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## The Kids Are Alright: Growth and Stability in Personality Development From Adolescence to Adulthood

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This longitudinal study provides a comprehensive analysis of continuity and change in personality functioning from age 18 to age 26 in a birth cohort ( $N = 921$ ) using the Multidimensional Personality Questionnaire (A. Tellegen, 1982). Data were analyzed using 4 different methods: differential continuity, mean-level change, individual differences in change, and ipsative change. Convergent evidence pointing toward personality continuity, as opposed to change, was found. The personality changes that did take place from adolescence to adulthood reflected growth in the direction of greater maturity; many adolescents became more controlled and socially more confident and less angry and alienated. Consistent with this, greater initial levels of maturity were associated with less personality change over time. The results indicate that the transition from adolescence to young adulthood is marked by continuity of personality and growth toward greater maturity.

The developmental period between ages 15 and 30 is characterized by tremendous environmental changes. This is the peak age period of residential mobility, school leaving, marriage, fertility, and unemployment. In fact, demographers call the transition to adulthood a period of *demographic density* because it is characterized by so many closely spaced life changes (Rindfuss, 1991). Similarly, psychologists describe the transition to adulthood as a time of identity commitment and consolidation in which men and women move from dependence on their family of origin to increasing independence as fully functioning members of society (Erikson, 1963; Havighurst, 1948; Levinson, 1986). This move

entails negotiating numerous life tasks and making commitments to new identities: Where should I live? What kind of career should I pursue? Who should I marry? When should I have children? Whether one adopts the demographic language of state transitions or the psychodynamic language of stage resolution, the move from adolescence to adulthood is regarded as one of the most turbulent periods in the life course.

Given the emphasis that is increasingly placed on the need to help adolescents prepare for their adult roles (Carnegie Council on Adolescent Development, 1995), it is imperative to have an accurate understanding of the psychological changes that youth undergo as they make this important transition to adulthood. An important way to assess these changes is to focus on personality traits. Personality traits refer to individual differences in the tendency to behave, think, and feel in certain consistent ways. Trait models are often incorrectly characterized as static, nondevelopmental constructions of personality (Lewis, 1999). This misconception arises because personality traits are thought to represent stable and enduring psychological differences between persons; ergo, they are static. In contrast, the perspective adopted in contemporary personality and developmental research is that personality traits are organizational constructs; they influence how individuals organize their behavior to meet environmental demands and new developmental challenges (Funder, 1991). As Allport (1937) noted, personality traits are “*modi vivendi*, ultimately deriving their significance from the role they play in advancing adaptation within, and mastery of, the personal environment” (p. 342). In turn, personality traits are developmental constructs in that they demonstrate changes across the life course (Roberts & Caspi,

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2001), often in response to the environments being mastered (Roberts, 1997).

An important goal of developmental researchers is to chart normative changes in personality and to determine whether personality change is random or has a direction toward growth and maturity (e.g., Hogan & Roberts, *in press*; Roberts, Helson, & Klockner, *in press*). Maturity entails change in the direction of a desirable endpoint that, once reached, means a person is closer to being fully developed (i.e., progression toward maturity should diminish the probability of change). This makes maturity an endpoint with traitlike features, and the study of maturity is intrinsically the study of continuity and change in traits. It is interesting to note that many of the definitions of maturity have been made in trait terms. Allport (1961) described the mature individual, in part, as warm, responsible, and emotionally stable. The primary goal of the present study is to provide a comprehensive analysis of continuity and change in personality traits from adolescence to adulthood. The secondary goal is to discern whether the change that occurs reflects growth in the direction of greater maturity and to explore whether adolescents who are more mature are less or more prone to change. This research is part of the Dunedin Multidisciplinary Health and Development Study (see Silva & Stanton, 1996), in which we have assessed the personalities of nearly 1,000 men and women at age 18 and again at age 26.

Several longitudinal studies have focused on continuity and change in personality traits during the developmental period between ages 15 and 30 (Block, 1971; Haan, Millsap, & Hartka, 1986; Helson & Moane, 1987; McGue, Bacon, & Lykken, 1993; Mortimer, Finch, & Kumka, 1982; Nesselroade & Baltes, 1974; Robins, Fraley, Roberts, & Trzesniewski, 2001; Stein, Newcomb, & Bentler, 1986; see also McCrae *et al.*, 1999). However, the ability to generalize from the existing database of longitudinal studies is compromised by unrepresentative sampling, low power, and limited trait coverage. The majority of longitudinal studies have tracked personality development in elite members of society such as university students or have relied on research volunteers, whose personalities are known to differ from those of persons who do not volunteer for psychological research (Rosenthal & Rosnow, 1975). Other longitudinal studies of more heterogeneous samples have tended to be relatively small in size, making it difficult to detect small but potentially meaningful personality changes over time. Moreover, small samples with low power make it difficult to confidently draw conclusions about the nature of sex differences in personality development during the transition to adulthood. Finally, it is difficult to draw firm conclusions about the nature of personality change in young adulthood because different studies have often measured single personality traits, and comparisons of continuity and change on different traits have to be made across different samples, confounding sampling and measurement issues. The present study attempts to address these limitations in the following ways.

First, our research was conducted in the context of a longitudinal-epidemiological study of a total birth cohort (Krueger, Caspi, & Moffitt, 2000). The epidemiological approach is relevant to research on personality development because it generates unbiased estimates of prevalence rates (e.g., How many people exhibit reliable personality change during young adulthood?) and of associations between variables (e.g., What psychological factors predict whether people show continuity or change?). The large size

of our study also allows us to examine these questions among both men and women and to test for reliable sex differences.

Second, we have incorporated into our longitudinal-epidemiological design a comprehensive personality assessment system that measures one of the better known contemporary structural models of personality traits (Church & Burke, 1994). Among other reasons, we chose Tellegen's (1982) Multidimensional Personality Questionnaire (MPQ) because it is well-suited to examining both the higher order and the lower order levels of the personality trait hierarchy. Personality traits can be conceptualized in a hierarchical fashion (Paunonen, 1998). At the highest level of the hierarchy are dimensions such as the Big Three, the Big Four, and the Big Five (John & Srivastava, 1999; Tellegen & Waller, *in press*). These higher order dimensions or superfactors are summaries of specific lower order or primary traits. For example, the higher order trait of Neuroticism or Negative Emotionality can be thought of as subsuming propensities toward anger, guilt, self-criticism, anxiety, and other specific negativistic biases (Watson, Clark, & Harkness, 1994). Different levels of the trait hierarchy represent different levels of breadth or abstraction in personality description (McCrae & John, 1992), and our examination of both the higher order and the lower order levels of the hierarchy offers additional useful information for describing the nature of psychological changes that may occur in the transition to young adulthood.

Third, whereas previous studies of personality development have tended to focus on a single statistical approach to assessing continuity and change, we use four distinct types of methods to discover what changes, who changes, and by how much. We now review these four methods.

