. Participants were asked to rate how well they thought they did on a scale of 1 to 6, with 1 being “not at all well” to 6 being “extremely well.” Results of the paired t-test showed that participants estimated that they did better on the low-stress task (mean=4.62) than they did on the high-stress task (mean=2.96), $t(141)=15.57$, $p<.0001$. Third, participants’ subjective stress on the low-stress task was compared to their subjective stress on the high-stress task. Participants were asked to rate how stressful they found the task on a scale of 1 to 6, with 1 being “not at all stressful” and 6 being “extremely stressful.” Results of the paired t-test indicate that participants found the high-stress task more stressful (mean=3.86) than they found the low-stress task (mean=2.50), $t(141)= 10.74$, $p<.0001$. These results indicate that two distinct conditions were created: one low-stress task and one more difficult, more stressful task.

Table 1Means and Standard Deviations for the Predictor Variables and Dependent Variables

<u>Variables</u>	<u>Mean</u>	<u>Standard Deviation</u>
Low-Stress Task	76.12	14.07
High-Stress Task	34.47	8.91
Difference Score-Performance	41.63	12.01
Subjective Stress: Low-Stress Task	2.50	1.31
Subjective Stress: High-Stress Task	3.86	1.54
Difference Score: Subjective Stress	-1.36	1.51
Subjective Performance: Low-Stress Task	4.62	1.07
Subjective Performance: High-Stress Task	2.96	1.13
Difference Score: Subjective Performance	1.65	1.27
Extraversion	3.23	.77
Agreeableness	3.98	.64
Conscientiousness	3.79	.60
Neuroticism	2.91	.82
Openness to Experience	3.69	.66

Interrelationships Among the Independent Variables

To examine the interrelationships among the scales on the BFI, Pearson correlations were performed. The results of this correlation matrix may be seen in Table 2.

Table 2

Pearson Correlation Coefficients for BFI Subscales

	Extraversion	Agreeableness	Conscientiousness	Neuroticism	Openness
Extraversion	1.00	-.04	.11	-.28***	.25***
Agreeableness		1.00	.42***	-.32***	-.09
Conscientiousness			1.00	-.26***	.05
Neuroticism				1.00	-.06
Openness					1.00

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

These results show that Extraversion is positively correlated with Openness to Experience and negatively correlated with Neuroticism; Agreeableness is positively correlated with Conscientiousness and negatively with Neuroticism; and Conscientiousness is negatively correlated with Neuroticism.

Interrelationships Among the Dependent Variables

To examine the interrelationships among the dependent variables, Pearson correlations were performed. The results of this correlation matrix can be seen in Table 3.

Table 3

Pearson Correlation Coefficients for the Dependent Variables

	Performance: L-S Task	Performance: H-S Task	Subjective Performance: L-S Task	Subjective Performance: H-S Task	Subjective Stress: L-S Task	Subjective Stress: H-S Task
Performance: L-S Task	1.00	.53***	.43***	.06	-.38***	-.12
Performance: H-S Task		1.00	.15	.11	-.15	-.21**
Subjective Performance: L-S Task			1.00	.34***	-.30***	.00
Subjective Performance: H-S Task				1.00	-.07	-.25***
Subjective Stress: L-S Task					1.00	.45***
Subjective Stress: H-S Task						1.00

L-S Task = Low-Stress Task. H-S Task = High-Stress Task.

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

These results show that performance on the low-stress task is positively correlated with performance on the high-stress task and subjective performance on the low-stress task, and it is negatively correlated with stress on the low-stress task. These results mean that the better participants did on the low-stress task, the better they thought they did, the less stress they felt, and the better they did on the high-stress task.

Performance on the high-stress task was negatively correlated with stress on the high-stress task. These results mean that the better participants did on the high-stress task, the less stress they felt. Their performance on the high-stress task was surprisingly not related to their subjective performance on this task. Subjective performance on the low-stress task was negatively correlated with stress on the low-stress task and positively correlated with subjective performance on the high-stress task. These results mean that the better participants thought they did on the low-stress task, the less stress they felt, and the better they thought they did on the high-stress task. Subjective performance on the high-stress task was negatively correlated with stress on the high-stress task, indicating that the better participants thought they did on the high-stress task, the less stress they felt. Finally, stress on the low-stress task was positively correlated with stress on the high-stress task. This result indicates that the more stress participants felt during the low-stress task, the more stress they felt during the high-stress task.

