CHAPTER 14

The Development of Personality Traits in Adulthood

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Personality traits are defined as the relatively enduring patterns of thoughts, feelings, and behaviors that distinguish individuals from one another. The crux of personality trait development lies in one's interpretation of the two words "relatively enduring." For many years, the implicit assumption was that traits were "enduring enough" to ignore the issue of development. Recently, more nuanced developmental questions about traits have arisen because a critical mass of longitudinal studies showed that personality traits do change. These more nuanced questions center on both continuity and change and are the focus of this chapter.

Our first section addresses the basic question, what do we mean by *continuity* and *change*? In the context of defining what is meant by continuity and change, we also review the findings related to each type of continuity and/or change. Then we attempt to answer three related questions. First, why are personality traits consistent? Second, why do personality traits change, especially in adulthood? And, third, why don't personality traits change more than they do? Along the way, we point out major principles that we have derived from the body of empirical and theoretical work on personality development (Table 14.1) and mechanisms that we believe to be responsible for both continuity

and change in personality (Tables 14.2 and 14.3).

TYPES OF CONTINUITY AND CHANGE OBSERVED IN LONGITUDINAL RESEARCH

The assertion that an individual's personality has changed or remained the same over time is ambiguous. Likewise the claim that personality traits are both consistent and changeable is seemingly contradictory. A further ambiguity arises when a claim of continuity or change rests on observations not of an individual but of a sample of individuals. The continuity or change of an attribute at the group level may be partially independent of changes at the individual level. Moreover, different forms of continuity and change, either at the sample or individual level, may be entirely independent of one another, making it not only possible but inevitable that there is both continuity and change in personality traits. There are, in short, a number of meanings denoted by the terms "continuity" and "change." The purpose of this section is to disentangle some of those meanings.

First we discuss the main statistical approaches to studying continuity and change in longitudinal research and then touch on one conceptual definition of change that does

TABLE 14.1. Principles of Personality Development

Cumulative continuity principle:	Personality traits increase in rank-order consistency throughout the lifespan.
Maturity principle:	People become more socially dominant, agreeable, conscientious, and emotionally stable with age.
Plasticity principle:	Personality traits are open systems that can be influenced by the environment at any age.
Role continuity principle:	Consistent roles rather than consistent environments are the cause of continuity in personality over time.
Identity development principle:	With age, the process of developing, committing to, and maintaining an identity leads to greater personality consistency.
Social investment principle:	Investing in social institutions, such as age-graded social roles, outside of the self is one of the driving mechanisms of personality development, in general, and greater maturity, in particular.
Correspondence principle:	The effect of life experience on personality development is to deepen the characteristics that lead people to those experiences in the first place.

not correspond strongly with any particular statistic. Figure 14.1 provides a schematic of the different types of statistical change. At the foundation is structural continuity, which refers to the persistence of correlational patterns among a set of variables over time or across age groups. Typically, structural continuity is evaluated using either exploratory or confirmatory factor analysis. It is the foundation of any research on continuity and change because establishing structural continuity is the first step that should be taken in all such investigations, regardless of whether the focus is the development of personality traits or other constructs (Baltes, Reese, & Nesselroade, 1977). Structural continuity is important because it establishes whether the same construct is being measured at different time points or ages (Little, 1997). Tracking the remaining types of continuity and change in a construct without first establishing structural continuity is, by definition, a pointless endeavor.

The remaining types of development can be organized nicely in a two-by-two table, with the organizing dimensions being whether the development of a characteristic is examined at the individual or population level, and whether the focus is on absolute or relative standing on the dimension. The population-level examination of relative ranking of individuals is often referred to as "rank-order stability." We prefer "rank-order consistency," largely because the term "stability" denotes an absence of change, which may be

misleading. The population-level examination of absolute change is described as mean-level change, which tracks whether samples or populations as a whole increase, decrease, or remain the same on their average score over time and age. At the individual level, the analogue to rank-order consistency is ipsative consistency. The latter tracks the relative ordering of constructs within an individual over time and age. Finally, change examined at the level of the individual in absolute terms is often referred to as "intra-individual differences in individual change" (Nesselroade, 1991), which we typically shorten to "individual differences in change." Individual differences in change capture each person's unique pattern of increasing, decreasing, or not changing at all on any given dimension.

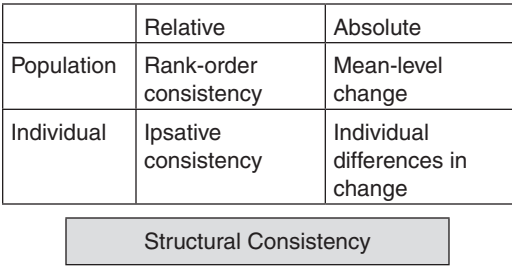In the following sections we go into more detail about each type of continuity/

	Relative	Absolute
Population	Rank-order consistency	Mean-level change
Individual	Ipsative consistency	Individual differences in change

Structural Consistency

FIGURE 14.1. Organizationl scheme for the basic indices of continuity and change.

change, the evidence for each, and some of the ancillary questions related to each concept. We close this section with a discussion of one type of conceptual change that is not strongly associated with a specific statistic: heterotypic continuity.

Structural Continuity/Change

At the time of our last review (Caspi & Roberts, 1999), there was a surprising lack of evidence either *for* or *against* the structural continuity of personality across time and age. Since 1999, examining the structural continuity of personality has become much more common. First, the Big Five structure tends to emerge in late childhood and become clarified in adolescence (Allik, Laidra, Realo, & Pullman, 2004; Lamb, Chuang, Wessels, Broberg, & Hwang, 2002). For example, the Big Five appear to emerge out of early childhood temperament dimensions, such as inhibition (Deal, Halverson, Havill, & Martin, 2005). Presumably, then, if a child was rated on a Big Five measure in childhood, the scores among the five would correlate more highly, because these dimensions have yet to fully differentiate from one another. It is possible that with age, the personality of young children, which is relatively undifferentiated, may become more complex both because of cognitive changes and because children acquire a larger set of roles and identities as they age (Block, 1982).

From late adolescence through late middle age, the evidence for the structural continuity of personality traits appears to be strong, with most studies showing little if any serious changes in the factor structure of the Big Five across time or age groups (e.g., Allemand, Zimprich, & Hertzog, 2007; Costa & McCrae, 1992; Robins, Fraley, Roberts, & Trzesniewski, 2001). The same appears to be true of personality structure in old age, though there are some studies that raise questions concerning the comparability of personality structure in old age to young adulthood (Mroczek, Ozer, Spiro, & Kaiser, 1998). Therefore it remains unclear whether the structure of personality traits remains consistent in old age and old-old age (e.g., over 80).

One interesting question that remains to be investigated is whether personality traits become less differentiated, like cognitive abilities, in old age (Baltes, Lindenberger, & Staudinger, 2006). Facets of cognitive ability show signs of becoming more highly correlated in old age (e.g., Deary, Whiteman, Star, Whalley, & Fox, 2004). This de-differentiation is thought to result from a decrease in the integrity of the physiological systems related to cognitive ability, which reduces the specificity of particular skills. A similar idea could be tested with personality traits, for example, by examining whether the higher-order structure of the Big Five, in which the five traits are captured by two dimensions of alpha and beta (Digman, 1997), becomes clearer with age.

The second way in which differentiation may occur is not captured by existing statistical methods. This form of differentiation entails adding new behaviors into one's repertoire for a trait, or more knowledge about existing behaviors. For example, representations of the self become more complex with age (Labouvie-Vief, Chiodo, Goguen, & Diehl, 1995). This added complexity means that more underlying nodes and facets of personality traits develop with time. That is, people may become more sophisticated consumers of their own personality, knowing when and with whom they are outgoing or shy, and in what situations they feel comfortable or anxious. This elaboration of personality may serve as a buffer to global change, as people become more attuned to specific aspects of their personality and determine that change in one relationship or context will not affect the larger network of thoughts, feelings, and behaviors tied to a personality trait. Unfortunately, this type of change has been ignored by most researchers because typical approaches to personality assessment use measures that do not change in content over time.