### Types of Continuity and Change in Personality

The assertion that an individual's personality changes or remains the same over time is as ambiguous as the assertion by researchers that personality is consistent. The teenager who binge drinks on weekends when he is 18 but sips wine nightly when he is 26 has increased his level of self-control; he has changed in absolute terms. Nevertheless, if he ranks first in alcohol consumption among his peers at both ages, he has not changed in relative terms. A further ambiguity arises when a claim of continuity rests on observations not of an individual but of a sample of individuals. The apparent continuity of an attribute at the group level may mask large but mutually canceling changes at the individual level. There are, in short, several ways to define and operationalize continuity and change in personality. To arrive at an accurate assessment of continuity and change, it is best to consider multiple indices of development. We focus on four definitions that provide a relatively comprehensive picture of continuity and change exhibited by the Dunedin Study participants in young adulthood: differential continuity, mean-level change, individual differences in change, and ipsative change (see Alwin, 1994; Caspi & Roberts, 1999; Ozer, 1986).

### The Differential Continuity of Personality Traits in Young Adulthood

Differential or rank-order stability refers to the level of ordering consistency maintained by a population over time. Two contradictory predictions have been made about the differential continuity

of traits. The first, classical trait approach argues that personality traits in adulthood are governed by internal, biological mechanisms and are "temperaments" that do not change and are not susceptible to the influence of the environment (McCrae et al., 2000). From this essentialist perspective, one would expect the test-retest correlations to be high, even in young adulthood. In contrast, the contextual approach emphasizes the importance of life changes and role transitions in personality development and suggests that during young adulthood, personality should be fluid, should be prone to change, and should yield low test-retest correlation coefficients (Lewis, 1999). Neither of these extreme positions seems tenable, however. A meta-analysis of differential stability of personality traits showed that personality consistency increased with age, and cross-time correlations became increasingly high in older samples (Roberts & DelVecchio, 2000). Estimates from this meta-analysis suggest that a study covering a time interval and age period similar to the one in the present research should yield correlations between .5 and .6.

Correlation coefficients are commonly used to index whether personality dispositions exhibit traitlike properties—that is, whether they are consistent across time and circumstance. Correlation coefficients are excellent broad-based indicators of the continuity of dispositions over time. What test-retest correlation coefficients cannot tell us is the extent to which individuals grow and mature with time. It is not uncommon to confuse moderate to high levels of test-retest consistency with the idea that personality does not change, but, in fact, differential continuity is often entirely unrelated to other indices of change (Block, 1971). The remaining three indices of continuity and change considered in this article provide complementary information about continuity and change that is also more appropriate for testing hypotheses about growth and maturity.

### The Mean-Level Change of Personality Traits in Young Adulthood

Mean-level change refers to changes in the quantity of some attribute demonstrated by a group over time. For the most part, previous longitudinal studies have pointed to increases from adolescence to adulthood in the domain of Conscientiousness or Behavioral Constraint. This is especially the case among studies that have examined personality measures of self-control (Haan et al., 1986; Helson & Moane, 1987; McGue, Bacon, & Lykken, 1993), although measures of conformity and traditionalism do not consistently show a comparable developmental increase (e.g., Stein et al., 1986). The longitudinal findings corresponding to the domain of Negative Emotionality generally point to a developmental decrease in these characteristics from adolescence to young adulthood. This is especially the case among studies that have examined personality measures of hostility, antagonism, and aggression, but there is less consistent evidence for such developmental change in studies focusing on measures of neuroticism and anxiety (Carmichael & McGue, 1994; McGue et al., 1993; Roberts & Chapman, 2000; Robins et al., 2001; Viken, Rose, Kaprio, & Koskenvuo, 1994). The longitudinal findings corresponding to the domain of Positive Emotionality are mixed, with some studies pointing to increases in Positive Emotionality and Extraversion from adolescence to young adulthood (Holmlund, 1991; McGue et al., 1993), other studies pointing to decreases (Nichols, 1967), and

still others documenting no change (Helson & Moane, 1987; Robins et al., 2001). Helson and Kwan (2000) argued that this confusing pattern of findings is attributable to differences in the content sampled by different measures of Extraversion. Specifically, Helson and Kwan (2000) claimed that aspects of Extraversion related to social dominance show increases in young adulthood and middle age and facets related to social vitality (e.g., sociability) show decreases with age. In the present study, we attempt to reconcile previous contradictions by examining patterns of personality continuity and change at both the superfactor level and the primary trait or facet level.

Mean-level increases in impulse control and decreases in Negative Emotionality demonstrated in previous research are consistent with psychological definitions of personality growth and maturity. Broadly conceived, growth refers to change that either improves adjustment or expands, clarifies, or deepens personality (Roberts et al., in press). Allport (1961) noted that growth in the direction of maturity involved acquiring a greater sense of self-control and the development of a more realistic outlook on life. He described the mature person as being happy, showing fewer traces of neurotic and abnormal tendencies, and having the capacity for warm and compassionate relationships. Similarly, Shoben (1957) noted that the hallmarks of personality maturity are self-control, dependability, and social responsibility. If Allport and Shoben are correct, support for the hypothesis that personality change in young adulthood involves growth in the direction of maturity will be indicated by increases in dispositions related to Constraint and Communion and decreases in dispositions related to Negative Emotionality.

### Individual-Level Change of Personality Traits in Young Adulthood

Differential consistency and mean-level change are two of the most common indices used to track continuity and change in personality development. However, a focus on these indices limits understanding of personality development to a population-level phenomenon and overlooks alternative perspectives on personality change at the level of the individual, which we refer to as individual differences in change (e.g., Nesselroade, 1991). Individual differences in change refers to the magnitude of increase or decrease exhibited by each individual over the duration of the study on any given trait. Furthermore, individual differences in change can be and often are unrelated to population indices of change. A given population may demonstrate robust individual differences in change while showing absolutely no mean-level changes. For example, at the individual level, one may find that a large proportion of the population increases substantially, whereas an equally large proportion decreases substantially, so that the groups effectively cancel each other out, resulting in no population-level change but substantial changes in specific subgroups of individuals. Likewise, there can be meaningful individual-level change even when there is substantial differential consistency at the population level (Kohn, 1980; Roberts & Chapman, 2000).

Individual-level change is often gauged through the use of difference scores or residual change scores. Of course, lack of reliability can render changes found at the individual level meaningless because these changes can be attributed to regression to the mean (Hsu, 1989). To compensate for the unreliability of change

scores, we classified people as having decreased, increased, or stayed the same on each personality scale by using the Reliable Change Index (RCI; Christensen & Mendoza, 1986; Jacobson & Truax, 1991):  $RC = X_2 - X_1 / S_{diff}$  where  $X_1$  represents a person's score at Time 1,  $X_2$  represents that same person's score at Time 2, and  $S_{diff}$  is the standard error of difference between the two test scores, which can be computed using the standard error of measurement:  $S_{diff} = (2(S_E)^2)^{1/2}$ .

The standard error of the difference score represents the spread of the distribution of change scores that would be expected if no actual change has occurred. RCI scores smaller than  $-1.96$  or larger than  $1.96$  are unlikely to occur without true change and are thus considered reliable. Furthermore, if change were random, then we would expect the distribution of RCI scores to be normal, with approximately 2.5% below  $-1.96$ , 2.5% above  $1.96$ , and 95% of the participants remaining the same.

The RCI has been used extensively to evaluate the clinical significance of change in therapeutic situations (Jacobson, Roberts, Berns, & McGlinchey, 1999) and is potentially informative in nonintervention or natural history studies. One of the few such studies to use the RCI reported that between 9% and 27% of participants in a longitudinal study demonstrated reliable change on measures of the Big Five personality factors over a 4-year period (Robins et al., 2001). These findings indicate that there were greater than chance levels of change occurring at the individual level—sometimes despite the lack of population mean-level change. In the present study, we use the RCI to estimate the proportion of people who change and the range of change possibilities in young adulthood.