Relationship Between Personality and Performance

Next, multiple regression analyses were conducted to assess whether personality factors were related to participants' actual performance, subjective performance, and perceived stress. To assess whether personality was related to performance, performance

scores were regressed onto the BFI subscales. First, the relationship between the five personality factors and performance on the low-stress task was assessed.

Table 4

Multiple Regression of Low-Stress Task Performance Across the Five Subscales of the BFI

Predictor Variable	Raw Beta	Standard Beta	<i>t</i>	<i>p</i>
Extraversion	2.47	.135	1.61	.12
Agreeableness	-3.93	-.18	-2.01	.05
Conscientiousness	8.04	.34	3.96	.00
Neuroticism	-3.07	-.18	-2.06	.04
Openness	-2.61	-.12	-1.53	.13

As can be seen in Table 4, when the five BFI personality factors were used to predict actual performance on the low-stress task, Agreeableness, Conscientiousness, and Neuroticism were significantly related to performance. The more conscientious, the less agreeable, and the less neurotic, an individual is the better his or her performance on a low-stress task. The R^2 was .18, indicating that the five personality traits accounted for 18% of the variance in the performance scores.

Next, the relationship between the five personality factors and performance on the high-stress task was assessed.

Table 5Multiple Regression of High-Stress Task Performance Across the Five Subscales of the BFI

Predictor Variable	Raw Beta	Standard Beta	<i>t</i>	<i>p</i>
Extraversion	.78	.07	.74	.46
Agreeableness	-1.40	-.10	-1.05	.30
Conscientiousness	3.11	.21	2.24	.03
Neuroticism	-.03	-.00	-.03	.98
Openness	-1.16	-.09	-1.00	.32

As can be seen in Table 5, when the five BFI personality factors were used to predict performance on the high-stress task, Conscientiousness was related to performance on a high-stress task. The more conscientious an individual is, the better his or her performance on the high-stress task. The R^2 was .05, indicating that differences in personality account for 5% of the variance in the performance scores.

To further assess the relationship between personality and performance under stress, it was necessary to take into account the difference between an individual's performance on the low-stress task and the high-stress task. To create a difference score, the high-stress task performance score was subtracted from the low-stress task performance score. Pearson correlations were performed to examine the relationships among low-stress, high-stress, and difference scores to the BFI subscales.

Table 6Pearson Correlation Coefficients of BFI Subscales and the Low-Stress Task, High Stress Task, and the Difference Score

	Low-Stress	High-Stress	Difference Score
Extraversion	.20*	.75	.18*
Agreeableness	.02	-.01	.03
Conscientiousness	.33***	.17*	.25***
Neuroticism	-.24***	-.04	-.25***
Openness to Experience	-.05	-.05	-.02

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

Table 6 shows the relationship between personality traits and the amount of decline in performance from the low-stress task to the high-stress task. Extraversion and Conscientiousness were positively related to the size of the decline and Neuroticism was negatively related. These results suggest that the more Extraverted, the more Conscientious, and the less Neurotic the individual, the greater was his or her decline in performance on the high-stress task relative to performance on the low-stress task. The most likely explanation for these results is that the low conscientious and high neurotic people performed so poorly on the low-stress task that their decline under stress is less pronounced than the highly conscientious and low neurotic people who performed well.

These people, though their performance under stress declines more perceptibly, most likely are still performing better overall.

Relationship Between Personality and Subjective Performance

To assess the relationship between personality and subjective performance, a multiple regression analysis was conducted using subjective performance on the low-stress task as the criterion and the BFI subscales as the predictors.

Table 7

Multiple Regression of Subjective Performance on the Low-Stress Task Across the Five Subscales of the BFI

Predictor Variable	Raw Beta	Standard Beta	<i>t</i>	<i>p</i>
Extraversion	.09	.06	.72	.48
Agreeableness	-.20	-.12	-1.29	.20
Conscientiousness	.41	.23	2.58	.01
Neuroticism	-.28	-.21	-2.34	.02
Openness	.02	.01	.14	.89

As can be seen in Table 7, Conscientiousness was positively related to subjective performance and Neuroticism was negatively related. These results indicate that personality is related to evaluations of one's own performance. The more Conscientious an individual is, the higher his or her subjective performance evaluation. The more

Neurotic an individual is, the lower is his or her subjective performance evaluation.

