12 Development of Personality across the Life Span

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INTRODUCTION

Questions about the development of personality have captured people's attention and generated controversy for centuries. Aristotle devoted three chapters of Book II of his *Rhetoric* to describing the characteristics of individuals at different phases of the life span. Aristotle's student, Theophrastus, created poignant character sketches of thirty personality types (e.g., "The Surly Man" and "The Man of Petty Ambition") and noted interesting continuities and discontinuities in these characters over time and across contexts (e.g., at home versus at the public baths). As Gordon Allport said:

> every personality develops continually from the stage of infancy until death, and throughout this span it persists even though it changes.

These abiding concerns about the consistency of personality have continued to the present. The research literature provides a fairly clear picture about how personality changes across the lifespan, but vigorous debate continues about the degree to which stability and change in personality stems from intrinsic biological maturation, major life transitions and associated changes in social roles, or self-initiated desires to change personality. These debates make the field of personality development one of the most active, contentious and intellectually vibrant areas of personality psychology.

We focus this chapter on the development of basic traits rather than other important personality constructs such as goals, motives and life stories (McAdams, 2013). We begin by drawing on the well-known "Big Five" personality taxonomy to describe the basic trait domains that can be studied across the life span. We then describe different ways that researchers conceptualize questions about stability and change, and summarize what is known about stability and change in the Big Five in childhood, adolescence and adulthood. Finally, we outline some of the processes that promote personality stability and change across the life span, and highlight some emerging issues.

USING THE BIG FIVE TO ORGANIZE THE STUDY OF PERSONALITY TRAIT DEVELOPMENT

Personality traits are typically organized into five broad domains (i.e., the "Big Five"): Extraversion (e.g., sociable, gregarious, dominant), Agreeableness (e.g., warm, kind, cooperative), Conscientiousness (e.g., responsible, organized, self-controlled), Neuroticism (e.g., anxious, depressive, emotionally volatile), and Openness to Experience (i.e., imaginative, creative, curious) (John & Soto, 2020). The Big Five personality domains (often measured in adulthood) have a high degree of overlap with temperament dimensions (often measured in childhood). For example, the major dimensions of childhood temperament identified by Putnam, Ellis and Rothbart (2001) closely correspond with the Big Five domains with the exception of Openness to Experience. Specifically, the temperamental traits of Effortful Control, Negative Emotionality and Positive Emotionality typically map onto the Big Five traits of Conscientiousness, Neuroticism, and Extraversion/Agreeableness, respectively, in adolescence and adulthood (Soto & Tackett, 2015). Although Openness to Experience is difficult to assess in very young children (Caspi & Shiner, 2006; John et al., 1994), researchers have recently established the validity of Openness to Experience in children as young as nine years old (Herzhoff & Tackett, 2012), which echoes previous insights that Openness may not become developmentally relevant until middle childhood (Caspi & Shiner, 2006; John et al., 1994). Researchers have also found evidence for the "Little Five" (John et al., 1994) and "Little Six" (Soto & John, 2014; Soto, 2016) dimensions of personality in childhood and adolescence, which converge with both temperament and personality traditions.

The degree of correspondence between child temperament and adult personality dimensions is consistent with Allport's (1937) proposal that personality traits are "neuropsychic entities," and his observation that "behind all confusion of terms. . .there are none the less *bona fide* mental structures in each personality that account for the consistency of its behavior" (1937, p. 289). In keeping

with Allport's convictions about the biological basis of traits, there has been considerable interest in identifying the neurobehavioral systems that underlie the basic dimensions of personality (DeYoung, 2020; Zuckerman, 2005).

DeYoung (2010) provides a general overview of research on the intersection of the Big Five personality traits and neurobehavioral systems. For instance, Extraversion/Positive Emotionality seems to map onto the biological system governing incentive motivation and approach behavior, whereas Neuroticism/Negative Emotionality seems to correspond well to the biological system governing withdrawal behavior, anxiety and the detection of threat. These approach and avoidance systems are rooted in Gray's biopsychological theory of personality (1987). Further, a separate system governing the enjoyment of social bonds and affection may be linked with aspects of personality captured by Agreeableness (i.e., the affiliative system; DeYoung, 2010). Finally, Conscientiousness, particularly the Effortful Control aspects of this domain, has been linked to systems associated with executive control and related regions of the prefrontal cortex. In contrast to the other four Big Five domains, the biological underpinnings of Openness are not as well understood; however, aspects of Openness related to sensation seeking and exploratory behavior may also be related to the approach system, similar to Extraversion (DeYoung, 2010).

