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The “Little Five”: Exploring the Nomological Network of the Five-Factor Model of Personality in Adolescent Boys

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JOHN, OLIVER P.; CASPI, AVSHALOM; ROBINS, RICHARD W.; MOFFITT, TERRIE E.; and STOUTHAMER-LOEBER, MAGDA. *The “Little Five”: Exploring the Nomological Network of the Five-Factor Model of Personality in Adolescent Boys*. *CHILD DEVELOPMENT*, 1994, 65, 160–178. The California Child Q-set (CCQ) was used to explore the structure of personality in early adolescence and to develop scales to measure the “Big Five” dimensions: Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to Experience. Mothers provided Q-sorts of 350 ethnically diverse boys between 12 and 13 years old. Analyses of the construct validity of the scales provided a nomological network relating the Big Five to theoretically and socially important criterion variables, such as juvenile delinquency, Externalizing and Internalizing disorders of childhood psychopathology, school performance, IQ, SES, and race. These effects were obtained using diverse methods, including self-reports from the boys, ratings by their mothers and their teachers, and objective-test data. In addition to the Big Five, analyses also suggested 2 possibly age-specific dimensions of personality in early adolescence. Discussion is focused on the changing manifestations of personality traits throughout development.

Personality psychologists have long sought to generate a taxonomic system that would define the major dimensions of personality and provide an integrative descrip-

tive model for personality research. One system that has attracted much interest over the past decade is the Five-Factor Model (FFM), defined by the dimensions of Extra-

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version, Agreeableness, Conscientiousness, Neuroticism, and Openness to Experience (McCrae & John, 1992). The FFM has begun to influence research on adult personality development (McCrae & Costa, 1990) and psychopathology (e.g., Costa & Widiger, in press). If the same five dimensions could be measured in children and adolescents, the FFM may help orient developmental research about the origins and sequelae of personality differences across the life course. This article takes a first step in that direction. Using a well-established assessment instrument devised specifically for children and adolescents, we develop and validate measures for the five dimensions and search for age-specific personality dimensions in addition to those specified by the FFM.

The Five-Factor Model of Personality Dimensions

Initially based on analyses of the personality-trait terms in natural-language dictionaries (see John, Angleitner, & Ostendorf, 1988), each of the so-called Big Five factors summarizes a domain of individual differences that is extremely broad and includes a large number of distinct, more specific personality characteristics (Goldberg, 1981). To illustrate the meaning of the factors, Table 1 lists six trait adjectives (John, 1990) and six California Adult Q-set items (McCrae, Costa, & Busch, 1986) that define the positive pole of each dimension. Extraversion (E) and Agreeableness (A) summarize traits of an interpersonal nature; Conscientiousness (C)

TABLE 1
EXAMPLES OF TRAIT ADJECTIVES AND Q-SORT ITEMS DEFINING THE BIG FIVE FACTORS
IN ADULTHOOD

BIG FIVE FACTOR (Abbreviation)	FACTOR DEFINERS	
	Adjectives ^a	Adult Q-sort Items ^b
Extraversion (E)	Active Assertive Energetic Enthusiastic Outgoing Talkative	Is talkative Skilled in play, humor Rapid personal tempo Facially, gesturally expressive Behaves assertively Gregarious
Agreeableness (A)	Affectionate Forgiving Generous Kind Sympathetic Trusting	Not critical or skeptical Behaves in a giving way Sympathetic, considerate Arouses liking Warm, compassionate Basically trustful
Conscientiousness (C)	Efficient Organized Planful Reliable Responsible Thorough	Dependable, responsible Productive; gets things done Able to delay gratification Not self-indulgent Behaves ethically Has a high aspiration level
Neuroticism (N)	Anxious Self-pitying Tense Touchy Unstable Worrying	Thin-skinned Brittle ego defenses Self-defeating Basically anxious Concerned with adequacy Fluctuating moods
Openness/Intellect (O)	Artistic Curious Imaginative Insightful Original Wide interests	Wide range of interests Is introspective Unusual thought processes Values intellectual matters Judges in unconventional terms Aesthetically reactive

NOTE.—Adapted from McCrae & John (1992).

^a Adjective Check List items defining the factor in a study of 280 men and women rated by 10 assessment psychologists (John, 1990).

^b Abbreviated California Adult Q-set items defining the factor in a study of 403 men and women who Q-sorted themselves (McCrae et al., 1986).

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primarily describes task and goal-directed behavior and socially prescribed impulse control; Neuroticism (N) contrasts emotional stability with a broad range of negative affects, including anxiety, sadness, irritability, and nervous tension; Openness to Experience (O) describes the breadth, depth, and complexity of an individual's mental and experiential life.

The Big Five dimensions have been found in a wide range of data sources, instruments, samples, and languages (John, 1990). Moreover, all five factors have been shown to possess convergent and discriminant validity across different instruments and observers, and to remain relatively stable throughout adulthood (McCrae & Costa, 1990). Nonetheless, even its most ardent defenders do not claim that the FFM is the last word in the description of personality; shortcomings of the model have been discussed by Eysenck (1991), John and Robins (1993), McAdams (1992), Tellegen and Waller (in press), and Waller and Ben-Porath (1987). As McCrae and John (1992) have summarized, "There are disputes among five-factorists about the best interpretation of the factors; there are certainly important distinctions to be made at the level of the more molecular traits that define the factors; and it is possible that there are other basic dimensions of personality" (p. 177).

There are both practical and theoretical reasons for examining the FFM in research on personality development. The FFM has proven useful as a framework for organizing findings on individual differences in adulthood, in fields as diverse as behavioral genetics (e.g., Loehlin, 1992) and industrial psychology (e.g., Barrick & Mount, 1991). Given these uses of the FFM for exploring adult personality, extension of the FFM into childhood and adolescence would facilitate comparisons across developmental periods. In addition, if the Big Five are indeed basic dimensions of personality (e.g., Costa & McCrae, 1992a), it would be important to examine their childhood origins.

The only research on the Big Five in younger age groups has been conducted by Digman (1989; Digman & Inouye, 1986; Digman & Takemoto-Chock, 1981), who reported several studies of teacher ratings of subjects ranging in age from 7 to 13 years. Using trait adjectives selected from the adult Big Five literature and elaborated by behavioral definitions relevant to classroom behavior, Digman replicated five factors,

which he interpreted as childhood equivalents of the Big Five. Digman's research was based on trait adjectives selected from prior dictionary-based research on adult samples. In the present research, we examined the FFM in adolescence using the broad-band item pool of the California Child Q-Set (CCQ; Block & Block, 1980), permitting us to extend the measurement of the Big Five dimensions beyond adjectives.

As part of an ongoing longitudinal study of African American and Caucasian boys in Pittsburgh, mothers used the 100 CCQ statements to describe the personality, cognitive, and social attributes of their sons. We first develop Big Five scales for the CCQ and then use these rationally developed scales to explore the nomological network of the Big Five dimensions in early adolescence. In particular, we relate our new Big Five scales to four sets of variables important in early adolescence: (a) juvenile delinquency, (b) childhood psychopathology, (c) school performance, and (d) intelligence, socioeconomic status (SES), and race.

