

**ADOLESCENT RESPONSES ON THE
NEO PERSONALITY INVENTORY-REVISED**

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ADOLESCENT RESPONSES ON THE
NEO PERSONALITY INVENTORY-REVISED

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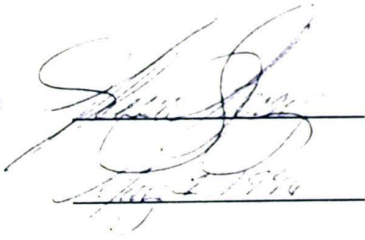
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A handwritten signature in blue ink, appearing to be "Shawn D. ...", written over a horizontal line.

Date

A handwritten date in blue ink, appearing to be "April 2, 1996", written over a horizontal line.

DEDICATION

This thesis is dedicated to my parents, Daniel Milton, Elizabeth Ellen
and William Dalton who always praised me for working hard
and to my loving husband, Daniel Edward who inspired me
to never stop learning.

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ABSTRACT

The NEO Personality Inventory-Revised, based on the five factor model of personality, is an instrument measuring normal personality characteristics with proven reliability and validity. It is normed for two groups of individuals, 17-20 years old and 21 and older. Often, personality instruments normed on older individuals have been used inappropriately with the adolescent population. This study explores the differences between an adolescent sample and an adult sample on the thirty Facets and the five Domains of the NEO PI-R. Subjects included 79 adolescents and 80 college age individuals. Group means on each of the scales were analyzed. Results indicated that adolescents are significantly different on two of the five Domains and over half of the thirty Facet scales. Suggestions for future research include the development of normative data for the adolescent population.

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CHAPTER 1

INTRODUCTION AND REVIEW OF LITERATURE

Personality Measurement

Operationalizing the concept of personality is difficult because it is often viewed as an attempt to integrate all aspects of an individual's functioning. In addition to this broad undertaking, such obscure words as mood, trait, or disposition, are often included in its discussion. As a result, researchers in the area of personality assessment have chosen a variety of ways in which to measure such a broad concept (Zimbardo, 1985). Of these, four types of measures will be discussed: logical, theoretical, empirical criterion-keyed, and factor analytic (Cohen, Swerdlik, & Smith, 1992).

Logically constructed instruments are those in which items logically, intuitively, or rationally seem to belong in a test of a given subject. While these tests are straightforward in nature, it is easy for a subject to withhold information or be dishonest as a result of this straightforwardness (Cohen, Swerdlik & Smith, 1992). One of the first in this group to be constructed was developed by Woodworth during World War I. This instrument was called the Personal Data Sheet and its purpose was to screen incoming recruits for personality problems. The instrument was designed to be administered to groups of individuals and included questions that investigated the existence of various kinds of psychopathology. For example, "Are you troubled with the idea that people are watching you in the street?" With the war ending before the final form of the test was completed, Woodworth later developed the Woodworth Psychoneurotic Inventory for use with civilians. Based on the Personal Data Sheet,

this inventory was the first widely used self report measurement of personality (Cohen, Swerdlik, & Smith, 1992).

Second, there are instruments based on theoretical approaches. The items for these instruments are determined by the theoretical orientation of the author (Cohen, Swerdlik, & Smith, 1992). The theory from which several tests have been developed is Murray's Need Theory (Murray, 1938). Murray identified 18 needs of individuals and detailed various definitions of these needs. From this list, Edwards constructed the Edwards Personal Preference Schedule (EPPS) (Edwards, 1953) from 15 of Murray's 18 needs. He constructed statements about social desirability and keyed each statement to one of Murray's needs in order to assess which need is functioning in a chosen social situation. The test was constructed of pairs of statements, equivalent in desirability, in a forced choice format. This was an attempt to control a subject's desire to fake good or bad. The EPPS is just one of the tests developed based on Murray's Need Theory. Additional instruments include the Personality Research Form (Jackson, 1984) and the Thematic Apperception Test (Murray, 1943) (Cohen, Swerdlik, & Smith, 1992).

Empirical criterion-keyed instruments have three stages in their development. First, a number of test items presuming to measure one or more traits are constructed. Second, these items are administered to two groups: those that are thought to possess the trait and those that are presumed not to possess the trait. Finally, the items that discriminate between the groups in a statistically significant way are retained and the remainder of the items are discarded from the final test construction (Cohen, Swerdlik,

& Smith, 1992). The Minnesota Multiphasic Personality Inventory (MMPI; Hathaway & McKinley, 1940) is an example of an empirical criterion-keyed instrument. It consists of 550 true-false statements based on the study of psychiatric textbooks and studies that reflect 26 content categories in assessing maladjustment (Hathaway & McKinley, 1951). The MMPI is reported to be the single most widely used objective personality test (Lubin, Larsen & Matarazzo, 1984; Lubin, Larsen, Matarazzo, & Seever, 1985) with adults and adolescents (Archer, Mariuish, Imhof, & Piotrowski, 1991). Related to the MMPI is the California Personality Inventory (CPI) (Gough, 1975). Similar in construction to the MMPI, the CPI was developed for use with normal rather than psychiatric populations. It measures more desirable personality characteristics. The instrument includes 20 scales under the themes interpersonal orientation, normative orientation, and realization (Cohen, Swerdlik, & Smith, 1992).

The final personality instrument category to be mentioned is the factor analytic method of construction. Using this method, data is reduced by statistical analyses to a minimum number of variables to account for intercorrelations in a much larger number of observed phenomenon or behavior (Cohen, Swerdlik, & Smith, 1992). The 16 Personality Factor Questionnaire (16PF) is an example of factor analytic test construction. Designed by Cattell and Krug (1986), thousands of words, both familiar and unfamiliar, describing personality traits were analyzed for commonalities. The result was the identification, according to the authors, of 16 "source traits" in personality (Cohen, Swerdlik, & Smith, 1992).