The R^2 was .12, indicating that differences in personality traits accounted for 12% of the variance in the performance scores.

To assess the relationship between personality and subjective performance under stress, a multiple regression was performed, with subjective performance on the high-stress task as the criterion and BFI subscales as the predictors.

Table 8

Multiple Regression of Subjective Performance on the High-Stress Task Across the Five Subscales of the BFI

Predictor Variable	Raw Beta	Standard Beta	<i>t</i>	<i>p</i>
Extraversion	.00	.00	.02	.98
Agreeableness	.03	.02	.16	.88
Conscientiousness	.23	.12	1.33	.19
Neuroticism	-.23	-.17	-1.82	.07
Openness	.16	.09	1.09	.28

As can be seen in Table 8, except for Neuroticism, none of the personality factors was related to subjective performance under stress. There was a non-significant trend for Neuroticism to be negatively correlated with subjective performance. These results suggest that under stress, all individuals' performance evaluations are affected,

regardless of personality. The R^2 was .07, indicating that personality accounted for 7% of the variance in performance.

Relationship Between Personality and Subjective Stress

To assess the relationship between personality and subjective stress, a multiple regression analysis was conducted using subjective stress on the low-stress task as the criterion and the BFI subscales as the predictor variables.

Table 9

Multiple Regression of Subjective Stress on the Low-Stress Task Across the Five Subscales of the BFI

Predictor Variable	Raw Beta	Standard Beta	<i>t</i>	<i>p</i>
Extraversion	.06	.04	.42	.67
Agreeableness	.19	.09	1.01	.31
Conscientiousness	-.49	-.22	-2.51	.01
Neuroticism	.46	.29	3.21	.00
Openness	.05	.03	.32	.75

As can be seen in Table 9, Conscientiousness was negatively correlated with subjective stress and Neuroticism was positively correlated. These results suggest that personality is related to subjective evaluations of stress. The more conscientious and the less neurotic individuals are, the less stress they report while performing a low-stress

task. The R^2 was .13, indicating that personality accounted for 13% of the variance in performance.

To further assess the relationship between personality and subjective stress, a second multiple regression was performed, with subjective stress on the high-stress task as the criterion and the BFI subscales as the predictor variables. None of the personality factors was related to subjective stress. These results suggest that stress affects all individuals across the board, regardless of differences in personality. It is how one actually performs a difficult task that affects one's feelings of stress, rather than one's personality.

Summary

To summarize, personality is related to actual performance, subjective performance, and subjective stress. But personality plays a more prominent role while performing a relatively low-stress task than a more difficult task. On a low-stress task, agreeableness, conscientiousness, and neuroticism are related to actual performance. Likewise, conscientiousness and neuroticism are related to subjective performance and subjective stress on an low-stress task. On a more stressful task, only conscientiousness is related to actual performance. With the possible exception of neuroticism, personality factors do not affect people's evaluations of their performance on a high-stress task nor is personality related to subjective stress when performing a stressful task. Instead, stress affects the subjective experience of all individuals.

Discussion

The main purpose of the current study was to identify those personality traits that relate to performing well under stress. Specifically, the goal was to aid in the process of finding the best candidate for those occupations that require employees to perform tasks under stress. Barrick and Mount (1991) reported that the five factors of personality, neuroticism, extraversion, conscientiousness, agreeableness, and openness to experience were related to job performance. The current findings supported Barrick and Mount (1991) and further extended the inquiry to include stress. This study found that personality very much affects performance under optimal conditions. But, under stressful conditions the effect of personality dissipates, with the exception of conscientiousness. The first two hypotheses were that extraversion and neuroticism would be negatively related to performance under stress. The other three hypotheses stated that openness to experience, conscientiousness and agreeableness would be positively related to performance under stress. In the current study, the hypothesis on conscientiousness was supported. The present study found that the more conscientious the individual was, the better his or her performance on a stressful task.

Conscientiousness

The strongest findings pertain to the conscientious trait. The current study showed that when placed under stress, those who are conscientious demonstrate better performance, and thus better coping than individuals low in conscientiousness. Therefore, the more conscientious one is, the better one's performance under stress.