Individual-level change as gauged by the RCI is also relevant to the question of growth and maturity. Bloom (1964) argued that personality traits should stabilize when an individual reaches maturity. Therefore, we would expect to find that individuals who are already mature are less likely to demonstrate reliable change. Given the definition of maturity provided earlier, we hypothesized that adolescents who are more constrained, exhibit less Negative Emotionality, and have higher levels of Communion should be less likely to demonstrate personality change as they enter adulthood. We tested this hypothesis by comparing personality scores at age 18 for members of the study who demonstrated varying levels of reliable change across the primary scales of the MPQ.

### Ipsative Change of Personality Traits in Young Adulthood

The three types of change described so far are changes that occur on single dimensions, one at a time. In contrast, ipsative change denotes a change in the configuration of variables within an individual across time. Ipsative change also could be called morphogenic (Allport, 1962) or person-centered change. Typically assessed with some form of profile similarity, this type of change focuses on multiple dimensions within an individual rather than on a single dimension across persons. That is, ipsative change is relative only to the individual being assessed, not to the sample, and reflects how much a person's personality configuration changes rather than how much any given trait changes.

Most research tracking ipsative change has used a Q-sort methodology, in which continuity and change are indexed by computing correlations across a ranked set of attributes at Time 1 with the same set of ranked attributes at Time 2. The higher the correlation,

the more the configuration of attributes within the individual is said to be stable across time (Ozer, 1993). Block (1971) reported that the average Q-correlations between early and late adolescence exceeded .70 and that those between late adolescence and adulthood exceeded .50. Despite these impressively high levels of profile similarity, many individuals had very low and even negative Q-correlations, which points to significant changes or transformations in these individuals' personality makeup. Other studies of personality continuity and change between childhood and adolescence have reported average Q-correlations ranging from .43 to .71, with considerable variability across individuals in the distribution of these scores (from  $-.44$  to  $.92$ ; Asendorpf & van Aken, 1991; Ozer & Gjerde, 1989). Profile similarity also can be indexed across the scales of a standard personality questionnaire using profile correlations and  $D^2$  indices. Robins et al. (2001) found that during the college years, Big Five profile correlations ranged from  $-.95$  to  $.97$ , with a mean of  $.61$ .

One final possibility is that individual differences in ipsative-level change are themselves predictable. Consistent with the idea that maturity is related to personality consistency, several psychological factors clustering around the concepts of emotional adjustment, ego resiliency, and planful competence have been found to correlate with increased personality profile consistency (Asendorpf & van Aken, 1991; Clausen, 1993; Schuerger, Zarrella, & Hotz, 1989). Given these findings and our definition of maturity, we hypothesized that people who score high on measures of Constraint and Communion and low on measures of Negative Emotionality would exhibit greater ipsative continuity.

### Gender Differences in Personality Development During Young Adulthood

The examination of sex differences in personality development is rife with problems. First, although men and women show some differences in their personalities (Feingold, 1994), sex differences in mean levels of traits do not necessarily translate into sex differences in patterns of personality continuity and change. It is possible for men and women to differ in their personality trait levels but to exhibit the same patterns of continuity or change. Second, in many empirical studies that purport to test for sex differences, the samples of men and women are not large enough or representative enough to establish reliable sex differences. Indeed, many studies dispense with formal tests for sex differences and simply estimate  $p$  values from separate analyses conducted for each sex, a practice that leads to false conclusions about sex differences (Cohen, Cohen, & Brook, 1995). Third, the literature is replete with studies of just one sex. Although often informative, these studies do not provide conclusive evidence for differences in the ways men and women develop over time. In the present study, we systematically tested for sex differences in each of the four forms of continuity and change described above to determine the moderating role of gender in developmental continuities.

### Method

#### Participants

Participants were members of the Dunedin Study, a longitudinal investigation of the health and behavior of a complete cohort of consecutive births born between April 1, 1972, and March 31, 1973, in Dunedin, New

Zealand. When the children were traced for follow up at 3 years of age, 1,037 children (91% of the eligible births, of whom 52% were boys) participated in the assessment and formed the base sample for the longitudinal study. With regard to social origins, the children's families were representative of the social class and ethnic distribution in the general population of New Zealand's South Island. With regard to ethnic distribution, the Dunedin Study members were of predominantly European ancestry. Fewer than 7% identified themselves as Maori or Pacific Islander. Cross-national comparisons and replication analyses lend some confidence about generalizing findings from the Dunedin Study to other Western nations (see Moffitt, Caspi, Rutter, & Silva, 2001). Follow ups of the sample were carried out at ages 5, 7, 9, 11, 13, 15, 18, 21, and, most recently, 26, when we assessed 980 (96%) of the 1,019 study members who were still alive.

### Measures

As part of the assessments made when they were 18 and 26 years old, participants completed a modified version (Form NZ) of the MPQ (Tellegen, 1982). At age 18, MPQ personality data were gathered for 938 study members; 862 study members completed these measures at the research unit, and 76 returned a mail version of the MPQ subsequent to the assessment. At age 26, 975 study members completed the MPQ at the research unit. Complete personality protocols on both occasions are available for 921 participants. The MPQ is a self-report personality instrument designed to assess a broad range of individual differences in affective and behavioral style (see Krueger, Caspi, Moffitt, Silva, & McGee, 1996, for details about modifications in MPQ Form NZ). The MPQ Form NZ yields 10 primary scales (the Absorption scale was not included in our administration of the MPQ). According to Tellegen and Waller (in press), these 10 primary scales can be organized under a three-superfactor structure (Constraint, Negative Emotionality, and Positive Emotionality) or a four-superfactor structure (Positive Emotionality is further divided into Agentic Positive Emotionality and Communal Positive Emotionality). For the purposes of the present research, we use the four-factor structure.

Constraint is a combination of the Traditionalism, Harm Avoidance, and Control scales. Individuals who are high on this factor tend to endorse social norms, act in a cautious and restrained manner, and avoid thrills. Negative Emotionality is a combination of the Aggression, Alienation, and Stress Reaction scales. Individuals who are high on this dimension have a low general threshold for the experience of negative emotions such as fear,

anxiety, and anger and tend to be involved in antagonistic relationships (Tellegen et al., 1988). Agentic Positive Emotionality is a combination of the Achievement and Social Potency scales and reflects positive emotional responsiveness and effectiveness. Communal Positive Emotionality is a combination of the Social Closeness and Well Being scales and reflects positive emotional responsiveness and interpersonal connectedness (Tellegen & Waller, in press). We scored these superfactors by summing the relevant subscales and used these as a supplement to the primary MPQ scales.

Scale names, reliability estimates, and descriptions of high scorers are presented in Table 1. The reliability estimates ranged from .63 to .89 and had an average value of .75. The scale intercorrelations for the 10 primary MPQ scales ranged from  $-.37$  to  $.40$ , with a mean absolute value of  $.16$ . These intercorrelations are similar to those obtained with the original instrument and illustrate the relative independence of the 10 primary MPQ scales (see Tellegen et al., 1988).