In sum, there is compelling evidence that the fundamental features of both temperament dimensions and the Big Five are rooted in neurobiological systems. This downward extension of the Big Five helps to curb the jangle fallacy (i.e., if two traits have different names then they must be different; Block, 1995) and focuses attention on a core set of trait domains that are broadly relevant for adapting to the challenges that individuals face throughout the life span (Ozer & Benet-Martínez, 2006; Roberts, Kuncel, Shiner, Caspi & Goldberg, 2007). Consequently, we will use temperament and personality trait terms interchangeably when reviewing research on personality development across the life course.

DEFINING TYPES OF STABILITY AND CHANGE

How stable is personality? Do shy children become shy adults? Do ill-tempered adolescents become ill-tempered adults? There are no simple answers to these questions because there are multiple ways of conceptualizing and measuring stability and change in personality. The broadest conceptual and methodological distinction is between heterotypic and homotypic stability.

Heterotypic Stability

Heterotypic stability refers to the stability of personality traits that are theorized to have different manifestations at different ages. Heterotypic stability broadly refers to the degree of personality coherence across development. Shyness is a good example of the challenges of studying heterotypic continuity because shyness is expressed differently by toddlers and young children than by adults. The shy toddler might cling to a caregiver in a crowded setting and burst into tears during bouts of separation. The shy adult, on the other hand, may avoid making eye contact with strangers and seem aloof and distant at social gatherings. It would be highly unusual to observe an adult burst into tears in a crowded setting. The observable behaviors typically associated with shyness "look" different at different ages; however, there is an underlying commonality with respect to how the individual responds to social situations. Individuals who act shy as children often act shy as adults, but the degree of correspondence is far from perfect because many things can intervene between childhood and adulthood to alter how an individual develops. Nonetheless, the important point is that the patterns of behavior observed in childhood, such as shyness and aggressiveness, sometimes foreshadow adult personality attributes (Caspi, Bem & Elder, 1989).

Homotypic Stability

Homotypic stability refers to the stability of the *same* thoughts, feelings and behaviors across time. In other words, in comparison to heterotypic stability, the assessment of homotypic stability is less conceptual and more statistical. Homotypic stability concerns the evaluation of different kinds of change using the *same* measure of personality across time, or across age groups. Four types of stability and change are typically examined: (a) absolute stability (i.e., mean-level change), (b) differential stability (i.e., rank-order consistency), (c) structural stability, and (d) ipsative stability.

Absolute stability refers to consistency in the amount, degree or intensity of a given trait. Absolute stability can be examined in cross-sectional designs by comparing mean levels of traits across different age groups, or in longitudinal designs by following the same sample of individuals over time. Assuming that birth cohort differences are not an issue, cross-sectional differences in means can provide insight into the personality characteristics of the so-called "typical" person at different ages. On the other hand, longitudinal trends in mean-level change provide more of a developmental perspective about how the average individual changes with age and how different individuals change over time.

Research on absolute stability (mean-level change) provides an understanding of *normative* personality differences because it tells researchers something about broad developmental trends. One caveat is that overall *average* trends may obscure absolute changes evident at the level of the *individual*, so there is increasing interest in examining how individuals change over time, either by modeling individual change trajectories (Mroczek, 2007), by identifying the percentage of individuals who conform to or deviate from the sample-level trend (Robins, Fraley,

Roberts & Trzesniewski, 2001), or by examining the variance in average growth over time (Schwaba & Bleidorn, 2018). A small absolute increase in a trait could indicate that the entire population is increasing a little bit, which is a common interpretation of mean-level change. However, other patterns of individual change can create a small mean-level change as well. For example, a small average increase could result when some individuals are increasing substantially, some are increasing only slightly, and some are actually decreasing.

Differential stability reflects the degree to which the relative ordering of individuals on a given trait is consistent over time. This type of stability is theoretically and statistically distinct from absolute stability. For example, a population could show mean-level increases on a trait, but the rank ordering of individuals would be maintained if everyone increased by exactly the same amount. Conversely, the rank ordering of individuals could change substantially over time, but without any aggregate increases or decreases (e.g., if the number of people that increased offset the number of people that decreased). Differential stability is typically investigated by calculating the correlation between the same personality measures administered across an interval of a sufficient length to be interesting (e.g., perhaps months in childhood, and years in adulthood).