The Nomological Network of the Big Five in Early Adolescence

Juvenile delinquency, such as shoplifting, vandalism, drug dealing, and gang fighting, is one of the most prevalent and important problems in adolescence. The psychological profile of antisocial youth (Olweus, Block, & Radke-Yarrow, 1986; Robins, 1966) is defined by unempathic, egocentric, impersonal, and manipulative behavior—characteristics we suggest are captured by the low (antagonistic) pole of the Agreeableness dimension in the FFM. In addition, delinquency has been linked to attentional problems (e.g., restless, fidgety, lacking concentration) and insufficient impulse control—characteristics we suggest are reflected by the low pole of the Conscientiousness factor. Thus, in terms of the Big Five, juvenile delinquency should be related negatively to both Agreeableness and Conscientiousness. This conjecture is consistent with self-report findings in the adult literature (Goldberg & Rosolack, in press; McCrae & Costa, 1985b).

Researchers have also begun to use the FFM to study the linkages between personality and psychopathology. Two initial studies on adults (Costa & McCrae, 1990; Wiggins & Pincus, 1989) have demonstrated systematic relations between the FFM and the personality disorders defined by DSM-

IIR. Even less is known about the relations between the FFM and disorders of childhood psychopathology. In the present research, we focus on two broad behavior problem syndromes (Achenbach, Howell, Quay, & Conners, 1991). The first syndrome includes Externalizing problems whose salient features involve aggression, stealing and lying, inattention, impulsivity and hyperactivity. In terms of the FFM, these characteristics imply a pattern of low Agreeableness and low Conscientiousness. The second syndrome includes Internalizing problems whose salient features involve anxiety, somatic complaints, and social withdrawal. In terms of the FFM, these characteristics suggest that children who internalize their socioemotional disturbances are likely to be more neurotic and less extraverted.

In addition to delinquency and psychopathology, achievement in educational settings is of crucial importance in the adolescent years. In terms of the FFM, the dimension most closely related to achievement motivation is Conscientiousness. As shown in Table 1, high aspiration level, organization, thoroughness, and efficiency are among the defining features of this dimension. There is also empirical evidence for an association between Conscientiousness and achievement-related behavior and outcomes in adulthood (see Wiggins, 1973, p. 357). In adolescence, Digman (1989) found that grade point average in high school was correlated with teacher ratings of Conscientiousness obtained when the subjects were children. In fact, Digman and Inouye (1986) referred to the Conscientiousness factor as "Will to Achieve" to emphasize its link with school achievement.

Several findings in the adult literature suggest that Openness should also be important for learning and other achievement-related behaviors in childhood and adolescence. McCrae and Costa (in press) found that level of education attained in adulthood is positively correlated with Openness (but not with Conscientiousness), and Barrick and Mount (1991) concluded from their meta-analysis of research on personality and job performance that individuals high in Openness were more successful in job-training programs. These findings are consistent with the idea that adolescents high in Openness are curious about the world, like to think about concepts and ideas, and are interested in learning new things.

Whereas school performance reflects academic achievement, academic aptitude is typically identified with scores on objective tests of intelligence. How is intelligence related to the FFM? In the adult literature, this question has yet to be resolved. In fact, the meaning and composition of the fifth (Openness) factor, which most clearly reflects intellectual characteristics (see John, 1990, table 3.1), has been the subject of considerable controversy and debate.

Although the fifth factor was initially interpreted as *Culture* (Norman, 1963; Tupes & Christal, 1961), subsequent research showed that intellectual characteristics were more central to the factor, suggesting the label *Intellect* (Digman & Inouye, 1986; Goldberg, 1990) or *Intellectance* (Hogan, 1986). More recently, McCrae and Costa (1985a, in press) proposed the label *Openness to Experience*; in their research, the fifth factor was defined primarily by "open" characteristics (e.g., imaginative, curious, aesthetically sensitive), whereas strictly intellectual characteristics (e.g., intelligent, perceptive) were related not only to the fifth factor but to Conscientiousness as well. In a sample of well-educated men, McCrae and Costa (1985a) found that the correlation between the fifth factor and IQ was positive but of only moderate size.

Finally, we also examined the relations between the Big Five dimensions and two important demographic variables: SES and race. Research on adults suggests that Openness is moderately associated with educational level (McCrae & Costa, in press). Education is central to SES, a variable that varied widely in the present sample. Moreover, the racial composition of our sample was about half Caucasian and half African American. Most previous research on the FFM has been conducted with samples of college students and well-educated adults that do not permit a comprehensive examination of possible relations between the Big Five, SES, and race. Thus, if SES and race do have any effects on childhood personality, we should be able to detect these effects in our large and diverse sample of preadolescent boys.

In summary, the present study reports on the relations between the personality dimensions of the FFM and juvenile delinquency, childhood psychopathology, school performance, and intelligence, SES, and race. In each analysis, we relate our Big Five personality scales, derived from the moth-

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ers' CCQ descriptions of their sons, to a criterion variable measured with a different data source, including self-ratings, teacher reports, objective test scores, and demographic information. Therefore, the findings from these analyses cannot be attributed to shared method effects. As a result, the associations emerging from this research provide a test of the construct validity of our new scales and a methodological foundation for the emerging nomological network of the FFM in early adolescence.

Method

Subjects, Procedures, and Risk Classification

The subjects were participants in the Pittsburgh Youth Study (PYS), a longitudinal study of the antecedents and correlates of early forms of delinquency. The sample was randomly selected from fourth-grade boys enrolled in public schools in Pittsburgh, Pennsylvania. An initial screening assessment of the sample took place in the spring of 1987 ($N = 249$) and the spring of 1988 ($N = 619$). To identify boys at risk for delinquency and criminal behavior, each boy and his main caregiver were interviewed, and one of his teachers completed a questionnaire. The information provided by these three informants was combined into an overall risk index. Boys ranking in the top 30% were retained in the study, together with an additional 30% randomly selected from the remaining 70% of the sample. This led to a sample of 508 boys (half high risk, half low risk) to be continued in the study (for additional details about the sample, see Loeber, Stouthamer-Loeber, Van Kammen, & Farrington, 1989).

These sampling procedures overrepresent the proportion of high-risk boys in the PYS sample relative to the general population. To ascertain whether our results were unduly affected by this design feature of the PYS, we repeated our analyses after reconstituting a more representative sample from the PYS high-risk design in two ways: (a) by adjusting the weighting of cases and (b) by including only a random subsample of high-risk boys in the analyses. In no instance were the results altered substantively or significantly.

Since the study's inception, the PYS sample has been reduced to 484 subjects (4.7% attrition). The mean age of the fourth graders was 10.2 years at the time of the screening interview. After screening, the

percentage of African American boys was 53.5%, compared to 53.9% for the population of fourth-grade classrooms in Pittsburgh. Slightly less than half of the sample members (44.2%) lived in households where the main caregiver had been separated, divorced, widowed, or never married, with 40.6% of the boys having the biological father in the home. High school had not been completed by 21.2% of the mothers or acting mothers, whereas at the other extreme 5.5% had earned a college degree; for fathers or acting fathers living with the child, the corresponding figures were 9.4% and 6.5%.