Rank-Order Consistency/Change

Since the earliest reviews of rank-order consistency, researchers have reported the same two findings: Personality traits demonstrate moderate to high rank-order consistency (e.g., correlations between .4 and .6) over reasonably long periods of time (e.g., 4–10 years), and the longer one tracks rank-order consistency, the lower it gets (e.g., Fraley & Roberts, 2005). Four reviews/meta-analyses on the topic (Ardelt, 2000; Bazana & Stel-

mack, 2004; Roberts & DelVecchio, 2000; Schuerger, Zarrella, & Hotz, 1989) have come to similar conclusions, with some elaborations and caveats. Specifically, rank-order consistency increases with age and does not appear to plateau until after age 50. Moreover, rank-order consistency does not vary markedly across the Big Five traits, assessment method (i.e., self-reports, observer ratings, and projective tests), or gender.

Several conclusions can be drawn from these reviews and meta-analyses. First, the magnitude of rank-order consistency, although not perfectly "stable," is still remarkably high, especially within windows of 3–10 years. Second, the level of rank-order consistency in childhood and adolescence is much higher than originally expected, especially after age 3. Even more impressive is the fact that the level of rank-order consistency increases in a relatively linear fashion through adolescence and young adulthood. Adolescence is stereotypically considered a time of storm and stress. In turn, young adulthood is the most demographically dense period of the life course, because it involves more life-changing roles and identity decisions than any other period (Arnett, 2000). Yet, despite these dramatic contextual changes, personality traits show no marked decline in rank-order consistency during this time period. Third, rank-order consistency peaks later in adulthood than expected. According to one prominent perspective, personality traits are essentially fixed and unchanging after age 30 (McCrae & Costa, 1994). However, the meta-analytic findings show that rank-order consistency peaks some time after age 50, and at a level well below unity. Finally, the levels of consistency found in recent meta-analyses replicated smaller studies dating back over a half century (e.g., Crook, 1941). Apparently, there have been few, if any, cohort shifts in the level of rank-order stability in personality traits over the past 60 years.

Although personality traits show some degree of change at all ages, they also demonstrate a clear pattern of increasing continuity across the life course. We describe this as the *cumulative continuity principle* (see Table 14.1). People demonstrate higher levels of rank-order consistency with age across all personality traits (Roberts & DelVecchio, 2000). We believe that people exhibit this pattern of increasing continuity throughout the life course for several reasons, including gene–environment correlations and the processes surrounding identity development (see section below on why personality is consistent).

One of the most interesting secondary questions about differential continuity is whether it exists across long periods of time. This question can be further refined into two critical questions for personality psychology: (1) Does childhood personality predict adult personality, reflecting the twin maxims of the "child is the father to the man" and "give me a child at 7 and I will show you the adult"?; and (2) Is there truly long-term continuity in personality across the vast expanse of adulthood—that is, is the 20-year-old recognizable in the 70-year old?

There is increasing evidence that child temperament can predict a broad range of outcomes much later in the individual's life, but at relatively modest levels of predictive validity. In one of the first studies to examine the continuity of child personality into adulthood (Caspi & Silva, 1995), temperament measured at age 3 predicted personality trait measures collected at age 18. Relative to children categorized as "well-adjusted," children who were categorized as "undercontrolled" at age 3 were found, at age 18, to score higher on aggression, alienation, and stress reaction (similar to neuroticism) and lower on self-control and harm avoidance. Children who were categorized as "inhibited" typically scored higher on harm avoidance and lower on aggression and social potency. All of these effects were approximately in the range of .2–.4 standard deviations—thus small, but not negligible, effects. These differences were largely replicated without any noticeable decrease in magnitude when the same participants were resurveyed at age 26 (Caspi et al., 2003). Similar relationships have been found between infant and adult attachment styles, with classifications of attachment made in the first year of life showing a meta-analytic estimate of $r = .27$ in their ability to predict adult attachment styles (Fraley, 2002).

Personality assessed in later childhood (around the period of 6–12 years) also shows moderate relations with adult personality and life outcomes. In one study, childhood activity and inhibition level, as rated by teachers, showed moderate associations (rs > .30) with self-reported or parent-reported

Big Five dimensions assessed at about age 18 (Deal et al., 2005). Personality traits assessed in children at ages 8–10 (by self-report, or teacher or parent reports) have also been found to correlate moderately ($rs \approx .20$) with comparable personality dimensions assessed in middle age (Hampson & Goldberg, 2006; Laursen, Pulkkinen, & Adams, 2002; Shiner, Masten, & Roberts, 2003).

The important message here is that the behavioral patterns observed in early childhood are linked to personality traits in adulthood. The significance of this link lies in how much importance one places on small or modest effect sizes (e.g., correlations between .1 and .3). It should be remembered that the typical assessment of childhood temperament is made by parents or teachers, and the typical adult assessment is a self-report. This methodological heterogeneity results in more inherent sources of unreliability than those generally used to assess personality in adulthood (wherein the same person generally completes the same questionnaire on two occasions) and consequently should make the finding of *any* longitudinal relationship all the more impressive. On the other hand, long-term rank-order consistency of analogous constructs, such as intelligence, is much higher from childhood to old age (Deary et al., 2004). The question of whether childhood behavioral tendencies have anything to say about adult personality should be considered solved: They do. The question becomes not so much *whether* we are able to forecast adult behavior from childhood, but what the modest effect sizes mean in terms of practical and theoretical significance (Fraley & Roberts, 2005).

The findings on the long-term rank-order consistency of personality traits in adulthood parallel the findings from childhood to adulthood: The continuity over decades, rather than years, is quite modest. For example, the test–retest correlation in a 50-year longitudinal study of architects ranged from 0 to above .5, with the modal correlation hovering around .2–.4 (Feist & Barron, 2003). The average long-term consistency (e.g., 40 years) of neuroticism averages about .2 (Fraley & Roberts, 2005). The fact that consistency is not zero is conceptually interesting, but such a weak correlation means that we might not recognize the 70-year-old from what we knew when he or she was 20. There has been little or no discussion of why personality trait consistency diminishes to this level or what types of changes occur over that long of a period. We should assume that there are substantive personality changes occurring across a lifetime, and some effort should be made to investigate what these changes are and why they come about.

Mean-Level Change

"Mean-level change" refers to changes in the quantity or amount of an attribute over time in a sample or population of individuals. Changes in mean levels of personality traits were recently examined in a meta-analysis of 92 different longitudinal studies (Roberts, Walton, & Viechtbauer, 2006). Across these studies, it was found that people became more socially dominant (a facet of extraversion), especially in young adulthood, and they became more conscientious and emotionally stable through midlife. Although much of the change on agreeableness was positive, the increase was only statistically significant in old age. Finally, individuals demonstrated gains in social vitality (a second facet of extraversion) and openness to experience in adolescence and then equivalent declines in old age for both of these trait domains. Many of these patterns are also discernible in cross-sectional studies (Labouvie-Vief, Diehl, Tarnowski, & Shen, 2000; Srivastava, John, Gosling, & Potter, 2003).

Much like the meta-analyses of longitudinal consistency (e.g., Roberts & DelVecchio, 2000), several conspicuous factors did not affect patterns of mean-level change across the life course. First, men and women did not differ in their patterns of mean-level change in personality traits. Although reliable sex differences exist on several personality trait dimensions (Feingold, 1994), it appears that there are few reliable sex differences in the way these traits develop over time.