Those who are conscientious have been described as dependable, careful, responsible, planful, reliable, hard working, well-organized, purposeful, and industrious (Barrick & Mount, 1991; O'Brien & DeLongis, 1996). Hertz and Donovan (2000) stated that the construct of conscientiousness seems to logically relate to job performance because these are thorough, hard-working individuals. In fact, the majority of research on conscientiousness demonstrates a positive relationship with performance (e.g., Barrick & Mount, 1991; David & Suls, 1999; Gellatly, 1996; Hertz & Donovan, 2000; Watson & Hubbard, 1996). Likewise, O'Brien and DeLongis (1996) found that highly conscientious individuals seem to cope using planful problem solving methods instead of escape-avoidance and self-blaming strategies. These researchers found evidence to suggest that high conscientiousness defines "one who faces a stressor straight on, figures out what needs to be done, and then carries the plan through" (p. 807). The present study corroborates these findings and offers further evidence that conscientious individuals perform successfully when given a stressful task.

Another interesting finding was that conscientious individuals believed they performed well on low stress tasks and reported low stress levels on low stress tasks. This finding suggests that the conscientious individual seems to be confident on tasks that are manageable and non-threatening. These findings support Watson and Hubbard (1996), who found that conscientious individuals cope by "engag[ing] in active planning and problem-solving" (p. 762). Although the present study found no significant evidence on subjective stress and performance of stressful tasks for the conscientious individual, significant findings were found that suggest that conscientious individuals perform well

when placed under stress. In other words, regardless of their subjective ratings on their stress levels and how well they believed they performed on the stressful task, in the end, the conscientious individual coped successfully.

Neuroticism

Using terms such as anger, anxiety, depression, insecurity and worrisome, scholars (e.g., Barrick & Mount, 1991) have described the neurotic individual as emotionally unstable. The present study found evidence to suggest that neurotics perform poorly on a low-stress task, which supports the ideology of Socan and Bucik (1998) who “argue that high neuroticism deteriorates efficiency of the central decision mechanisms” (p. 46). The present findings are also consistent with Barrick and Mount (1991), who state that neurotics have poor coping skills. These researchers found that emotional stability predicts how well a person believes he or she performs on job tasks. In general, the characteristics of neuroticism “hinder successful performance” (p. 6). The present study had similar results because findings demonstrated that the more neurotic the individual, the less well he or she perceived performance on a stressful task. Also, the current study found that more neurotic individuals find tasks more stressful. Therefore, neuroticism is a good predictor of performance.

The findings in the current study suggest that the less neurotic the individual, the better his or her performance on a low-stress task. Upon initial consideration, these findings do not seem to support the Yerkes-Dodson Law as suggested by several researchers (e.g., Farmer, Hunter, & Belyavin, 1984; Goh & Farley, 1977; Socan & Bucick, 1998; Terry Fore & Haase, 1993). Perhaps because the low-stress task in the

present study may not have been an optimal tool to demonstrate low levels of arousal. According to these researchers, neuroticism is an arousing disposition, therefore low neuroticism would demonstrate low arousal on a low-stress task, and thus low performance, whereas, high neuroticism would demonstrate high levels arousal when coupled with a stressful task, thus producing over-arousal, and therefore, poor performance. Although the low-stress task in this study was shown to be less stressful than the difficult task, these findings do not suggest that the low-stress task created low levels of arousal in individuals. Therefore the present study does not contradict the Yerkes-Dodson Law.

Barrick and Mount (1991) made a crucial point that was not addressed in the present study. They found that “individuals who are worrying, nervous, emotional, and high-strung are better performers in [professional type] jobs...[perhaps because] in some professional jobs, pressures related to high performance cause the individual to display neurotic traits” (p.20). The present study was not able to confirm or contradict the findings of Barrick and Mount (1991). However, it is important to note that even though neurotic traits are exhibited by individuals in professional jobs, neuroticism may not be a characteristic of their personality. In other words, anyone who is placed in a stressful job may exhibit neurotic traits such as nervousness, and anxiety; these characteristics do not mean that the individual is neurotic.