NEO Personality Inventory-Revised, a Factor Analytic Instrument

The NEO Personality Inventory- Revised (NEO PI-R), the focus of this research, also belongs in the factor analytic category of personality assessment (Costa & McCrae, 1992). Initially, items were selected logically, guided by the constructs the authors wished to measure. Second, factor analytic loadings suggested that the appropriate approach to the construction of the instrument was hierarchical. In other words, final construction ranged from very broad to very narrow traits based on factor analysis. Like the 16PF, the NEO PI-R constructs were not intended to be original findings. Instead, the constructs were developed from traits and terms that have been studied through the years by a variety of researchers (Costa & McCrae, 1992).

The NEO PI-R has two forms, a form S which is a self-rating scale and a form R on which a close friend or family member rates the individual in question. In addition, a shorter version of the test, the NEO FFI measures the broad domains only. However, discussion will be limited to Form S. This version is comprised of five broad domains with six, more specific, facets in each domain. The domains, their definitions and facets are listed below as defined by the NEO PI-R manual (Costa & McCrae, 1992):

Neuroticism(N): Susceptibility to psychological distress, irrational ideas, poor impulse control. Facets: Anxiety, Angry Hostility, Depression, Self-Consciousness, Impulsiveness and Vulnerability.

Extroversion (E): Measures a dimension from sociable, assertive, cheerful, and energetic to shy, reserved, independent and evenpaced. Facets: Warmth,

Gregariousness, Assertiveness, Activity, Excitement Seeking, and Positive Emotions.

Openness to Experience (O): Imagination, intellect, curiosity, willingness to entertain novel and unconventional values. Facets: Fantasy, Aesthetics, Feelings, Actions, Ideas, and Values.

Agreeableness (A): Measures a dimension from sympathetic, cooperative, and altruistic to egocentric, skeptical, and competitive. Facets: Trust, Straightforwardness, Altruism, Compliance, Modesty, and Tendermindedness.

Conscientiousness (C): Control of impulses, planning organizing, ability to carry out a task. Facets: Competence, Order, Dutifulness, Achievement Striving, Self Discipline, and Deliberation.

Because this instrument measures normal personality traits, neither pole of the domains should be considered preferable in terms of mental health or societal standards. In reference to the domains Agreeableness(A) and Conscientiousness (C), which were added subsequent to the original version of the NEO PI-R, and the domain Openness to Experience (O), McCrae and Costa (1986) made a comment about their necessity. They pointed out that studies have shown that none of the most frequently used tests have scales that measure these constructs (Lubin, Larsen, Matarazzo, & Seever, 1985; Lubin, Larsen, & Matarazzo, 1984; Archer, Maruish, Imhof, & Piotrowski, 1991).

Validity of the NEO PI-R

Despite the originality of the new scales, no instrument is useful without established reliability and validity. In assessing the psychometric properties of the

NEO PI-R some initial statements need to be made. Many of the studies that will be reviewed were conducted on the NEO-PI before the A and C domains were added. Once these domains were added several studies were published concerning the reliability and validity of these two scales alone. With the revised version of the instrument new norms were developed and some minor changes were made in wording the N, E, and O scales (Costa & McCrae, 1992). Studies on the effects of these minor changes will also be reviewed. According to Costa and McCrae (1992), correlations between the NEO PI and the NEO PI-R ranged between .93 and .95. With no significant alteration in the instrument psychometrically, other than the addition of two domains, the revised version of the NEO PI is assumed to parallel the original version.

Content validity is the extent to which the items selected to be included in the instrument clearly portray the subject matter of the instrument (Groth-Marnat, 1990). In reference to the NEO PI-R, content validity was attempted by first researching the personality assessment systems of Eysenck, Guilford, Cattell, and others in order to find some agreement on what areas should constitute the domains. In addition, six separate facets were created to sample each domain and nonredundant items were selected through item analysis to measure each facet (Costa & McCrae, 1992).

Construct validity considers the extent to which a test measures a theoretical construct (Groth-Marnat, 1990). Construct validity has become increasingly important as all validity coefficients have a bearing on it in some way (Cohen, Swerdlik & Smith, 1992). The three measures of construct validity to be discussed here are factor analysis, convergent validity and divergent validity.

The first area to review is the factor validity of the domains and facets. Factor analysis narrows down trait elements of a test to the primary factors that are being measured. Theoretically, facets in the same domain share some common characteristics as well as specific ones. Common variance in the NEO PI-R is the result of underlying factors shared by the facets. Specific variance is the result of some feature unique to each facet (Groth-Marnat, 1990). For example, in the Neuroticism domain (N), all of its facets, Anxiety (N1), Angry Hostility (N2), Depression (N3), and the others share in the common variance of N itself as well as some common variance between them. However, each of the facets individually possess a feature unique to itself. Anxiety (N1) has a feature distinct to Anxiety that Angry Hostility (N2) does not possess. This is true for all of the facet scales. In addition, the NEO PI-R facets are arranged hierarchically so the lower on the list the facet is, the more common variance would be expected on factor loadings. For example, Anxiety (N1) has more distinct or unique characteristics than does Vulnerability (N6). Therefore, Vulnerability (N6) shares more common variance, or has more in common with, all of the facets of N before it (McCrae & Costa, 1992). In a factor analysis study, Piedmont & Weinstein (1993) found that all of the facet scales have considerable loadings on their proposed factor. In addition, the newly formed A and C scales had no significant secondary loadings.