Structural stability refers to similarity over time in patterns of covariation among traits, or items on a personality scale. For example, one can use structural equation modeling techniques to test whether the intercorrelations among the Big Five domains are the same at the beginning versus the end of college (Robins et al., 2001). Likewise, investigations of structural stability often include tests of measurement invariance (Atherton, Zheng, Bleidorn & Robins, 2019; Widaman, Ferrer & Conger, 2010). This process establishes that the same latent attribute is being measured in the same way on different occasions (Horn & McArdle, 1992). The concern is that if measures change in their psychometric properties over time, then comparisons "may be tantamount to comparing apples and spark plugs" (Vandenberg & Lance, 2000, p. 9). Despite the intuitive nature and simplicity of this idea, methodologists have yet to determine precisely when slight differences in psychometric properties render mean-level comparisons meaningless (Millsap & Meredith, 2007).

Ipsative stability refers to continuity in the patterning of personality characteristics *within* a person and how well the relative salience (or extremity) of these attributes is preserved over time. For example, a researcher might investigate the degree to which an individual's Big Five profile is stable over time – if an individual's cardinal (i.e., most characteristic) trait in adolescence is Openness to Experience, then is this also likely to be true in adulthood? Examinations of these kinds of questions are fairly rare and often use methods that quantify the similarity of personality profiles such as within-person correlation coefficients (Bleidorn et al., 2012; Ozer & Gjerde, 1989).

In sum, questions about stability and change are addressed in several conceptually and statistically distinct ways. An examination of all types of stability provides a more complete description of personality development. A great deal of confusion can occur when terms like "stability" and "change" are used without further specification. In the next section, we review research on the absolute and differential stability of the Big Five because these are the most commonly investigated types of stability and change. Table 12.1 provides a summary of findings from this body of research.

ABSOLUTE STABILITY OF THE BIG FIVE ACROSS THE LIFE SPAN

Until recently, most research on personality development has focused on absolute stability (mean-level change) during *adulthood*, with less research examining absolute stability in personality earlier in development. Personality trait development in childhood and adolescence has been understudied, in part, because taxonomies were not well-agreed upon (i.e., temperament versus personality), the data are difficult and time-consuming to collect, and researchers need creative and/or multi-informant methods for measuring personality. However, over the course of the last decade, researchers have dedicated increasing attention to understanding personality stability and change across childhood and adolescence. Below, we review what we know (and do not know) about mean-level changes in personality across the lifespan.

Childhood

Childhood is a time of profound growth in social, cognitive, emotional and motor skills, and such changes may reflect concomitant development in personality tendencies. In general, traits related to Positive Emotionality/Extraversion, Negative Emotionality/Neuroticism, and Imagination/Openness to Experience tend to decrease across childhood (de Haan et al., 2017; Slobodskaya & Akhmetova, 2010; Soto, 2016; Van den Akker, Deković, Asscher & Prinzie, 2014; Wangqvist, Lamb, Frisen & Hwang, 2015). On the other hand, both Effortful Control/Conscientiousness (Eisenberg, Duckworth, Spinrad & Valiente, 2014; Li-Grining, 2007; Van den Akker et al., 2014; Vazsonyi & Huang, 2010; Wangqvist, Lamb, Frisen & Hwang, 2015) and Agreeableness (De Fruyt et al., 2006; Prinzie & Deković, 2008; Wangqvist, Lamb, Frisen & Hwang, 2015) tend to show mean-level increases across the course of childhood.

Adolescence

Adolescence was once regarded as one of the most critical periods of development (e.g., Hall, 1904). Indeed, recent findings on adolescent personality development suggest

Table 12.1 Summary of stability and change in the Big Five personality domains across the lifespan

Trait domain	Absolute stability	Differential stability
Extraversion	***Childhood:*** decreases ***Adolescence:*** decreases (though some evidence to suggest increase or no change) ***Adulthood:*** remains stable/small decreases	Retest coefficients for all traits increase across the life span, from about .30 in childhood to a plateau in the .70s around age 60, and then declines into old age
Agreeableness	***Childhood:*** increases ***Adolescence:*** decreases (though some evidence to suggest increase or no change) ***Adulthood:*** increases until old age and then decreases	
Conscientiousness	***Childhood:*** increases ***Adolescence:*** decreases ***Adulthood:*** increases until old age and then decreases	
Neuroticism	***Childhood:*** decreases ***Adolescence:*** increases ***Adulthood:*** decreases and then increases in old age	
Openness to Experience	***Childhood:*** decreases ***Adolescence:*** decreases ***Adulthood:*** remains stable/small decreases	

