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To the Graduate Council:

I am submitting herewith a dissertation written by Susan Rae Perry entitled "Big Five Personality Traits and Work Drive as Predictors of Adolescent Academic Performance.." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Psychology.

John W. Lounsbury, Major Professor

We have read this dissertation and recommend its acceptance:

Mary L. Erickson, Richard A. Saudargas, Eric Sundstrom

Accepted for the Council:

Dixie L. Thompson

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

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Eric Sundstrom

Accepted for the Council:

Anne Mayhew
Vice Provost and Dean of
Graduate Studies

(Original signatures are on file with official student records.)

BIG FIVE PERSONALITY TRAITS AND WORK
DRIVE AS PREDICTORS OF ADOLESCENT
ACADEMIC PERFORMANCE

A Dissertation
Presented for the
Doctor of Philosophy Degree
The University of Tennessee

Susan Rae Perry
August 2003

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DEDICATION

This dissertation is dedicated to my maternal grandmother,

Carrie Bell Jessee,

and my paternal grandmother,

Margaret Ireson Perry,

for always taking the time to teach.

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ABSTRACT

The Five Factors of Agreeableness, Emotional Stability, Extraversion, Openness, and Conscientiousness, or some combination thereof, are increasingly used as predictors of job performance in business settings. Personality factors are also related to academic performance in college. Further extending this research into academic realms would provide useful information about early individual attributes that not only affect performance in school, but may also predict future issues in later job performance. Additionally, the use of more work or school specific constructs and related instruments may provide more information about performance than the broader five- factor structure. The contribution of Work Drive to the understanding of an individual's performance in school and work was examined. Each of the Big Five personality variables, as measured by the Adolescent Personal Style Inventory (APSI), was significantly correlated with GPA. The correlation between the APSI Work Drive scale and GPA was .33, higher than for any of the Big Five variables. Work Drive was significantly correlated with both male and female GPA, although the relationship with female GPA was significantly higher than for males. After controlling for Big Five variables, a hierarchical multiple regression revealed Work Drive added significant incremental validity to the predictive model. Overall, Big Five variables and Work Drive accounted for 16% of the variance in GPA. Results were discussed regarding gender differences, grade-level differences, limitations and future implications of this study.

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CHAPTER I

INTRODUCTION AND REVIEW OF THE LITERATURE

Most of the research studies and meta-analyses on personality and performance have focused on job performance. There are few studies relating personality to academic performance, although there is a growing trend in the direction of trying to predict performance in college student, adolescent, and grade-school populations. Systematic analysis of personality predictors of academic performance could have several benefits: 1) It could help increase the generalizability of the personality-performance relationship into academic settings; 2) it could help researchers understand personality contributions to academic performance; and 3) it may lead to efforts aimed at improving an individual's subsequent performance in school and in the work force. Given the greater understanding of the relationship between personality and job performance, a review of job performance literature will provide an appropriate background for understanding these measures and approaches in the context of predictors of academic performance .

In the past century, many attempts have been made to use the knowledge and understanding of personality to predict job performance. From the early 1900s to the 1980s, personality was described in myriad ways, depending on which individual scale was used, and then related to equally variable aspects of job performance. Given multiple definitions of job performance (absences, supervisor ratings, accidents, productivity, promotions, salary level)

and a lack of common language about personality traits, from thousands of differently labeled traits to multiple names for a similar trait, the inevitable conclusion of most of this research was that personality assessment was of little help in understanding job performance (Barrick, Mount, & Judge, 2001; Salgado & Rumbos, 1997).

Historically, job analysis has focused on Knowledge, Skills, and Abilities (KSAs) considered vital to meet the requirements of a position. While these personal attributes pertain to ability to perform a given job, they do not measure a person's potential for actually using the knowledge, skills, and abilities effectively for the benefit of the company (Ghorpade, 1988; Lounsbury, Gibson, Sundstrom, Wilburn, & Loveland, in press). A growing trend to focus on KASOs, where the "O" stands for "other" traits of the worker, such as personality, has emerged in job performance literature (Lounsbury et al., in press). By operationally defining "job performance" and establishing an adequate framework for the discussion of personality, the relationship between the two can be more easily examined.

Measuring Job Performance

Job performance is measured in a variety of ways. Most models in the performance evaluation literature consist of components that consider two aspects of working - some type of task performance and contextual performance. Task performance consists of technical proficiency at a skill considered important in a particular job. Contextual performance refers to activities outside a specific job description that support or promote the interests and goals of the

company, such as working well with others and taking on tasks and responsibilities that are not assigned (Arvey & Murphy, 1998; Conway, 1996; Schmitt & Borman, 1993).

Peer ratings and supervisor ratings are often used to gauge employee performance. In general, supervisor ratings are considered slightly more reliable than peer ratings, although both converge with more objective types of data (Arvey & Murphy, 1998; Viswesvaran, 1996). Supervisor ratings can be influenced by personality factors that are not strictly performance related, such as “work value congruence”, including beliefs about taking pride in one’s work, achievement, honesty, and helping others (Meglino, Ravlin, & Adkins, 1992). In addition to these measures, objective and self-report measures of employee absences, accidents, counterproductive behaviors, and specific task performance are used (Dunn, Mount, Barrick, & Ones, 1995; Johns, 1994; Lysaker, Bell, Kaplan, & G., 1998; Salgado, 2002).

Conway (1996), in a review of performance appraisal studies, found support for the use of these two distinct performance categories, task performance and contextual factors, especially for non-managerial jobs. He did find, however, substantial inter-correlations between the two domains. Viswesvaran (1996) suggested the usefulness of a concept of a general performance factor, similar to the “g” factor in intelligence, that included these different types of performance. Further division of context performance into the narrower constructs of interpersonal facilitation and job dedication has also been suggested (Van Scotter & Motowidlo, 1996).

A multi-factor global measure is often considered the best solution for measuring job performance (see Campbell, Gasser, & Oswald, 1996). For example, Bing and Lounsbury

(2000) formed a measure of “Overall Job Performance” that consisted of ten subscales of manager ratings: productivity, quality, new learning, teamwork, absenteeism, safety, relations with coworkers, relations with supervisors, relations with subordinates, and functioning under pressure. Salgado and Rumbo (1997) measured performance with nine scales: knowledge, efficiency, problem comprehension, adaptability to job, leadership, ability for relations, aspiration level, initiative, and attitude. Salary levels and promotions are sometimes included as additional measures of job performance, as is training proficiency (Mount & Barrick, 1998; Ones & Viswesvaran, 2001).

Predicting Job Performance

In a review of current research on evaluation, Arvey and Murphy (1998) concluded that cognitive abilities are generally agreed upon to predict task performance, while personality variables are expected to predict contextual performance. Campbell et al. (1996) proposed several cognitive determinants of job productivity, including declarative and procedural knowledge, and the not clearly cognitive factor, motivation.

When the Five-Factor Model (FFM) was considered robust and an accepted taxonomy for describing personality, around the mid 1980s, enthusiasm developed for the use of measures of these personality factors in fields like personnel selection to predict job performance. Currently, the organization of normal, adult personality into the FFM offers a common framework of organization to discuss personality, and has provided a better understanding of personality-performance relationships (Barrick et al., 2001; Mount & Barrick,

1998; Salgado & Rumbero, 1997). The Big Five factors are the constructs of Agreeableness, Emotional Stability, Extraversion, Openness, and Conscientiousness and each has been examined as a possible predictor of job performance. These factors are assessed through use of questionnaires, as well as by actual observations of individuals by managers, customers, or peers.

Agreeableness

Agreeableness refers to a person being participative, helpful, cooperative, and inclined to interact with others in a harmonious manner. High scorers tend to work well with others and are easy-going and obliging. Low scorers tend to be oppositional, critical, and argumentative (Lounsbury & Gibson, 2001 and others).

Given the interpersonal nature of the definition of Agreeableness, it is perhaps not surprising that the clearest relationships in the literature between this construct and job performance appear in studies of jobs that are highly interpersonal in nature. High scores in the Agreeableness factor correlate with high supervisor ratings of interpersonal facilitation (Hurtz & Donovan, 2000), overall “integrity” (Ones & Viswesvaran, 2001), correlate significantly with “empathy” and “assurance” in customer ratings of service quality from a particular employee (Lin, Chiu, & Hsieh, 2001), and may serve as a valid predictor of training proficiency (Salgado, 1997). A positive score in this factor more strongly predicts performance in jobs that involve teamwork rather than one-on-one interaction (Mount, Barrick, & Stewart, 1998). While an important predictor of managers’ ratings of counterproductivity in hypothetical applicants (Dunn

et al., 1995), no apparent relationship has been found with absenteeism or accidents (Salgado, 2002).

Emotional Stability

Emotional stability (i.e. the inverse of “Neuroticism”) refers to a person’s overall level of adjustment, resilience, and emotional stability. High scorers in this factor perform well under conditions of pressure and stress. Low scorers are less stress-resistant and more reactive to pressure in their environment (Lounsbury & Gibson, 2001 and others).

This particular personality factor has been found to have relatively good generalizability as a predictor of overall work performance, although its relationship with specific occupations and performance criteria is sometimes unclear (Barrick et al., 2001; Bing & Lounsbury, 2000; Salgado, 1997; Tett, Jackson, & Rothstein, 1991). It more clearly predicts performance in jobs that involve teamwork and interpersonal facilitation than one-on-one interaction (Hurtz & Donovan, 2000; Mount et al., 1998).

In hypothetical and real selection tasks, a high score in Emotional Stability is often mentioned as a preferred trait in a potential employee (Lievens, De Fruyt, & Van Dam, 2001). Managers’ ratings of counter-productivity and identification of potentially problematic passive/avoidant behaviors are related to low scores on this dimension (Dunn et al., 1995; Lysaker et al., 1998). Neuroticism (or a low score in Emotional Stability) shows no consistent relationship to absenteeism, nor does it predict accidents on the job (Salgado, 2002). This lack of relationship with absences has been explained as perhaps due to the tendency of people with

low Emotional Stability scores to frequently worry about negative outcomes and consequences (Judge, Martocchio, & Thoresen, 1997).

Extraversion

Extraversion refers to a tendency to be sociable, gregarious, outgoing, warmhearted, and talkative. High scorers tend to direct their energies toward and are stimulated by external stimuli, including other people in the workplace. Low scorers are more introverted, inwardly-focused and reserved (Lounsbury & Gibson, 2001 and others).

The personality dimension of Extraversion has been found to be a valid predictor of scores for job proficiency, training proficiency, and personnel data in jobs that have interpersonal factors, such as sales and management (Mount & Barrick, 1998). It is positively correlated with “responsiveness” in customer ratings of service quality from an employee (Lin et al., 2001), and is a valid predictor of training proficiency for professionals, police, managers, sales, and skilled/semi-skilled workers (Mount & Barrick, 1998; Salgado, 1997).