### Results

#### *The Differential Consistency of Personality From Age 18 to Age 26*

Correlations over time on the four higher order MPQ superfactors and the 10 MPQ primary-trait scales were estimated with Pearson correlation coefficients (Table 2). The 8-year test-retest correlation coefficients are shown in Table 2. The correlations ranged from a low of  $.43$  (Well Being) to a high of  $.67$  (Constraint). The average correlation was  $.55$ , and, as predicted, the majority of the correlations were between  $.50$  and  $.60$ .

#### *Mean-Level Change in Personality From Age 18 to Age 26*

Mean-level changes on the four MPQ superfactors and 10 primary-trait scales were evaluated using repeated measures analysis of variance (ANOVA). Table 2 shows the means, standard deviations,  $d$  scores, and eta-squared effect-size estimates from these analyses. Table 2 contains three noteworthy findings. First,

Table 1  
MPQ Scale Descriptions and Reliability Estimates

Superfactor and MPQ scale	Age 18 reliability	Age 26 reliability	Description of high scorer
Constraint	.82	.87	Endorses social norms; acts in a cautious and restrained manner; avoids thrills
Traditionalism	.63	.74	Desires a conservative social environment; endorses high moral standards
Harm Avoidance	.71	.79	Avoids excitement and danger; prefers safe activities even if they are tedious
Control	.79	.81	Is reflective, cautious, careful, rational, and planful
Negative Emotionality	.86	.89	Experiences elevated levels of negative emotions such as fear, anxiety, and anger; antagonistic
Aggression	.78	.81	Hurts others for own advantage; will frighten and cause discomfort for others
Alienation	.76	.83	Feels mistreated, victimized, betrayed, and the target of false rumors
Stress Reaction	.80	.83	Is nervous, vulnerable, sensitive, prone to worry
Agentic Positive Emotionality	.80	.79	Seeks pleasurable experiences by engaging the environment and conquering the challenges it may present
Achievement	.69	.75	Works hard; enjoys demanding projects and working long hours
Social Potency	.76	.78	Is forceful and decisive; fond of influencing others; fond of leadership roles
Communal Positive Emotionality	.76	.84	Seeks pleasurable experiences by establishing warm relationships with others
Well Being	.67	.75	Has a happy, cheerful disposition; feels good about self and sees a bright future
Social Closeness	.75	.80	Is sociable; likes people and turns to others for comfort

Note. Cronbach's alpha was used for reliability estimates of the 10 primary scales. Composite reliability was used for reliability estimates of the Constraint, Negative Emotionality, Agentic Positive Emotionality, and Communal Positive Emotionality superfactor scales. MPQ = Multidimensional Personality Questionnaire.

Table 2

*Differential Consistency and Mean-Level Change in Personality Traits From Age 18 to Age 26*

Superfactor and MPQ scale	Eight-year test-retest stability coefficient	Age 18		Age 26		<i>d</i> score	$\eta^2$
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Constraint	.67*	181.9	45.1	186.7	48.5	.10	.02*
Traditionalism	.55*	63.8	16.9	63.4	18.5	-.03	.00
Harm Avoidance	.62*	62.0	21.2	61.8	23.9	-.01	.00
Control	.58*	56.1	22.8	61.4	22.8	.24	.06*
Negative Emotionality	.60*	97.0	51.5	81.6	50.3	-.30	.10*
Aggression	.60*	33.8	22.7	23.6	19.9	-.48	.22*
Alienation	.59*	20.1	19.8	13.8	18.3	-.33	.12*
Stress Reaction	.52*	43.1	28.1	44.2	29.9	.04	.00
Agentic Positive Emotionality	.51*	90.8	33.9	112.4	36.2	.62	.28*
Achievement	.44*	53.3	21.4	63.4	21.1	.47	.17*
Social Potency	.56*	37.4	24.0	49.0	23.5	.49	.21*
Communal Positive Emotionality	.49*	157.1	30.7	156.9	32.3	-.01	.00
Well Being	.43*	78.2	20.7	81.6	20.8	.16	.02*
Social Closeness	.51*	78.9	17.9	75.3	20.3	-.19	.04*

Note. *N* = 921. Each of the 10 primary MPQ scales was scored according to the proportion of items on that scale that were endorsed by the study member; thus, for each scale, the theoretical range is from 0 to 100. Superfactor scores were computed by summing the constituent scales. MPQ = Multidimensional Personality Questionnaire.

\* *p* < .05.

Dunedin Study members showed significant increases on the Constraint superfactor from age 18 to age 26. An examination of the lower order scales shows that study members increased primarily in their level of Self-Control. Second, study members showed significant decreases on the Negative Emotionality superfactor. An examination of the lower order scales showed that Dunedin Study members decreased in Aggression and Alienation but not Stress Reaction. Third, Dunedin Study members showed significant increases on the Agentic Positive Emotionality superfactor. An examination of the lower order scales in this domain showed that study members increased in their trait levels of Achievement and Social Potency. Study members did not show statistically significant

change on the Communal Positive Emotionality superfactor. An examination of the lower order scales showed that study members demonstrated an apparently contradictory pattern, increasing on Well Being and decreasing on Social Closeness.

#### *Individual-Level Change in Personality From Age 18 to Age 26*

We calculated the RCI to assess whether a given Dunedin Study member exhibited reliable personality change from age 18 to age 26. Table 3 shows that the vast majority of study members (72–90%) stayed the same over this 8-year period on any given

Table 3

*Individual-Level Change in Personality Traits From Age 18 to Age 26*

Superfactor and MPQ scale	Decreased (%)	Stayed the same (%)	Increased (%)	$\chi^2(2, N = 921)$
Constraint	6.8	84.4	9.8	289.6*
Traditionalism	6.9	89.8	4.3	104.2*
Harm Avoidance	5.9	89.1	5.0	74.7*
Control	5.1	82.2	12.7	441.5*
Negative Emotionality	20.7	72.2	7.1	1,386.8*
Aggression	19.2	78.2	2.6	1,058.2*
Alienation	13.9	82.1	4.0	511.8*
Stress Reaction	9.6	79.1	11.3	499.9*
Agentic Positive Emotionality	2.5	72.2	25.3	1,984.0*
Achievement	3.7	80.8	15.5	869.8*
Social Potency	2.6	80.0	17.4	937.2*
Communal Positive Emotionality	10.2	79.4	10.4	473.8*
Well Being	5.4	83.9	10.7	301.3*
Social Closeness	11.8	82.6	5.6	381.3*

Note. *N* = 921. Percentages for decrease, increase, and staying the same were based on the reliable change index (i.e., change greater than 1.96 or less than -1.96 is considered reliable change). The chi-square tests whether the observed distribution of changers and nonchangers would differ from the expected distribution if change were random (e.g., 2.5% each decrease and increase, 95% remain the same). MPQ = Multidimensional Personality Questionnaire.

\* *p* < .05.

trait, with a sizable minority showing change. As we expected, the percentage of people increasing or decreasing reliably on a specific scale corresponded highly with the sample-wide mean-level changes documented in Table 2. The key question concerning individual-level change was whether it could be attributed to chance. If individual-level change were random, we would expect roughly 2.5% of the sample to increase, 2.5% to decrease, and 95% not to change reliably. The chi-squared statistics in Table 3 show that the distribution of decreasers, nonchangers, and increasers differed significantly from this random-change pattern for every superfactor and primary scale. It appears that there is reliable change in personality traits.