When the boys were on average between 12 and 13 years old ($M = 12.7$ years; $SD = 9.9$ months), they were invited to come to the university for a 2-hour testing session. The boys were accompanied by a primary caregiver. A total of 430 subjects participated in this assessment. Attrition for this assessment of the PYS sample was slightly higher because subjects were required to travel to the university. (In previous waves, the interviews had been conducted in the subjects' homes.) Analyses comparing the sample members who participated to those who did not showed no significant differences in risk status (low, high), race (Caucasian, African American), and social background (SES scores), suggesting that our findings are probably not compromised by attrition bias.

Measures

California Child Q-Set (CCQ).—Caregivers completed the "Common-Language" version of the CCQ, a language-simplified personality assessment procedure intended for use with lay observers (Caspi et al., 1992). The CCQ was originally constructed by Jeanne and Jack Block for use by professional observers to describe children's personalities. Caspi et al. (1992) introduced and validated language-simplifying modifications making it possible to use the CCQ with lay observers who have little formal education and are from socioeconomically disadvantaged backgrounds.

Q-sorting is a procedure involving a set of rules for assigning scores to a set of items from a descriptive item pool, or Q-set (Block, 1961). The CCQ set consists of 100 descriptive items printed on individual cards. The judge's task is to sort the items into a forced, quasi-normal, nine-category distribution that ranges from *extremely uncharacteristic or negatively salient* (1) to *extremely characteristic or salient* (9) of the child being de-

scribed. The remaining cards are distributed in intermediate piles, and those items that seem *neither characteristic nor uncharacteristic* of the child being described are placed in the middle pile (5). The caregiver completed a Q-sort with the assistance of a trained examiner. Using a large table, with special markings to designate the various categories of a completed Q-sort, the examiner outlined the procedure in detail. Throughout the session, the examiner offered explanations, reading assistance, and numerous standardized probes to facilitate completion of the Q-sort.

For the present analyses, we used the Q-sorts completed by the boys' mothers ($n = 350$), thus keeping constant the informant providing the personality description. The remaining Q-sorts were completed by fathers, grandmothers, older siblings, or other relatives. The 350 boys studied here did not differ from the main sample in risk status, race, or social background. Forty-six percent were Caucasian, 52% African American, 2% biracial, and less than 1% Asian.

Juvenile delinquency.—The boys completed two questionnaires about their involvement in delinquent acts and substance use, namely, the Self-reported Antisocial Behavior Scale (Loeber et al., 1989) and the Self-reported Delinquency Questionnaire (Elliott, Huizinga, & Ageton, 1985). The delinquent behaviors reported on these questionnaires were classified according to the severity ratings developed by Wolfgang, Figlio, Tracey, and Singer (1985): *Level 1* refers to none or very minor delinquent behaviors (vandalism at home, theft at home, or theft of something worth 5 dollars). *Level 2* refers to shoplifting, stealing at school, vandalism outside the home resulting in less than 100 dollars worth of damage, firesetting with no or minor damage, or minor fraud. *Level 3* refers to vandalism at home resulting in more than 100 dollars worth of damage, firesetting with major damage, major fraud, theft of a bicycle, theft of a car, picking pockets, joy riding, carrying a weapon, or gang fighting. *Level 4* refers to one or more instances of breaking and entering, strong-arming, or selling of drugs.

Childhood psychopathology.—Data on adolescent behavioral and emotional problems were obtained with the Teacher Report Form of the Child Behavior Checklist (Achenbach & Edelbrock, 1983). This instrument measures a wide range of behavior problems related to externalizing and inter-

nalizing behavior syndromes. Following Achenbach et al. (1991), we classified boys as Externalizers if they scored above the eightieth percentile on the externalizing-problems scale, and contrasted them with the remaining 80% of the sample on each of the Big Five scales using t tests. Similarly, we classified boys as Internalizers if they scored above the eightieth percentile on the internalizing-problems scale, and contrasted them with the remaining 80% of the sample.

School performance.—The boys' scholastic performance in reading, writing, spelling, and math was rated by their teachers on a five-point scale (1 = far below grade, 3 = at grade level, 5 = far above grade).

Intelligence.—A short form of the Wechsler Intelligence Scale for Children—Revised (WISC-R; Wechsler, 1974) was administered to the subjects. In this version, all 12 subtests were administered, but individual subtests were shortened by administering every other item. Similar procedures have been used by Yudin (1966) and Hobby (1980) and have been shown to retain satisfactory reliability (Sattler, 1988). We report results for both the verbal and performance subscales, which correlated .52 in this sample, as well as for the full-scale IQ score. The IQ scores ranged from a low of 63 to a high of 145, with a mean of 100.7 and a standard deviation of 15.6.

Socioeconomic status (SES).—The SES for each subject's family was computed according to Hollingshead's (1975) two-factor index of social position, which takes into account both the education and the occupation of the parents. In this sample, SES scores ranged from a low of 6 to a high of 66, with a mean of 33.4 and a standard deviation of 11.3.

Results and Discussion

Our findings are presented in three parts. The first summarizes the construction of rational CCQ Big Five scales guided by the definition of the five dimensions in the adult literature. The second part focuses on the construct validity of the rationally derived scales and provides the beginnings of a nomological network. In the third part, we return to the broader issue of personality structure in early adolescence as represented on the CCQ and present an analysis and interpretation of the factor structure underlying the full 100-item CCQ set in our sample of preadolescent boys.

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Construction of Big Five Scales for the CCQ

Because the dimensions to be measured were known beforehand, we used the standard procedures of rational scale construction (Jackson, 1971). Rational scale construction begins with a definition of the constructs to be measured; on the basis of these definitions, initial sets of items are selected to represent the content domains specified by the constructs and preliminary scales are formed. In a second step, these preliminary scales are refined through item analyses to form the final scales.

To guide scale construction, we used the consensual definitions of the Big Five dimensions in adulthood summarized in Table 1. On the basis of these definitions, we aimed to identify items on the CCQ that seemed to correspond to the characteristics defining the adult dimensions. The goal of the initial item assignments was to construct broad, preliminary scales for the Big Five within the CCQ item pool, following as closely as possible the factor definitions from the adult literature.

The first author reviewed the 100 CCQ items with respect to the Big Five definitions (John, 1990) and rated each item as either indicative of the high or the low pole of one of the five dimensions or as not relevant to any of the dimensions. Of the 100 items, 78 were judged relevant to one of the Big Five dimensions; 17 were classified into the Extraversion domain, 22 into Agreeableness, 12 into Conscientiousness, 17 into Neuroticism, and 10 into Openness. To ensure that these rational item assignments were not idiosyncratic but generalizable to other experts on the FFM in adulthood, we obtained independent ratings of the CCQ items from Robert McCrae. To assess the degree to which the two judges agreed on the definition of the Big Five in the CCQ item set, we intercorrelated their two sets of five ratings across the items. These correlations were .77 (Extraversion), .86 (Agreeableness), .76 (Conscientiousness), .90 (Neuroticism), and .77 (Openness), indicating substantial agreement between the two experts.