A high score in Extraversion can positively influence final employment recommendations (Lievens et al., 2001) and is related to the use of social sources for information and success in job interviews (Caldwell & Burger, 1998). It relates positively to salary level and promotions (Seibert & Kraimer, 2001). While Salgado (2002) found no relationship between Extraversion and absenteeism, others have found a high score in Extraversion is positively correlated with both absences (Judge et al., 1997) and potentially problematic social support seeking behaviors and strivings for approval in the workplace (Lysaker et al., 1998).

Openness

Openness refers to willingness to accept new learning, ideas, change, and variety. High scorers are more willing to try out new procedures and ways of doing things. Low scorers tend to prefer stability and conventional ways of doing things (Lounsbury & Gibson, 2001 and others).

The openness factor shows consistent benefit in customer service jobs (Hurtz & Donovan, 2000). It correlates with “assurance” in customer ratings of service quality from a particular employee (Lin et al., 2001) and predicts better performance in decision-making and creative tasks in conducive situations (George & Zhou, 2001; LePine, Colquitt, & Erez, 2000). Openness predicts job performance in unique and unfamiliar work settings where being accepting of new ideas, behaviors, and learning would prove advantageous, such as a US-based Japanese manufacturing plant in the Appalachian southeastern U.S. (Bing & Lounsbury, 2000).

As with Extraversion, a high score in Openness can positively influence final employment recommendations (Lievens et al., 2001), is related to the use of social sources for information and success in job interviews (Caldwell & Burger, 1998), and is a valid predictor of training proficiency for professionals, police, managers, sales, and skilled/semi-skilled workers (Mount & Barrick, 1998; Salgado, 1997). No significant relationship between Openness and absenteeism or accidents is evident in the literature, and Salgado (2002) specifically found no predictive relationship between this dimension of personality and job performance. Interestingly,

Openness has been found to negatively relate to salary level (Seibert & Kraimer, 2001), perhaps due to the types of jobs high scorers in Openness find attractive.

Conscientiousness

Conscientiousness is typically described as reliability, dedication, and readiness to internalize societal norms and values. High scorers in this dimension tend to prefer working in highly structured environments with clear guidelines. Low scorers tend to be non-conformist and prefer environments with a lack of structure that permit spontaneity (Lounsbury & Gibson, 2001 and others).

Conscientiousness has been the most widely implicated factor of the model in predicting all aspects of job performance in a wide variety of occupations (Barrick et al., 2001; Hurtz & Donovan, 2000; Salgado, 1997), ranging from customer service jobs (Lin et al., 2001) to college coursework and test performance (McIlroy & Bunting, 2002). Not only is it positively correlated with job proficiency and training proficiency for a variety of jobs (Mount & Barrick, 1998), it is also positively related to supervisor ratings of job performance (Caligiuri, 2000). So strong is the belief in Conscientiousness as a quality of the “ideal employee”, it frequently turns up in employment recommendations and assessments (Lievens et al., 2001), and gets related to other specific skills as “interpersonal facilitation” (Hurtz & Donovan, 2000) and broader concepts such as “integrity” (Ones, Schmidt, & Viswesvaran, 1994). Dunn et al. (1995) found that perceived Conscientiousness and general mental ability are the most important predictors of manager ratings of the employability of hypothetical applicants.

While Salgado (2002) found no relationship with absenteeism or accidents, Judge et al. (1997) found a significant negative relationship between Conscientiousness and absenteeism. As might be expected, they concluded that people who value following rules are more likely to not miss work. A high score in Conscientiousness also predicts reduced rates of deviant behaviors and turnover (Salgado, 2002) and reduced perceived potential for counterproductive behaviors (Dunn et al., 1995). As with Openness and Extraversion, high scorers in Conscientiousness are more likely to use social sources for information and success in interviews (Caldwell & Burger, 1998).

In spite of the enthusiasm in the literature for Conscientiousness, the generalizable validity of Conscientiousness has been questioned (Tett et al., 1991). Also, as with all of personality factors in this model, a high score in a dimension can have negative consequences. LePine et al. (2000) found that Conscientiousness correlates negatively with performance on a decision-making task, and Conscientiousness is also correlated with low levels of creativity in non-supportive work settings (George & Zhou, 2001).

Interactions, Broader and Narrower Constructs

In many studies, the optimal solution for a personality predictor of job performance lies in a combination of the FFM individual factors, or in the use of broader as well as narrower constructs. An example of a predictive combination of the five factors is Agreeableness combined with Extraversion (vs. Introversion) in determining conflict resolution strategies on the job (Robertson & Fairweather, 1998). In this example, as with other situations, it is possible that personality factors may interact to influence tactics of performance, but not necessarily level

of performance (Buss, 1992). A broad construct named “integrity,” including Agreeableness, Emotional Stability, and Conscientiousness, was found to provide good criterion validity related to job performance ratings by supervisors (Ones et al., 1994; Ones & Viswesvaran, 2001). Digman (1997) alludes to two distinct metatraits: “A,” consisting of Agreeableness, Conscientiousness, and Neuroticism, and “B,” consisting of Extraversion and Openness/Intellect, that occur with some regularity in the literature.

Narrow subscales of the FFM dimensions, such as Responsibility and Risk-taking subscales of the Jackson Personality Inventory, are sometimes more useful in predicting specific types of job behaviors (Jackson, 1970). In a study by Ashton (1998), these narrower dimensions adequately predicted self-reported delinquencies of college students in their entry-level job behaviors. Some argue that greater validity will be found in using a construct-oriented approach to match specific, narrower traits to those specific job performance dimensions that have been found to be job relevant. For an emphasis more narrow than overall job performance (Schneider, Hough, & Dunnette, 1996), Barrick et al. (2001) suggest a move towards agreeing on acceptable lower level personality constructs would be useful in the field, as would identifying objective subsets of overall job performance.

Personality and Performance in Younger Populations

Stability from Adolescence to Adulthood

The examination of personality factors for predictive purposes has also been extended to prediction of academic performance in college. By college age, the similarity between adult

and adolescent personality structures is fairly clear, and the FFM emerge consistently (Costa & McCrae, 1994; Mervielde, 1995). Scores on the factors shift throughout subsequent development. College population adolescents (approximately age 17-20) consistently score higher in Neuroticism (low Emotional Stability) and Extraversion and lower in agreeableness and conscientiousness than older adults. From a developmental viewpoint, the development of personality is not considered fairly stable until around age 30 (see McCrae & Costa, 2003). College students' personalities in their 20s have been described to be the midpoint in a smooth transition from adolescence to adulthood (Costa & McCrae, 1992).

The reliability and validity of self-report measures in children under age ten is questionable (see Costa & McCrae, 1994), perhaps due to limited language skills and a poorly defined self-concept, but self-report is considered a valid measure in adolescents (i.e., ages 12 to 18 or 19; see Jaffe, 1998). Given the emergence of five factors by adolescence, the use of appropriately adapted adult instruments should be appropriate to study their structure in this population (Cattell et al., 1984). This five-factor structure of personality itself has been described as invariant from adolescence through adulthood. In the developmental literature, continuity is found between adolescent and adult personality structure (Caspi, 1998; Rothbart, Ahadi, & Evans, 2000). Major life events may alter someone's standing on any particular factor, but the structure itself still remains (Costa & McCrae, 1994).

“School is Work”

There is a logical continuity between examining personality in relation to job performance and personality in relation to grades and academic performance. Work

characteristics are present in the classroom, such as goal-directed activity, formally defined roles and expectations, accountability, behavioral constraints, and specific, valued outcomes. As Munson and Rubenstein (1992) point out, “schoolwork is the student’s job...the learner is a worker” (p. 289).

Initial studies of academic performance focused on college students. In college, as in high school and grade school, the primary "job performance" of students is inevitably measured with grades (Sneed, Carlson, & Little, 1994). Personality factors such as Optimism correlate with grades and task persistence in college students (Chemers, Hu, & Garcia, 2001; Helton, Dember, Warm, & Matthews, 1999). McIlroy and Bunting (2002) demonstrated significant associations between the dimensions of academic conscientiousness, test anxiety, and grades.

Adolescent Personality and Performance in School

The measurement of adolescent personality has potential for predicting school performance as well (Watterson, Schuerger, & Melnyk, 1976). A common adolescent personality scale is the High School Personality Questionnaire (HSPQ), a cognate version of the Sixteen Personality Factor Questionnaire (16PF) (Cattell & Beloff, 1953). The HSPQ consists of the following 14 scales: Warmth, Intelligence, Emotional Stability, Excitability, Dominance, Enthusiasm, Conformity, Boldness, Sensitivity, Withdrawal, Apprehension, Self-Sufficiency, Self-Discipline, and Tension (Cattell & Beloff, 1953). Cattell and colleagues determined that adolescent and adult personalities are similar in structure and adequately described by these factors, with only the Excitability and Withdrawal scales being more important earlier in development than later in life (Cattell & Beloff, 1953; Cattell, Cattell, & Johns, 1984). The

HSPQ is often used to assess adolescent development and pathology in clinical, institutional and academic settings and with varying degrees of success (e.g. Barton, Dielman, & Cattell, 1977; Gallucci & Ambler, 1987; Kahn & McFarland, 1973; Stewart, Bruce, & Kaczor, 1976; Tyler & Kelly, 1971).

Cattell, Sealy, and Sweney (1966) determined motivation and source traits to be valid predictors of academic achievement, using a combination of the HSPQ, the School Motivation Analysis Test, and achievement tests with 7th and 8th graders. They concluded that personality and motivation measures increase predictive power, but limited the definition of academic achievement to achievement test scores. Using Cattell's HSPQ measure, Mandryk & Schuerger (1974) found a correlation between adolescent personality traits and academic achievement. Watterson, Schuerger and Melnyk (1976) specifically found a significant relationship between Conscientiousness, intelligence, and high school freshman and sophomore GPA. Being "excitable and demanding" also had a positive relationship with GPA. Hakstian and Gale (1979) showed that including HSPQ and a motivation measure added significantly to ability measures in predicting grades. A recent revisions of the HSPQ into the 16PF Adolescent Personality Questionnaire has also shown a significant correlation with GPA (IPAT, 2003).

The Five Factor Model and Children

Typically, the personality literature on younger children also involves looking for social pathology and deviance in behavior. Use of the Five Factor Model allows the description and measurement of more "normal" personality characteristics, and its use can be advantageous over more complicated psychosocial models of children's academic achievement (Sneed et al,

1994). Mervielde, Buyst and De Fruyt (1995) found in grades 1-6 (ages 4-12), teacher ratings of the FFM correlate highly with GPA. The predictive validity of the model increases from .67 to .79 from grades 1-6. The strongest predictive factor for ages 6-8 was extroversion, for ages 8-10, conscientiousness, and for ages 10-12, conscientiousness, with no effects of gender. The effect of neuroticism was small in 6-8 year olds, and was not present in later years. Mervielde et al. (1995) determined that the predictive power of conscientiousness increases with age (perhaps as children learn to follow rules), whereas the utility of intellect levels out and slightly drops for 10-12 year olds. The influence of openness on academic performance was found to slightly increase with age, more so for girls (Mervielde et al., 1995).