Agreeableness, Extraversion, and Openness to Experience

The remaining hypotheses on agreeableness, extraversion, and openness to experience were not supported. However, these findings do not mean that these traits are

unrelated to performance under stress. First of all, those individuals who are high in extraversion, agreeableness, and openness to experience may prove to cope better under stress when the task is related to social pressures. Costa and McCrae (1989) defined agreeable people as altruistic, compliant, cooperative, and straight forward. It seems that these individuals may focus more energy on pleasing others and promoting social unity rather than focusing completely on the present job task. In fact, the present study found that the more agreeable the individual was, the worse the performance on a non-stressful task. In other words, these findings suggest that individuals who are less agreeable perform better on a task perhaps because they focus their energy less on being amiable and compliant and more on getting the job done. Barrick and Mount (1991) found that agreeableness was a poor predictor of job performance, even in jobs such as sales or management where strong social attributes are needed. Likewise, Graziano, Hair, and Finch (1997) explained that perhaps individuals low in agreeableness do not see themselves as dependent upon others and are “competitive in response to goal structures” (p.1406). Therefore, it appears that highly agreeable people may perform poorly on a task due to their social nature. However, the present study found no evidence to suggest that highly agreeable people perform poorly on a stressful task, and the literature on this topic is scant. For this reason, more literature should focus on the relationship between agreeableness and stress.

Similarly, the present study found no evidence to suggest that extraverts perform well or poorly under stressful tasks. The hypothesis on extraversion was that individuals would perform poorly on a stressful task. The reasons for this hypothesis were explained

by the view that extraverts would work quickly due to over-arousal and would avoid careful performance on a stressful task. This conception was supported by Socan and Bucik (1998) and Goh and Farley (1996). However, the present findings on extraversion do not support the literature. One reason that the present study did not find significant results for extraversion and stress may be due to the nature of the task. Extraverts are “sociable, gregarious, assertive, talkative, and active” (Barrick & Mount 1991, p.3). Therefore, a socially stressing task may prove to be a better measure for extraverts. This type of task may find support to indicate that extraverts thrive and depend upon the appraisal and support of others (e.g., Barrick & Mount 1991; David & Suls 1999; O’Brien & DeLongis 1996; Wanberg & Kammeyer-Mueller 2000; Watson & Hubbard; 1996).

Finally, the present study found no evidence to suggest that those open to experience would perform successfully or poorly when placed under stress, perhaps because the task chosen in this study was not an appropriate stressor for individuals high in openness to experience. Individuals with this personality trait may prove to perform better on tasks that allow them to “display imagination, intelligence, curiosity, originality, and open-mindedness” (Wanberg & Kammeyer-Mueller, 2000, p. 375). The task in the present study was simple and straight forward, which denied these individuals the opportunity to express creative and intellectual characteristics. O’Brien and DeLongis (1996) and Watson and Hubbard (1996) found evidence to support that individuals high in openness to experience reinterpret stressful situations optimistically and re-appraise them as challenging and helpful for personal growth. In fact, Lindley and

Borgen (2000) found that “[l]eadership style was...observed to be solidly and consistently related to openness, which was somewhat unexpected” for them (p.37). O’Brien and DeLongis (1996) stated that individuals open to experience appraise stressful situations more broadly and creatively. O’Brien and DeLongis (1996) also found that they demonstrate empathy to family and friends even when in conflict or placed in a stressful situation. Therefore, perhaps a more fitting approach for research on openness to experience should have included a focus on their performance of stressful tasks based on group cohesion and leadership qualities. These individuals are willing to try new endeavors and may be optimistic when confronted with a stressful task, but no relationship was found suggesting that they would perform well or poorly when placed under the stressful task used in the current study. Perhaps because those open to experience may prove to be better performers in a social context where they can share their creative and original qualities.

Limitations

There were a few limitations that should be addressed about this study. The primary limitation was that undergraduate students were utilized to make implications about performance success in the work place. Therefore, generalizing the current results to an adult working group may be difficult.

Also, the task chosen for the current study did not measure different types of stressors that would be pertinent in a work setting. Stressors, such as deadlines, overload, long hours, job difficulty, employee-employee relationships, employer-employee relationships, etc., would give more precise findings into which personality

characteristics promote better performance, and under what conditions. In fact, the task used for the present study was not a realistic representation of tasks performed in most jobs. However, the task in the present study was chosen for several reasons. First of all, it was a general procedure that did not cater to any one specific occupation, therefore individuals of differing occupational interests could be tested without concern to biased results. Secondly, by the simplicity of the task, it was low-stress to facilitate stress by increasing or decreasing the amount of letters asked to be marked through. Finally, the task was simple to understand and straight forward allowing individuals of different intellectual levels to participate and perform accurately.