Interestingly, like rank-order consistency, time was related to change in mean levels. Longitudinal studies that followed participants for a longer period of time reported larger mean-level change estimates. The positive association between time and mean-level change is important for theoretical models of human nature. A common assumption is that personality traits act like metabolic set-

points. People may stray briefly from their biological propensity, but they will then drift back to their genetically driven setpoint. Under these types of models, one would expect to find a negative or null association between time and mean-level change because any change would represent short-term fluctuations that disappear as people return to their biologically driven setpoint. However, time is positively associated with personality trait change, which indicates that a strong setpoint model does not apply to personality trait development. That is, when people change, then tend to retain the changes in personality traits for long periods of time.

We also found that cohort standing was related to differential patterns of mean-level change. Younger cohorts had larger standardized mean-level changes in terms of social dominance. The changes in social dominance were consistent with the cross-sectional patterns that indicate that younger cohorts are more assertive (e.g., Twenge, 2001). In addition, a curvilinear relationship was found between cohort standing and both agreeableness and conscientiousness. This pattern indicated that studies focusing on samples from the 1950s and 1960s tended not to increase as much as samples from before and after this period of the 20th century, a pattern first identified by Helson, Jones, and Kwan (2002). These cohort findings point to the importance both of social context and the more inclusive social climate or culture of the people living in a particular period of history. Presumably, social climate affects the way roles are enacted and the behaviors rewarded in those roles, which then affect personality trait development.

We describe the general pattern of personality trait change as the *maturity principle* (Table 14.1) because it corresponds quite closely to definitions of maturity that are functional in nature (Roberts & Wood, 2006). Functional or social maturity is characterized by those qualities that serve to facilitate functioning in society—mature people are more liked, respected, and admired in their communities, social groups, and interpersonal relationships (Hogan & Roberts, 2004). This definition is quite similar to Allport's (1961) characterization of the mature person as happy, showing fewer traces of neurotic and abnormal tendencies, and having the capacity for warm and com-

passionate relationships. From this perspective, maturity is marked by higher levels of emotional stability, conscientiousness, and agreeableness. Research suggests that people do become more mature with age, increasing in assertiveness, self-control, responsibility, and emotional stability, especially between the ages of 20 and 40.

Several other features of the Roberts and colleagues (2006) meta-analysis are important to point out. Most of the patterns of change were heterogeneous and the effect sizes were small for studies tracking development for periods of less than 6 years. Heterogeneity in effect sizes indicates that there is significant variability in the effects across studies. Pragmatically speaking, this means that in some situations, longitudinal studies would find patterns that largely replicate the meta-analysis (e.g., Blonigen, Hicks, Krueger, Patrick, & Iacono, 2006; Donnellan, Conger, & Burzette, 2007), whereas in other situations apparently contradictory findings will emerge (e.g., Watson & Humrichouse, 2006). This is to be expected when heterogeneity combines with small effect sizes, especially in short-term studies. On the other hand, the potential long-term patterns of personality trait change were larger, indicating that studies that follow or track individuals for longer periods of time will reap more compelling evidence for or against the average patterns discovered through meta-analytic aggregation.

Another glaring omission identified in the meta-analytic review is a distinct lack of multimethod research on mean-level change in personality over time. Unlike the evidence for rank-order consistency, we cannot say with confidence that the patterns of mean-level change will replicate across method. This omission was highlighted in a recent longitudinal study of newlywed couples (Watson & Humrichouse, 2006), which found that many personality traits thought to increase in young adulthood, such as agreeableness and conscientiousness, actually decreased over time when assessed by observers. Of course, in this case the observer was a spouse and the sample was drawn from newlyweds, which leads to the inevitable conclusion that the decreases were the result of the honeymoon effect, in which spouses viewed each other through "rose-colored glasses" when they were first married and only came to re-

alize that their spouse was less than perfect after spending a few years with them. Nonetheless, this study highlights the interesting findings that may emerge when researchers move beyond mono-method studies of personality trait development.

Ipsative Continuity

Structural, differential, and mean-level continuities are indexed by statistics that characterize a sample of individuals. However, continuity at the group level may not mirror continuity at the individual level. For this reason, some researchers examine "ipsative continuity," which refers to continuity in the configuration of variables within an individual across time.

In Block's seminal work, described in *Lives through Time* (1971), he analyzed ipsative continuity using the California *Q*-sort. Block's analysis showed that aggregate indices of continuity mask large individual differences in personality continuity. For example, the average-ipsative correlation between early and late adolescence exceeded .70, but the intraindividual Q-correlations ranged from moderately negative to the maximum imposed by measurement error. Other studies of personality continuity and change between childhood and adolescence report average ipsative correlations ranging from .43 to .71, with considerable variability in the distribution of these scores (from –.44 to .92), indicating that from childhood to adolescence people vary widely in how much ipsative continuity or change they exhibit (Asendorpf & van Aken, 1991; Ozer & Gjerde, 1989). Recent studies have reported similar levels of average ipsative consistency. In a 3-year longitudinal study of children and adolescence, the average profile correlation within individuals across a Big Five measure was above .8 (De Fruyt, Bartels, et al., 2006). Slightly lower levels of ipsative consistency across Big Five measures and the (MPQ) have been found in college students (Robins et al., 2001) and young adults (Donnellan et al., 2007; Roberts, Caspi, & Moffitt, 2001).

Of course, ipsative analyses can be used to study change also. Block (1971) focused on ipsative change in personality by identifying groups of men and women marked by specific patterns of change. More recently, Morizot and Le Blanc (2003, 2005) replicated and extended these findings in a 36-year longitudinal study of men. In a subsample of men who were not jailed as adolescents, they found four developmental groups: communals (became less neurotic and impulsive with age), agentics (increased on extraversion; decreased on neuroticism and impulsivity), undercontrolled (higher on impulsivity and neuroticism to start), and overcontrolled (no personality change with age; Morizot & Le Blanc, 2005). These four groups partially replicate the developmental groups first identified by Block and show the potential of tracking a full profile of personality traits over time. The broader message of these ipsative studies is that traits can interact with one another to direct the expected pattern of development over time.

Possibly the most interesting work to come out of the ipsative approach is the research showing that higher profile stability is associated with mean levels of personality traits themselves. In an 8-year longitudinal study, men and women who were more controlled, less neurotic, and more prosocially oriented demonstrated less change in personality traits and greater profile consistency across personality traits (Roberts et al., 2001). These findings were largely replicated, using parent ratings of personality in a 10-year longitudinal study of Iowans (Donnellan et al., 2007). Therefore, it appears that once people attain high levels of traits associated with maturity—e.g., emotional stability, agreeableness, and conscientiousness—they keep these qualities in place more readily than people who score lower on these indices. This enhanced stability may be a result of many factors, but most likely these personality traits are reinforced by society in person–environment transactions because they are so often seen as desirable or rewarding by others.

The advantage of these ipsative indices of continuity is that they reflect the continuity of each individual within the sample. This is the type of consistency that most individuals think about when confronted with the question of whether their "personality" has changed. If the overall organization of one's character remains essentially intact, then changes on individual dimensions may not impact a person's opinion or perspective on whether his or her personality has changed.

Individual Differences in Change

The phrase "individual differences in change" refers to the gains or losses in absolute levels of a personality trait that each individual experiences over time (Nesselroade, 1991). These are changes that deviate from the population mean-level pattern of change. Historically, personality psychologists have not concerned themselves with individual differences in change and have focused disproportionately on population indices of development (Mroczek & Spiro, 2003). This oversight is puzzling, given the fact that personality psychology as a field prides itself on understanding the individual. What could be more intrinsic to understanding personality development than the ability to account for and understand each individual's unique pattern of development?