Summary and Conclusions

The Five Factor Model has emerged as a widely accepted taxonomy for describing and understanding adult personality (i.e., Barrick, Mount, & Judge, 2001; Digman, 1997; Mount & Barrick, 1998; Salgado & Rumberg, 1997). The Five Factors of Agreeableness, Emotional Stability, Extraversion, Openness, and Conscientiousness, or some combination thereof, are increasingly used as predictors of job performance in business settings (Barrick et al., 2001; Caldwell & Burger, 1998; George & Zhou, 2001; Judge, Martocchio, & Thoresen, 1997; Mount & Barrick, 1998; Ones, Schmidt, & Viswesvaran, 1994; Robertson & Fairweather, 1998; Salgado, 1997, 2002; Salgado & Rumberg, 1997; Seibert & Kraimer, 2001; Tett, Jackson, & Rothstein, 1991).

Personality factors are also related to academic performance in college (Munson & Rubenstein, 1992; Sneed, Carlson, & Little, 1994). By college age, the similarity between adult and adolescent personality structures is fairly clear, and the five factors emerge consistently (Costa & McCrae, 1994; Mervielde, Buyst, & De Fruyt, 1995).

While the meta-analytic reviews mentioned also suggest that the Five Factor Model of personality is useful in predicting job performance, Barrick et al (2001) declare the need for “a moratorium on such studies” (p. 27). The literature reviewed suggests a continuum between adolescent and adult personality. Extending this research into academic realms would provide useful information about early individual attributes that not only affect performance in school, but may also predict future issues in later job performance. Additionally, the use of more work or school specific constructs and related instruments may provide more information about performance than the broader five- factor structure.

CHAPTER II

WORK DRIVE

One of the primary advantages of adding personality information to standard Knowledge, Skills, and Abilities (KSA) assessments is the addition of information about the likelihood of a person using these abilities to benefit the organization. Discussing personality within the broad framework of the Five Factor Model allows for the assessment of traits in an individual that help predict performance. The addition of a narrower construct to assess more specifically work-related behavioral dispositions could greatly benefit this assessment. Attempts to measure attitudes towards work and determine their origins provide the backdrop for establishing the importance and potential contribution of Work Drive.

Protestant Work Ethic

History

The concept of Protestant Work Ethic finds its origins in the influence of biblical narratives on society. As discussed by Brown (2001) in his interpretation of the book of Ecclesiastes, work in the Old Testament had a positive connotation and is associated with the divine. Unlike the Greco-Roman tradition and myths, it was not treated as humanity's enslavement to the gods. Instead, it begins in the biblical narrative as a blessing - not merely divine work heaped onto humans to delegate the responsibilities. The God of the Old Testament models good work ethic in stewardship of the earth, and the work of humans is modeling this

divine image and example. The true reward in work is the enjoyment obtained while toiling (Brown, 2001). Given this description of work, Christian beliefs incorporated the idea of the inherent value of meaningful hard work, and of the sinful nature of idleness.

As Furnham (1990) and others point out, Weber's 1905 theory of Protestant Work Ethic has been one of the few theories to permeate many of the social sciences, including economics, anthropology, sociology and psychology. In *The Protestant Ethic and the Spirit of Capitalism*, Weber describes how this social counterpart of Calvinism (or at least the individualistic phase of Calvinism adopted by England and Holland in the 17th century) led to or coincided with a common psychological attitude (Weber, 1930). A certain system of social ethics developed during this promotion of the idea of the almost divine nature of economic self-interest. Work is a virtue and even menial jobs should be performed well. Luther, Wesley, and other Reformers preached that work was the path to redemption and to proving that they were among the elect (Harpaz, 1998). The pursuit of wealth is given the status of a religious calling or duty, and it is the job of each person to secure his or her own commercial prosperity. The byproduct of this thinking was an emphasis on qualities that led to business success, such as delay of gratification, self-reliance, diligence, and prudence.

Research

Much has been looked at in the way of predicting PWE from demographic variables. Those high in PWE are often described as independent, competitive, hard-working individuals who are prepared to persevere at a task to achieve desirable ends (Furnham & Koritsas, 1990). Good predictors are high internal locus of control, lower levels of education,

conservatism in economic beliefs, and the ability to postpone gratification (Furnham, 1987).

PWE beliefs are typically associated with countries in which there is low collectivism (high level of individualism) (Furnham et al., 1993). It correlates with high Need for Achievement (McClelland, 1961). Merrens and Garrett (1975) found high PWE scorers spend more time on a low-motivation, highly repetitive task. However, the representativeness of "real jobs" is important in task selection and interpretation of results (Ganster, 1981).

Seven scales of Protestant Work Ethic are favored in this area of research, and are sometimes used in combination (Furnham, 1990; Furnham & Koritsas, 1990). The scales range in date of authorship from 1961 to 1984, and represent work primarily in America and Australia. They vary quite considerably in the number of and types of questions asked (Furnham, 1990). These scales, in chronological order with sample items, are:

1. Protestant Ethic (PE) (Goldstein & Eichhorn, 1961) - "Hard work still counts for more in a successful farm operation than all of the new ideas you read in the newspapers."
"Even if I were financially able, I couldn't stop working."
2. Protestant Ethic (PPE) (Blood, 1969) – "Hard work makes a man a better person." "A good indication of a man's worth is how well he does his job."
3. Protestant Work Ethic (PWE) (Mirels & Garrett, 1971) – "Most people who don't succeed in life are just plain lazy." "There are few satisfactions equal to the realization that one has done his best at a job."

4. Spirit of Capitalism (SoC) (Hammond & Williams, 1976) – “Time should not be wasted; it should be used efficiently.” “Even if I were financially able to do so, I still wouldn’t stop pursuing my occupation, whatever it might be at the time.”
5. Work Ethic and Leisure Ethic (WLE) (Buchholz, 1977) – “One must avoid dependence on other persons whenever possible.” “Increased leisure time is bad for society.”
6. Eclectic Protestant Ethic (EPE) (Ray, 1982) – “Too much attention today is given to the pleasures of the flesh.” “Saving always pays off in the end.”
7. Australian Work Ethic (AWE) (Ho, 1984) – “Hard work is fulfilling in itself.” “You should be the best at what you do.”

Furnham (1990), in an analysis of these scales, found that the PWE items from the scales fell into seven distinct categories: work as an end in itself (present in most scales: PE, PWE, PPE, SoC, AWE), hard work and success (present in all scales: PE, PWE, PPE, SoC, WLE, EPE, AWE), leisure (only found in three scales: PWE, PPE, WLE), money/efficiency (four scales: PWE, PPE, SoC, EPE), spiritual/religious (two scales: PWE, EPE), morals (three scales: PWE, EPE, AWE), and independence/self-reliance (two scales: SoC, WLE). Protestant Work Ethic (PWE) (Mirels & Garrett, 1971) is the most widely used of these scales (Wentworth & Chell, 1997), and recognized as one of the first attempts to identify PWE as an actual personality trait (Merrens & Garrett, 1975). In Furnham’s analysis (1990), it covers the greatest number of content categories of the seven scales. The fact that studies of PWE use different scales, and the scales are measuring different things, from religious beliefs (e.g. “I believed in God.” - EPE) to financial conservatism (e.g. “People should be responsible for

supporting themselves in retirement and not be dependent on governmental agencies like social security.” - SoC), makes a review of the literature in this area and a determination of the robustness of such measures difficult (Furnham, 1990).

PWE in College Students

In a study of Protestant Work Ethic (PWE) beliefs in college students, Wentworth and Chell (1997) found belief in work ethic tends to decline as education and work experience rise. Full-time students scored higher on Mirels and Garrett’s (1971) PWE scale than those employed full or part-time. Male college students scored significantly higher in PWE than females. A possible explanation given for this gender difference is that political conservatism may push males toward a “breadwinner” mentality. This rationale may apply to interpretations of nAch as well. Undergraduates had significantly higher PWE scores than graduate students. The youngest age group, 17-21, did have significantly higher scores than those in the three older groups (26-29, 30-39, and ≥ 40). They concluded that PWE may not be so much a disposition as a sign of the times, heavily influenced by the context in which it is measured.

Relationship with Need for Achievement

This “capitalistic spirit” influenced child-rearing in ways that led to increased achievement motivation (Furnham, 1990; McClelland, 1961). An upbringing in which independence and mastery are valued produces attitudes and beliefs that translate into need for achievement. Need for achievement (nAch) was originally assessed via the Thematic Apperception Test (TAT), which was scored for achievement-related words, such as “try,” “succeed,” and “persist” (McClelland, 1985). High scorers perform better on anagram tasks,

gain more from practice, and recall more achievement-related content of stories they read.

Those who score high in nAch also typically select careers in which they have individual responsibility, clear goals, concrete feedback, and where success depends in large part on their individual effort. Items reflecting this nAch preference from the Work Ethic scales include “If all other things are equal, it is better to have a job with a lot of responsibility than one with little responsibility” from PWE.

Meaningful individual differences in the trait of need for achievement can be found in children as young as age five (McClelland, 1961). McClelland points out that PWE is not a trait exclusive to only Protestants, as Catholics living in integrated Protestant-Catholic countries show similar achievement orientations to Protestants. In fact, most major religions seem to converge on this issue that followers should be hard working, frugal, productive, and endow work with dignity (Harpaz, 1998). McClelland’s concept of nAch, which he considers a basic personality trait, subsumes Protestant Work Ethic, according to Furnham (1990). While the two dimensions are related, they do not completely overlap.

Work Centrality and Job Involvement

Defining the Constructs

The concept of Work Centrality (WC) is the clearest sociological descendant of Weber’s formulation of PWE. It refers to the importance that work, in general, has in a person’s life. Dubin (1956) broadened the concept and included it in his notion of work as a Central Life Interest. The measure used items referring to the extent to which the work setting is

preferred for behaviors that can also be performed in other settings. As pointed out by Paullay, Alliger, and Stone-Romero (1994), it is possible that these types of items could therefore be influenced by attitudes about one's present job.

Hirschfield and Feild (2000) define Work Centrality as a trait construct centered on the normative belief that work is rewarding in its own right, and not a means to an end, which is essentially identical to most definitions of PWE (i.e. Furnham 1990, Bucholz 1978, Mirels & Garrett 1971). They explored the relationship between Mirels & Garrett's (1971) PWE scale, measures of work locus of control, work self-discipline, organizational commitment, leisure ethic, and Job Involvement-Role, which is briefly described later in this section. Not surprisingly, WC and PWE were highly correlated. The authors considered WC, a cognitive and normative belief, and Work Alienation, a construct that has been described in the literature as affective content relating to enthusiasm for (or disengagement from) the world of work (Kanungo, 1982a; Maddi, Kobasa, & Hoover, 1979), two distinct aspects of a more general work commitment.