The second and third measures of construct validity to review are convergent and discriminant validity. Convergent validity exists when the test correlates with variables that are similar to it theoretically. Discriminant validity exists when the test

shows negative correlations with variables dissimilar to it theoretically (Groth-Marnat, 1990). One way convergent and discriminant validity have been analyzed has been by using the Adjective Check List (ACL; Gough, 1960), a 300-item adjective personality questionnaire (Piedmont & Weinstein, 1993; McCrae & Costa, 1992; McCrae & Costa, 1989). The ACL correlated with the all of the facet scales except for the Trust scale. These correlations showed congruence between the adjectives on the ACL and previously stated facet definitions (Piedmont & Weinstein, 1993). Another study found similar results in addition to overlapping correlates where one adjective correlated with more than one facet. This is not unacceptable considering the hierarchical structure of the instrument and the common and specific variance described above (McCrae & Costa, 1992). Regarding the domains of their instrument, McCrae & Costa (1989) found the NEO PI-R's E and O domains to be highly correlated to the Introversion-Extroversion and the Sensing-Intuition scales of the Myers Briggs Type Inventory (MBTI; Myers & Briggs, 1962), respectively. Moderate correlations were found between the Thinking-Feeling scale and A and between the Judging-Perceiving scale and C. Correlations ranged from .44 to .74. The NEO PI-R manual also summarizes numerous other convergent and discriminant validity studies correlating the NEO PI-R with the State-Trait Personality Inventory, the Interpersonal Style Inventory and many more instruments beyond the scope of this paper (Costa & McCrae, 1992). Overall, reviews of the NEO PI-R state that it produces moderate to strong correlations in directions predicted by its theoretical constructs (Tinsley, 1994).

Reliability of the NEO PI-R

The reliability of a measure includes information about its stability, consistency and predictability. In other words, would the test be able to produce the same results more than once (Groth-Marnat, 1990). Internal consistencies, or the degree to which items in a domain measure the same thing, ranged from .86 to .95. When internal consistencies were analyzed for the facet scales the alpha coefficients were between .56 and .81 with only 13 of the 30 facet scales falling below .70. Retest reliabilities on the facets after six years fell between .66 and .92 (Costa & McCrae, 1992). For the N, E, and O domains after six years retest coefficients were between .69 and .83 and after three years retest reliabilities for the A and C domains were .63 and .79 respectively (Costa & McCrae, 1988).

Normative Data

With the NEO PI-R attempting to establish itself as a reliable and valid instrument, the next step is in insuring a representative sample of the population from which to gather normative data. One of the distinguishing characteristics of the NEO-PI R that sets it apart from current personality inventories such as the MMPI is the fact that it is normed on normal individuals instead of clinical populations. The test authors' rationale is that most people seeking therapy do so to seek guidance and help in adjusting to life's everyday hardships and actually experience the same range of emotions and variation in personality as those who do not feel the need to seek therapy. They also argue that if psychologically abnormal profiles are present, they will be seen most clearly when plotted against a normal population (Costa & McCrae, 1992).

The final norm tables were constructed from 500 males and 500 females aged 21 years of age and older. These subjects were selected from over 4,000 individuals from previous research conducted on the NEO PI-R. The 1,000 people finally selected to participate in the norming process were selected to match the U.S. Census projections for 1995 regarding race and economic level after their profiles had been screened for validity and random responding. After these norms were established the authors indicated that although they believed personality traits to be stable in adulthood, the transition from adolescence to adulthood is immersed in fluctuations. As a result college norms were developed to cover the ages of 17-20. Indeed, once testing was completed the results indicated that college-aged individuals scored higher on the N, E, and O domains and lower on the A and C domains. In addition, they scored one standard deviation higher on Excitement-Seeking compared to the adult norms (Costa & McCrae, 1992). Other researchers reported the same phenomenon (Dolliver, 1987). Still, others argue against creating norm tables for separate populations (Widiger, 1992). They argue that profiles should be based on one normal population and separate norms would underestimate the magnitude of the traits being measured. However, in regards to age groups, appropriate normative data is essential when researching both groups and individuals. They can illustrate patterns of responding in order to obtain a general idea of what to expect from members of the group. While they cannot predict any individual's responses specifically, norms give an excellent indication of whether or not an individual deviates from his or her population and if so, how much (Powell, 1963).

NEO PI-R versus MMPI

Although the focus of this research was to make some determinations regarding adolescent responses on the NEO PI-R, some general comparisons should first be made between the NEO PI-R and the more popular MMPI. There are meaningful differences in regards to trait determination, normative data, and length of the instruments.

Despite the following criticisms which seem to favor the NEO PI-R, the authors of the instrument do not imply that the MMPI be replaced by their instrument. Rather, they believe the NEO PI-R could be a valuable first step in personality assessment which may possibly provide a complementary framework for interpreting the MMPI (McCrae & Costa, 1989). Evidence does suggest that utilization of both the NEO PI and the MMPI-2 yield a broader and more abundant understanding of individual functioning (Stein & Hackerman, 1991).

The first difference between the two is that the MMPI makes assumptions about personality in categorical terms where the NEO PI-R makes assumptions in dimensional terms. In other words, interpretation guidelines for the MMPI clinical scales suggest that either the presence or absence of a certain number of behaviors are required before a determination can be made regarding any one trait. Those individuals who report a given trait are regarded as quantitatively different from those who do not. What may actually be operating is a continuum of behavior (Widiger & Frances, 1994). With the opportunity to respond with five choices on the NEO PI-R instead of two, this continuum or dimensional aspect of personality is somewhat more accurate in pinpointing specific degrees of personality traits (Widiger & Frances,

1994). Heumann and Morey (1990) demonstrated the utility of a dimensional model in their study of borderline personality disorder. In this study, five clinicians were given vignettes portraying borderline personality disorder cases and were asked to judge them on categorical and dimensional aspects. In all cases, the dimensional judgments were significantly more reliable than the categorical diagnoses among the clinicians. The authors argued that valid constructs lose clinical utility when professionals cannot agree on appropriate usage.