Of course, one important empirical hurdle needs to be surmounted to imbue the study of individual differences in change with any significance. One must overcome the inference that any deviation around the general pattern of change is simply error (Watson, 2004). The most direct way to confront this inference is to test whether there are people who change more than would be expected, given the level of reliability of any given measure. Individual-level change has been the focus of psychotherapy outcome research for years, and so has the issue of whether changes that occur in therapy are real or simply meaningless fluctuations of an unreliable measure (Jacobson & Truax, 1991). In order to bolster the argument that therapy works at the individual level, psychotherapy outcome researchers developed the Reliable Change Index (RCI) to gauge changes in dimensions related to therapeutic intervention. The RCI gauges the amount of change that occurs against the amount of change that could be expected, given the unreliability of the measure. We introduced this index to personality development researchers in two longitudinal studies (Roberts et al., 2001; Robins et al., 2001) that tracked personality development in young adulthood. In both studies, we found that a greater-than-chance proportion of individuals in our samples showed reliable change, suggesting that reliable individual differences in change existed.

The RCI index has now been used widely in longitudinal studies of personality trait development. Using this index, researchers have replicated the existence of reliable individual differences in change during childhood and adolescence (De Fruyt, Bartels, et al., 2006; Pullman, Raudsepp, & Allik, 2006), young adulthood (Donnellan et al., 2007; Vaidya, Gray, Haig, & Watson, 2002; Watson & Humrichouse, 2006), middle age (Branje, van Lieshout, & van Aken, 2004; van Aken, Denissen, Branje, Dubas, & Goossens, 2006), and old age (Steunenberg, Twisk, Beekman, Deeg, & Kerkhof, 2005).

The use of the RCI has provided unambiguous evidence that individual differences in personality trait change exist and are not attributable to measurement error. On the other hand, the RCI is fundamentally flawed. First, it is grossly conservative. It requires that people move more than two standard errors on a trait in order to categorize them as changing reliably. It is quite possible that smaller changes are important and reliable. Second, it is applicable to studies that track change over two waves of assessment. It is now clear that two-wave longitudinal studies provide unreliable and imprecise assessments of change (Singer & Willett, 2003). The optimal way to track personality change is to gather multiple assessments over time and apply growth-modeling techniques to estimate individual differences in change over time. Using these techniques, researchers have shown that reliable individual differences in personality trait change occur across young adulthood, middle age, and old age (Jones, Livson, & Peskin, 2003; Mroczek & Spiro, 2003; Roberts & Chapman, 2000; Scollon & Diener, 2006; Small, Hertzog, Hultsch, & Dixon, 2003).

The second way of establishing both the existence and the importance of individual differences in personality trait change is to test whether life experiences are associated with changes in personality traits. For example, if people who experience more satisfying work grow happier and more emotionally stable with time, this indicates that not everyone changes in this way and that work experiences may be a causal force for personality trait change. It also provides a potential explanation for why most people might change in a normative fashion, as we discuss below in the section on social investment. We review this material in more detail below in the section on why personality

traits change. Suffice it to say that certain life experiences are associated with distinctive patterns of trait development (Roberts & Mroczek, 2008).

Finally, it should be noted that individual differences in change may be important from a practical standpoint. Studies have shown that modest changes in personality traits can result in profound consequences for health. Specifically, men and women who showed increased levels of hostility experienced increased obesity, inactivity, social isolation, and worse physical health compared to those who did not show increased levels of hostility (Siegler et al., 2003). In the case of neuroticism, men who increased one half of a standard deviation in neuroticism in old age suffered a 32% increase in mortality compared to men who did not change in neuroticism (Mroczek & Spiro, 2007). These studies point to the fact that relatively modest changes in personality traits may have significant consequences for individuals.

Personality Coherence

The kinds of continuity and change discussed so far refer to statistical indices of continuity and change in identical constructs over time. The concept of coherence enlarges the definition of continuity and change to include "heterotypic continuity," which entails identifying relations between different sets of behavior across different ages. For instance, individuals who hurt animals as children might engage in more criminal behavior in adulthood. It is important to emphasize that coherence and heterotypic continuity refer to conceptual rather than statistical continuity among behaviors. When relationships are found between different behaviors over time, these heterotypic connections need to be explained by an underlying dispositional attribute that (1) is related to both behaviors at different time points, and (2) shows a sizable degree of rank-order consistency. For instance, hurting animals as children and adult criminal activity might be indicators of underlying, consistent antisocial tendencies. Accordingly, the investigator who claims to have discovered coherence must have a theory—no matter how rudimentary or implicit—that specifies the latent construct or provides the basis on which the diverse be-

haviors and attributes can be said to belong to the same equivalence class.

The argument that coherence requires a theoretical framework and not just a statistic means that heterotypic continuity remains an alluring, if difficult, concept to prove. Research has shown that childhood personality is linked to adult outcomes, which, at first blush, look like heterotypic continuity. Shy children leave their parental home at an older age and delay their assumption of adult social roles, such as marriage and work (Caspi, Elder, & Bem, 1988). Anxious, stress-prone children grow up to become conventional, moralistic conservatives (Block & Block, 2006). Children who are more agreeable grow up to smoke fewer cigarettes in adulthood (Hampson, Goldberg, Vogt, & Dubanoski, 2007). Inhibited children become adults who are seen as more neurotic and less extraverted, agreeable, conscientious, and open to experience (Deal et al., 2005).

Although these examples provide unequivocal evidence linking childhood personality to later adult phenomena, it is unclear whether they are examples of heterotypic continuity. The implicit theory behind these results would be best approximated by trait theory or five-factor theory, which posits that traits are latent temperaments that are unaffected by experience (e.g., McCrae et al., 2000). Invoking this theoretical framework invites skepticism, however. Is conservatism simply a manifestation of neuroticism? The findings connecting childhood inhibition to all of the Big Five pose even more difficulties for a trait model. Clearly, inhibition is linked to all of the Big Five in adulthood. Yet, in adulthood, the Big Five are only modestly correlated, indicating that inhibition must be differentiated into multiple domains that result in the Big Five. Therefore, it would be difficult to conclude that the Big Five exist in temperamental form early in life and progress in an undifferentiated form into adult versions of traits.

As these examples illustrate, the theories behind claims of coherence often amount to appeals to the reader's intuition. Often they are post hoc interpretations of empirical relations discovered in large correlation matrices (Moss & Susman, 1980). With the notable exception of the psychoanalytic theory of psychosexual stages and their adult seque-

lae, few personality theories specify links between personality variables at different developmental periods. That is to say, the field of personality development remains without a coherent theory of development (Roberts, 2005).

WHY ARE PERSONALITY TRAITS BOTH CONSISTENT AND CHANGEABLE?

Given the evidence that has emerged in the last decade, it is now an unavoidable conclusion that personality traits show both continuity and change. Adding the small phrase "and change" to the term continuity may seem subtle, but it dramatically shifts the theoretical sands on which personality psychology rests. First, it leads us to another basic principle of personality development, the *plasticity principle* (Table 14.1 on page 376). This principle states that personality traits are open systems that can be influenced by the environment at any age. This principle undermines the assumption that personality traits do not change—an assumption that many continue to hold. By assuming that personality traits do not change, researchers can simplify their view of human nature: One component, personality traits, is stable and unchanging. Making this assumption allows researchers to use personality traits in a straightforward, if limited, manner as predictors of outcomes, not as outcomes themselves. Expanding the conceptualization of

personality traits to one that subsumes both continuity and change makes the world a much more interesting place—it necessitates that we explain why personality is consistent, for example. For the remainder of this chapter we address the questions of why personality is consistent, why it changes, and why it does not change more than it does.

Why Are Personality Traits Consistent?