On the basis of the rational classifications of the 78 CCQ items, preliminary scales were formed. An analysis of their coefficient alpha reliabilities showed that our first scale-construction step was quite successful for the first four factors. The alpha coefficients were .70 for Extraversion, .87 for Agreeableness, .78 for Conscientiousness,

and .75 for Neuroticism; for Openness, which was represented by the fewest items on the CCQ and thus yielded the shortest scale, the alpha was only .51. These preliminary scales were then refined in two steps. First, to increase the homogeneity of the scales, we eliminated 15 items which had corrected item-total correlations of less than .30 in both the low-risk and the high-risk subsamples. In a second step, we correlated each of the 100 CCQ items with the five preliminary scales to cull items lacking discriminant validity and to check whether some potentially useful items might have been overlooked by the initial item classification. On the basis of these analyses, we eliminated 17 items that correlated substantially with another scale besides their own, and we added two items that had not been assigned to one of the preliminary scales. Thus, our rational classifications succeeded in identifying all but two (4%) of the 48 items on our final CCQ Big Five scales. Moreover, with only two exceptions, the 48 item assignments to the final Big Five scales were also consistent with McCrae's rational item classifications.

These 48 CCQ items are given in the Appendix, along with information for computing scale scores. The other 52 CCQ items are discussed by Robins, John, and Caspi (in press). Analyses of these items suggest that some of them are unreliable, some refer to individual differences not represented by the FFM (e.g., appearance, masculinity), and the majority of them can be described as representing combinations of two of the Big Five dimensions.

The coefficient alpha reliabilities of our Big Five scales are reported in Table 2. For four of the five scales, alpha exceeded .70, a respectable value given that the scales are relatively short and were scored from the ratings of a single informant (the mother), who in many cases was not very well educated. The Openness scale, with the smallest number of items, was less internally consistent (alpha = .53). The finding that alpha was lowest for the Openness scale is consistent with the adult Big Five literature showing that the Openness factor is the least homogeneous of the Big Five domains, typically emerging as the fifth and last factor in analyses of trait adjectives (e.g., Goldberg, 1990; Norman, 1963). Given its relatively low reliability, the usefulness of the Openness scale remains to be established through demonstration of its external validity. The alpha coefficients computed separately for the high-

TABLE 2
 PSYCHOMETRIC CHARACTERISTICS OF THE CCQ "BIG FIVE"
 SCALES: NUMBER OF ITEMS AND COEFFICIENT ALPHA
 RELIABILITIES SEPARATELY FOR THE GROUPS WITH LOW AND
 HIGH RISK FOR DELINQUENCY

BIG FIVE SCALES	No. OF ITEMS	ALPHA RELIABILITY ^a		
		Total Sample	Low Risk	High Risk
Extraversion	09	.73	.74	.72
Agreeableness	13	.83	.82	.82
Conscientiousness	09	.78	.78	.74
Neuroticism	10	.71	.71	.70
Openness	07	.53	.53	.50

^a Computed in the total sample ($N = 350$) and separately in the low-risk ($n = 165$) and high-risk ($n = 185$) subsamples.

and low-risk subsamples were virtually identical to those in the total sample. Thus, in terms of internal consistency, the five scales are likely to work as well in high-risk samples as in the relatively "low-risk" samples more typically studied by personality and developmental psychologists.

The intercorrelations among the five scales were generally low, with 7 of the 10 intercorrelations below .28. The three more substantial correlations involved Agreeableness and Conscientiousness ($r = .45$), Conscientiousness and Neuroticism ($r = -.39$), and Extraversion and Neuroticism ($r = -.35$). The correlations in the high- and low-risk subsamples were very similar to those in the total sample and are similar in size to those found in adult research (Costa &

McCrae, 1992b; Goldberg, 1992). In our sample, as in others, the Big Five represent fairly independent, though not strictly orthogonal, dimensions of individual differences.

Validation of the CCQ Big Five Scales

Personality characteristics of delinquent boys.—We used one-way ANOVAs to examine whether our Big Five scales can differentiate groups of boys at the four different levels of delinquency. As predicted, we found significant main effects for Agreeableness, $F(3, 346) = 9.1, p < .001$, and Conscientiousness, $F(3, 346) = 9.5, p < .001$. To illustrate these effects, Figure 1 shows the mean Big Five scale scores for the most delinquent, Level 4 group ("Delinquents") and the least delinquent, Level 1 group

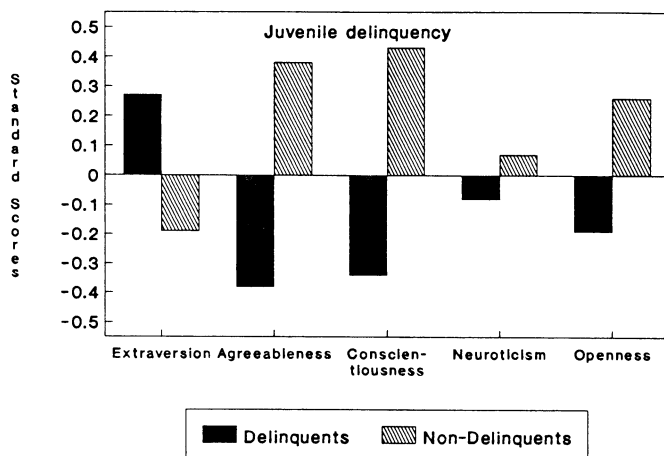


FIG. 1.—Mean-level differences between delinquent and nondelinquent groups on the Big Five scales in standard-score units.

("Nondelinquents"). The means are given in standard-score form so as to allow direct comparisons of effect sizes in standard deviation units. As predicted, boys who had committed severe delinquent behaviors were more than three-fourths of a standard deviation lower on Agreeableness and Conscientiousness than boys who had engaged in few or no delinquent behaviors. In addition, we also obtained significant but somewhat weaker effects for Extraversion, $F(3, 346) = 3.5, p < .02$, and Openness, $F(3, 346) = 3.0, p < .03$. As shown in Figure 1, the effect sizes for Extraversion and Openness were both about one-half of a standard deviation. There were no significant differences for Neuroticism.

Characteristics of boys with externalizing and with internalizing behavior syndromes.—We next examined whether the Big Five can discriminate between the boys who have an Externalizing disorder and those who do not, and between the boys who have an Internalizing disorder and those who do not. As shown in Figure 2, three of the Big Five dimensions are involved in the broad Externalizing syndrome. As predicted, compared to non-Externalizing boys, Externalizing boys were less agreeable, $t(297) = 2.7, p < .01$, and less conscientious, $t(297) = 3.4, p < .01$; they were also more extraverted, $t(297) = 2.5, p < .01$. Note that the pattern of low Agreeableness, low Conscientiousness, and high Extraversion is the same as we found for delinquency. This coherence in our findings is particularly impressive because the delinquent acts were

reported by the boys, whereas information about the boys' Externalizing behaviors were obtained from their teachers.

As shown in Figure 3, Internalizing boys were more neurotic, $t(296) = 2.6, p < .01$, and less conscientious, $t(296) = 4.2, p < .01$, than non-Internalizing boys. Thus, in contrast to Externalizing problems, Extraversion and Agreeableness were not related to Internalizing problems. Instead, Internalizing was most strongly related to Neuroticism, and both disorders were related to low Conscientiousness. However, we found no support for our prediction that Internalizing boys would be less extraverted than non-Internalizing boys.