On the whole, there was slight evidence of reliable change on Constraint and its constituent scales; at most, 12.7% of the Dunedin Study members showed reliable increases in Self-Control. There was some evidence of a decrease on Negative Emotionality and its constituent scales; especially notable is the fact that 19.2% of the study members showed a reliable decrease in Aggression. The largest percentage of increasers (25%) was found on the Agentic Positive Emotionality dimension. The percentage of reli-

able changers was evenly distributed on the Communal Positive Emotionality dimension.

When we examined individual-level change across all 14 scales, we discovered that no Dunedin Study member showed reliable change on all 14 scales and that only 1% of the sample changed on 8 or more scales. However, we also learned that only 16% of the sample failed to change on any scale and fully 84% of the sample showed reliable change on at least 1 personality scale over the 8-year period. The modal number of scales on which people showed reliable change was 2. Thus, although most people did not show reliable change on any specific trait, most people did demonstrate reliable change on one or two traits over the 8-year period.

To test the growth and maturity hypothesis that lack of change is associated with a profile of high Constraint, low Negative Emotionality, and high Communion, we compared the MPQ profiles of 18-year-old nonchangers and changers. We grouped the sample into six groups (of similar sample size), ranging from those who demonstrated no reliable change to those who showed reliable change on five or more scales. Figure 1 shows that the hypothesized pattern of means at age 18 was obtained. Adolescents with

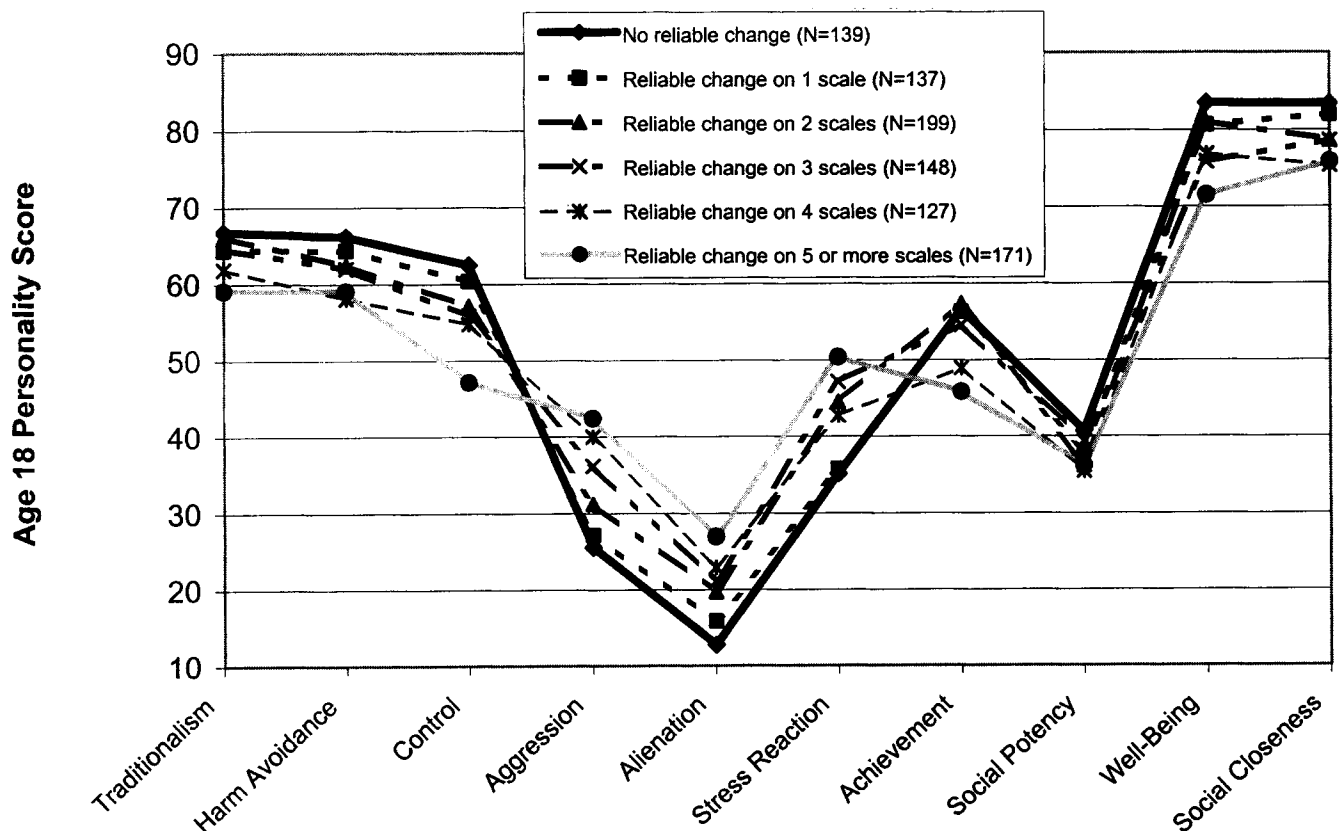


Figure 1. Multidimensional Personality Questionnaire profile for groups demonstrating various levels of reliable change over time. The figure shows mean levels for groups that ranged from demonstrating no reliable change to demonstrating reliable change on five or more scales. To evaluate the statistical significance of the differences among the groups, we tested whether the differences in means demonstrated a linear trend in which the mean levels corresponded to the levels of reliable change. Traditionalism,  $F(5, 915) = 17.1, p < .05$ ; Harm Avoidance,  $F(5, 915) = 14.3, p < .05$ ; Control,  $F(5, 915) = 36.7, p < .05$ ; Aggression,  $F(5, 915) = 71.4, p < .05$ ; Alienation,  $F(5, 915) = 49.5, p < .05$ ; Stress Reaction,  $F(5, 915) = 27.7, p < .05$ ; Achievement,  $F(5, 915) = 29.7, p < .05$ ; Social Potency,  $F(5, 915) = 2.3, p > .05$ ; Well Being,  $F(5, 915) = 29.7, p < .05$ ; Social Closeness,  $F(5, 915) = 22.1, p < .05$ .



higher levels on all three Constraint dimensions, lower levels on all three Negative Emotionality dimensions, and higher levels of Social Closeness, Well Being, and Achievement were less likely to change during the transition to adulthood. According to ANOVA tests, all scales except Social Potency demonstrated statistically significant linear trends in the expected directions. Overall, the results support the contention that a profile of maturity is linearly related to levels of individual change, such that adolescents who are more mature change less with time and adolescents who are relatively immature show growth in the direction of maturity during their transition to adulthood.

### *Ipsative Personality Change From Age 18 to Age 26*

We estimated profile consistency coefficients by correlating each person's scores on the 10 primary scales at age 18 with his or her scores on the 10 primary scales at age 26. The average level of profile consistency was .70 ( $SD = .22$ ) and ranged from  $-.74$  to  $1.00$ . Fifty percent of the individuals had highly consistent profiles over time, with correlations falling somewhere between .61 and .87. Seven percent of the Dunedin Study members showed profile correlations below .30, and only 1.1% of the sample showed negative profile correlations from age 18 to age 26.