The mechanisms responsible for personality trait continuity can be organized into several categories, including genetic, environmental, person–environment transactions, and identity structure (see Table 14.2). In the following section, we outline the primary mechanisms we believe facilitate increasing consistency in personality traits across the life course.

Genetic and Environmental Mechanisms

Genetic factors could be contributors to continuity over time because the genome itself is relatively unchanging.[1] The best evidence for the role of genes in maintaining consistency has been provided by longitudinal studies that track identical and fraternal twins over time. For example, McGue, Bacon, and Lykken (1993) administered personality tests to monozygotic and dyzygotic twins over a 10-year period. Their estimates of overall consistency were similar to other studies (ranging from .4 to .7), showing that there was a balance

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TABLE 14.2. Why Are Personality Traits Consistent?

Genetic effects:	Genes provide a continuous physiological substrate.
Role continuity/ environment:	Consistent perceptions of environment maintain continuity.
Person × environment transactions:	
Attraction:	People are attracted to environments that are consistent with their personality.
Selection:	People are selected into roles that are consistent with their personality.
Reactance:	People selectively attend to information relevant to preexisting dispositions.
Evocation:	People evoke reactions from others that reinforce existing dispositions.
Manipulation:	People change their environment to better fit their personality.
Attrition:	People leave environments that call for too much change.
Identity clarity:	A clearer sense of identity facilitates selection, evocation, and reaction.

of consistency and change. Most interestingly, the authors estimated that 80% of the personality consistency demonstrated by their sample of twins was attributable to genetic influences (see also, Lykken & Tellegen, 1996). Since this research, several other longitudinal twin studies have produced more moderate findings. In a 3-year longitudinal study of child and adolescent twins, personality continuity was associated with genetic effects as well as shared and nonshared environmental factors (De Fruyt, Bartels, et al., 2006). Similarly, in midlife, personality consistency results from both genetic and environmental factors (Johnson, McGue, & Krueger, 2005). Clearly, one of the reasons for consistency in personality has to be the genetic foundation of human behavior.

Ironically, the best evidence for the fact that the "environment" contributes to personality continuity over time comes from these very same behavioral genetics studies. The evidence that both shared and nonshared environmental factors contribute to personality continuity over time provides support for the effect of environments as analogous to the effect of genetics. That is, just as behavioral genetics studies do not measure actual genes yet infer genetic effects, they also do not measure actual environments, and yet they infer environmental effects. As behavioral genetic studies indicate the existence of nongenetic effects on stability in this way, the next order of business is to identify what these effects are.

We believe that the ideal environment to consider when investigating the association of environmental experiences and personality development is the social role (Roberts, 2007). Social roles capture the component of the environment that is most likely related to continuity: a consistent subjective environment in the form of roles that people enact across time and place. We describe this as the *role continuity principle* (see Table 14.1 on page 376). For example, adolescents who play specific roles in high school, such as being a "jock" or a "brain," tend to adopt similar roles in later life stages, such as in college or in their chosen occupation or leisure interests (Barber, Eccles, & Stone, 2001). We believe that it is this coherence of social roles that transcends the physical environment and facilitates personality consistency over time.

Person–Environment Transactions

Person–environment transactions capture a third set of mechanisms that promote consistency (Caspi & Roberts, 1999; Roberts, 2006). These mechanisms reflect the environmental and individual difference factors that combine to promote continuity. There are at least six types of person–environment transactions that should contribute to continuity: attraction, selection, reactance, evocation, manipulation, and attrition (see Table 14.2). Attraction transactions, or "active niche picking," reflect the processes by which people are drawn to and choose experiences whose qualities are consistent with their own personalities. For example, people who are more extraverted prefer jobs that are described as social or enterprising, such as teaching or business management (Ackerman & Heggestad, 1997). In terms of dating and marital partners, individuals tend to enter relationships with mates who prefer their personality traits (Botwin, Buss, & Schackelford, 1997). Thus, continuity may be enhanced to the extent that individuals can select personality-reinforcing situations.

Second, continuity may be enhanced through selection effects, whereby people are selected into situations and given preferential treatment on the basis of their personality characteristics. These recruitment effects begin to appear early in development. For example, children's personality traits influence their emerging relationships with teachers at a young age (Birch & Ladd, 1998). In adulthood, job applicants who are more extraverted, conscientious, and less neurotic are liked better by interviewers and are more often recommended for the job (Cook, Vance, & Spector, 2000). In terms of relationship partners, there is strong evidence that people who are more agreeable, less neurotic, and more open to experience are preferred by most people (Watson et al., 2004).

Third, reactive transactions may contribute to consistency because these transactions lead individuals to extract a subjective psychological environment from the objective surroundings based on their personality. Peoples' conscious and unconscious schemas, based in part on their personality traits, act as filters for social information. These personality-based cognitive filters help to

create an idiosyncratic, personal reality for each individual that is unique to his or her own personality. Typically, these cognitive schemas help individuals selectively respond to information that is congruent with their expectations and self-views (Fiske & Taylor, 1991). Persistent ways of perceiving, thinking, and behaving are preserved, in part, by features of the cognitive system, and because of these features the course of personality is likely to be quite conservative and resistant to change (Westen, 1991).

Fourth, evocative processes may also engender greater personality consistency over time (Caspi & Roberts, 1999). That is, people tend to evoke personality-consistent responses from others, and this process can occur outside of conscious awareness. For example, aggression typically evokes hostility from others (Dodge & Tomlin, 1987). Likewise, dominant behavior is typically met with submissive responses (Thorne, 1987). Thus, dominant people, by evoking more submissive responses from others, find the world full of people willing to follow their lead. Given that people make up the primary "environment," evocative transactions would be one of the strongest contributors to personality trait continuity.

Fifth, people can manipulate their environment. If they do not like their work or their relationship partner, people can change (manipulate) either for the better. In work settings, success and power bring with it the opportunity to shape the nature of the organization by hiring, firing, and promoting workers. Individuals also may shape their work to better fit themselves through job crafting (Wrzesniewski & Dutton, 2001) or job sculpting (Bell & Staw, 1989). They can change their day-to-day work environments through changing the tasks they do, organizing their work differently, or changing the nature of the relationships they maintain with others (Wrzesniewski & Dutton, 2001). Presumably these changes in work environments lead to an increase in the fit between personality and work. In turn, increased fit with one's environment is associated with elevated consistency (Roberts & Robins, 2004).

Sixth, continuity can be maintained as consequences of "attrition" or "de-selection pressures," whereby people leave settings (e.g., jobs, marriages) that do not fit with their personality, or they are released from

these settings because of their trait-correlated behaviors (Cairns & Cairns, 1994). For example, longitudinal evidence from different countries shows that children who exhibit a combination of high irritability/antagonism and poor self-control are at heightened risk of unemployment as young adults (Caspi, Wright, Moffitt, & Silva, 1998; Kokko & Pulkkinen, 2000). Moreover, people who are disagreeable, neurotic, and low in conscientiousness experience elevated levels of divorce (Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007), presumably because these individuals often create hostile, dissatisfying relationships (Watson et al., 2004). Being forced out of situations that might bring pressure to change allows people to maintain a consistent personality, even if it is a maladaptive one.

Identity Mechanisms

A final set of factors that facilitates increasing personality consistency has to do with a person's meta-perceptions of his or her own personality, which have been nominally described as identity structures (Roberts & Wood, 2006). Specifically, with age, the process of developing, committing to, and maintaining an identity leads to greater personality consistency (Roberts & Caspi, 2003). We describe this as the *identity development principle* (see Table 14.1 on page 376). Embedded in this principle is the process of finding one's niche. People select roles that appear to fit with their dispositions, values, and abilities, and this selection process should facilitate continuity over time (Roberts & DelVecchio, 2000). Assuming that most roles do not fit perfectly, people are likely motivated to shape the features of their roles so that they do fit better than before. Thus, through building an optimal or satisfying niche, people inevitably create an environment that supports continuity over time.