A second important difference between the NEO PI-R and MMPI is their variation in normative data. Being an empirical criterion-keyed instrument, the MMPI norm tables are constructed using individuals from a clinical or psychiatric population (Hathaway & McKinley, 1940). In contrast, the NEO PI-R norm tables were constructed using normal individuals or individuals with no known psychological disorder (Costa & McCrae, 1992). The authors believe that using normal individuals rather than a clinical population is significant to the NEO PI-R's purpose of providing insight into dimensions of individual differences in normal personality (Costa & McCrae, 1990).

A third criticism is that the MMPI is considerably longer than the NEO PI-R and requires more time for completion. The MMPI-2, a comparable revision of the MMPI has 567 items (Groth-Marnat, 1990) compared to the NEO PI-R's 181 items (Costa & McCrae, 1992).

A final criticism involves the adolescent population. Before the MMPI-A was developed, many clinicians specializing in the assessment of adolescents used the

MMPI despite its length, lack of appropriate norms and the fact that adolescents on average scored more pathologically than adults when compared to the adult norm tables. However, very few objective, well-researched personality inventories exist for this population (Archer, et al., 1991).

Using the NEO PI-R with Adolescents

When considering using the NEO PI-R on a adolescent population, one must again assess whether or not the present available norms are sufficient. The first area that should be examined is the definition of the term "adolescence." According to Webster's Dictionary, adolescence is "the period of life from puberty to maturity terminating legally at the age of majority" which in the United States is 18 years old (Merriam-Webster's Third International Dictionary, 1986). However, studies including adolescents have had varying definitions of what ages constitute this developmental period. Ages have been as restrictive as 11-14 years of age (Graziano and Ward, 1992), 12-16 years of age (Diaz, Belena, Baguena, 1994) and grades 7th-9th (Wong, and Lau, 1993). In some circumstances the age included was as small as 16-19 years of age (Gerstein and Briggs, 1993) or as wide as 11-21 years of age (Hatzichristov and Papadotos, 1993). Obviously, researchers have had a variety of ideas concerning the onset and cessation of adolescence.

Since the NEO PI-R is an instrument concerned with nonpsychiatric personality characteristics, another issue in adolescent research focuses on establishing a baseline of normality. An extensive amount of research has been conducted on the clinical, delinquent, or otherwise maladjusted adolescent populations (Bonyng, 1994;

Brinkman, Overholser, & Klier, 1994; Watson & Pantle, 1993; Donat, Hume, & Hiner, 1992; Sheridan & Perkins, 1992). Often, the term "normal" is synonymous for the control sample used to compare clinical responses in these type of studies.

However, a broader sense of normality in the adolescent population cannot be obtained from these studies. "Normal" in any particular study in personality research usually refers to all those individuals presumed not to possess any one or several of carefully selected variables, it rarely if ever gives insight into normality for the population.

Research indicates that 80% of all adolescents cope well during these years leaving a minority of 20% with some kind of disturbance (Offer, 1987). With so few adolescents displaying maladjustment, the proportion of studies directed toward information about troubled adolescents versus normal appears to be disproportionate.

One study of normal development regarded the majority of the adolescents studied to be happy with themselves overall, relaxed under usual circumstances and otherwise enjoying life. They felt at ease with making friends and hopeful about their future. According to the researchers, they seemed to have the skills and confidence needed for adulthood. Aside from a significant minority who felt empty emotionally and thought life to be a series of problems without solutions, most of the subjects were optimistic about work, challenges and novel situations (Offer & Boxer, 1991). In addition, other studies portray adolescence as an in-between, transitional stage of development. This age no longer encompasses just a dependent, immature child and does not quite constitute an independent, mature adult. Instead, adolescence comprises aspects of both childhood and adulthood (Offer & Boxer, 1991; Swedo & Offer,

1989).

Adolescent Personality Development

The majority of the research on normal adolescent personality development is either outdated or based on theories or orientations not supported by empirical evidence. One longitudinal study involved detailed, structured interviews and assessments of 40 subjects in order to assess adolescent development and personality. Unfortunately, these interviews were conducted between 1940 and 1954 and while a wealth of information was provided, it hardly seems reasonable to presume that these results still hold true with the addition of so many environmental influences on today's youth (Symonds, 1961). Another study attempted to summarize normal adolescent opinions, attitudes, values and personality characteristics such as passivity or introversion. With a publication date of 1964, it is hardly generalizable today (Bloom, 1964).

Many of the historically great theorists like Freud and Erikson have influenced present day researchers in their views of adolescence. One researcher described adolescence in terms of early, middle and late adolescence. According to Kaplan (1991), an early adolescent must redefine himself/herself and his/her relationship with his/her parents, a middle adolescent must move away from his/her comfortable same-sex relationships and toward heterosexual love relationships, and the late adolescent must define his/her spiritual and worldly standards and goals as well as implement them. According to the author, all of this takes place during extensive intrapsychic reorganization and by late adolescence the superego, the ego ideal and the defense

hierarchy are restructured (Kaplan, 1991). While this information is intriguing, the most current research cited in the review to support these conclusions is dated 1979. Very little recent empirical research has been undertaken in adolescent development from a psychodynamic perspective.