According to the growth and maturity hypothesis, individual differences in profile consistency should be predictable from scales measuring Constraint, Communion, and Negative Emotionality. To test this hypothesis, we used the MPQ personality scales that participants completed at age 18 to predict individual differences in profile similarity over the 8-year period from age 18 to age 26. Because the profile-similarity scores also include the scales completed at age 18, we dropped from the profile the scale that was used to predict profile similarity and recomputed profile similarity across the remaining 9 scales. We repeated this analysis for each of the 10 primary MPQ scales. The results in Table 4 provide support for our hypothesis. Individuals who initially scored higher on Constraint (Traditionalism, Harm Avoidance, Self-Control) and Social Closeness and lower on Negative Emotionality (Aggression, Alienation, Stress Reaction) demonstrated higher levels of profile consistency over time. (These results

remained unchanged when  $D^2$  was used as an index of profile stability.)

### *Gender Differences in Personality and Personality Change*

We tested for gender differences in each of the four forms of continuity and change described above. Table 5 contains information on gender differences in personality, gender differences in personality change, gender differences in reliable change, and test-retest stability for men and women. First, with regard to gender differences in mean levels of personality, women scored higher than men at ages 18 and 26 on all of the scales making up the Constraint dimension, the Stress Reaction scale, and the Social Closeness scale. Men scored higher than women at ages 18 and 26 on the Aggression, Alienation, Achievement, Social Potency, and Well Being scales. Second, with regard to mean-level changes, Table 5 shows that from age 18 to age 26, women increased more than men on scales associated with Constraint; over the 8-year period, women became more controlled and harm avoidant, whereas men changed very little in this regard. In addition, men decreased more than women on Aggression and Alienation and increased more than women on Agency and Achievement. On the whole, however, the effect sizes associated with these interactions were very small, especially when compared with the effect sizes associated with the main effects of time (see Table 2). Third, with regard to individual-level change, we recoded the RCI such that people who changed significantly in either direction were given a score of 1 and nonchangers were given a 0 on each scale. We then cross-tabulated these scores with gender (scored 0 = male, 1 = female) to determine whether men or women were more likely to demonstrate reliable change on any given scale. The phi correlations in Table 5 reveal that more men than women showed reliable change on the Aggression, Alienation, Social Potency, and Social Closeness scales. Women showed more reliable change on the Well Being scale. The effect sizes of these gender differences were small. Fourth, with regard to ipsative change, we correlated gender with profile consistency and found a statistically significant but small correlation demonstrating that women were slightly more consistent than men ( $r = .15, p < .05$ ). Finally, with regard to differential continuity, the final column of Table 5 shows that the test-retest correlations between age 18 and age 26 were comparable for men and women; the average test-retest correlation for men was .54, and for women it was .52. Overall, we found medium-sized cross-sectional gender differences in personality traits and relatively small differences in how men and women changed over time.<sup>1</sup>

### Discussion

This article examined personality development during the transition from adolescence to adulthood, from age 18 to age 26. At

Table 4  
*Age 18 Correlates of Profile Consistency*

Superfactor and MPQ scale	Profile consistency
Constraint	
Traditionalism	.21*
Harm Avoidance	.14*
Control	.25*
Negative Emotionality	
Aggression	-.26*
Alienation	-.28*
Stress Reaction	-.27*
Agentic Positive Emotionality	
Achievement	.06
Social Potency	.03
Communal Positive Emotionality	
Well Being	.08*
Social Closeness	.21*

Note.  $N = 921$ . MPQ = Multidimensional Personality Questionnaire.  
\*  $p < .05$ .

<sup>1</sup> One possibility is that the maturity and gender effects on personality change are overlapping, such that the effects of maturity on reliable personality change are attributable to women's already higher levels of maturity. To test whether the effects of gender and maturity were overlapping, we retested the differences in personality scores for the six reliable change groups controlling for gender. The results replicated in 9 out of the 10 scales.

Table 5

*Gender Differences in Personality Change From Age 18 to Age 26*

Superfactor and MPQ scale	Cross-sectional differences						Longitudinal differences in change			
	Age 18		Age 26		Gender <i>d</i> score <sup>a</sup>		Change over time <i>d</i> score <sup>b</sup>	Gender × Time $\eta^2$ <sup>c</sup>	Gender correlation with reliable change <sup>d</sup>	Test-retest stability coefficient
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	Age 18	Age 26				
Constraint					.62*	.81*		.02*	-.05	
Women	195.5	42.8	205.0	42.8			.22			.65*
Men	168.5	43.4	168.7	47.1			.00			.62*
Traditionalism					.20*	.19*		.00	-.03	
Women	65.6	16.5	65.1	18.0			-.03			.57*
Men	62.1	17.2	61.7	18.7			-.02			.53*
Harm Avoidance					.79*	1.01*		.02*	-.06	
Women	69.8	18.5	72.7	19.6			.15			.55*
Men	54.2	20.9	51.2	22.8			-.14			.55*
Control					.35*	.51*		.01*	-.02	
Women	60.1	22.2	67.2	21.2			.33			.55*
Men	52.2	22.8	55.8	22.9			.16			.57*
Negative Emotionality					-.30*	-.19*		.00	-.09*	
Women	89.4	48.6	76.9	45.2			-.27			.59*
Men	104.5	53.2	86.3	54.6			-.34			.61*
Aggression					-1.00*	-.91*		.01*	-.14*	
Women	23.7	17.4	15.4	14.5			-.52			.45*
Men	43.8	23.0	31.7	21.4			-.55			.55*
Alienation					-.33*	-.23*		.00*	-.10*	
Women	16.9	18.1	11.7	16.4			-.30			.58*
Men	23.3	20.9	15.8	19.9			-.37			.59*
Stress Reaction					.41*	.37*		.00	-.04	
Women	48.8	28.8	49.7	29.6			.03			.52*
Men	37.4	26.2	38.8	29.2			.05			.48*
Agentic Positive Emotionality					-.28*	-.43*		.01*	-.03	
Women	86.0	32.5	104.7	34.5			.56			.47*
Men	95.5	34.7	119.9	36.3			.69			.53*
Achievement					-.22*	-.41*		.01*	-.01	
Women	51.1	21.1	59.1	20.4			.39			.39*
Men	55.7	21.4	67.6	21.0			.56			.46*
Social Potency					-.20*	-.29*		.00	-.07*	
Women	35.0	23.5	45.6	22.7			.46			.56*
Men	39.8	24.3	52.4	24.0			.52			.55*
Communal Positive Emotionality					.15*	.16*		.00	.02	
Women	159.4	30.0	159.5	30.8			.00			.44*
Men	154.8	31.2	154.2	33.5			.02			.52*
Well Being					-.15*	-.20*		.00	.08*	
Women	76.6	21.5	79.5	21.3			.14			.37*
Men	79.7	19.7	83.6	20.1			.20			.48*
Social Closeness					.44*	.48*		.00	-.10*	
Women	82.8	15.9	80.1	18.1			-.16			.49*
Men	75.1	18.9	70.6	21.2			-.22			.48*

Note. *N* = 921. Each of the 10 primary MPQ scales was scored according to the proportion of items on that scale that were endorsed by the study member; thus, for each scale, the theoretical range is from 0 to 100. Superfactor scores were computed by summing the constituent scales. MPQ = Multidimensional Personality Questionnaire.

<sup>a</sup> The age 18 and age 26 gender *d* scores represent differences between women and men divided by the pooled standard deviation. <sup>b</sup> The change over time *d* scores reflect the magnitude of the change from age 18 to age 26 for women and men divided by the pooled standard deviation. <sup>c</sup> The Gender × Time  $\eta^2$  represents the magnitude of the effect size of the interaction between gender and time on personality change. <sup>d</sup> Reliable change was recoded so that 0 = no change and 1 = reliable change; gender was coded so that 0 = male, 1 = female; the numbers represent phi correlations.