Although identity is made up of constituent elements, such as traits and goals, it also consists of meta-cognitive factors that reflect people's perceptions of their own attributes (Roberts & Wood, 2006). For example, with age people become clearer about their personality attributes, interests, abilities, and life story (Helson, Stewart, & Ostrove, 1995). This increase in identity clarity may also contribute to increasing consistency

with age. For example, having an achieved identity was found to be related to higher levels of psychological well-being (Helson et al., 1995). Similarly, self-concept clarity is associated with higher levels of self-esteem (Campbell, 1990). Therefore, identity, and aspects of identity such as achievement, certainty, and clarity are linked to higher levels of psychological well-being and adjustment, which in turn are related to higher levels of personality trait consistency (Donnellan et al., 2007; Roberts et al., 2001).

In sum, it is clear that numerous factors contribute to the increase in personality continuity observed over the life course. Genetic factors, the environment, person–environment transactions, and identity development are all implicated in the inevitable stabilization of personality traits that comes with age.

Why Do Personality Traits Change with Age?

As we have seen, personality trait change is systematic and real, not simply random. How does personality change come about? First, people might change in response to contingencies in the environments found in social roles (see Table 14.3). For example, parents reward and punish their children in an effort to shape their behavior. Presumably, long-term exposure to specific reward and punishment schedules should result in personality differences among people. The second and third change mechanisms are watching ourselves and watching others, especially in new contexts. Personality change may come about by adopting new behaviors through watching others (e.g., modeling), or by watching ourselves do things differently, often in the context of a new role or in response to new role demands (Caspi & Roberts, 1999). Another change mechanism reflects listening to others. Thus, spouses may inevitably point out to their partners the existence of some characterological flaws that were previously unrecognized. This feedback, if willingly acknowledged, may facilitate change in personality.

Several longitudinal studies have demonstrated that experiences in work and marriage are associated with changes in personality traits. Work-related experiences, such as working more than others or attaining higher status, are associated with increases in the social dominance facet of extraversion and traits from the domain of conscientiousness (Clausen & Gilens, 1990; Elder, 1969; Roberts, 1997; Roberts, Caspi, & Moffitt, 2003). Achieving higher status at work is also associated with increases in masculinity and decreases in femininity (Kasen, Chen, Sneed, Crawford, & Cohen, 2006). In addition, positive experiences in work are associated with increases in traits tied to the domain of emotional stability (Roberts & Chapman, 2000; Scollon & Diener, 2006; van Aken et al., 2006).

Marital and family experiences also are associated with changes in personality traits.

TABLE 14.3. Why Do Personality Traits Change with Age and Why Don't They Change More?

Why do personality traits change with age?

Role contingencies:	Roles provide reinforcements and punishments for specific behaviors.
Watching ourselves:	Seeing changes in our own behaviors leads to changes in perceptions of ourselves or changes in reputation.
Watching others:	Change comes about through modeling others' behavior.
Listening to others:	People provide feedback on how we should change.
Role expectations and demands:	Roles communicate behaviors that will be reinforced and punished.

Why don't personality traits change more?

Filibustering:	Waiting out the press to change in the hope that the catalyst will lose steam.
Identity structure:	Complexity of identity buffers dispositions from environmental turbulence.
Dispositions:	Certain traits may predispose people to be less receptive to demands to change.
Social-cognitive mechanisms:	Accommodation, optimization, selection, immunization, and defense mechanisms shape information in order to deflect the press to change.

For example, women experiencing stable, satisfying, and fulfilling relationships become more emotionally stable and conscientious (Lehnart & Neyer, 2006; Roberts & Bogg, 2004; Roberts & Chapman, 2000; Robins, Caspi, & Moffitt, 2002; Scollon & Diener, 2006). Similarly, engaging in a serious partnership for the first time in young adulthood is associated with decreases in neuroticism and increases in conscientiousness (Neyer & Asendorpf, 2001; Neyer & Lehnart, 2007), and receiving more support from family members during adolescence is associated with increases in agreeableness (Asendorpf & van Aken, 2003; Branje, van Lieshout, van Aken, & Haselager, 2004). Finally, getting married or remarried in late middle age and old age is associated with decreases in neuroticism over time in men (Mroczek & Spiro, 2003). These longitudinal studies demonstrate that experiences in the conventional roles of work and relationships can explain, in part, the increases in agreeableness, conscientiousness, and emotional stability found in young and middle adulthood.

It is most common to assume that environments cause changes in psychological functioning. Nonetheless, to infer that environments are causal forces requires either (1) evidence for the prospective effects of social context on personality trait change, or (2) evidence for personality trait change that arises from interventions. In terms of the prospective effects of social context on personality trait change, there are now a handful of studies demonstrating this type of pattern. For example, remaining in an intact marriage and not smoking marijuana were both prospectively related to changes in responsibility (Roberts & Bogg, 2004). Specifically, experiences of an intact marriage and low marijuana use in young adulthood predicted increases in social responsibility in midlife. Analogously, Lehnart and Neyer (2006) found that higher levels of relationship security predicted increases in conscientiousness, and higher levels of relationship dependency predicted decreases in neuroticism. Interestingly, these effects held only for people who did not change relationships, highlighting the fact that for contexts to have an effect on personality trait development, it may be critical that the context does not change over time (Roberts, 2006). Of course, prospective effects are rare, and a number of studies have

failed to detect such effects (e.g., Scollon & Diener, 2006; Watson & Humrichouse, 2006). Nonetheless, the fact that some prospective effects do exist bolsters the inference that social contexts can and do affect personality trait change.

The best evidence for the effect of environmental experiences on personality trait development comes from intervention studies that actively attempt to change personality. There have been several recent attempts to track personality trait changes in individuals receiving some form of active intervention, such as psychotherapy or drug therapy. The few studies that do exist are quite provocative. In the first study, a sample of chronic substance users was tracked for over a year while receiving wide-ranging treatments to improve vocational skills, coping abilities, and spiritual development (Piedmont, 2001) and change in personality traits above and beyond changes in symptomology was tested in these individuals. Positive changes in all of the Big Five personality traits were found on the order of one-quarter to one-half of a standard deviation from pretreatment to posttreatment. In the second study a large sample of patients with depression received a wide variety of treatments. It was found that neuroticism scores decreased one-half of a standard deviation over a 6-month period (De Fruyt, Van Leeuwen, Bagby, Rolland, & Rouillon, 2006).

These two studies dovetail with earlier research showing similar levels of personality trait change that resulted from therapeutic interventions (Bagby, Joffe, Parker, Kalemba, & Harkness, 1995; Trull, Useda, Costa, & McCrae, 1995). These studies are notable for the fact that they show quite clearly that personality traits *can be changed*. Moreover, when compared to the magnitude of personality trait change that occurs across the life course, which appears to be around one full standard deviation (Roberts et al., 2006), the magnitude of the change is quite dramatic. Through 6 months of therapy, people can achieve change equal to 20 years of natural progression in personality development. One caveat should be mentioned. Both of these studies relied on self-report personality assessments, which beg the question of whether patients were responding to demand characteristics of the intervention. Future research should track change in more objective mea-

sures of personality traits, such as observer ratings or behavioral observations.