Note. Absolute stability findings are based on mostly longitudinal studies of mean-level change (with some cross-sectional studies of age differences); differential stability findings are based on longitudinal studies of rank-order (i.e., test-retest) stability.

that we have a great deal to learn about consistency and change during this period, and the implications it has for the rest of the life course. Given the developmental tasks and challenges that adolescents face, some findings have highlighted the importance of gender differences in personality trajectories during this period (Branje, van Lieshout & Gerris, 2007; Borghuis et al., 2017; Van den Akker et al., 2014), as well as reporter discrepancies (adolescent versus parent-reports) of mean-level changes in personality (Gollner et al., 2017; Van den Akker et al., 2014). The nuances to personality development during adolescence have yet to be fully explored and are an important part of future research in the field.

The Roberts et al. (2006) meta-analysis suggested that there were general mean-level increases in socially-desirable traits across the course of adolescence. This might be true when simply comparing the beginning and the end of the period. However, researchers are moving toward consensus that Conscientiousness, Emotional Stability and Openness to Experience show mean-level *decreases* from early to mid-adolescence, but then resume mean-level *increases* in late adolescence and young adulthood (Atherton, Lawson & Robins, 2020; De Fruyt et al., 2006; Denissen, Van Aken, Penke & Wood, 2013; Lacuelle et al., 2012; Prinzie & Deković, 2008; Slobodskaya & Akhmetova, 2010; Soto et al., 2011; Soto & Tackett, 2015; Van den Akker et al., 2014). This u-shaped pattern of findings has been referred to as the *disruption hypothesis*, in that individuals experience declines in socially desirable traits throughout adolescence (Soto & Tackett, 2015), which may be due to the number of biological, social and psychological changes that occur during adolescence. Fortunately, these disruptions are temporary, given that on average, youth resume mean-level increases in socially desirable traits, like Effortful Control, in late adolescence and early adulthood (Atherton, Lawson & Robins, 2020). The developmental trajectories of Extraversion and Agreeableness are more mixed, with some studies showing mean-level decreases throughout adolescence (Branje et al., 2007; De Fruyt et al., 2006; Denissen, Van Aken, Penke & Wood, 2013; Lacuelle et al., 2012; Prinzie & Deković, 2008; Soto et al., 2011; Soto & Tackett, 2015; van den Akker et al., 2014), and other studies showing mean-level increases (Borghuis et al., 2017; Klimstra et al., 2009; Laceulle et al., 2012) or no change at all (De Fruyt et al., 2006; Denissen et al., 2013).

Adulthood

The Roberts et al. (2006) meta-analysis found mean-level increases across adulthood in Agreeableness, Conscientiousness and Emotional Stability. These trends indicate increasing levels of maturity, and consequently have been labeled the *maturity principle* of personality development. In contrast, Extraversion and Openness show little mean-level change across adulthood. Since 2006, the meta-analytic findings have been replicated by a number of longitudinal studies using twin-designs (e.g., Bleidorn

et al., 2009), nationally-representative samples (e.g., Lucas & Donnellan, 2009; Wortman, Lucas & Donnellan, 2012), and samples from a variety of countries (e.g., Bleidorn et al., 2013).

In contrast to the voluminous literature on personality change during adulthood, we know little about personality trajectories that extend well into old age. The research to date suggests general declines in all of the Big Five domains, which may be due to the physical and social limitations that older adults face nearing the end of life (e.g., Wortman, Lucas & Donnellan, 2012). However, more research is needed before robust conclusions can be reached about how personality changes beyond age sixty-five.

DIFFERENTIAL STABILITY OF THE BIG FIVE ACROSS THE LIFE SPAN

Differential stability concerns the degree to which people who are high (versus low) on a trait at one point in time maintain their relative ordering over time. An initial meta-analysis showed that the Big Five become increasingly stable across the lifespan (Roberts & DelVecchio, 2000), a pattern often referred to as the *cumulative continuity principle*. Moreover, with the surge of research in personality development across all developmental periods, there are several intriguing patterns worth highlighting that corroborate Roberts & DelVecchio's findings from almost twenty years ago.