Personality Stability Through the Lifespan

The second area to consider in assessing norm appropriateness is whether these adolescent characteristics remain stable over time or if there are specific personality traits that change as one moves into adulthood. The researchers of the NEO PI-R hold the view that many aspects of personality remain highly stable throughout adulthood. Using adults aged 21 to 96 years, the NEO PI-R was initially administered and then readministered six years later. The results appeared to support the premise that personality shows little change across adulthood (Costa & McCrae, 1988). However, it was suggested that data be collected on individuals between the ages of 15 and 30 years to determine what they consider to be the age at which personality traits reach their adult form. Later studies, again with adults aged 21-96 years, supported this hypothesis of stability in personality and added that the slight differences that do appear at any given time are a result of measurement error, not personality change (McCrae, 1993).

Alternate viewpoints provide several valid points. Often the tests used in studies confirming personality stability were initially created and analyzed in order to generate stable, reliable information time after time. Therefore, a bias may be present in the instrument used. Studies using instruments based on theoretical orientation yield

different conclusions. In a study using a sequential design, three cohorts were tested three different years using the Inventory of Psychosocial Development (Constantinople, 1969). This is a questionnaire measure of Erikson's psychosocial stages of development through the lifespan (Erikson, 1963). With Erikson's theory based on change and crisis through the lifespan, it is not surprising that the study found significant changes in personality through time (Whitbourne, Zuschlag, Elliot, & Waterman, 1992).

Many of the studies pertaining to personality stability and change have shown to be useful. In a longitudinal study two findings were of importance. Using the Bentler Psychological Inventory (Bentler & Newcomb, 1978), subjects with a beginning age of 13 to 15 were measured three times: year 1, year 5 and year 9. Supporting the research of Costa and McCrae (1988) and McCrae (1993), personality appeared somewhat stable between the year 5 and the year 9 measurements. However, some variability was present between the first measurement and the measurement at year 5. The authors concluded that there is some fluctuation in personality during adolescence (Stein, Newcomb, & Bentler, 1986). Other studies confirm the existence of both stability and change (Eccles et al., 1989).

The purpose of this research was not to determine whether or not personality is stable throughout the lifespan. Clearly, a case can be made for both sides. However, with a wealth of new experiences in adolescence such as high school, dating, driving, and increased independence, it is possible these experiences may have an effect on personality stability. Even Costa and McCrae (1992) imply there are some changes

during the lifespan by the creation of separate college norm tables on the NEO PI-R. It was apparent that before any research could be conducted with adolescents using the NEO PI-R, a determination needed to be made regarding its generalizability to this population.

The purpose of this research was to collect data from an adolescent and a college age population and compare the two groups' Domain and Facet mean scores of the NEO PI-R. With the lack of empirical data in this area, it was difficult to make predictions in any specified direction, however differences were anticipated. Significant differences may indicate the need for more extensive research and possibly the development of adolescent norm tables for the NEO PI-R.

CHAPTER 2

METHOD

Subjects

Adolescent subjects consisted of 79 individuals (38 females and 41 males, mean age 13.7, range 13-15) from Freedom Middle School in Franklin, Tennessee. This school was selected because of the diverse student population, the majority of whom come from middle class families. College age subjects consisted of 80 undergraduate volunteers (53 females and 27 males, mean age 19, range 18-20) from psychology (N=57) and leadership (N=23) courses at Austin Peay State University in Clarksville, Tennessee. Demographically, this university was believed to be comparable to the middle school population except for age and education level.

Materials

The NEO Personality Inventory-Revised Form S (NEO PI-R; Costa & McCrae, 1992) was used to assess differences in normal personality between the two groups. Scores on each of the facets range from 0 to 32 where scores on each of the domains range from 0 to 192. Higher scores indicated more of the personality characteristic being measured. The instrument has a total of 240 statements. Subjects rate the statements on a five-point Likert-type scale. The five selections are "strongly disagree," "disagree," "neutral," "agree," and "strongly agree."

Procedures

The researcher sought permission for adolescent student volunteers from the Franklin Special School District, the principal and vice-principal of Freedom Middle School as well as the individual teachers. The teachers were briefed as to the purpose

of the study and then parental informed consent forms (Appendix A) were sent home with the students. Data was collected from eight different classes and only from those students who returned a parental informed consent form. The instrument was administered in two group sessions and took an average of one hour. The researcher distributed the question booklet that also contained the informed consent form, the demographic information sheet and the answer sheet. Subjects were asked to read and sign the informed consent (Appendix B) and fill out the demographic sheet (Appendix C) prior to taking the NEO PI-R. The researcher explained the instructions and the purpose of the study. The students were assured that no one except the researcher would have access to their scores and were encouraged to answer as honestly as possible. The researcher was available during the sessions to answer any questions concerning definitions or wording. Any instrument with missing data or without parental permission resulted in elimination of that subject's scores from analysis.

Regarding the college age volunteers, the researcher sought permission to recruit their students for the study from professors who taught undergraduate psychology courses. In addition, permission was sought from instructors who taught an undergraduate leadership course in order to diversify the sample and increase the number of participants in this group. Unlike the adolescent sample, the college students were administered the instrument on an individual basis due to particular schedule constraints of these students. However, instructions and materials for this group were equivalent to the adolescent group including the elimination of any student's scores in which data was missing.

CHAPTER 3

RESULTS

Because of the narrow college age constraints of this study (17-20 years of age), it was difficult to find an adequate number of subjects utilizing just undergraduate students enrolled in psychology courses. Therefore, after permission from their instructor, students from two sections of a course entitled "Leadership" were recruited. As with the other undergraduates, these students participated on a volunteer basis and accounted for approximately one fourth of the overall undergraduate sample. This course was not closed to any student desiring to take it, but it was required of many students involved in leadership duties on campus such as being a resident dorm assistant. For the students required to take the course, a minimum overall grade point average of 2.5 was mandatory.