Another limitation was that participants experienced both the low-stress and the high-stress conditions. Therefore, carry-over and contrast effects may have been induced.

Finally, participants were given both the low-stress and high-stress tasks, and then after both tasks were completed, they were asked to rate their subjective stress and subjective performance on both tasks. In other words, participants were asked to give *retrospective* judgements. A preferable technique would have been to give participants the opportunity to rate subjective performance and subjective stress immediately preceding the task in question.

Future Research Suggestions

Two suggested approaches should be considered for further study on this topic. First of all, although more complex, it may be beneficial to compile profiles to identify better performers under stress. No individual's personality is completely described by only one of the five facets of the Five Factor Model. In the present study each trait was

examined in isolation rather than in conjunction. To help identify the optimal employee, who can handle a stressful task successfully, it may be more beneficial to see which combinations create the better performer. Findings may show that one personality characteristic compensates for the short comings of another or that a particular trait is complemented by another.

A second suggestion for further study would be to isolate each of the five personality factors and to broaden the types of stressful tasks by adding in, for example, social stressors. By studying each factor in an isolated fashion, more intense attention can be placed on those situations that particular personality traits demonstrate better performance. This in turn, can help to better define those tasks in which optimal performance is achieved based on a particular personality trait. It is hoped that results of this study will promote further research into the relationship between personality and stress.

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Appendix A

The Big Five Inventory (BFI)

Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who likes to spend time with others? Please write a number next to each statement to indicate the extent to which you agree or disagree with that statement.

1. Disagree strongly
2. Disagree a little
3. Neither agree nor disagree
4. Agree a little
5. Agree Strongly

I See Myself as Someone Who...

- | | |
|--|---|
| ___ 1. Is talkative | ___ 22. Is generally trusting |
| ___ 2. Tends to find fault with others | ___ 23. Tends to be lazy |
| ___ 3. Does a thorough job | ___ 24. Is emotionally stable, not easily upset |
| ___ 4. Is depressed, blue | ___ 25. Is inventive |
| ___ 5. Is original, comes up with new ideas | ___ 26. Has an assertive personality |
| ___ 6. Is reserved | ___ 27. Can be cold and aloof |
| ___ 7. Is helpful and unselfish with others | ___ 28. Perseveres until the task is finished |
| ___ 8. Can be somewhat careless | ___ 29. Can be moody |
| ___ 9. Is relaxed, handles stress well | ___ 30. Values artistic, aesthetic experiences |
| ___ 10. Is curious about many different things | ___ 31. Is sometimes shy, inhibited |
| ___ 11. Is full of energy | ___ 32. Is considerate and kind to almost everyone |
| ___ 12. Starts quarrels with others | ___ 33. Does things efficiently |
| ___ 13. Is a reliable worker | ___ 34. Remains calm in tense situations |
| ___ 14. Can be tense | ___ 35. Prefers work that is routine |
| ___ 15. Is ingenious, a deep thinker | ___ 36. Is outgoing, sociable |
| ___ 16. Generates a lot of enthusiasm | ___ 37. Is sometimes rude to others |
| ___ 17. Has a forgiving nature | ___ 38. Makes plans and follows through with them |
| ___ 18. Tends to be disorganized | ___ 39. Gets nervous easily |
| ___ 19. Worries a lot | ___ 40. Likes to reflect, play with ideas |
| ___ 20. Has an active imagination | ___ 41. Has few artistic interests |
| ___ 21. Tends to be quiet | ___ 42. Likes to cooperate with others |
| | ___ 43. Is easily distracted |
| | ___ 44. Is sophisticated in art, music, or literature |

Please check: Did you write a number in front of each statement?

Appendix B

Please mark a line through all lower case and upper case letters 'A.' Do the lines in order. Begin with the 1st row, then do the 2nd, 3rd, 4th, etc. Do not skip around. You will have 4 minutes to complete this task. Good luck.

Mary Shelley was eighteen when she began drafting *Frankenstein* in June 1816, nineteen when she completed it eleven months later, and twenty when it was published anonymously-in three slender volumes-early in 1818. It was a success from the beginning and has been a best- seller and a major literary and cultural presence ever since.