In summary, disorders whose principal areas of socioemotional disturbance is externalized were more prevalent among boys who were extraverted, not agreeable, and not conscientious. Disorders that are internalized were more prevalent among boys who were neurotic and not conscientious. These findings suggest that the personality traits measured by the FFM are differentially implicated in the expression of psychopathology, providing evidence for the discriminative power of the FFM. More generally, we have established theoretically meaningful linkages between the Big Five dimensions and childhood psychopathology, using personality ratings by mothers and reports of behavior problems by teachers. These cross-method linkages go beyond the findings in the adult FFM literature on psychopathology, which have relied primarily on self-reports (see Widiger & Trull, 1992).

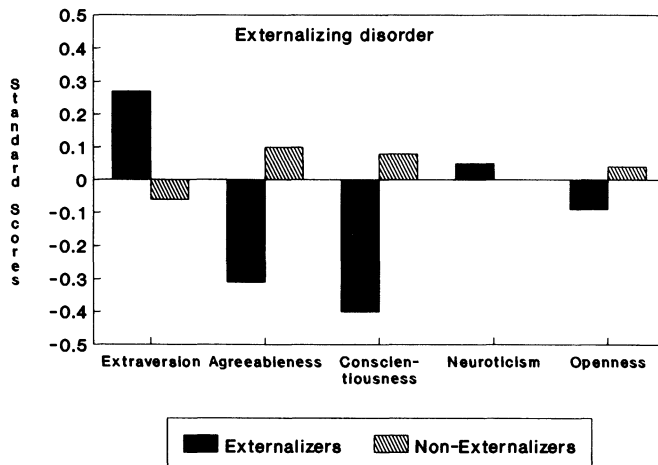


FIG. 2.—Mean-level differences between Externalizers and non-Externalizers on the Big Five scales in standard-score units.

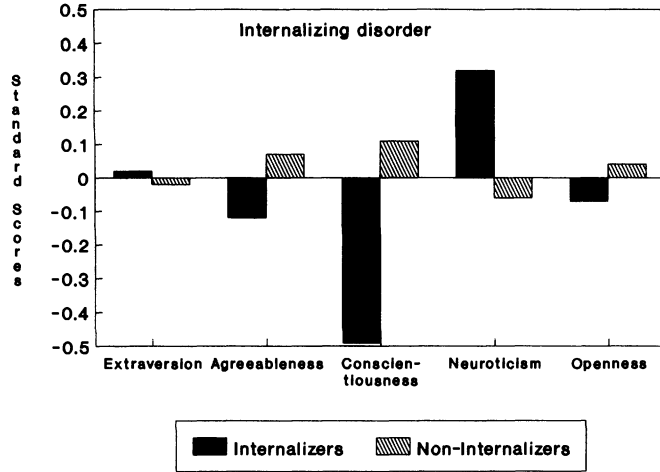


FIG. 3.—Mean-level differences between Internalizers and non-Internalizers on the Big Five scales in standard-score units.

School performance.—Next, we examined the extent to which the Big Five predict teacher reports of school performance in four subject areas: reading, writing, spelling, and math. As shown in Table 3, we found the predicted relation between Conscientiousness and school performance. The correlations between our CCQ Conscientiousness scale and teacher reports of performance were significant for all four subject areas, ranging from .20 to .24.

Openness also predicted school performance across the four subject areas; boys higher on Openness performed better. These findings are consistent with the idea that boys high in Openness are curious about ideas and interested in learning new things, characteristics likely to contribute to success in school and higher education. Finally, a multiple regression analysis showed that both Conscientiousness (beta = .20) and Openness (beta = .17) contributed independently to the prediction of school performance. Thus, in the framework of the FFM,

our findings suggest that school performance in early adolescence is predicted by two dimensions of personality, rather than by one.

Personality and intelligence.—Table 4 shows the correlations between the Big Five and intelligence, as measured by an objective performance test. Openness was related to both the verbal and performance subscales of the WISC-R, as well as to the full-scale IQ score ($r = .39$). Even when the one CCQ item directly related to intelligence (“He is a very smart kid, even though his grades in school might not show this”) was eliminated from the Openness scale, the correlations with IQ were still substantial ($r = .33$ for full-scale IQ, .30 for verbal IQ, and .28 for performance IQ). IQ was also related to Conscientiousness ($r = .20$), but this effect held only for the verbal subscale. Thus, the Conscientiousness effect was weaker and less consistent than the Openness effect, indicating that within the FFM intellectual performance is most closely aligned with Openness, at least in early adolescence.

TABLE 3
CORRELATIONS OF THE BIG FIVE SCALES WITH TEACHER REPORTS OF SCHOOL PERFORMANCE IN FOUR SUBJECT AREAS

Big Five Scales	Reading	Writing	Spelling	Math
Extraversion	-.08	-.13	-.09	-.07
Agreeableness .....	.06	.07	.07	.08
Conscientiousness ....	.20*	.23*	.24*	.20*
Neuroticism	-.05	-.08	-.12	-.06
Openness .....	.22*	.17*	.19*	.19*

* $p < .01$.

TABLE 4
CORRELATIONS OF THE BIG FIVE SCALES WITH IQ, SES, AND RACE

BIG FIVE SCALES	IQ			SES	RACE ^a
	Verbal	Performance	Full Scale		
Extraversion .....	.05	-.01	.03	.06	-.01
Agreeableness .....	.06	-.02	.02	.04	-.05
Conscientiousness .....	.21*	.13	.20*	.01	-.11
Neuroticism	-.07	-.13	-.11	.04	-.13
Openness .....	.36*	.31*	.39*	.04	.14*

^a Race was coded: African American = 1; Caucasian = 2; other = missing ($n = 9$).

* $p < .01$.

Overall, this pattern of correlations is consistent with the findings from the adult literature (McCrae & Costa, 1985a) and with the interpretation of the fifth factor in the FFM (Hofstee, de Raad, & Goldberg, 1992; McCrae & John, 1992), thus providing evidence for the construct validity of our CCQ Openness scale.

Are SES and race related to the Big Five?—As shown in Table 4, the correlations between SES and the Big Five scales were essentially zero and did not reveal the association between SES and Openness found in adults (McCrae & Costa, in press). Although Openness to Experience does not appear to be *influenced by* social class in childhood, it may be that Openness *influences* social class attainment in adulthood because persons who score high on this factor actively seek out educational opportunities and challenging work experiences (Barrick & Mount, 1991). Here, then, is a possible case in which personality differences do not correlate with characteristics in one's family of origin but may correlate with those characteristics in one's family of destination (Caspi, Herbener, & Ozer, 1992).

The correlations between race (i.e., Caucasian or African American) and the Big Five scales were all nonsignificant with one exception: Caucasians scored slightly higher on Openness to Experience than African Americans did. However, this correlation may be due entirely to variance shared with IQ. This is a likely possibility given the well-known performance difference between Caucasians and African Americans on standardized tests, as well as our earlier finding that IQ and Openness are positively correlated. Indeed, the partial correlation between race and Openness, controlling for IQ, was $-.02$, indicating that there were no

significant associations between race and the Big Five dimensions independent of IQ.