After careful consideration, it was concluded that this group was not markedly dissimilar from the average APSU student and that the data could be included in the analysis. In order to address any confounding factors that could be associated with the leadership class, a separate analysis was considered necessary. A total of three analyses were computed: 1) between the leadership class sample and the remaining psychology college age sample, 2) between the adolescent sample and the psychology college age sample including the leadership class and 3) between the adolescent sample and the psychology college age sample excluding the leadership class.

When comparing the leadership class sample and the college sample, no significant differences on the five domains were found (See Table 1). The leadership group was significantly higher on the Warmth (E1) facet scale than the college age

group. When the leadership class and the college age group were compared on the Assertiveness (E3) facet scale a significant difference ($p < .001$) was indicated. No other group comparison yielded a significant difference on this scale. Therefore, the students enrolled in this leadership class likely possess assertiveness characteristics beyond what is typical for an average college age sample. Two other differences worth noting are those on the Feelings (O3) and Competence (C1) facet scales in which the leadership sample scored significantly higher than the remaining college sample.

Table 1

Leadership Class versus Remaining College Age Students

<u>Scales</u>	<u>Ldrsp Mean</u>	<u>College Mean</u>	<u>t</u>
Neuroticism	90.17	95.98	1.02
Anxiety (N1)	16.57	17.86	0.95
Angry Hostility (N2)	14.13	15.18	0.82
Depression (N3)	15.91	16.75	0.58
Self Consciousness (N4)	15.44	15.97	0.43
Impulsiveness (N5)	17.78	18.54	0.70
Vulnerability (N6)	10.35	11.86	1.47
Extroversion	130.87	121.93	-1.83
Warmth (E1)	25.35	23.30	-2.16*
Gregariousness (E2)	20.48	19.19	-0.86
Assertiveness (E3)	21.09	16.63	-3.50***
Activity (E4)	20.04	19.70	-0.32
Excitement Seeking (E5)	22.30	21.09	-1.00
Positive Emotions (E6)	22.48	21.98	-0.47
Openness to Experience	118.96	113.09	-1.24
Fantasy (O1)	18.30	19.25	0.64
Aesthetics (O2)	19.91	18.44	-0.88
Feelings (O3)	24.74	22.40	-2.33*
Actions (O4)	16.30	15.37	-1.01

Ideas (O5)	20.22	18.95	-0.92
Values (O6)	19.48	18.86	-0.60
Agreeableness	121.83	114.75	-1.61
Trust (A1)	19.09	18.88	-0.18
Straightforwardness (A2)	19.96	18.26	-1.32
Altruism (A3)	25.61	23.58	-1.95
Compliance (A4)	17.83	15.70	-1.87
Modesty (A5)	17.87	18.60	0.60
Tendermindedness (A6)	21.44	19.90	-1.95
Conscientiousness	120.91	112.90	-1.72
Competence (C1)	23.17	20.83	-2.84**
Order (C2)	18.09	17.47	-0.47
Dutifulness (C3)	21.70	21.19	-0.52
Achievement Striving (C4)	21.70	19.67	-1.90
Self Discipline (C5)	19.70	18.83	-0.74
Deliberation (C6)	16.57	15.26	-1.05
<hr/>			
*	.05		
**	.01		
***	.001		

The differences between the leadership class and the college age sample were few. With these few differences noted, analysis including all 159 subjects were conducted (See Table 2). Adolescents in comparison to the college age students scored significantly lower on two of the five Domain Scales. On the domain Agreeableness, the adolescent group mean totaled 105.19 where as the college age group mean totaled 116.79 ($p < .001$). On the Conscientiousness domain scale, the adolescent group mean totaled 102.51 where the college age group mean totaled 115.20 ($p < .001$). This is not surprising when reviewing the significant differences on the facet scales. There were four significant differences out of six facet scales on the Agreeableness domain scale and five significant differences out of six facet scales on the Conscientiousness domain

scale.

Of the Facet scales, adolescents scored significantly higher on the following scales: Angry Hostility (N2), Vulnerability (N6), Excitement Seeking (E5) and Fantasy (O1). Adolescents scored significantly lower on the following Facet scales: Warmth (E1), Positive Emotions (E6), Feelings (O3), Straightforwardness (A2), Altruism (A3), Compliance (A4), Modesty (A5), Competence (C1), Order (C2), Dutifulness (C3), Achievement Striving (C4), and Self Discipline (C5).

Table 2

Adolescents versus College Age Including Leadership Class

<u>Scales</u>	<u>Adol. Mean</u>	<u>Coll. Mean</u>	<u>t</u>
Neuroticism	95.17	94.31	0.24
Anxiety (N1)	16.96	17.49	-0.67
Angry Hostility (N2)	17.15	14.88	2.70**
Depression (N3)	15.76	16.51	-0.83
Self Consciousness (N4)	16.00	15.81	0.25
Impulsiveness (N5)	16.99	18.33	-1.82
Vulnerability (N6)	13.51	11.43	2.80**
Extroversion	121.68	124.50	-0.99
Warmth (E1)	22.51	23.89	-2.09*
Gregariousness (E2)	19.80	19.56	0.27
Assertiveness (E3)	17.17	17.91	-0.90
Activity (E4)	18.81	19.80	-1.62
Excitement Seeking (E5)	23.68	21.44	3.26***
Positive Emotions (E6)	20.32	22.13	-2.61**
Openness to Experience	113.39	114.78	-0.49
Fantasy (O1)	20.94	18.98	2.23*
Aesthetics (O2)	18.73	18.86	-0.13
Feelings (O3)	20.73	23.06	-3.13**
Actions (O4)	15.82	15.64	0.32