First, when standardized to a common interval of about seven years, Roberts and DelVecchio found that the test-retest correlations of the Big Five increased from .31 in childhood to .54 in early adulthood and kept gradually increasing until the stability estimates reached a plateau in the .70s between the ages of fifty and seventy. This general pattern held for all of the Big Five domains and for both men and women. More recent research has replicated these findings by showing increasing rank-order stability estimates from toddlerhood through middle childhood (e.g., Neppl et al., 2010), early adolescence to mid-adolescence (e.g., Borghuis et al., 2017; Klimstra et al., 2009), late adolescence to young adulthood (e.g., Ludtke, Roberts, Trautwein & Nagy, 2011), and from young adulthood to middle adulthood (e.g., Wortman, Lucas & Donnellan, 2012).

Second, and relatedly, a recent extension of the findings from Roberts and DelVecchio (2000) suggests that the differential stability in the Big Five may not increase linearly across the *entire* lifespan, but rather, differential stability peaks around age sixty and then begins to decline into old age (Lucas & Donnellan, 2011). These results support the claim that personality stability shows an inverted u-shaped pattern across the lifespan (Ardelt, 2000). The decline in differential stability in old age was evident for all five Big Five domains and not attributable to the effects of increased measurement error in older ages (Lucas & Donnellan, 2011). Contrary to William James's claim that personality is "set like plaster" by the age of thirty, the accumulation of empirical evidence shows that differential stability peaks between the ages of fifty and seventy (Lucas & Donnellan, 2011; Roberts & DelVecchio, 2000). The current evidence indicates that traits become increasingly stable after age thirty, but never reach the point where change no longer occurs. That is, no matter how old an individual is, it is possible that his/her standing relative to others can fluctuate with the passage of time. Moreover, even across test-retest intervals of fifty years (Damian, Spengler, Sutu & Robins, 2018), the differential stability of traits is remarkably high, suggesting that even across long spans of time individuals show an appreciable amount of relative consistency.

Third, empirical research has countered the claim that personality shows minimal, if any, stability during childhood and adolescence (e.g., Lewis, 2001). In fact, there is accumulating evidence that individual differences in children and adolescence show an appreciable degree of stability across these periods (Atherton, Lawson & Robins, 2020; de Haan et al., 2017; Neal, Durbin, Gornik & Lo, 2017; Roberts & DelVecchio, 2000). Individual differences in children are not ephemeral qualities. Even by three years of age, personality traits demonstrate comparable levels of differential stability to later developmental periods (e.g., Durbin, Hayden, Klein & Olino, 2007). Relevant to personality development research in childhood and adolescence, it is worth pointing out that parents' views of their children are much more stable than the child's perceptions of themselves (Gollner et al., 2017), which suggests that parents may be: (a) better able to aggregate information about their child's behavior, (b) more likely to see continuities in personality, and/or (c) seek to confirm consistency in child personality over time.

In sum, the general patterns of differential stability are well established. It is now important to empirically investigate why these patterns of differential stability exist. Generally speaking, differential stability is expected to be relatively low during periods of development marked by large numbers of changes. For example, adolescence has long been considered a period of "storm and stress," in that youth undergo biological changes associated with puberty, the acquisition of more sophisticated cognitive abilities, the transformation of social and romantic relationships, and major role changes and autonomy. Similarly, the end of the life span once again brings changes in older adults' physical capacities, cognitive stamina, and participation in social domains. Thus, an important next step is to investigate which factors are responsible for personality consistency and change, a topic we will cover in the next section.

PROCESSES RESPONSIBLE FOR PERSONALITY STABILITY AND CHANGE

Now that the field has produced replicable descriptive findings about trait development across the life span, it is

important to better understand the processes that are responsible for absolute and differential personality stability. That is, why do individuals become increasingly *consistent* in their personalities across the life course? Why (and how) do individuals undergo personality *change*? In general, processes of personality stability and change can be broken down into three dominant explanations: the *intrinsic maturational perspective*, the *environmental perspective*, and the *self-reflective perspective*. Broadly, the *intrinsic maturational perspective* holds that personality stability and change are driven by processes related to genetic and biological maturation (e.g., Five-Factor Theory; Costa & McCrae, 2006), whereas the *environmental perspective* posits that personality stability and change are a result of contextual factors including social interactions, life experiences, investment in social roles and major life events (e.g., Social Investment Theory: Bleidorn, Hopwood & Lucas, 2018; Roberts & Nickel, 2020, *Handbook of personality*). The *self-reflective perspective* suggests that personality stability and change are due to a set of internal processes that stem from self-insight, self-knowledge, perceptions of the self in relation to others and volitional (self-driven) factors (e.g., Robins, 2020). Although no single perspective can solely explain personality stability and change, each approach makes a unique contribution in understanding personality development across the life course. Below we discuss each perspective in more detail and briefly review some of the empirical research being conducted in these areas.