In summary, our four sets of validation analyses have related the new CCQ scales to external validity criteria of theoretical and practical importance in early adolescence. The associations emerging from these analyses provide evidence for both the convergent and the discriminant validity of our scales. Our findings thus embed the FFM within a nomological network of relations with a wide range of external criterion variables, measured with a variety of methodologies, each independent of the mothers' Q-sorts.

Are Five Factors Enough to Describe Personality Differences in Early Adolescence?

In this section, we return to the broader issue of personality structure in early adolescence, as represented on the CCQ. Of particular interest is the question of whether there are age-specific personality dimensions in adolescence other than the Big Five. To answer this question, we conducted a factor analysis of the complete 100-item Q-set.

The seven CCQ factors in early adolescence.—Determining the number of factors needed to account for the relations among a set of variables is one of the most difficult and consequential decisions in factor analysis. We therefore examined several criteria, which we applied after extracting factors via principal-components analysis of all 100 CCQ items; all our results also held when principal-axes factoring was used. First, the distribution of the eigenvalues (i.e., the scree test) suggested a seven-factor solution. Second, we applied parallel analysis (see Zwick & Velicer, 1986) to compare the empirically obtained eigenvalues with eigen-

values generated from a Monte Carlo simulation of the data. Given our fairly large sample size, three Monte Carlo runs proved to be highly consistent and showed that the first seven factors had eigenvalues exceeding that of the largest of the random factors. Third, to ensure that the larger-than-expected number of factors cannot be attributed to the relatively high proportion of high-risk boys in our sample, we replicated the factor analysis in a reconstituted sample consisting of all low-risk subjects and three-sevenths of the high-risk subjects and found essentially the same seven factors; the convergence correlations between the seven factor scores across the two analyses ranged from .91 to .99, with a mean of .96. Finally, to examine the possibility that even more than seven factors might be meaningful, we also rotated eight factors. The first seven factors remained invariant, and the eighth factor was defined by seemingly unrelated characteristics (e.g., having lasting friendships, having nervous habits, and not being judgmental of others). In sum, according to these criteria, more than five factors were needed.

The seven factors were rotated according to the VARIMAX criterion. To interpret these empirically derived factors, we correlated them with our Big Five scales. The complete matrix of correlations is presented in Table 5; the uninterpreted empirical factors, presented in the rows, are simply referred to by their numerical order in the VARIMAX rotation (e.g., Factor 3). Five of the seven factors resembled the Big Five; these convergent correlations (underscored in Table 5) are arranged on the diagonal of the correlation matrix in Table 5. In particular, empirical Factor 3 (in the first row of Table 5) corresponded to the Extraversion scale ($r = .87$), Factor 1 to the Agreeableness scale ($r = .93$), Factor 2 to the Conscientiousness

scale ($r = .76$), Factor 4 to the Neuroticism scale ($r = .77$), and Factor 7 to the Openness scale ($r = .81$).¹

Inspection of the content of the items loading on Factor 1 (Agreeableness), Factor 2 (Conscientiousness), and Factor 7 (Openness) showed that they differed little from our Big Five scales. However, Factors 3 and 4, which resembled Extraversion and Neuroticism, respectively, were defined more narrowly. In particular, Factor 3 was defined primarily by elements of sociability and expressiveness; it did not include energy and activity level. Therefore, Factor 3 may be interpreted as Sociability, a more narrow version of Extraversion. Factor 4 was defined primarily by anxiety, nervous worry, guilt feelings, and low self-esteem, representing a more limited range of negative affects than typically found on Neuroticism factors. We suggest the label Anxious Distress for Factor 4.

The two additional factors (Factors 5 and 6) are described in Table 6, which includes all items loading at least .40. Factor 5 was defined by several of the items seemingly missing from Factor 4; all these items involve negative affect expressed in immature and age-inappropriate behaviors, such as whining, crying, tantrums, being overly sensitive to teasing, and irritable. These items suggest the label *Irritability*. As shown in Table 5, the Irritability factor correlated .22 with our Neuroticism scale. Apparently, the broad Neuroticism construct typically found in adults was here represented by two factors, Anxious Distress (Factor 4) and Irritability (Factor 5). These two factors may reflect a distinction between two aspects of negative affect identified in childhood temperament, which Rothbart (Ahadi & Rothbart, in press; Rothbart & Mauro, 1990) has called *fearful distress* and *irritable distress*.

¹ We conducted an additional analysis to provide an interpretation of the seven factors that was independent of our scale-construction analyses (see Robins et al., in press, for details). In particular, we correlated the seven empirical factors with five "Adult Equivalence Factor" (AEF) scales representing McCrae et al.'s (1986) adult CAQ factors scored from the 45 CCQ items overlapping between the adult and child Q-sets. These AEF scales have not been refined in the present data set and are therefore independent of the seven empirically discovered CCQ factors, thus providing a lower-bound estimate of the congruence between the present CCQ factors and the Big Five found in studies of adults. As in the analyses summarized in Table 5, five of the seven empirical factors resembled the Big Five as represented by the AEF scales; these convergent correlations (given here in the same order as in Table 5) were .84 for Extraversion, .89 for Agreeableness, .66 for Conscientiousness, .56 for Neuroticism, and .76 for Openness. Overall, then, the pattern of findings was virtually identical to those in Table 5, except that the correlations were somewhat lower, as one would expect of scales that were based on less than half of the CCQ items and had never been psychometrically refined.

TABLE 5

INTERPRETING THE SEVEN PERSONALITY FACTORS IN THE 100-ITEM CCQ-SET: CORRELATIONS OF THE SEVEN EMPIRICAL FACTOR SCORES WITH THE BIG FIVE SCALES

EMPIRICAL CCQ VARIMAX FACTORS	BIG FIVE SCALES				
	Extraversion	Agreeableness	Conscientiousness	Neuroticism	Openness
Factor 3	<u>.87</u>	.03	.03	-.16	.09
Factor 1	-.05	.93	.49	-.10	-.12
Factor 2 .....	.02	-.02	<u>.76</u>	-.32	.30
Factor 4	-.18	-.03	-.04	<u>.77</u>	-.15
Factor 7	-.03	.10	.00	-.03	<u>.81</u>
Factor 5	-.07	-.08	-.12	<u>.22</u>	-.04
Factor 6	<u>.26</u>	.11	.15	-.24	-.03

NOTE.—Correlations greater than .13 are significant at $p < .01$. The highest correlation in each row is set underscored.

Factor 6 includes many of the extraversion items missing from the Sociability factor (Factor 3), such as energy, activity level, and social presence, suggesting the label *Positive Activity* (or Approach). This factor correlated only weakly with our Big Five scales; not surprisingly, its highest correlation was with Extraversion (see Table 5). Apparently, the broad Extraversion construct typically found in adults was here represented by two factors, Sociability (Factor 3) and Positive Activity (Factor 6). This finding seems consistent with Buss and Plomin's (1984) argument that sociability and activity level are distinct, early emerging temperamental traits.