Job Involvement (JI) is closely related to WC in meaning, but is the construct defined in general terms as the importance placed on one's *present* job. Lodahl and Kejner (1965) defined JI as the degree to which a person psychologically identifies with his or her work, the importance of the work to total self-image and self-esteem. Kanungo (1982a) was the first to point out the inconsistency in terms used to describe these constructs, and the mixing of the two.

Researchers use a variety of labels to describe attitudes or orientations towards work in general or one's present job, such as work alienation, work involvement, job commitment, work commitment. It is also not clear if respondents make a clear distinction between "work" and

“job” when responding to scale items. Kanungo's (1982b) instrument is typically credited as a first attempt to measure Work Centrality, which was labeled Work Involvement, as something separate from, but correlated with, JI. Job Involvement was defined as a belief that describes the present job and circumstances, and is a function of how that particular job is perceived by the person to meet present intrinsic and extrinsic needs. It is reflected by items in the scale such as “The most important things that happen to me involve my present job.” Therefore, it was considered the cognitive component of present Job Satisfaction. Work Involvement, on the other hand, measured by items such as “The most important things that happen in life involve work,” was considered a normative belief about the value or importance of work in general, based on personal history, conditioning, and past socialization.

Measurement

Lodahl and Kejner's (1965) JI scale features items such as "I live, eat and breathe my job". However, other items, like "Most things in life are more important than work", also described in Paullay et al. (1994), seem to measure WC. Moderate correlations between JI and Job Satisfaction led to the conclusion that they are not the same construct, but appear to have some of the same determinants. Weissenberg and Gruenfeld (1968) found moderate correlations between these constructs as well. This mixture of present job and general work beliefs is typically found in JI scales, leading to a confusion of terms and construct validity problems in the literature (Paullay et al., 1994).

Lawler and Hall (1970) argued that it was not clear whether Lodahl and Kejner (1965) were measuring something other than what is usually measured by Job Satisfaction scales. In

addition, they also asserted that, from references to self-esteem needs in this literature, it was not clear whether JI was something different from intrinsic motivation. Intrinsic motivation, to fit into an expectancy theory framework of motivation theory, was predicted to relate to job performance, but they were unsure of the predictive relationship of JI with performance.

Paullay et al. (1994) used an instrument consisting of some of Kanungo's (1982b) JI and W(I)C scale items, items from Blood's 1969 PWE scale, and additional new items. Work Centrality was considered a relatively stable set of beliefs, consistent across environments. These values about the degree of importance work has in life can be acquired from family, friends, religion or culture. Much like PWE, WC is understood as a result of socialization. They are not considered the same construct, however. PWE can lead to a high WC score, but it is only one possible source. In addition to these findings, Paullay et al. (1994) found a low reliability for the PWE, and a moderate correlation between JI and WC. A moderate correlation was also discovered between PWE and WC. They reached the conclusion that Protestant Work Ethic may influence the degree of WC, tapping into the strength of beliefs, whereas WC taps the personal meaning the respondent places on it.

Job Involvement was defined as the degree to which one is cognitively preoccupied with, engaged in, and concerned with one's present job. It was further subdivided by Paullay et al. (1994) to include JI – Role, and JI – Setting. Job Involvement – Role is the degree to which one is engaged in the specific tasks that make up one's job. Job Involvement - Setting, refers to the degree to which one finds carrying out the tasks of one's job in the present job environment to be engaging. The rationale for the subdivisions is best illustrated by an example the authors give:

A surgeon can be very involved with their job, in such tasks as consulting with patients and performing surgery, without being particularly engaged with their current office. The authors also argue that, contrary to assertions of JI as a cognitive component of Job Satisfaction (see Kanungo, 1982a) one can actually be very involved with a job while at the same time being dissatisfied with it.

Relationship with Performance

The relationship between JI and job performance has been inconsistent. Part of the problem may be due to this mixing of constructs (Diefendorff, 2002). In their study conducted on a population of scientists using attitude measures and interviews, Lawler and Hall (1970) concluded that job design (levels of control, responsibility, and challenge) were related to Job Satisfaction, but the more the job was seen to allow the person to influence what is going on, be creative, use skills and abilities, the higher the JI scores (intrinsic motivation items). Self-reports of job performance and effort were most strongly related to intrinsic motivation items, and not at all with Job Satisfaction (Paullay et al.'s 1994 results supported a separation of JI from Job Satisfaction as well).

A strong correlation existed between self-reports of effort and JI, but not JI with self-reports of performance. The lack of relationship between JI and self-reports of performance was explained by the authors as reasonable, since a job could be important to someone, have satisfying social relationships, security, status, and provide meaningful activity regardless of actual level of performance on the job. They concluded by agreeing with Lodahl & Kejner's

assertion that JI may be more a function of the person than the job, since it was related to self-perception items but not the objective job design measures.

Another potential source for the mixed relationship between JI and job performance, as pointed out by Deifendorff (2002), is the fact that most of these studies measure in-role job performance, or how workers perform their assigned task. Looking at discretionary work, such as "Organizational Citizenship Behaviors" may reflect attitudes more accurately. If JI is examined with Paullay's instrument, it correlates with these behaviors (Diefendorff, 2002).

Summary and Conclusions

Throughout the past century, concepts of work ethic (Blood, 1969; Buchholz, 1977; Goldstein & Eichhorn, 1961; Hammond & Williams, 1976; Ho, 1984; Mirels & Garrett, 1971; Ray, 1982; Weber, 1930), work centrality (Dubin, 1956; Kanungo, 1982a,b), job involvement (Kanungo, 1982b; Lawler and Hall 1970; Lodahl & Kejner, 1965) surface throughout the sociological and psychological literature. This persistence makes evident the importance of how a person views the importance and meaning of work and the effects this belief has on his or her ability to be a productive member of the workforce and society. All of the aforementioned interrelated concepts lend themselves to a more general notion of Work Drive, the disposition to work hard and be motivated to extend oneself, if necessary, to achieve success.

In spite of some of the confusion and overlap in individual constructs, these difference aspects of Work Drive, in one form or another, have shown a moderately positive trend of relationships with job and academic performance and self-reports of effort (e.g. Batlis, 1978;

Diefendorff, 2002; Lawler & Hall, 1970; Lounsbury, Sundstrom, Loveland & Gibson, in press). Given the increased interest in the selection literature in individual differences in personality and what they contribute to predicting performance outcomes, a measure specifically of work-related beliefs should be a beneficial addition to the Five Factor Model's contribution. As a distinct entity from other performance-related constructs such as Need for Achievement and Job Satisfaction, Work Drive could provide a unique contribution to the understanding of an individual's performance in school and work.

CHAPTER III

THE PRESENT RESEARCH

Measuring Adolescent Personality

Many of the previously reviewed studies of adolescent personality rely either on adult ratings (typically a teacher or parent), or on self-report using scales intended for adults, such as the NEO Personality Inventory, which may not always be appropriate for adolescents (Costa & McCrae, 1992, 1994; Graziano & Ward, 1992). A common scale specifically for use with adolescents is the High School Personality Questionnaire (HSPQ), a low reading level version of the Sixteen Personality Factor Questionnaire. The HSPQ consists of the following 14 scales: Warmth, Intelligence, Emotional Stability, Excitability, Dominance, Enthusiasm, Conformity, Boldness, Sensitivity, Withdrawal, Apprehension, Self-Sufficiency, Self-Discipline, and Tension (Cattell & Beloff, 1953). Cattell and colleagues determined that adolescent and adult personalities are similar in structure and adequately described by these factors, with only the Excitability and Withdrawal scales being more important earlier in development than later in life (Cattell & Beloff, 1953; Cattell, Cattell, & Johns, 1984). A more recent inventory, the 16PF Adolescent Personality Questionnaire, removed these subscales of Excitability and Withdrawal, added sections for “life difficulties” and “career style” and added more features from the adult scale such as Abstractedness and Vigilance (IPAT, 2003). Overall, this scale is inefficient at measuring the five factors, although its subscales can be categorized as such. Since some of the

items in the scale were constructed decades ago, the HSPQ references jobs and activities that may not be relevant or familiar to current adolescents (Lounsbury et al., 2000).

The Importance of Context

In job selection settings, applicants who base their answers on work experiences may provide a more accurate indicator of job performance than applicants who use more generalized overall life experiences to answer the questions. Contextualizing items or instructions, by asking respondents to indicate how they behave at work or at school, for example, can provide a common frame-of-reference to describe their behavior, increasing scale validity by facilitating self-presentation (Schmit, Ryan, Stierwalt & Powell, 1995). Using a school-specific Conscientiousness scale to predict college student GPA, Schmit and his colleagues determined school-specific items were more valid, even with general instructions. Students are possibly presenting themselves positively and more accurately because they have a frame of reference, leading to increased scale validity. Therefore, contextualized items specifically referring to behaviors in a school setting should clarify the relationship between personality and academic performance.

The Adolescent Personal Style Inventory

Validity and Reliability

Accordingly, Lounsbury et al. (in press) have developed an adolescent-appropriate (down to age 11) self-report scale to measure the Five Factor Model personality traits, also

commonly referred to as the Big Five. The scale consists of 91 school-specific items, reviewed for clarity by teachers, school psychologists, and middle school students. In a series of six studies involving 3,510 students at different schools and grade levels (ages 11-18), the scale was found to overlap with corresponding subscales of the NEO-FFI. All five subscales had high internal consistency and reliability. Significant convergent validity for Extraversion, Openness and Agreeableness via same-trait teacher ratings and significant criterion validity with grades across grade level were found. Nomological validity and the ability to distinguish between low and high functioning groups were also demonstrated. This initial scale, along with the addition of measures of Assertiveness, Career Decidedness, Optimism, Social Desirability, and Work Drive, comprise the Adolescent Personal Style Inventory (APSI) (Lounsbury & Gibson, 2001).

In an empirical test of Munson and Rubenstein's (1992) assertion that "school is work", Lounsbury et al. (in press) compared a sample of 992 students in a high school with a sample of workers in a manufacturing plant. The high school students were administered the APSI, and the plant workers were administered the Personal Style Inventory (PSI), an adult version of the scale. Performance was measured by cumulative grade point average in the high school sample, and through supervisor ratings of productivity, quality, teamwork, concern for safety, and attendance for the plant worker sample. In both samples, all of the personality traits showed significant correlations with performance, whether it was grade point average or work supervisor ratings, supporting the notion of the psychological equivalence of school and work. Cronbach alpha reliability coefficients for the APSI scales were: Agreeableness = .82;

Conscientiousness = .84; Emotional Resilience (Stability) = .85; Openness = .81 and Extraversion = .87.