First-time readers are sometimes shocked to discover that “Frankenstein” is the name of the obsessed scientist rather than his monstrous creation and that the unnamed Creature, far from the wooden, grunting figure of popular films and television, is the most eloquent and rational character in the novel. Clues to Mary Shelley’s intentions begin with the 1818 title page, on which the ironic subtitle likens Victor Frankenstein to Prometheus, the Titan in Greek mythology who championed human kind against tyranny, and a three-line epigraph from *Paradise Lost* just beneath the subtitle subversively equated Frankenstein with God and his Creature with the fallen Adam.

The epistolary frame introduces the explorer Robert Walton, who acts as a broker between the story’s events and the reader. He is the first of the novel’s three narrators; his letters give a first-person credibility to the fantasy and establish several principal themes at the outset-in particular the opposition of science and poetry (Walton is a failed poet who is now seeking glory as a scientist) and the theme of human connection, which is one of the main concerns of the Creature’s long account of himself in the central chapters of volume 2. The other two narrators-Frankenstein (whose story is contained within Walton’s) and the Creature (whose monologue is relayed by Frankenstein)-add myriad further concerns that would have been clear to the novel’s original readers but have become obscured by time. Frankenstein’s experiments have a basis in important scientific questions of the day: evolution, the so-called vitalist debate over the origins and nature of life, and the conflict between science and religion that is inherent in such topics. Frankenstein is a Faustian overreacher, and at various times both he and the Creature are types of Milton’s Satan and, in a similar vein, Byronic heroes.

In several interesting chapters (volume 2, chapters 3 to 8), the Creature describes his self-education, starting with his earliest perceptions of natural phenomena and quickly advancing to language, logic, literature, philosophy, and politics. To some extent the Creature, who has no innate ideas and must learn everything through experience, is a clear example of John Locke’s tabula rasa, the blank slate on which everything is to be written. But he also seems to have a...

Appendix C

Please mark a line through all the lower case and upper case letters ‘W’, ‘M’, ‘N’, and ‘C.’ Do the lines in order. Begin with the 1st row, then do the 2nd, 3rd, 4th, etc. Do not skip around. You will have 4 minutes to complete this task. Please work as fast as you can. Good Luck!

Charles Dickens was Victorian England’s most beloved and distinctive novelist. In the words of the eulogy that the classicist Benjamin Jowett spoke at his funeral service, Dickens “occupied a greater space than any other writer during the last thirty-five years. We read him, talked about him, acted him; we laughed with him, we were roused by him to a consciousness of the misery of others, and to a pathetic interest in human life.”

Charles Dickens was born the second of eight children in the coastal town of Portsmouth in southern England. His father, a clerk in the Naval Pay Office, found it difficult to keep his family out of debt. Plagued by financial insecurity, the family moved from place to place, to increasingly poorer lodgings, finally ending up in London. In an effort to help the family out, a friend of his fathers’ offered Charles a job in a shoe - blacking factory. Two days before his twelfth birthday, he began work, labeling bottles for six shillings a week. Two weeks later his father was arrested and sent to the Marshalsea Prison for debt. His family went to live in prison with him, as was the custom; but they decided that Charles should remain outside, boarding with a woman who took in young lodgers and continuing to work.

The months in which Charles lived alone and worked in the blacking warehouse were traumatic, and the intense feeling Dickens had of injury and abandonment shaped his fiction in profound ways. The sense he had of himself as “a child of singular abilities: quick, eager, delicate, and soon hurt, bodily or mentally,” who had been cast away to suffer unjustly, formed the basis for characters such as Oliver Twist, the young David Copperfield, and Pip in *Great Expectations*, whose mistreatment represents Dickens’s harshest indictment of society.

Dickens’s father was able to leave debtors prison after three months, upon receipt of a legacy from his mother. He removed Charles from the factory and sent him to school. At fifteen Dickens began work as a junior clerk at a law office; eighteen months later he became a freelance newspaper reporter, first reporting court proceedings and later debated in the House of Commons. Reporting led him to fiction. He began publishing literary sketches, at first anonymously and then under the pseudonym Boz. The success of the volume led to a commission from the publishers Chapman & Hall to publish a book in serial installments with companion illustrations. The result, *Pickwick Papers* (1836-37), brought Dickens fame and prosperity. This picaresque novel, relating the adventures of Mr. Pickwick and his friends as...