Interpretations of the two additional factors.—We have identified “five plus two” factors among boys in early adolescence.

Several interpretations of the two additional factors are possible: They may be (a) error factors arising from spurious intercorrelations among a small subset of items, (b) instrument-specific factors produced by overrepresentation of the Irritability and Activity content domains in the CCQ-set, (c) facets or components of the broad Big Five dimensions, or (d) age-specific personality dimensions that are independent of the Big Five in the early adolescent years.

The first possible interpretation of our additional factors is that they are “error factors” representing narrow item clusters rather than broad, general factors (Borkenau & Ostendorf, 1990; Digman & Takemoto-Chock, 1981; Goldberg, 1990). To examine this possibility, we used an item-deletion technique testing whether the factors would

TABLE 6

INTERPRETING THE TWO ADDITIONAL FACTORS IN THE ANALYSIS OF THE 100 CCQ ITEMS: ITEMS DEFINING THE IRRITABILITY AND POSITIVE ACTIVITY FACTORS

CCQ Items	Irritability	Positive Activity
94. He whines or pouts often. ....	.63	-.01
33. He cries easily.	<u>.62</u>	-.06
12. He starts to act immature when he faces difficult problems or when he is under stress. (For example, he whines or has tantrums.) ....	.58	.00
78. His feelings get hurt easily if he is made fun of or criticized.	<u>.48</u>	-.20
95. He lets little problems get to him and he is easily upset. It doesn't take much to get him irritated or mad. ....	.45	-.12
26. He is physically active. He enjoys running, playing, and exercise.	-.03	<u>.67</u>
51. He is well coordinated. (For example, he does well in sports.)	-.09	<u>.56</u>
28. He is energetic and full of life.	-.13	<u>.54</u>
63. He is fast-paced; he moves and reacts to things quickly.	-.14	<u>.46</u>
05. Other kids look up to him and seek him out.	-.20	<u>.40</u>

NOTE.—All items loading at least .40 on one of the additional factors are shown. The highest loading for each item is set underscored.

disappear if their most defining items were omitted from the factor analysis. Specifically, for each of the two additional factors, we deleted one, then two, and finally three of the most defining items, and each time we refactored the remaining set of items. In all of these analyses both Irritability and Activity continued to emerge as separate factors, suggesting that the two factors are not narrow clusters dependent on just a few items. Moreover, the item content of the factors was conceptually coherent; characteristics such as acting immature, crying easily, and whining form a psychologically coherent dimension of Irritable Distress, and characteristics such as active, energetic, and fast-paced form a coherent dimension of Activity. Thus, it seems unlikely that the two additional factors are error factors.

A second possibility is that Irritability and Activity are instrument-specific factors. Such factors can arise when a specific content domain is represented by several highly similar items; the specific variance shared by these items can cause them to split off from the broad factors and form separate factors that would not be found with other instruments. Indeed, the items on the two additional factors do refer to a more narrow range of characteristics than the items on the Big Five factors. Most of the Irritability items specifically refer to an agitated form of distress in response to minor stress or frustration, and most of the Activity items specifically refer to physical aspects of activity. Thus, there is some support for the interpretation that the additional factors are instrument-specific, and they need to be replicated with other measures.

A third possibility is that the two additional factors are facets of the Big Five dimensions. In studies of adults, Activity items typically load on Extraversion and Irritability items typically load on Neuroticism (Costa & McCrae, 1992b; Hofstee et al., 1992). Apparently, in adulthood, Activity and Irritability are facets of the broader Extraversion and Neuroticism factors. Evidence for the facet interpretation would require that Activity and Irritability scale scores are positively related to the adolescent versions of Extraversion (Sociability) and Neuroticism (Anxious Distress) in our sample. To evaluate whether this was the case, we computed unit-weighted nonoverlapping scales from the items defining Factors 3 (Extraversion/Sociability) and 6 (Activity), and Factors 4 (Neuroticism/Anxious Distress) and 5 (Irritability) in the seven-

factor solution. For facet scales in the broad Extraversion and Neuroticism domains, one would expect intercorrelations above .30 (e.g., Costa & McCrae, 1992b). However, the Activity scale correlated only .16 with the Extraversion/Sociability scale and the Irritability scale correlated .25 with the Neuroticism/Anxious Distress scale. These results suggest that in early adolescence Activity and Irritability are not simply facets of Extraversion and Neuroticism. We are thus left with the fourth possibility, namely that Activity and Irritability are relatively independent personality dimensions in early adolescence and that they may eventually merge with Extraversion and Neuroticism, respectively, to form a single superordinate dimension in adulthood.

In terms of the possible developmental roots of Activity and Irritability, temperament researchers have identified and measured similar dimensions in childhood. Thus, our findings suggest that there may be two distinct aspects of negative affectivity in preadulthood—one linked closely to fear and wary reactions to novelty and the other linked to irritability and frustration—which may grow together into the broad adult Neuroticism factor over the course of adolescence. Similarly, it is possible that sociability and activity, still distinct in early adolescence, may continue to be integrated in later development into the adult trait of Extraversion, which contains both sociability and activity. Indeed, Rutter (1987) has speculated that, as a result of environmental experiences, traits that are genetically distinct earlier in childhood may express themselves in a single phenotype later in adulthood.

More generally, the expression of personality traits may change over the course of development (Caspi & Bem, 1990). Developmental research on the Big Five has focused on adults and aging (McCrae & Costa, 1990) and has tended to emphasize "homotypic continuity"—continuity of similar behaviors or phenotypic attributes over time—to the possible neglect of "heterotypic continuity"—continuity of an inferred genotypic attribute presumed to underlie diverse phenotypic behaviors (Kagan, 1969). This emphasis may be reasonable when developmental questions are framed about adulthood, but it is restrictive when developmental questions are framed about the earlier years of life. For example, the emergence of the Irritability factor suggests the possibility that the expression of negative

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emotionality, which forms the core of adult Neuroticism, may change over time. Despite phenotypic discontinuities in specific manifestations of negative affect, there may still be continuity in their "central orientation" (Bronson, 1966).

Similarly, the emergence of the Activity factor defined by energy, tempo, and athletic prowess suggests that the organization of extraverted behavior may change with age. In early adolescence, when physical activity and athletics play a central role in peer relations and carry social status implications, Extraversion may manifest itself in part through social contact and in part through physical and social vigor. In adulthood, when social contexts become the arena in which most individuals vie for social status and acceptance, Extraversion may be expressed primarily through social activity, assertiveness, and gregariousness.

Does our finding of five-plus-two factors mean that researchers interested in measuring broad personality dimensions in adolescence should now measure the seven factors identified in the present sample? Not necessarily. Before we accept these two "additional" factors as important dimensions of adolescent personality, they need to be replicated in other samples and with other assessment instruments. Until this is done, we recommend that researchers use the Big Five scales presented in the Appendix. Two additional observations lead us to favor this cautious recommendation. First, our Big Five scales are anchored in the definitions of the Big Five in adulthood and thus provide conceptual continuity for research bridging childhood and adolescence with adulthood. Second, as reported in Table 5, our Big Five scales represent five of the seven empirical factors quite well, with a mean convergence correlation of .81. Nonetheless, if necessary or desirable, scales for the two additional VARIMAX factors can be scored from the items listed in Table 6 and can thus be used to supplement our Big Five scales.