Work Drive Subscale

The predictive contribution of a measure of Work Drive in the APSI will be examined in the present study. Work Drive is conceptualized as a disposition to work long hours at an assigned task or responsibility, to invest much time and energy into schoolwork or a job, and a motivation to be productive (Lounsbury & Gibson, 2001). This conceptualization reflects an individual's characteristic pattern of behavior at work and general orientation toward work, which differentiates it from attitude, belief, or value measures. The trait of Work Drive could logically be expected to predict job performance, as someone who is willing to put more effort and energy into work is more likely to be productive and successful in a job. Lounsbury et al (in press) also found a positive correlation between Work Drive and course grades in college students, even when controlling for Big Five personality traits. The definition of work drive suggests it may be related more directly to academic performance than other personality traits, such as Extraversion or Openness. Therefore, the predictive power of Work Drive might also extend to academic performance, and may add incrementally to prediction above and beyond other Big Five personality traits.

In Lounsbury et al.'s study comparing the APSI with the adult version of the measure, they determined a coefficient alpha of .86 for the APSI Work Drive subscale. Work Drive was correlated .46 with performance for the adult PSI (plant workers), and .33 for Work Drive with cumulative grade point average using the APSI.

Methods

The present study was conducted to examine the relationship between a measure of Work Drive contextualized for adolescent high school students and grade point average. Three major hypotheses, along with two resulting research questions, were formulated regarding the potential relationships between the Big Five, Work Drive, GPA, and grade-level and gender of the student.

Hypotheses

Hypothesis 1: The Big Five personality variables are significantly related to GPA

Based on their conceptual specification and on the reviewed job performance literature, the following predictions were made for each of the five personality factors:

- 1) *Agreeableness will be positively related to GPA.* This factor predicts success in tasks that are interpersonal in nature or teamwork oriented. Positive relationships with teachers and peers and the ability to work well on group projects should positively affect overall academic performance.
- 2) *Emotional Stability will be positively related to GPA.* Students scoring more highly on Emotional Stability are expected to perform well under conditions of pressure and stress, which are experienced by all students in school at one time or another. This particular personality factor provides relatively good generalizability as a predictor of overall work performance in the personnel psychology literature (e.g. Barrick et al., 2001).

- 3) *Extraversion will be positively related to GPA.* A high score in Extraversion indicates an outward focus of attention, stimulated by external stimuli and people. This responsiveness to the environment and others is a valid predictor of training proficiency for jobs that are interpersonal in nature (e.g. Mount & Barrick, 1998), and should extend to other learning situations.
- 4) *Openness will be positively related to GPA.* A willingness to accept new learning, ideas, change, and variety, and to learn new ways of doing things are fundamental to student learning and the educational process and should therefore correlate positively with academic success.
- 5) *Conscientiousness will be positive related to GPA.* Students who score more highly on conscientiousness tend to be more orderly disciplined, and rule-following. Also, they prefer working in structured environments with clear guidelines, which is characteristic of most school environments. Conscientiousness has been found to predict job and college performance (e.g. Barrick et al., 2001; McIlroy & Bunting, 2002), thus a positive relationship between grade point average in school and Conscientiousness is expected.

Hypothesis 2: Work Drive is positively related to GPA

Individuals who devote extra time and effort into schoolwork and strive to do well in classes are expected to make better grades, thus a positive correlation between Work Drive and GPA was expected.

Hypothesis 3: After controlling for Big Five (hierarchical regression), work drive will show a significant R-squared increment in predicting GPA

Because Work Drive taps into behaviors that are directly relevant to academic performance and in view of the incremental validity of predicting criteria like grades using more narrow personality traits than the Big Five (Paunonen, 1998; Paunonen, Rothstein, & Jackson, 1999), it was expected that Work Drive would add additional validity to the prediction of GPA above and beyond the Big Five traits.

In addition to the above hypotheses, two research questions were investigated:

Research Question 1: Is the relationship between Work Drive and GPA different for males and females?

The Five Factor Model has been demonstrated to be stable across gender (see Digman, 1990), but the interactions among the Big Five, work drive, academic achievement and gender have been mixed. Mervielde et al (1995) found inconsistent effects of the Five Factor model predicting GPA in grade school children (ages 4-12). Early studies of work ethic demonstrated no consistent gender effects (Buchholz, 1978; Furnham, 1982, 1987, 1990; Mirels & Garrett, 1971). Wentworth and Chell (1997) found higher Protestant Work Ethic (PWE) scores in male college students as compared to women, using Mirels and Garrett's (1971) scale, but drew no definitive conclusions based in part on the fact that Furnham's more recent cross-cultural research had shown that women tend to score higher in PWE (Baguma & Furnham, 1993; Furnham & Rajamanickam, 1992).

Research Question 2: Does the relationship between Work Drive and GPA vary by grade level?

The conclusions in the literature about the relationship between age and work drive are equally unclear (Buchholz, 1978; Furnham, 1982, 1987; Wentworth & Chell, 1997).

Wentworth and Chell (1997) found younger, undergraduate students expressed more PWE beliefs than did older graduate students. Number of years in the workforce negatively impacted PWE beliefs, as did level of education. Work Drive has not been examined in adolescent populations, so the extent to which this effect might occur within four years of school, if at all, is unknown. Therefore, grade level was examined as a possible moderator of Work Drive in this study.

Sample

The subjects for this study are 9th, 10th, 11th and 12th grade students from a data archive collected by Resource Associates, Inc. as part of a study of students in a school system in the southeast. Three high schools provided the dataset for this study. The total number of subjects was 1,276 females and 1,122 males, for a total of 2,398 subjects. The school system is 82% Caucasian, 14% African-American, and 4% other.

Instrumentation

The Resource Associates Adolescent Personal Style Inventory (APSI, Version 2) consists of 118 items. It measures the following personality traits, considered appropriate by human resource managers for selecting new employees: Agreeableness, Conscientiousness, Emotional Stability/Resilience, Extraversion, Openness, and Work Drive.

The inventory was reviewed by counselors and administrators to clarify the wording and meaning of instructions and items. Definitions of the dimensions measured by this inventory are given in the appendix. Sample items measuring Work Drive include “I don’t feel good about myself unless I do well in school”, “I don’t mind staying up late to finish a school assignment”, “My friends say I study too much.” and “I would keep going to school even if I didn’t have to.”

Data Collection Procedures

Archival data from Resource Associates, Inc. were used. The APSI was administered by teachers to all students in class on a given day in the 9th, 10th, 11th, and 12th grades.

Feedback summaries were provided to all participating students.

Results

Average GPA increased with grade level, from 9th ($M=2.46$), 10th ($M=2.74$) and 11th ($M=2.82$) grades to the highest mean GPA in 12th grade ($M=2.99$) (see Table 1). The average Work Drive scores were calculated for 9th graders ($M=2.99$), 10th graders ($M=2.86$), 11th graders ($M=2.83$) and 12th graders ($M=2.86$). A one-way ANOVA was performed on both the GPA means by grade level and Work Drive means by grade level. These results indicated the GPA means for each grade level were significantly different ($F=37.451$, $p<.01$) (See Table 2 and Figure 1). The differences in Work Drive means for each grade level were also significantly different ($F=$, $p<.01$) (See Tables 3&4, Figure 2). Work Drive scores were highest in 9th grade ($M=2.99$).

Table 1: Combined Descriptive Statistics for Grade Point Average

Mean GPA							
	Combined	Male	Female	9 th	10 th	11 th	12 th
N	(2,398)	(1,122)	(1,276)	(586)	(702)	(470)	(640)
Combined	2.78 (.93)	2.67 (.92)	2.90 (.96)	2.46 (1.18)	2.74 (.91)	2.82 (.83)	2.99 (.70)
School A	2.63	2.53	2.72	2.35	2.56	2.81	2.93
School B	2.74	2.65	2.83	2.56	2.64	2.82	3.01
School C	3.01	2.82	3.15	--	3.02	--	3.04

All numbers in parentheses represent the standard deviations for the corresponding means.

Table 2: ANOVA for GPA by Grade Level

	Sum of Squares	Df	Mean Square	F
Between Groups	95.916	3	31.972	37.451**
Within Groups	2043.738	2394	.854	
Total	2139.654	2397		

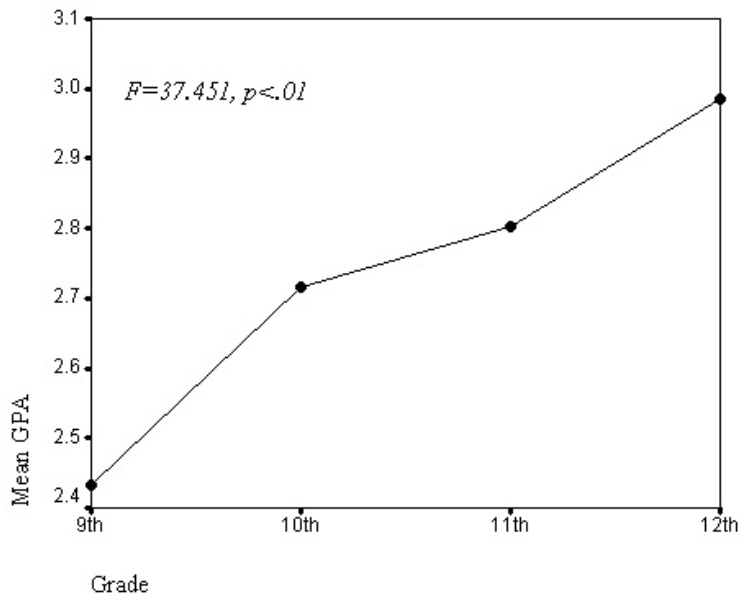


Figure 1: Average Grade Point Average for Each Grade Level

Table 3: Combined Descriptive Statistics for Work Drive

Mean Work Drive							
	Combined	Male	Female	9 th	10 th	11 th	12 th
N	(2,398)	(1,122)	(1,276)	(586)	(702)	(470)	(640)
Combined	2.90 (.72)	2.76 (.72)	3.04 (.70)	2.99 (.72)	2.86 (.74)	2.83 (.70)	2.86 (.72)
School A	2.87	2.75	3.00	3.02	2.79	2.82	2.81
School B	2.83	2.69	2.97	2.96	2.78	2.83	2.74
School C	3.00	2.84	3.15	--	3.02	--	3.02

All numbers in parentheses represent the standard deviations for the corresponding means.