\* *p* < .05.

both time periods, we assessed personality differences using the MPQ, a comprehensive assessment method for gathering psychological clues about people by considering their characteristic attitudes, values, and beliefs, the emotions they tend to experience readily, and the kinds of activities and settings that they prefer. The 8 years covered in this study reflect one of the most dynamic periods in the life course. During their 18th year of life, the vast

majority of our study members were clearly leading an adolescent lifestyle: Eighty-five percent of them were still living on the South Island of New Zealand, where they were born; 77% were residing in their parents' house; and 70% were enrolled in high school. By age 26, our study members had clearly left adolescence behind: Fifty-nine percent were living with an intimate partner, 26% had moved and worked overseas, 22% had become parents, 22% had

completed a university degree, 21% had bought a house, and 16% had been convicted of a crime as an adult. Despite the myriad events and apparent contextual instability, the picture of personality development that emerges from our study is one of both consistency and growth.

### *Personality Consistency Over Change*

By using four different methods to assess continuity and change, we discovered convergent evidence pointing in the direction of continuity over change. First, the levels of rank-order consistency across the 10 MPQ scales were consistent with expectations derived from previous research (i.e., between .50 and .60) and were moderately high despite the tremendous changes in life context that occur during this period. People maintain relatively consistent views of themselves even in the presence of numerous life changes. Second, the degree of mean-level change also was small. Over 8 years and across the various personality scales measured, young adults shifted on average by approximately one quarter of a standard deviation unit. Third, according to the person-centered analyses, it was much more common for a person's personality configuration to stay the same over the 8-year period from age 18 to age 26—93% of the sample had profile correlations ranging from .30 to 1.0. Furthermore, only 1% of the sample showed a zero or negative profile correlation over time, indicating that only a tiny fraction of young adults experienced any radical personality transformation between ages 18 to 26. Fourth, according to the RCI, it was more common for people not to change significantly on any given trait across the 8-year span of the study; rates of absolute stability ranged from 72% to 90% across the MPQ scales. From this evidence about personality development in young adulthood, we conclude that the percentage of the population that remains the same is very large and the probability that someone will change a great deal during this developmental period is very small.

These surprising levels of consistency should not be taken to mean that there is no change in personality traits. Three sources of evidence point to nontrivial change. First, the overall levels of rank-order consistency were far from perfect; that is, the stability coefficients (average  $r = .55$ ) were lower than the reliabilities of the scales (average reliability = .77). Second, on each personality trait, a minority of people did demonstrate some level of "reliable" change that could not be attributed to the unreliability of the personality measures, and almost all study members changed reliably on at least one personality trait. The fact that some people showed reliable change is important from a theoretical perspective, as it is common for trait theorists to argue that the less than perfect consistency on personality traits is attributable to error in measurement and that traits do not change in response to environmental contingencies (e.g., McCrae et al., 2000). Third, although practically no study member experienced a personality transformation, a small percentage showed relatively unstable profiles over time. Our results, if they withstand the rigors of replication, suggest that a strict temperament interpretation of personality development is incorrect.

### *Normative Changes in Personality Traits During the Transition to Adulthood Point to Increasing Growth and Maturity*

The present longitudinal study illuminated three noteworthy normative changes in personality functioning during the transition from adolescence to adulthood. First, we found moderate increases in the agentic traits of Achievement and Social Potency, which index the tendency to seek pleasurable experiences by conquering the challenges presented by the environment. During the transition from adolescence to young adulthood, both men and women became more forceful and decisive, and they grew more persistent and ambitious in their work-related efforts. It is interesting that we did not observe any such increase in Communion, which indexes a tendency to seek pleasurable experiences by establishing warm relationships with others. The different normative patterns observed for these two variants of Positive Emotionality (Agency vs. Communion) appear to mirror the types of life changes experienced by this contemporary cohort of young adults. By age 26, the vast majority of the Dunedin Study members had completed their formal education and were making important career choices, but relatively few of them had opted to settle down and begin a family. In the mid-1990s, the mean age of first marriage among New Zealand men and women was 29 and 27 years, respectively, and the mean age at birth of first child was 31 and 29 years, respectively. Thus, whereas many of the participants in our longitudinal study were experiencing life-course events that may have "pulled" for greater agency and environmental mastery, relatively few of them experienced life-course events that may have pulled for communion by integrating oneself into primary relationships with others. Second, we found a small increase in the domain of Constraint. This normative change was confined to increases in Self-Control and did not generalize to increases in Traditionalism or Harm Avoidance. This finding is consistent with previous longitudinal studies that have used other measures of impulsivity to study continuity and change in young adulthood (Helson & Moane, 1987; McGue et al., 1993). It appears that during the transition from adolescence to young adulthood, both men and women become more reflective, deliberate, and planful. Third, we found a moderate decrease in the domain of Negative Emotionality. This normative change was confined to decreases in Aggression and Alienation. It appears that during the transition from adolescence to young adulthood, both men and women feel less victimized by life, are less likely to see the world as being peopled with potential enemies, and become less inclined to hurt other people and to seek revenge for slights. It is important to note that we found no significant change on the Stress Reaction scale, which is a relatively pure marker of Neuroticism and, more specifically, Anxiety. The different patterns of change observed for different primary traits in the higher order domain of Negative Emotionality provide insight into the contradictory patterns of change observed in previous studies of personality continuity and change (Roberts & Chapman, 2000; Viken et al., 1994). It may be that certain facets of Negative Emotionality, such as anxiety, are less likely to change than are others, such as anger. These findings underscore the usefulness of personality assessment systems that have breadth of coverage (or bandwidth) at the superfactor level but also detailed coverage (or fidelity) at the facet level (McCrae & John, 1992). Because the primary MPQ scales have high fidelity, we were able

to distinguish more fine-grained normative patterns of continuity and change than could be detected at the superfactor level only.

In combination, the mean-level changes observed in this study indicate that the period from age 18 to age 26 is characterized by increasing psychological maturity. Such growth in the direction of increasing maturity may have important consequences not only for the individual but for the welfare of others. A hallmark of positive growth from adolescence to adulthood is maturing out of youthful indiscretions and developing a sense of responsibility toward others and the community. The decline in criminal participation is an objective indicator of this shift. Prevalence and incidence rates of criminal offense are highest during late adolescence; they peak sharply at about age 17 and begin to drop off only in the early 20s (Blumstein, Cohen, & Farrington, 1988). With slight variations, this relation between age and crime obtains among men and women, for most types of crimes, and in numerous Western nations during recent historical periods (Moffitt, 1993), with some suggestion that among more contemporary birth cohorts, desistance may be delayed further, into the late 20s (Arnett, 2000). However, the age-related decline in crime is the least understood developmental process in life-course research (Laub & Sampson, in press). A key unresolved question is whether the age-related decline in crime reflects merely a change in behavior and in opportunities for behaving badly or a more deep-seated psychological change away from crime-prone values, attitudes, and cognitions. Our finding (see also McGue et al., 1993) of age-related increases in Constraint and age-related decreases in Negative Emotionality is interesting because low Constraint and high Negative Emotionality make up the personality profile that has proven most useful for understanding and predicting crime in both men and women (Elkins, Iacono, Doyle, & McGue, 1997; Krueger et al., 1994). The parallel nature of age-related declines in criminal behavior and in crime-prone personality traits could be coincidental, but it is also an intriguing hypothesis that warrants further research about whether age-related growth and maturity in personality dispositions is associated with age-related decreases in criminal and antisocial behavior.