Conclusions

In this article, we have explored the FFM in early adolescence in three ways. First, we have constructed Big Five scales for use with children and adolescents. Second, we have provided validation evidence for these scales and begun to examine the nomological network of the FFM. Using the personality descriptions provided by a

single informant—the mother—we have confirmed numerous predicted relations with adolescents' self-reports, reports from teachers, and scores on an objective test. In many instances, these associations were substantial in size and should lay to rest any general claims that broad personality dimensions, such as those specified by the FFM, do not relate to behavior in the "real" world or that they fail to predict individual differences of practical importance. Third, we have addressed the broader issue of adolescent personality structure as represented by the CCQ; in addition to a variant of the Big Five, we have found two factors, which we interpret as Irritability and Positive Activity, and we have offered a speculative account of the origin and subsequent development of these two additional dimensions in early adolescence.

The most obvious limitation of this research is our sole reliance on boys as subjects and mothers as judges. Our findings clearly require replication with girls and with younger age groups, but we have grounds for optimism. First, our CCQ Big Five scales converged with the factor definitions offered by Digman (1989), whose work differed from ours in several ways: He had teachers rate both boys and girls using trait adjectives rather than Q-set items. Therefore, it is unlikely that our Big Five scales will prove inapplicable in samples of girls and with observers and judges other than mothers. Second, our validation analyses have shown that our CCQ Big Five scales have similar relations to external criteria as the Big Five dimensions in adulthood. Research on adult samples has shown that, although some mean-level differences between men and women exist, the factor structures in the two genders do not differ (e.g., Borkenau & Ostendorf, 1990).

Implications and Future Directions

Researchers and practitioners in the field of personality development are faced with a bewildering array of measures and scales from which to choose. Moreover, measures with the same name often measure concepts that are not the same, and measures with different names often measure concepts that overlap considerably in their content. As long as "each assessor has his own pet units and uses a pet battery of diagnostic devices" (Allport, 1958, p. 258), individual empirical findings are unlikely to be integrated.

One of the advantages of the FFM is that, as we have shown in this article, the Big Five dimensions are not instrument bound. Thus, the personality taxonomy provided by the FFM may help accumulate and integrate findings across assessment instruments and research traditions. More specifically, we hope the availability of Big Five scales for the CCQ will serve two research purposes. First, the scales may serve to link personality research in different phases of the life span. For example, developmental psychologists have identified numerous temperamental variations in infancy and early childhood (Kohnstamm, Bates, & Rothbart, 1989). How do these manifest themselves in later life? Clearly, the relations between "early developing personality traits" (Buss & Plomin, 1984) and later personality characteristics are not isomorphic, but we need to chart the course of the developmental transformations that result in adult personality. The FFM is one framework that may help to coordinate such efforts. For example, we can ask how Buss and Plomin's (1984) temperament traits of Sociability and Activity combine and integrate into what may later become adult Extraversion.

Second, the availability of CCQ Big Five scales may also contribute to research on the emergence and dynamics of clinical problems. The prevalence of a variety of clinical disorders, including affective and conduct problems, tends to increase during and following puberty (e.g., Moffitt, 1990). If the FFM is to be clinically useful, it must be able to predict and distinguish among different behavior problem syndromes. The present work has already shown that Externalizing and Internalizing problems are related in theoretically meaningful ways to the Big Five dimensions. Future research will need to examine whether the Big Five dimensions can also provide discriminations between closely related behavior disorders, such as hyperactivity and conduct disorder.

One reason these questions have not been explored in past research is that adequate measures of these five broad personality dimensions, tailored specifically for use with children and adolescents, were not available. We hope the CCQ scales described here will prove useful and facilitate research on these theoretically and practically important issues.

Appendix

Big Five Scales for the California Child Q-Set

I. *Extraversion versus social inhibition* (9 items)

1. He shows his thoughts and feelings in the way he looks and acts, but he does not talk much about what he thinks and about how he feels. (R)²
8. He likes to keep his thoughts and feelings to himself. (R)
28. He is energetic and full of life.
35. He holds things in. He has a hard time expressing himself; he is a little bit uptight. (R)
58. He openly shows the way he feels, whether it's good or bad. He shows his emotions openly.
63. He is fast-paced; he moves and reacts to things quickly.
84. He is a talkative child; he talks a lot.
86. He likes to be by himself; he enjoys doing things alone. (R)
98. He is shy; he has a hard time getting to know people. (R)

II. *Agreeableness versus antagonism* (13 items)

2. He is considerate and thoughtful of other people.
3. He is a warm person and responds with kindness to other people.
4. He gets along well with other people.
6. He is helpful and cooperates with other people.
9. He makes good and close friendships with other people.
14. He tries hard to please other people.
22. He tries to get others to do what he wants by playing up to them. He acts charming in order to get his way. (R)
29. He is protective of others. He protects people who are close to him.
30. Most adults seem to like him.
32. He gives, lends, and shares things.
80. He teases and picks on other kids (including his own brothers and sisters). (R)
90. He is stubborn. (R)
93. He's bossy and likes to dominate other people. (R)

III. *Conscientiousness versus lack of direction* (9 items)

36. He finds ways to make things happen and get things done.
41. He is determined in what he does; he does not give up easily.
47. He has high standards for himself. He needs to do very well in the things he does.

² (R) = Item is reverse scored.

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- 59. He is neat and orderly in the way he dresses and acts.
- 66. He pays attention well and can concentrate on things.
- 67. He plans things ahead; he thinks before he does something. He "looks before he leaps."
- 76. He can be trusted; he's reliable, and dependable.
- 89. He's able to do many things well; he is skillful.
- 99. He thinks about his actions and behaviors; he uses his head before doing or saying something.

IV. Neuroticism versus emotional stability (10 items)

- 23. He is nervous and fearful.
- 24. He worries about things for a long time.
- 39. He freezes up when things are stressful, or else he keeps doing the same thing over and over.
- 43. He can bounce back or recover after a stressful or bad experience. (R)
- 46. He tends to go to pieces under stress; he gets rattled when things are tough.
- 48. He needs to have people tell him that he's doing well or ok. He is not very sure of himself.
- 50. He tends to get sick when things go wrong or when there is a lot of stress. (For example, he gets headaches, stomach aches, throws up.)
- 60. He gets nervous if he's not sure what's going to happen or when it's not clear what he's supposed to do.
- 77. He feels unworthy; he has a low opinion of himself.
- 78. His feelings get hurt easily if he is made fun of or criticized.

V. Openness to experience (7 items)

- 40. He is curious and exploring; he likes to learn and experience new things.
- 68. He is a very smart kid (even though his grades in school might not show this).
- 69. He has a way with words; he can express himself well with words.
- 70. He daydreams; he often gets lost in thought or a fantasy world.
- 74. He usually gets wrapped up in what he's doing.
- 96. He is creative in the way he looks at things; the way he thinks, works, or plays is very creative.
- 97. He likes to dream up fantasies; he has a good imagination.

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