Table 4: ANOVA for Work Drive by Grade Level

	Sum of Squares	Df	Mean Square	F
Between Groups	12.169	3	4.056	7.773**
Within Groups	1381.819	2648	.522	
Total	1393.988	2651		

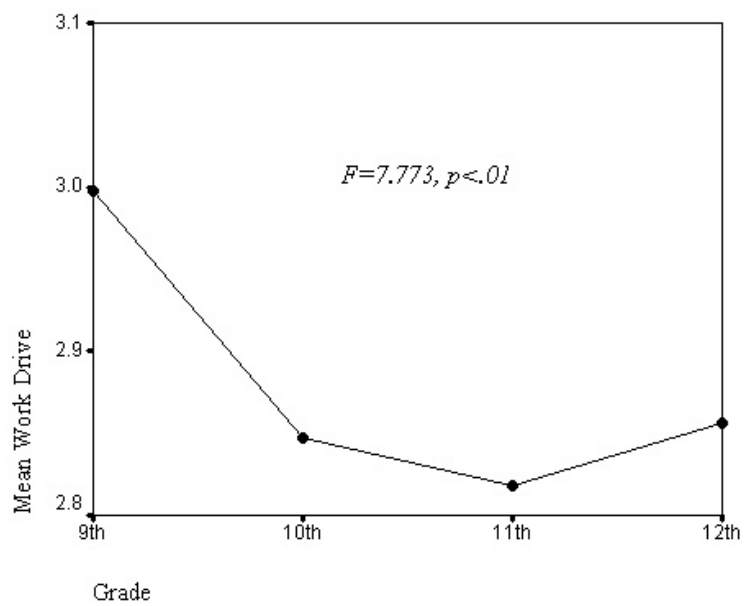


Figure 2: Average Work Drive Score for Each Grade Level

A series of *t* tests were conducted to detect any significant gender differences in mean GPA (Table 1) and mean Work Drive (Table 3). Overall, female students had significantly higher grade point averages ($M=2.9$) than male students ($M=2.67$, $t=-5.54$, $p<.01$). Female students also had significantly higher Work Drive scores ($M=3.04$) than did male students ($M=2.76$, $t=-9.8$, $p<.01$).

Pearson product moment correlations were computed between GPA and each of the Big Five personality variables (see Table 5). Each of the Big Five variables was significantly correlated with GPA. The strongest correlation was observed between GPA and

Table 5: Combined Correlation Coefficients for the Adolescent Personal Style Inventory

(N=2,398)	1	2	3	4	5	6	7
1. GPA	1.00	.31**	.15**	.15**	.14**	.17**	.33**
2. Agreeableness		1.00	.40**	.46**	.48**	.38**	.39**
3. Conscientiousness			1.00	.18**	.35**	.40**	.61**
4. Emotional Stability				1.00	.26**	.19**	.20**
5. Extraversion					1.00	.49**	.30**
6. Openness						1.00	.56**
7. Work Drive							1.00

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

Agreeableness ($r=.31, p<.01$), followed by Openness ($r=.17, p<.01$), Conscientiousness ($r=.15, p<.01$), Emotional Stability ($r=.15, p<.01$), and Extraversion ($r=.14, p<.01$).

The correlation between GPA and Work Drive was also calculated. Work Drive was more highly correlated with GPA than were any of the Big Five variables ($r=.33, p<.01$). Using Hotelling's t test for correlated correlation coefficients, the difference in correlation strength between Work Drive ($r=.33$) and GPA versus the most highly correlated Big Five variable, Agreeableness ($r=.31$), was calculated but not significant ($t=.96, p>.05$). However, this correlation between Work Drive and GPA was significantly stronger than those between GPA and Openness ($t=8.79, p<.01$), Conscientiousness ($t=10.54, p<.01$), Emotional Stability ($t=7.41, p<.01$), and Extraversion ($t=8.30, p<.01$). As presented in Tables 6 and 7, the correlation between Work Drive and GPA was significant for both females ($r=.36, p<.01$) and males ($r=.27, p<.01$), and these correlations were significantly different ($z=2.42, p<.05$). The relationships involving grade level were not as clear. The highest correlation between Work Drive and GPA (see Tables 8-11) was found for 11th grade students ($r=.43, p<.01$), followed by 9th grade ($r=.39, p<.01$), and 10th and 12th grades ($r=.34, p<.01$).

Using the SPSS statistical package (SPSS version 11.0.1, 2001), a hierarchical multiple regression was conducted to examine the specific incremental validity of adding Work Drive to the predictive model. As can be seen in Table 12, the Big Five measure accounted for 10% ($p<.01$) of the variance in GPA. After controlling for the Big Five personality variables, Work Drive showed a significant increase of accounting for an additional 6% ($p<.01$) of the variance.

Hierarchical regression results (Table 12) showed the Big Five accounted for the most

Table 6: Male Correlation Coefficients for the Adolescent Personal Style Inventory

(N=1,122)	1	2	3	4	5	6	7
1. GPA	1.00	.27**	.15**	.20**	.16**	.20**	.27**
2. Agreeableness		1.00	.38**	.55**	.47**	.42**	.37**
3. Conscientiousness			1.00	.23**	.38**	.45**	.60**
4. Emotional Stability				1.00	.32**	.22**	.23**
5. Extraversion					1.00	.57**	.29**
6. Openness						1.00	.57**
7. Work Drive							1.00

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

Table 7: Female Correlation Coefficients for the Adolescent Personal Style Inventory

(N=1,276)	1	2	3	4	5	6	7
1. GPA	1.00	.32**	.13**	.16**	.08**	.13**	.36**
2. Agreeableness		1.00	.35**	.50**	.42**	.32**	.36**
3. Conscientiousness			1.00	.22**	.25**	.31**	.58**
4. Emotional Stability				1.00**	.32**	.21**	.25**
5. Extraversion					1.00	.38**	.23**
6. Openness						1.00	.52**
7. Work Drive							1.00

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

Table 8: 9th Grade Correlation Coefficients for the Adolescent Personal Style Inventory

(N=586)	1	2	3	4	5	6	7
1. GPA	1.00	.34**	.13**	.22**	.22**	.21**	.39**
2. Agreeableness		1.00	.42**	.51**	.48**	.31**	.36**
3. Conscientiousness			1.00	.26**	.43**	.47**	.61**
4. Emotional Stability				1.00	.28**	.23**	.26**
5. Extraversion					1.00	.49**	.31**
6. Openness						1.00	.59**
7. Work Drive							1.00

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

Table 9: 10th Grade Correlation Coefficients for the Adolescent Personal Style Inventory

(N=702)	1	2	3	4	5	6	7
1. GPA	1.00	.31**	.16**	.21**	.19**	.17**	.34**
2. Agreeableness		1.00	.40**	.44**	.47**	.49**	.43**
3. Conscientiousness			1.00	.15**	.35**	.47**	.66**
4. Emotional Stability				1.00	.24**	.16**	.21**
5. Extraversion					1.00	.53**	.33**
6. Openness						1.00	.53**
7. Work Drive							1.00

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

Table 10: 11th Grade Correlation Coefficients for the Adolescent Personal Style Inventory

(N=470)	1	2	3	4	5	6	7
1. GPA	1.00	.35**	.27**	.13**	.02	.18**	.43**
2. Agreeableness		1.00	.47**	.46**	.44**	.41**	.45**
3. Conscientiousness			1.00	.22**	.38**	.41**	.59**
4. Emotional Stability				1.00	.22**	.21**	.25**
5. Extraversion					1.00	.51**	.30**
6. Openness						1.00	.54**
7. Work Drive							1.00

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

Table 11: 12th Grade Correlation Coefficients for the Adolescent Personal Style Inventory

(N=640)	1	2	3	4	5	6	7
1. GPA	1.00	.30**	.16**	.05	.06	.19**	.34**
2. Agreeableness		1.00	.31**	.44**	.55**	.32**	.35**
3. Conscientiousness			1.00	.12**	.27**	.20**	.57**
4. Emotional Stability				1.00	.30**	.14**	.10**
5. Extraversion					1.00	.42**	.26**
6. Openness						1.00	.55**
7. Work Drive							1.00

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

Table 12: Hierarchical Multiple Regression for Work Drive and GPA Controlling for Five Factor Model (FFM)

Model for Predicting GPA		R	R ²	R ² change	F
Combined (N=2,398)	1. FFM	.321	.103	.103	45.838**
	2. FFM + Work Drive	.406	.165	.061	146.120**
Male (N=1,122)	1. FFM	.292	.085	.085	17.368**
	2. FFM + Work Drive	.337	.113	.028	29.851**
Female (N=1,276)	1. FFM	.334	.112	.112	26.341**
	2. FFM + Work Drive	.456	.208	.096	127.315**
9 th (N=586)	1. FFM	.363	.132	.132	17.573**
	2. FFM + Work Drive	.497	.247	.115	88.358**
10 th (N=702)	1. FFM	.327	.107	.107	11.887**
	2. FFM + Work Drive	.415	.173	.066	39.449**
11 th (N=470)	1. FFM	.417	.174	.174	19.335**
	2. FFM + Work Drive	.498	.248	.075	45.405**
12 th (N=640)	1. FFM	.370	.137	.137	13.840**
	2. FFM + Work Drive	.421	.177	.040	21.411**

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

variance (12%, $p < .01$) in the 9th grade group (the group with the highest variance in mean GPA), but the highest incremental validity of adding Work Drive to the model occurred for 11th grade students (the group with the lowest mean Work Drive score), accounting for an additional 17% of the variance in that group ($p < .01$). The results of the hierarchical regression show a higher incremental validity of Work Drive for females, a 10% ($p < .01$) increase in variance accounted for, compared to 3% ($p < .01$) for males.

Given the relative importance of Work Drive in predicting cumulative GPA, an additional hierarchical multiple regression was conducted, this time with Work Drive entered as the first variable, before the Big Five. The results are presented in Table 13. With this configuration, Work Drive accounted for 11% of variance in GPA ($p < .01$). The addition of the Big Five variables accounted for an additional 5% beyond Work Drive ($p < .01$).

Another way to display the relationship between Work Drive and GPA is through the use of expectancy tables, which are cross-tabulations of the two variables. Table 14 shows the combined cross-tabulations for both male and female subjects in all grade levels. Tables 15 through 20 display splits by gender and grade level. These tables show a clear trend for high and low scorers in Work Drive. For example, in Table 14, only 5% of all students scoring in the top 25% of Work Drive have a GPA lower than 2.0, whereas 65% have a GPA greater than 3.5. For the lowest 25% of Work Drive scores, 32% have a lower GPA than 2.0, whereas only 4% have a GPA higher than 3.5.