One of the most salient features of the longitudinal studies examining mean-level change in personality is the fact that young adulthood—the years from ages 20 to 40—are the critical years for personality trait development. Presumably, people are confronted with more role contingencies and more opportunities to watch others, themselves, and receive feedback during this period of the life course. We have attempted to explain the fact that this age period is the fulcrum for personality trait development with the *social investment principle* (see Table 14.1 on page 376), which states that investing in social institutions, such as age-graded social roles, is one of the primary reasons for personality trait development in young adulthood (Lodi-Smith & Roberts, 2007; Roberts, Wood, & Smith, 2005). Three assumptions underlie this principle. First, people build identities by making psychological commitments to social institutions in the form of social roles, such as work, marriage, family, and community. Second, social roles come with their own set of expectations and contingencies that promote a reward structure that calls for becoming more socially dominant, agreeable, conscientious, and less neurotic. Third, the dominant pattern of role investments seen in quasi-universal tasks of social living, such as developing a family and career (Helson et al., 2002), occurs in young adulthood. In turn these quasi-universal transitions in young adulthood help to explain the normative patterns of personality change that result from role investments during this time of the life course.

The key personality changing element within the social investment experience lies in committing oneself to social institutions outside of one's existing identity structure. This act exposes a person to the contingencies contained in the new social role, expressed in the form of role expectations for appropriate behavior (Sarbin, 1964). For example, people come to their first job with a set of expectations about how they should act that are derived from their experiences watching significant others, such as parents, mentors, friends, and other influential people, in the same types of roles (Caspi & Roberts, 1999). Such role expectations can affect change either through punishing inappropriate behav-

ior or rewarding appropriate behavior. Role expectations exert social control over behavior, such that people who violate the expectations are punished and those who conform to the expectations are rewarded with social regard.

Another key ingredient of social investment that should help to facilitate change is the commitment to the organization, institution, or relationship (Lodi-Smith & Roberts, 2007). This is better explained in the converse situation, in which people are not invested. These individuals do not respond to role expectations and socialization forces within the social roles and relationships to which they are exposed because they do not care about, or see rewards in responding to, the demands of the situation. By committing to social roles and relationships, people make investments that they believe will suit their life and possibly reflect their preferred niche. If a niche subsequently calls for change, a person will be more likely to respond if he or she has an emotional and long-term perspective on that investment. In contrast, lack of commitment should lead to indifference or skepticism in the face of demands for change.

The social investment principle captures the key transition in the age-graded nature of roles in young adulthood. Specifically, people move from dependency on others in adolescence to simultaneous autonomy and increasing accountability to others as young adults (e.g., to their company and their family). The dual demands of increasing self-sufficiency and increasing responsibility to others naturally press people to behave in a more communal manner and become more self-controlled with age (Wood & Roberts, 2006a). Thus, investments in conventional social institutions should be related to increasing scores on measures of agreeableness, conscientiousness, and emotional stability.

In sum, we propose that people change by responding to contingencies, modeling others, and receiving persistent feedback that contradicts closely held views of the self (Table 14.3). Moreover, the most likely source of these forces of change arises via investment in social institutions such as marriage, work, and community. These institutions, embodied in social roles, bring with them expectations and demands for confidence, prosocial behaviors, responsibility, and emotional stability. Of course, sometimes people

select new identities in order to change (Snyder & Ickes, 1985). But we believe that this is the least likely pathway through which personality traits change. Rather, change is most likely the result of the long-term press of social environments that are chosen for reasons other than personality trait development (e.g., interests, abilities, or goals).

Why Don't Personality Traits Change More?

One of the most striking features of the longitudinal studies that track the relationship between life experiences and personality change is the relatively small effect that environmental contingencies have on personality trait change. Despite robust shifts in environments, people do not demonstrate dramatic shifts in terms of personality traits. Rather, individuals demonstrate significant shifts on a minority of traits and small-to-moderate shifts on the remaining traits (e.g., Roberts et al., 2001). This invites our last question of personality development, why don't we find more evidence of personality trait change?

The first reason for the modest changes that occur in personality traits may be that the influence of continuity mechanisms outweighs the impact of change mechanisms. That is, if people are successful in selecting, evoking, and shaping environments, then the environments themselves will not bring with them pressures to reconstruct personality. People may also be motivated to remain consistent. As Block (1982) wrote: "Through the course of evolution, individuals have been programmed to follow the adaptive imperative: Assimilate if you can; accommodate if you must. Assimilatory efforts are the first line of adaptation" (p. 286).

Moreover, if there is a press to change, the press will be in the direction of the personality qualities that drew the person to that environment in the first place. Thus, the most common effect of life experiences on personality development is to deepen the characteristics that lead people to specific environments (Roberts & Caspi, 2003; Roberts et al., 2003; Roberts, O'Donnell, & Robins, 2004; Roberts & Robins, 2004). We describe this as the *corresponsive principle* (Table 14.1 on page 376). Specifically, life experiences that are corresponsive (i.e., that elicit behaviors that are consistent with their dispositions) will be viewed as validating and

thus rewarding to a person, resulting in an elaboration of the dispositions being rewarded by experience. Corresponsiveness helps to explain one of the key features of personality trait development in adulthood: its modest nature. Typically, individuals do not go through dramatic transformation in terms of personality traits. Change seems to occur at a modest rate over long periods of time in a minority of traits within each person's profile of dispositions and often in the direction of the traits that led that individual to a particular social context in the first place.

The question of why we do not see as much change as we might expect, given the shifts in environments, points to mechanisms that intervene between changes in environments and changes in personality. We see four sets of mechanisms that people use mostly in response to environmental contingencies that demand change. These mechanisms tend to preclude change because of how they affect the information gleaned from the experience in the environment (see Table 14.3 on page 387). The first set concerns actively avoiding new environments or avoiding making the social and emotional investment that would result in change. The second set is the effect of identity structures and negotiations on experience. The third set involves individual-difference characteristics that seem to buffer or enhance susceptibility to environmental contingencies. The fourth set encompasses social-cognitive factors that inoculate or diminish the significance, relevance, or meaningfulness of the environmental press to change.

In most socialization theories, the assumption is that the path from the environment to the person is direct. Clearly, the path is not direct. First, situations affect behavior directly and broad-level phenomena indirectly (Roberts, 2005). Second, experiences that occur early in the process of acquiring the role may not be internalized because of the identity negotiations that take place. People do not simply respond to the press to change. They may try to shape the role to fit themselves better, and it may take time before these strategies are exhausted and they to come to terms with a set of expectations that contradicts their strongly held self-perceptions. Third, people may simply try to wait out a press to change. We describe this strategy as "filibustering," in which people

attempt to delay what might seem to be the inevitable by ignoring it and hoping it will go away. For example, a new administrator may come to a job and demand that employees become more service oriented (e.g., accommodating, friendly, polite). An employee could simply wait out the new supervisor in hope that either the system will crush the supervisor's desire for climate change or that the supervisor will be replaced.

Another reason why personality traits may not change dramatically is that the effects of molecular changes in environments are filtered through multiple levels of the trait hierarchy (Roberts, 2006; Wood & Roberts, 2006b). Specifically, role identities and other mid-level psychological structures may play a particularly important mediating role between life experiences and personality trait change. Due to their closer proximity to role experiences, role identities may change substantially because of role-relevant experiences, even while these experiences only lightly affect a person's general identity (Wood, 2007; Wood & Roberts, 2006b). For example, after becoming a parent, it might be presumed that a man would see himself as a more conscientious person. However, he may report that he has not changed in terms of conscientiousness because the change is only localized to a specific role identity—the parent role—and not his entire personality. In essence, the effect of the experience in one role is muted at the general personality level, which considers not just the identity one has as a parent, but also self-views about oneself as a friend, child, worker, and so on.