Appendix D

Please answer the following items.

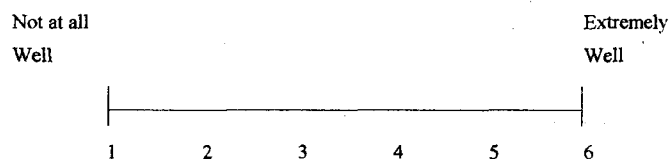
1. Age: _____
2. Gender: Male Female
3. Class Standing: Freshman Sophomore Junior Senior
4. Ethnic Background.

_____ American Indian/ Alaskan Native _____ Asian/ Pacific Islander

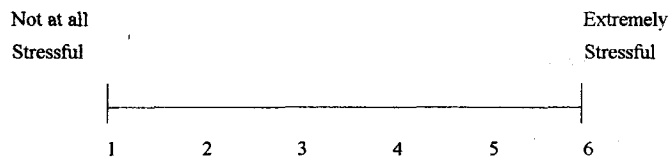
_____ African American (Non-Hispanic) _____ Latino/ Latina

_____ White (Non-Hispanic) _____ Other (Please Specify) _____

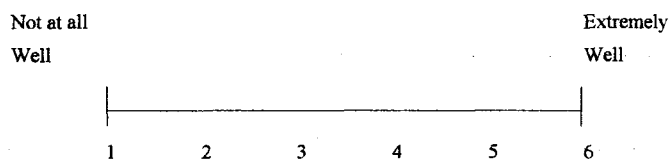
5. Please estimate how well you think you did on the **FIRST TASK**. (A)
(rate your decision by circling a number)



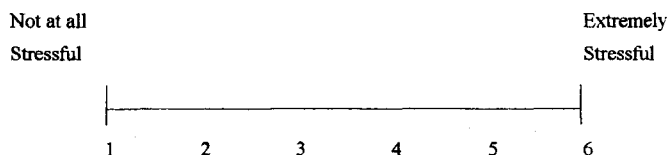
6. Some people find this type of task stressful. Please rate how stressful you found the **FIRST TASK**. (A)
(rate your decision by circling a number)



7. Please estimate how well you think you did on the **SECOND TASK**. (W, M, N, C)
(rate your decision by circling a number)



8. Some people find this type of task stressful. Please rate how stressful you found the **SECOND TASK**. (W, M, N, C)
(rate your decision by circling a number)



Appendix E
AUBURN UNIVERSITY AT MONTGOMERY
Statement of Informed Consent

I am a psychology graduate student doing research on the relationship between personality and cognitive performance. You are being invited to participate in this study. If you agree to participate, you will be asked to complete an inventory which will assess personality traits. Also, you will be asked to complete a proof-reading task. The total time for the administration of this procedure will be approximately 15 minutes.

Your participation is voluntary and you may withdraw from this study at any time without penalty. You are asked to be in this study because you are a student of Auburn University Montgomery. There are no risks from participating in this study. Through your participation, you will learn more about how psychological research works and you will help us better understand the relationship between personality and cognitive performance. Your responses to the personality inventory and proof-reading task will be anonymous and will remain confidential. You will not be asked for your name or any other identifying data.

Your decision to participate will not prejudice your future relations with Auburn University at Montgomery or the Psychology Department. If you decide to participate, you are free to withdraw your consent and to discontinue participation at any time without penalty. If you decide later to withdraw from the study, you may also withdraw any information which has been collected about you.

After the experiment is over, packets will be collected. You may ask any questions related to the experiment at this time. Likewise, if you have any questions pertaining to this study at a later date, please contact Veronica Vargas or Dr. Sheila Mehta at the numbers provided below. Thank you very much for your cooperation and participation in this study.

Veronica Vargas
 Psychology Graduate Student
 Auburn University Montgomery
 (334) 213-0689

Dr. Sheila Mehta
 Thesis Advisor
 Associate Professor of Psychology
 Auburn University Montgomery
 (334) 244-3306

YOU ARE MAKING A DECISION WHETHER TO PARTICIPATE. YOUR SIGNATURE INDICATES THAT YOU HAVE DECIDED TO PARTICIPATE, HAVING READ THE INFORMATION PROVIDED ABOVE.

 Signature of Participant

 Date

 Witness

 Date