Ideas (O5)	18.94	19.31	-0.44
Values (O6)	18.23	19.04	-1.43
Agreeableness	105.19	116.79	-3.83***
Trust (A1)	17.57	18.94	-1.74
Straightforwardness (A2)	16.30	18.75	-3.02**
Altruism (A3)	21.92	24.16	-3.14**
Compliance (A4)	14.00	16.31	-3.06**
Modesty (A5)	15.72	18.39	-3.41***
Tendermindedness (A6)	19.61	20.34	-1.25
Conscientiousness	102.51	115.20	-4.35***
Competence (C1)	19.20	21.50	-3.71***
Order (C2)	15.92	17.65	-2.29*
Dutifulness (C3)	18.44	21.34	-4.93***
Achievement Striving (C4)	17.67	20.25	-4.06***
Self Discipline (C5)	16.87	19.08	-2.95**
Deliberation (C6)	14.61	15.64	-1.40
<hr/>			
*	.05		
**	.01		
***	.001		

The significant differences found on the Agreeableness and Conscientiousness domains when the entire sample was included in analysis were still present when the leadership sample was excluded from analysis (See Table 3.). This suggests that these are true differences between these two age groups. While significant differences were still found between the adolescent sample and leadership excluded college sample on the Feelings (O3) and Competence (C1) facet scales, the inclusion of the leadership class in the final analysis led to significant differences at a much more stringent alpha level. This suggests that while there were differences between the two age groups, individuals enrolled in classes designed to develop leadership skills possess these characteristics to a greater degree than the "average" student and adolescent. No

significant difference was indicated on the Warmth (E1) facet scale when the leadership class was excluded. The significant difference found between the leadership sample versus the college age sample and between the two age groups including all of the subjects suggest that inclusion of the leadership class may have effected the data on this particular scale. Other significant differences on the facet scales when the leadership class was excluded indicated that adolescents scored significantly higher on: Angry Hostility (N2), Vulnerability (N6), and Excitement Seeking (E5). Adolescents scored significantly lower on the following Facet scales: Impulsiveness (N5), Warmth (E1), Positive Emotions (E6), Feelings (O3), Straightforwardness (A2), Altruism (A3), Compliance (A4), Modesty (A5), Competence (C1), Dutifulness (C3), Achievement Striving (C4), and Self Discipline (C5).

Table 3

Adolescents versus College, Excluding Leadership Class

<u>Scales</u>	<u>Adol.Mean</u>	<u>Coll.Mean</u>	<u>t</u>
Neuroticism	95.17	95.98	-0.22
Anxiety (N1)	16.96	17.86	-1.12
Angry Hostility (N2)	17.15	15.18	2.18*
Depression (N3)	15.76	16.75	-0.99
Self Consciousness (N4)	16.00	15.97	0.04
Impulsiveness (N5)	16.99	18.54	-1.97*
Vulnerability (N6)	13.51	11.86	2.01*
Extroversion	121.68	121.93	-0.08
Warmth (E1)	22.51	23.30	-1.05
Gregariousness (E2)	19.80	19.19	0.68
Assertiveness (E3)	17.18	16.63	0.63
Activity (E4)	18.81	19.70	-1.31
Excitement Seeking (E5)	23.68	21.09	3.53***

Positive Emotions (E6)	20.32	21.98	-2.15*
Openness to Experience	113.39	113.09	0.10
Fantasy (O1)	20.94	19.25	1.77
Aesthetics (O2)	18.73	18.44	0.27
Feelings (O3)	20.73	22.40	-1.98*
Actions (O4)	15.82	15.37	0.72
Ideas (O5)	18.94	18.95	-0.01
Values (O6)	18.23	18.86	-1.06
Agreeableness	105.19	114.75	-2.79**
Trust (A1)	17.57	18.88	-1.47
Straightforwardness (A2)	16.30	18.26	-2.23*
Altruism (A3)	21.92	23.58	-2.04*
Compliance (A4)	14.00	15.70	-1.99*
Modesty (A5)	15.72	18.60	-3.33***
Tendermindedness (A6)	19.61	19.90	-0.44
Conscientiousness	102.51	112.90	-3.33***
Competence (C1)	19.20	20.83	-2.36*
Order (C2)	15.92	17.47	-1.93
Dutifulness (C3)	18.44	21.19	-4.39***
Achievement Striving (C4)	17.67	19.67	-2.99**
Self Discipline (C5)	16.87	18.83	-2.40*
Deliberation (C6)	14.61	15.26	-0.82

*	.05
**	.01
***	.001

CHAPTER 4

DISCUSSION

Earlier research conducted by Costa and McCrae (1992) found that adults scored higher than college age individuals on the Agreeableness and Conscientiousness domain scales. Given this finding the authors still cautiously suggest the possible use of the NEO PI-R in high school and junior high samples (Costa & McCrae, 1992). The current study indicates that college age subjects scored significantly higher on these scales than adolescent subjects. It appears that adolescents do vary from a college age population significantly in many of the facets as well as the two domains mentioned above. The development of normative tables for this population appears necessary.

The current study did not formulate hypotheses concerning the facet scales because there were no empirical studies from which to extrapolate evidence to support a position. Instead of "normal" adolescent personality, the focus in the research community has increasingly been on "abnormal" personality in adolescence and only those teenagers who have come to the attention of law enforcement or social services have been targeted.