Table 13: Hierarchical Multiple Regression for the Five Factor Model (FFM) and GPA

Model for Predicting GPA		R	R ²	R ² change	F
Combined (N=2,398)	1. Work Drive	.333	.111	.111	248.013**
	2. Work Drive + FFM	.406	.165	.054	25.727**
Male (N=1,122)	1. Work Drive	.271	.074	.073	74.677**
	2. Work Drive + FFM	.337	.113	.040	8.353**
Female (N=1,276)	1. Work Drive	.362	.131	.131	158.995**
	2. Work Drive + FFM	.456	.208	.077	20.268**
9 th (N=586)	1. Work Drive	.390	.152	.152	104.563**
	2. Work Drive + FFM	.497	.247	.095	14.553**
10 th (N=702)	1. Work Drive	.335	.112	.112	63.458**
	2. Work Drive + FFM	.415	.173	.060	7.217**
11 th (N=470)	1. Work Drive	.425	.180	.180	101.850**
	2. Work Drive + FFM	.498	.248	.068	8.309**
12 th (N=640)	1. Work Drive	.335	.112	.112	55.532**
	2. Work Drive + FFM	.421	.177	.065	6.917**

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

Table 14: Work Drive Scores and GPA: All students

GPA	< 2.00	2.00-2.99	3.00-3.50	>3.5
Work Drive Quartile				
1-25%ile	69 (32%)	103 (47%)	37 (17%)	9 (4%)
26-50%ile	235 (23%)	389 (38%)	238 (23%)	166 (16%)
51-75%ile	166 (17%)	241 (25%)	237 (24%)	334 (34%)
75-99%ile	9 (5%)	24 (14%)	28 (16%)	113 (65%)

Note: Cell values represent row frequencies and row percents.

Table 15: Work Drive Scores and GPA: Male students

GPA	< 2.00	2.00-2.99	3.00-3.50	>3.5
Work Drive Quartile				
1-25%ile	41 (29.5%)	62 (44.5%)	29 (21%)	7 (5%)
26-50%ile	123 (23%)	232 (43.5%)	99 (18.5%)	78 (15%)
51-75%ile	77 (19.5%)	120 (30.5%)	90 (23%)	106 (27%)
75-99%ile	4 (7%)	11 (19%)	10 (17%)	33 (57%)

Note: Cell values represent row frequencies and row percents.

Table 16: Work Drive Scores and GPA: Female students

GPA	< 2.00	2.00-2.99	3.00-3.50	>3.5
Work Drive Quartile				
1-25%ile	28 (35%)	41 (52%)	8 (10%)	2 (3%)
26-50%ile	112 (22.5%)	157 (31.5%)	139 (28%)	88 (18%)
51-75%ile	89 (15%)	121 (21%)	147 (25%)	228 (39%)
75-99%ile	5 (4%)	13 (11%)	18 (16%)	80 (69%)

Note: Cell values represent row frequencies and row percents.

Table 17: Work Drive Scores and GPA: 9th grade students

GPA	< 2.00	2.00-2.99	3.00-3.50	>3.5
Work Drive Quartile				
1-25%ile	20 (59%)	6 (17.5%)	6 (17.5%)	2 (6%)
26-50%ile	100 (42.5%)	63 (27%)	35 (15%)	37 (15.5%)
51-75%ile	65 (24.5%)	55 (21%)	52 (19.5%)	93 (35%)
75-99%ile	2 (4%)	11 (21%)	8 (15%)	31 (60%)

Note: Cell values represent row frequencies and row percents.

Table 18: Work Drive Scores and GPA: 10th grade students

GPA	< 2.00	2.00-2.99	3.00-3.50	>3.5
Work Drive Quartile				
1-25%ile	24 (31%)	35 (45%)	15 (19%)	4 (5%)
26-50%ile	74 (26%)	98 (34.5%)	58 (20.5%)	53 (19%)
51-75%ile	46 (16%)	76 (26%)	86 (29%)	86 (29%)
75-99%ile	4 (9%)	9 (19%)	10 (22%)	23 (50%)

Note: Cell values represent row frequencies and row percents.

Table 19: Work Drive Scores and GPA: 11th grade students

GPA	< 2.00	2.00-2.99	3.00-3.50	>3.5
Work Drive Quartile				
1-25%ile	17 (39.5%)	24 (56%)	2 (4.5%)	0 (0%)
26-50%ile	36 (16%)	98 (44%)	62 (28%)	28 (12%)
51-75%ile	24 (13.5%)	42 (24%)	40 (22.5%)	71 (40%)
75-99%ile	2 (7%)	2 (7%)	6 (21.5%)	18 (64.5%)

Note: Cell values represent row frequencies and row percents

Table 20: Work Drive Scores and GPA: 12th grade students

GPA	< 2.00	2.00-2.99	3.00-3.50	>3.5
Work Drive Quartile				
1-25%ile	8 (13%)	38 (60%)	14 (22%)	3 (5%)
26-50%ile	24 (8.5%)	129 (45%)	83 (29%)	50 (17.5%)
51-75%ile	31 (13%)	68 (28%)	58 (24%)	84 (35%)
75-99%ile	1 (2%)	2 (4%)	4 (8%)	41 (86%)

Note: Cell values represent row frequencies and row percents.

Summary

Grade point average significantly increased with grade level. Work Drive was highest in 9th grade students. Significant gender differences were found. Female students had both higher GPAs and higher Work Drive scores than males.

Each of the Big Five personality variables, as measured by the Adolescent Personal Style Inventory (APSI), was significantly correlated with GPA. The correlation between the APSI Work Drive scale and GPA was .33, higher than for any of the Big Five variables, and significantly higher than all variables except Agreeableness. Work Drive was significantly correlated with both male and female GPA, although the relationship with female GPA was significantly higher than for males.

After controlling for Big Five variables, a hierarchical multiple regression revealed Work Drive added significant incremental validity to the predictive model. Work Drive predicted GPA above and beyond the contribution of Big Five personality variables alone significantly for both genders and all grade levels. More specifically, this model accounts for the most variance in female and 11th grade students. Reversing the variable order in the regression revealed, conversely, that Big Five variables also added significant incremental validity to Work Drive. Overall, Big Five variables and Work Drive accounted for 16% of the variance in GPA.

CHAPTER IV

DISCUSSION AND CONCLUSIONS

The Big Five and GPA

Each of the Big Five personality traits, as measured by the APSI, was significantly correlated with cumulative grade point average in high school. These correlations did not vary much by grade level or gender. Lounsbury et al. (in press) found Openness and Conscientiousness correlated significantly with the final grade in a course for college students. In this study, however, the strongest correlation was found between GPA and Agreeableness, which was then followed in strength by Openness, and then by Conscientiousness. While Agreeableness typically is thought to predict performance in jobs that are interpersonal in nature, it does recur frequently in the performance literature as an important trait, usually in the top three falling somewhere behind Conscientiousness. Tett et al.'s (1991) meta-analysis in fact found Agreeableness to be a better predictor of performance across most job categories. It could be that, especially when the scale items are put into the context of school-related behaviors, the ability to cooperate with others in a classroom environment would have a positive relationship with grades. Given the relationship this construct also has with training efficiency, if the classroom is considered an arena in which academic training occurs, with the frequent acquisition of new skills and concepts, cooperative efforts with classmates would indeed provide an advantage that would likely show up in final grades.

In the present study, Openness was the second most highly correlated Big Five variable with GPA. Openness has suffered from inconsistent relationships with performance in the literature. This inconsistency is in part due to difficulty in defining it, and in part due to the varying degree of importance this construct may have in different work (i.e. Bing & Lounsbury, 2000) and academic settings. Definitions of this construct usually involve intellectual capacity and willingness to learn and have new experiences. In an academic environment especially, the ability and willingness to acquire and learn new information is a logical predictor of success.

Work Drive and GPA

The APSI subscale of Work Drive, designed to tap into a student's disposition to put in extra effort toward schoolwork, successfully predicted academic achievement in the form of grade point average. Work Drive was more highly correlated with GPA than any of the Big Five variables. It added significant incremental validity to a predictive model based on the five primary personality traits. The use of a narrower construct specifically measuring work beliefs also proved beneficial to assessing the willingness of high school students to put in extra effort toward their schoolwork. Paunonen (1998, 1999) and others have concluded narrower constructs may be more accurate in predicting job and achievement-related behaviors. The higher correlation of Work Drive with grade point average supports this idea.

Lawler and Hall (1970) correlated the construct of Job Involvement with self-reports of performance and effort. Work Drive, which taps into this same behavior pattern of putting forth extra effort; therefore logically correlates with extra effort and success in school. Lodahl and

Kejner (1965) described JI as more of a function of the person than of the job itself. Different students bring different personal styles to the same classroom setting. Along these lines, Work Drive may account for variation in Grade Point Average between individual students within the same school system and similar curriculums. It also reflects the amount of effort put toward schoolwork and the resulting academic achievement.

It is interesting to note that Work Drive predicted GPA for both adolescents in the present study, and in a study of college student academic performance (see Lounsbury et al.). Taken together, this points toward the generalizability of work drive in predicting grades in mid to late adolescence. While Lounsbury et al. (in press) found a lack of significant contribution if the Big Five variables were added to the model after Work Drive in a sample of college students, the present analysis indicated a significant increase in validity when adding the Big Five variables to Work Drive. Why the Big Five personality variables are not as important for predicting college GPA cannot be explained by the results of the current study. It is possible that since college is a more voluntary career and life-path choice, as opposed to mandatory high school attendance, college students could limit potential variance introduced by factors such as low Emotional Stability, for example, by having a greater ability and desire to manage and control the effects on performance in school. The motivation to succeed, not waste tuition money, and start a promising career may also facilitate adapting to norms and expectations in college. Those who are already driven to work hard and put in extra effort have even more of an advantage. The narrower construct of Work Drive significantly improves prediction, but the

broader traits appear to be also useful in explaining academic performance for students in high school.

Schmit and Ryan (1993) compared the use of the NEO-FFI, a Big Five measure, in job applicant and college student populations and determined the five-factor structure fit student data but not data from job applicants. Their explanation returns to the issue of context in respondent items. Self-presentation may cloud predictive results and obscure the five-factor model in instances when applicants are applying for a job. Conscientiousness items in measures such as the NEO-FFI are often already placed in the context of work, which may enhance this construct's relationship with job performance. Instating a performance context improves the ability of these measures to translate into job performance (Schmit et al, 1995). The data from student volunteers are typically related to other construct measures or self-report scales. In the present study, both Big Five and Work Drive items were school-specific, which have been one factor producing the observed increased predictive validity. Another possible source of this difference between students and job applicants is social desirability. Putting items in context, as pointed out by Schmit et al. (1995), increased response accuracy reduces the effects of inaccurate responding based on social desirability. In a setting where applicants are trying to land a job are often motivated to present themselves in a very favorable way which can lead to biased scores that obscure results and lowers validity. On the other hand, high school students, such as those in this study, may not have learned how to "fake good" yet, leading to the higher levels of validity observed.