An additional set of factors that mollify the press to change are dispositions themselves. Certain people are less inclined than others to respond to environmental contingencies. For example, in work settings, people who were uncooperative were less likely to adopt a competitive stance when the organizational culture demanded it (Chatman & Barsade, 1995). Similarly, unconventional, less adjusted women were less likely to change in ways consistent with the changing cultural climate of the 1960s, 70s, and 80s (Roberts & Helson, 1997). Accordingly, one would assume that people suffering from certain personality disorders, such as narcissistic personality disorder, would not have the necessary psychological skills to respond to role contingencies and would thus change

less in response to role expectations or feedback than others—unless, of course, the role expectations call for the person to become more narcissistic (Robins & Paulhus, 2001).

An additional set of identity-related factors that would moderate the effect of environmental demands for change are a person's existing cognitive and emotional schemas that are designed to protect identity when it is threatened. These social-cognitive factors subsume a wide range of conscious and unconscious information-processing factors while sharing one thing in common: They all act to reconfigure the meaning of experience, not experience itself (Cramer, 1998).

The first set of social-cognitive mechanisms, drawn from lifespan developmental theory, are termed "accommodative" strategies (Brandtstadter & Greve, 1994) and refer to the adjustments one makes in goals or self-evaluative standards in order to maintain consistent self-views. Brandtstadter (1992) showed that people increase the use of flexible goal adjustment with age and simultaneously diminish their tenacious goal pursuit. Thus, with age, people recalibrate their goals rather than persist in attempting to achieve specific outcomes (e.g., earning enough for retirement rather than earning enough to become rich). By recalibrating goals, people can maintain consistent self-views (e.g., "I am successful").

Similarly, the optimization and compensation strategies from the selection, optimization, and compensation model (SOC; Baltes & Baltes, 1990) can be seen as continuity-promoting mechanisms. "Optimization" refers to emphasizing goals and activities that reflect a person's strengths rather than emphasizing something new or untested (e.g., selection). Compensation reflects the inevitable tailoring of goals and activities to make up for the natural degradation of abilities in old age. Both of these mechanisms entail emphasizing, if not fostering, existing characteristics or skills. Applied to the sphere of personality traits, one can easily see that the successful utilization of optimization and compensation strategies would facilitate the maintenance of personality traits. For example, a person with a propensity to work hard, despite decreasing his or her expenditure of energy at work, can maintain a self-impression that he or she is conscientious by emphasizing other facets of conscientious-

ness, such as his or her organization skills or ability to be efficient.

Brandtstadter and Greve (1994) described a fourth information-processing factor, immunization, which is defined as processes that protect the self from self-discrepant evidence. These mechanisms include de-emphasizing the personal relevance of an experience, searching for and finding an alternative interpretation, and questioning the credibility of the source of information. In relation to personality consistency, one may imagine a person receiving feedback from a friend that he or she is hostile and mean. If this person feels that he or she is not hostile, then immunizing mechanisms may be employed to discount the friend's opinion. In order to maintain a consistent self-perception, this person may attempt to trivialize the importance of the relationship, attribute the feedback to the friend's own issues (alternative interpretation), or question the friend's ability to make such interpretations (question credibility). All of these strategies would serve to maintain the person's self-perception that he or she is not hostile or at least not as hostile as the friend claims.

Accommodation, optimization, and immunization mechanisms are assumed to be available to conscious awareness. Defense mechanisms are assumed to perform similar functions to the conscious information-processing mechanisms identified above, but do so outside of conscious awareness. Contemporary perspectives define defense mechanisms as unconscious mental operations that function to protect the individual from experiencing excessive anxiety (Cramer, 1998). Defense mechanisms are seen not only in the classical psychoanalytic sense as acting to filter unacceptable internal thoughts, impulses, or wishes, but also in the contemporary sense as filtering out experiences and information that threaten one's self-esteem or self-integration (Cramer, 1998). The filtering of undesirable experiences/information is seen as leading to more adaptive behavior (Davidson, MacGregor, Johnson, Woody, & Chaplin, 2004).

If we assume that, in part, personality change results from experiencing events that contradict closely held views of the self, or from receiving feedback from others that we are different from our self-perceptions, then defense mechanisms should buffer the effect of these episodes. Being told that one's personality must change would be quite stressful (Block, 1982). In fact, research shows that people become anxious when presented with information that contradicts their self-perceptions, even if that new information is more positive than their closely held self-concept (Swann, Pelham, & Krull, 1989).

Accommodation, optimization, compensation, immunization, and defense mechanisms serve the agenda of maintaining continuity in personality in response to environmental contingencies that normally would result in change. Combined with identity negotiations and individual differences in personality traits themselves, people are potentially well defended against environmental presses to change their personality. This is even truer when we see that changes in behaviors, thoughts, and feelings at the lower level of abstraction must negotiate the path upward to broader attributions about the self. Thus, we also see why change is typically modest in relation to putatively dramatic environmental contingencies. Unfortunately, to our knowledge, the buffering of these mechanisms has not been tested in longitudinal studies of personality trait development.

CONCLUSIONS

In this chapter we have attempted to address four fundamental questions about personality trait development: How do personality traits develop in adulthood? Why do personality traits become more consistent with age? Why do personality traits change with age? Why don't personality traits change more than they do? Looking back since the last installment of this chapter, it is most gratifying to see the research on personality trait development come of age. It is no longer an anomaly to report longitudinal data, and the shear number and quality of studies emerging in the last decade bodes well for the continued development of the field.

With these recent accomplishments in mind, we would like to make several recommendations about where we would like to see the field of personality development move in the coming decade and what questions need answering. The first handbook chapter on personality development (Caspi & Bem, 1990) ended with a *mea culpa* that

the chapter had not addressed the issue of personality change. The subsequent installments have rectified this oversight, but similarly have left a number of issues untouched themselves.

First, this chapter has focused exclusively on personality traits. Personality psychology encompasses more concepts than personality traits. The development of other, clearly important domains and constructs are in dire need of attention. How do goals and motives develop with age? Are narrative structures as consistent as personality traits? Do the same mechanisms and processes derived from the study of personality traits apply to other types of constructs? Some initial research has shown that goal ratings are more consistent over time than previously suspected (Roberts et al., 2004). Moreover, interests are more consistent than personality traits at a younger age (Low, Yoon, Roberts, & Rounds, 2005), and narrative structures, though consistent, are less so than personality traits (McAdams et al., 2006). These and other related issues, such as the interplay between different domains (e.g., goals and traits over time), deserve greater attention.

Second, we need a better understanding of the process-oriented mechanisms that explain continuity and change. These mechanisms are absent in most trait theories but are key components of social-cognitive approaches to personality. For example, many of the reasons why personality traits remain consistent over time rest on social-cognitive processes, such as the filtering effect of schemas or the evocative effects of behaviors. Understanding personality change entails understanding the growth of self-knowledge and the opportunities to recognize change in one's own behavior. Future research should integrate trait and social-cognitive models of personality development and test them in well-run longitudinal studies in order to better understand the processes of personality development.

Third, the most glaring omission in this review is a complete lack of understanding of how people come to have personality traits in the first place. How does a trait such as conscientiousness emerge from the stew of temperament and early childhood experience to become a full-fledged disposition in adulthood? What are the key developmental experiences that shape conscientiousness

and other traits? The typical answer to these questions alludes to genetics, temperament, and a little hand waving. Simply assuming that the Big Five emerge like some premature adult doppelganger in children is an insufficient and unsatisfying portrait of what has to be a much more dynamic story. Future research needs to develop a coherent theoretical framework and accounting for the development of personality traits from childhood, to adulthood, and into old age.

In conclusion, the field of personality trait development has surged forward in the last decade to a state of maturity unlike any point in the past. It is now time to move past simple questions of whether personality is stable or changeable to the harder questions of why and how personality traits, and other personality constructs, develop.

NOTE

1. Although genes may be unchanging, their effects may change over the life course because of epigenetic effects, such as methylation, which change the expression of genes (Roberts & Jackson, in press).

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