#### *Maturity Leads to Less Personality Change Over Time*

Constraint, Communion, and low levels of Negative Emotionality are the hallmarks of psychological maturity. Not only did Dunedin Study members grow in the direction of greater maturity, but maturity itself affected levels of personality change. People who were higher on Constraint and Communion and lower on Negative Emotionality at age 18 subsequently demonstrated less reliable change and higher levels of profile consistency.

One distinct possibility is that adolescents who are high in Constraint and Communion and low in Negative Emotionality are better equipped to deal with social–developmental challenges during the transition to adulthood. Broadly speaking, such teens have more personal capital in the form of increased resiliency or coping skills, which allows them to master more efficiently the life challenges that they face and to recuperate more quickly from the aversive and disappointing life events they encounter. In contrast, individuals who are high in Negative Emotionality and low in Constraint and Communion have fewer resources from which to draw in stressful times and may be more susceptible to “the slings and arrows of their outrageous fortunes” (*Hamlet*, Act III, scene i,

line 3). Alternatively, less mature individuals may be deficient at choosing social roles and relationships that suit their personalities, whereas more mature individuals are better at choosing environments that lack problematic factors like stress and conflict (Ickes, Snyder, & Garcia, 1997). In sum, the robust finding that maturity is related to diminished personality change calls for new research that systematically tests reasons for the effect.

#### *Gender Similarities and Differences in Personality Development*

The Dunedin sample offers the opportunity to systematically evaluate whether patterns of personality continuity and change differ between men and women. Previous research as well as the present findings show that men and women differ from each other in their personalities; in particular, men are more aggressive, alienated, impulsive, and thrill seeking (e.g., Feingold, 1994). However, gender differences in personality at any given point in time do not necessarily translate into differences in personality development over time. We evaluated gender differences in four types of indexes of continuity and change. With regard to differential continuity, we found that men and women retained their rank-order consistency to the same degree; that is, personality traits are equally traitlike in men and women (Roberts & DelVecchio, 2000). With regard to mean-level changes, we found that women increased more than men on measures of Constraint, which enhances an already strong gender difference. In contrast, men increased more than women on measures of Agentic Positive Emotionality and decreased more on measures of Negative Emotionality. However, these gender differences in change were small. With regard to individual-level change, we found that men were slightly more likely to exhibit reliable personality change during their transition from adolescence to adulthood. Finally, with regard to ipsative change, women demonstrated slightly more profile stability than men from age 18 to age 26.

Considered together, the gender differences in personality traits and the gender differences in personality continuity and change suggest that women are more mature than men in young adulthood. Socially, women are more likely to occupy adult roles; for example, young adult women are more likely than men of the same age to have children, and their partners are, on average, 2 years older, whereas men's partners are 2 years younger. Psychologically, women are less angry, suffer from less anomie, and are more self-controlled, planful, and harm avoidant than men. These also are the very qualities associated with personality consistency (see Table 4). It may be that this higher level of maturity among women, attained at an earlier age, contributed to the greater consistency we observed in their personality profiles over time. Nonetheless, it is important to emphasize that men and women showed more similarities than differences with regard to patterns of personality continuity and change. During young adulthood, men and women tend to develop along similar personological paths.

#### *Limitations, Future Directions, and Conclusions*

To our knowledge, this longitudinal study is the largest and most representative study of personality continuity and change during the transition from adolescence to adulthood. The results confirm some predictions and contained some surprises that await further

replication and explanation. To be sure, the study has several limitations.

First, we studied only one cohort in one part of the world. The Dunedin Study is bound to a specific historical period that may be, in part, responsible for the patterns of personality change that we found (e.g., Roberts & Helson, 1997). The necessary reliance on a single birth cohort does not allow us to directly test the effect of historical period, so these results must be compared with those of previous and future longitudinal studies. However, we have good reason to be optimistic about the replicability of our findings because previous personality findings from the Dunedin Study have generalized to other samples and developmental settings (e.g., Moffitt, Caspi, Silva, & Stouthamer-Loeber, 1995). Second, the current study is limited by its exclusive reliance on self-report measures of personality. Future studies should use multimethod assessments and draw on information from multiple sources to draw firmer conclusions about the nature of personality continuity and change, although what evidence there is suggests that, at least in midlife and old age, the patterns of results are very similar, irrespective of the data source (Costa & McCrae, 1988). Third, our personality assessment focused exclusively on personality traits and did not include other social-cognitive units (e.g., goals, motives). However, our chosen instrument, the MPQ, is known to yield a reliable, valid, and comprehensive profile of human psychological differences along multiple dimensions and, as such, offers insights into developmental changes in young men's and women's behaviors, thoughts, and feelings during the transition from adolescence into adulthood. Fourth, the present study seeks to provide a representative and comprehensive picture of the natural history of personality change in the transition to adulthood, but it does not identify the environmental triggers for the changes observed. Additional research needs to identify the particular life events and circumstances that are associated with both continuity and change and to determine whether and how specific life experiences shape personality functioning.

The present study bursts some stereotypes about the state and course of psychological development among contemporary Western youth. Whereas social commentators, pollsters, and hosts of popular talk shows bemoan the sorry psychological condition of today's shallow and floundering youth, this study provides evidence that the transition to adulthood is a time of growth and increasing maturity. As they develop from adolescents to adults, young men and women become more planful, deliberate, and decisive but also more considerate and charitable. These normative changes occur despite the fact that these young men and women have entered a demographically dense, busy, and uncertain period of their lives. The personality changes exhibited by these young adults suggest that many are becoming masters of a changing environment rather than its hapless victims.

The present study also makes two methodological contributions. First, to our knowledge, this is the first study to use an epidemiological approach to investigate personality development. Epidemiological strategies are often thought to be used only by those interested in pathology and disease, but social and behavioral scientists increasingly appreciate that differential psychologists can work effectively with epidemiologists to better understand the development of adaptive individual and group differences across the life span (Krueger et al., 2000; Lubinski, 2000; Lubinski & Humphreys, 1997). Second, this investigation represents a con-

tinuing effort to study change as a multifaceted construct (Alwin, 1994; Caspi & Roberts, 1999; Mortimer et al., 1982; Nesselroade & Featherman, 1997). Change can and should be assessed using numerous techniques. Too often, it is described solely in terms of rank-order stability or mean-level change, and the resulting conclusions can be misleading. When change is additionally described in terms of individual differences in change and profile stability, a more complete, complex, and nuanced picture of personality development emerges.

Finally, the results of our analysis of personality development are relevant to policy initiatives directed at youth (Roth & Brooks-Gunn, 2000). The normative personality changes exhibited by youth in our study give hope that many adolescents' negative actions, feelings, and thoughts will subside and, in their place, new psychological assets will emerge. However, the picture of continuity that emerges from our data should signal caution to well-meaning reformers who hope that young people can be remade with simple environmental interventions. Policy initiatives that seek to promote healthy development can ill afford to ignore the overwhelming evidence that adolescents differ considerably from one another in their personalities and that these consequential differences persist even in the midst of profound environmental changes.

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