Using an intuitive approach, one could easily gather "evidence" to support an adolescent's high score on the Vulnerability (N6) facet scale. After all, this age group is still highly dependent on their parents compared to the college age group for shelter, food, and protection. A significantly higher score on the Angry Hostility (N2) facet scale may also be explained by the adolescent's independence-seeking and the many conflicts that often result. An elevated score on the Excitement Seeking (E5) facet

scale, could possibly be linked to statistics regarding teen drinking and driving or unwanted pregnancies and the rapid increase of AIDS among this population.

However, other facet scale findings may not be as easily explained using an intuitive approach. Why adolescents are significantly lower than college age students on a scale such as the Feelings (O3) facet scale cannot be as easily reasoned.

If a downward extension of the NEO PI-R is considered, a slight revision of the instrument is recommended. Many of the adolescents tested had problems with defining words such as "lackadaisical," "prudence," "panhandlers," and "conscientiously." They also had difficulty with the idea of "new morality" and some of the phrasing of the statements. Overall, the researcher addressed an average of ten questions per adolescent administration session compared to only two questions in all of the college age individuals with many of the same words being the target of their inquiries.

An obvious limit to this study is that the NEO PI-R is a self-report instrument and as such is influenced by honesty, social desirability and self-awareness of the respondent. Although the instrument has three validity questions separate from the test questions to address accuracy and honesty, these are again dependent on self-report. Second, because of the difficulty in working and getting approval in the school system, 16 and 17 year old students were not included in data collection. It is unclear if these ages would have effected the results of this study.

One of the advantages of the NEO PI-R is that it is attempting to assess normal personality. Future research into normal adolescent personality seems essential in

fully understanding this population. The current study strongly suggests the need for separate normative data for adolescents administered the NEO PI-R as a starting point in future investigations. If research is conducted toward the development of these norms, the NEO PI-R could be a valuable tool in schools and more extensive research of this population. Using larger or more diverse samples, the domain and facet scales may be more closely scrutinized and possibly gender differences may also be addressed. Further, in order to separate cohort differences, age differences, and time of measurement confounds, a sequential research design is recommended.

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APPENDICES

Appendix A

Informed Consent to Participate in Research-Parental Form
Austin Peay State University
Clarksville, Tennessee 37044

You are being asked to participate in a research study. This form is designed to provide you with information about this study and to answer any of your questions.

1. PRINCIPLE INVESTIGATOR

Alissa Sherry, B.A., Graduate Student, Austin Peay State University, Psychology Department, Clarksville, TN, (615) 269-7098.

2. FACULTY SUPERVISOR

Jean G. Lewis, Ed.D., Austin Peay State University, Psychology Department, (615) 648-7233.

3. THE PURPOSE OF THE RESEARCH

The responses of teenagers to questions about their interests, concerns, and beliefs about themselves will be compared to the responses of adult students at Austin Peay State University. The goal is to determine if there are differences in patterns of responses between the two age groups.

4. PROCEDURES FOR THIS RESEARCH

You will fill out the forms individually or in a group setting. Your name will not be attached to your responses.

5. POTENTIAL RISKS TO YOU

There are no known risks to subjects from participation in this study. You will not be placing your name on the questionnaire, therefore your answers will be completely confidential. There is no deception in the study and all of the questions have been used before in research and are not likely to make you uncomfortable.

6. POTENTIAL BENEFITS TO YOU OR OTHERS

If it's okay with your teacher you may receive extra credit for your participation in this study.

7. INFORMED CONSENT STATEMENT

I agree to participate in the present study being conducted by Alissa Sherry under the supervision of Dr. Jean G. Lewis, a faculty member of the Department of Psychology at Austin Peay State University. I have been informed, orally and in writing of the procedures to be followed and about any discomfort which may be involved. I understand that I am free to terminate my participation at any time up to 72 hours following my participation and have all data obtained from me withdrawn from the study and destroyed. I have also been told of any benefits that may result from my participation.

 CHILD'S NAME (please print)

 YOUR SIGNATURE

 DATE

Appendix B

Informed Consent to Participate in Research
Austin Peay State University
Clarksville, Tennessee 37044

You are being asked to participate in a research study. This form is designed to provide you with information about this study and to answer any of your questions.

1. PRINCIPLE INVESTIGATOR

Alissa Sherry, B.A., Graduate Student, Austin Peay State University, Psychology Department, Clarksville, TN, (615) 269-7098.

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The responses of teenagers to questions about their interests, concerns, and beliefs about themselves will be compared to the responses of adult students at Austin Peay State University. The goal is to determine if there are differences in patterns of responses between the two age groups.

4. PROCEDURES FOR THIS RESEARCH

You will fill out the forms individually or in a group setting. Your name will not be attached to your responses.

5. POTENTIAL RISKS TO YOU

There are no known risks to subjects from participation in this study. You will not be placing your name on the questionnaire, therefore your answers will be completely confidential. There is no deception in the study and all of the questions have been used before in research and are not likely to make you uncomfortable.

6. POTENTIAL BENEFITS TO YOU OR OTHERS

If it's okay with your teacher you may receive extra credit for your participation in this study.

7. INFORMED CONSENT STATEMENT

I agree to participate in the present study being conducted by Alissa Sherry under the supervision of Dr. Jean G. Lewis, a faculty member of the Department of Psychology at Austin Peay State University. I have been informed, orally and in writing of the procedures to be followed and about any discomfort which may be involved. I understand that I am free to terminate my participation at any time up to 72 hours following my participation and have all data obtained from me withdrawn from the study and destroyed. I have also been told of any benefits that may result from my participation.

 NAME (please print)

 SIGNATURE

 DATE

Appendix C

DEMOGRAPHIC INFORMATION

Sex: (Circle one)

1
Male

2
Female

Race: (Choose one)

1
White

2
African-American

3
Asian

4
Latin American

5
Native American

6
Other

What is your age today?