Gender

Work Drive significantly predicted GPA for both females and males. However, female students consistently had higher GPAs and higher Work Drive scores than males. Early Protestant Work Ethic studies and later cross-cultural studies have revealed no consistent effects of gender (see Baguma & Furnham, 1993; Buchholz, 1978; Furnham, 1982, 1987, 1990; Furnham & Rajamanickam, 1992; Mirels & Garrett, 1971). A later study by Wentworth and Chell (1997) found higher work ethic scores in males for a college population. Mannheim (1993) found no substantial difference in work centrality and values between men and women aged 40-49 when demographic variables such as underemployment related to level of education and socio-economic status were controlled for. While country of origin had no effect on males in terms of job values and work centrality, it did have a significant effect on females. The differences in socialization between various countries in the study presumably led to different beliefs about the importance of work in female participants.

In reviews of the adult job selection literature, the constructs of Agreeableness and Conscientiousness have been labeled key predictors of performance (Barrick and Mount, 1991; Tett et al., 1991). The results of several recent studies examining the Big Five in childhood and adolescence have indicated higher scores for females in both of these dimensions (Hagekull & Bohlin, 1998; Victor, 1994). In the developmental literature, these traits are believed to stem from initial systems of self-regulation and control, which is primarily a result of parenting (Hagekull & Bohlin, 1998). McDermott, Mordell, and Stoltzfus (2001) revealed female superiority for disciplined behavior and motivation as measured by teacher observation

scales. Since studies that rely on teacher ratings of personality traits can include possible teacher-student gender interactions, this use of self-report methods with adolescents in this study ruled out this potential source of variance. Given the results of the present study, one could conclude that the higher Work Drive scores in females in this sample could indicate differences in socialization and upbringing that encourages a focus on the value of work and work-centered beliefs for female children. Young girls may be getting different or more enthusiastic messages while growing up about how hard they will need to work in order to compete in the workforce. Indeed this may be a “sign of the times”, as Wentworth and Chell asserted.

Grade Level

The relationship between Work Drive and grade level was not as clear, although Work Drive scores were consistently higher for 9th grade students than for other grades, even though cumulative grade point average increased with grade level. While a clear trend of a decrease in Work Drive is indistinguishable in such a narrow age group as this sample represents, it could be the start of a decline in Work Drive as education increases, which is found later in college age and graduate students in the literature (Wentworth & Chell, 1997).

Mannheim’s (1993) sample using a slightly broader age range of 40 to 49 found no discernable trend regarding work beliefs. However, this difference from the present findings could be due to the developmental transition occurring in adolescence that is not experienced by adults in their forties. While increased exposure to the work force may lead to lower work ethic

beliefs, as Wentworth and Chell postulated, one would expect the shift to be more dramatic from adolescence to early adulthood and college age.

Another possible explanation for a lack of a clear age-related trend could be illustrated by the fact that Wentworth and Chell's results were based on beliefs, which were not correlated with academic performance, but with self-reports. It is possible that regardless of self-reports, of beliefs, dispositions for patterns of behavior such as measured by Work Drive might not show this decline. Even if endorsement of the belief decreases, the willingness to engage in effortful and productive work behaviors can remain for other reasons, related to needs for status and security, and this willingness to put forth effort is still uncovered by measuring Work Drive.

In a measure of academic job involvement, Edwards and Waters (1980) found no relationship between sex, age, or class rank and JI for college students. Academic job involvement was essentially independent of a measure of verbal ability, but was significantly related to academic performance. The present study found an affect of gender and class rank for high school students, contrary to their findings. This stronger relationship between JI and performance, however, which was inconsistent with previous literature, was congruent with the findings of this study. Batlis (1978), who also found a lack of relationships between age, sex, and class rank, points out that the difference between academic job involvement and job involvement study outcomes in terms of correlating with performance may be due to the fact that GPA is a more narrowly-focused, objective measure than some work performance measures. Since academic job involvement items in these studies were, by definition, contextualized to the academic setting, as the APSI Work Drive items were, this setting of a frame-of-reference in

fact could have been responsible for clarifying the relationship with performance. The effects of class rank and gender found in this study but not for the aforementioned college populations could be argued to reflect certain developmental differences between the groups, but it also possibly due to differences in socialization, since the studies were published over twenty years ago.

Implications for Future Research

The present research successfully demonstrates the utility of measuring the logically related construct of Work Drive in the prediction of academic performance, both as a single predictor and over and above the Big Five personality traits. Providing context for responses, by asking questions specifically about school behavior, enhanced validity and the ability to predict behaviors in the school setting, such as academic achievement. As with the college students in Lounsbury et al. (in press), estimates of predictive power may have been attenuated by teacher grading differences in cumulative GPA for college students.

The Work Drive construct relates to traits that many employers find desirable, so it could help predict future employability of students. A prior study by Caspi, Wright, Moffitt and Silva (1998) suggested that certain psychological constructs and behavior patterns in youth and adolescence could be traced as indicators to later unemployment. In their longitudinal study, they found that a lack of attachment to the school or educational institution environment, due in part to socialization and prior success in school, was correlated with later unemployment. Students who performed poorly in school initially failed to establish bonds with classmates and

the learning environment, which later led to resistance to that environment and perhaps other institutions, such as employment, as well.

The potential of this instrument to assess early problematic patterns that could lead to later school and job difficulties provides the opportunity to address these issues in the learning environment. By definition, traits are stable patterns of interacting with the world. Adolescents, however, are at particularly advantageous stage in personality development to introduce change and learning new ways of engaging their environment. While their personalities are structured very similarly to adults, they are still fairly malleable and the ratio of scores on these traits can still be shifted through experience (Costa & McCrae, 1994; Pervin, 1994). An interesting and important area for future research would be investigating whether Work Drive can be modified and how best to do so. If it is possible to increase Work Drive, determining the most effective methods for increasing these behaviors in high school students could increase academic achievement and increase the likelihood of success when they enter the work force.

While societal individualism, religion, socio-economic status, personal history and family socialization are complex sources of beliefs about work, a more tangible area in which to address modification or improvement of Work Drive is in the classroom. The correlation of components such as Work Centrality and Job Involvement (Kanungo, 1982) suggest they may lead to strategies for increasing Work Drive. If Work Centrality is primarily a result of socialization (Paullay, 1994), a primary social outlet of high school students is school, where they spend a significant portion of the day. Perhaps strategies encouraging and modeling involvement with their present “job” of schoolwork, including increased engagement in the role

of student (JI-R) and involving a more engaging environment with more rewarding social relationships with peers (JI-S) would eventually affect WC beliefs. Other factors increasing Job Involvement in work settings, such as opportunities to influence what is going on, to be creative, and the opportunity to use one's skills and abilities (Lawler & Hall, 1970) may assist in this endeavor.

Limitations of Current Research

In spite of the large sample size of 2,398 students in the present study, a primarily Caucasian group living in a specific southeastern region of the United States cannot automatically be assumed to represent all high school students. A more diverse student population, living in different sizes of cities and high schools, needs to be studied to confirm these findings. Hispanic and African-American students may exhibit a different relationship between any of the Big Five personality variables or Work Drive and GPA. A comparison of more students from differing socio-economic classes, such as impoverished inner-city schools versus more affluent suburban or private schools may also reveal differences in Work Drive that cannot be examined in a single-school-district sample.

Examining the role of parents and teachers was beyond the scope of this study, but could provide important information about the development of personality. While the Big Five and Work Drive correlate with GPA, the causal relationship and interactions between the two are not clear and would benefit from future study. It is possible that other difficulties in learning could cause poor grades, which in turn may lower Work Drive scores.

The narrow age range of this sample somewhat limits generalizability of the contribution of various traits to performance beyond high school. An interesting future direction of study would be a longitudinal approach. Students could be followed from grade school through high school and college. It may be that the importance of different personality traits shifts throughout the academic career in their ability to predict grades.

Conclusions

In conclusion, the Adolescent Personal Style Inventory significantly predicted academic achievement in a large sample of high school students. The measure of Work Drive, based on closely related constructs of work ethic, job involvement, and work centrality and included in the scale, predicted unique variance in grade point average above and beyond the Big Five personality traits measured. On average, female students scored higher in Work Drive and also had higher grade point averages. No global trend in grade level was found, although 9th graders had higher Work Drive scores than other grade levels. The low scores found for Work Drive could indicate behavioral patterns that could lead to later job performance problem or difficulty in getting hired. The data suggest future research should explore strategies for increasing Work Drive –related behaviors in the classroom.

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APPENDIX

Description of Traits Measured by the Resource Associates Adolescent Personal Style Inventory and used in this study (Lounsbury & Gibson, 2001)

Agreeableness	Refers to a person being agreeable, participative, helpful, cooperative, and inclined to interact with others in a harmonious manner. High scorers tend to work smoothly with others and to be easygoing, accepting, and obliging in interpersonal settings. Low scorers tend to be more critical, oppositional, contentious, argumentative, and willing to challenge other people.
Conscientiousness	Pertains to a person's conscientiousness, reliability, trustworthiness, dedication, and readiness to internalize societal (including school) norms and values. High scorers tend to prefer working in a structured setting where there are clear rules and guidelines; low scorers tend to be more non-conforming and inclined to march to their own drummer, usually preferring spontaneity and a lack of structure.
Emotional Stability/Resilience	Refers to a person's overall level of adjustment, resilience, and emotional stability. High scorers can function more effectively under conditions of pressure and stress, whereas low scorers are less stress-resistant, lose their composure more readily, and more reactive to strain and pressure.
Extraversion	Is the tendency to be sociable, gregarious, outgoing, warmhearted, and talkative. High scorers tend to direct their attention outwards and to be more attentive to and energized by external stimuli, including other people and social/interpersonal cues in the workplace. Low scorers are more introverted, inward-focused, quiet, and reserved.
Openness to New Experience	Refers to openness to new learning, change, and variety. High scorers tend to be more receptive to new ideas and are more willing to try out new procedures and ways of doing things. Low scorers tend to prefer stability, convention, and tried-and-true ways of doing things.
Work Drive	Is the disposition to work for long hours at assigned tasks and responsibilities; greater investment of one's time and energy into schoolwork (and a job if applicable) and motivation to extend oneself, if necessary, to finish projects, meet deadlines, and be productive. High scorers put in more hours on schoolwork, whereas low scorers place a high priority on leisure and free time and are less willing to work hard, make any personal sacrifices for schoolwork (or their jobs), and they are less willing to tolerate any encroachment of extraneous obligations onto their personal lives.

Sample of Work Drive Items

1. I don't feel good about myself unless I do well in school.
2. I don't mind staying up late to finish a school assignment.
3. My friends say I study too much.
4. I would keep going to school even if I didn't have to.

VITA

Susan Rae Perry was born in Bristol, Tennessee on September 25, 1972. She was raised in Bristol, Virginia and attended Van Pelt Elementary School, Virginia Junior High, and Virginia High School. A 1990 graduate from Virginia High, she then attended King College in Bristol, Tennessee, where she graduated cum laude with honors in independent study in 1994, with a major in Psychology and a minor in Music. Susan pursued a Master's degree in Experimental Psychology at Kent State University in Kent, Ohio, which she completed in 1998, with a focus in Sensation and Perception.