The Intrinsic Maturational Perspective

Ontogenic approaches to personality development, such as the Five Factor Theory (Costa & McCrae, 2006), suggest that stability and change in personality are mainly influenced by genetic factors. Under a strict version of the *intrinsic maturational perspective*, the heritability of personality should not change across the lifespan (Costa & McCrae, 2006). However, recent research suggests that the heritability of personality *decreases* across the lifespan, whereas environmental influences on personality *increase* over time (Briley & Tucker-Drob, 2014), which directly conflicts with the assumptions of a strict ontogenic approach to personality development. Despite findings to the contrary, utilizing longitudinal twin designs to understand the proportion of genetic and environmental influences on personality development has changed how the field thinks about stability and change in a number of ways.

It was initially thought that genes would be responsible for personality stability, whereas environmental influences were likely to be responsible for personality change. However, accumulating research suggests that both genes and nonshared environmental influences contributed to the stability of nearly all of the Big Five domains (Bleidorn, Kandler & Caspi, 2014; Briley & Tucker-Drob, 2014; Krueger & Johnson, 2020). Furthermore, genes and the nonshared environment contribute to both personality stability and change (Bleidorn, Kandler & Caspi, 2014; Blonigen et al., 2008; Ganiban et al., 2008). Specifically, changes in Neuroticism, Agreeableness and Conscientiousness are largely due to genetic effects whereas changes in Openness and Extraversion are almost completely due to nonshared environmental influences (Bleidorn et al., 2009). We now know that genetic factors influence personality development, in part, because they influence the kinds of environmental contexts that individuals find themselves in (e.g., Kandler et al., 2012). For example, individuals may be exposed to, evoke, or select into environments on the basis of their genetically influenced characteristics, which in turn, affect the development of these characteristics. The transactional dynamic between genes and the environment highlights the importance of understanding how nature shapes nurture and, in turn, how the nurturing environment influences the expression of genetically influenced traits (Plomin, 1994). Such a perspective helps to move the field beyond the simplistic "nature versus nurture" debate.

Moreover, recent research has spurred a flurry of findings on physiological maturation in relation to stability and change in personality. Most of the work done in this area has focused on the period of adolescence, given the complex maturational processes that youth undergo, including changes in brain function/structure and pubertal development. For example, we know that adolescents are at a higher risk for engaging in a number of risky behaviors including delinquency, substance use, aggression, etc. (e.g., Moffitt, 1993). Recent findings suggest that self-control (and the engagement in risky behaviors, more broadly) may be best defined as a dual-systems model, where the impulse (reward-seeking) can be separated from one's ability to control one's behaviors (regulation). Research on brain development has suggested that adolescents may be at a relatively high risk for engaging in problem behaviors because brain regions that are associated with reward-seeking develop earlier than brain regions associated with control (Casey & Caudle, 2013; Shulman, Harden, Chein & Steinberg, 2016), which provides an imbalance of impulses in relation to control. These intriguing findings point toward the idea that brain development may, in part, be related to concomitant changes in personality development (e.g., via *disruption* effects like decreases in Effortful Control/Conscientiousness during adolescence; Atherton, Lawson & Robins, 2020).

Further, researchers have also begun to examine how pubertal development is associated with personality development during adolescence. Klimstra, Hale, Raaijmakers and Meeus (2012) examined the relation between pubertal timing and personality "hypermaturity" (i.e., twelve-year olds with a personality profile of an average twenty-year old), and found that there was no association between pubertal timing and hypermature personality profiles. Research has also combined aspects of genes, the

environment and pubertal timing in order to better understand girls' engagement in violent and nonviolent delinquency during adolescence (Harden & Mendle, 2012). The results from this study suggest that for girls who experience puberty earlier in development, nonshared environmental influences on delinquency are particularly magnified, even after accounting for the genetic association between pubertal timing and delinquency. These intriguing findings notwithstanding, it is clear that research on genetic, biological and physiological changes in relation to personality consistency and change is only beginning.

The Environmental Perspective

The *environmental perspective* posits that personality stability and change are a result of contextual factors including social interactions, life experiences, social roles and major life events. One central message conveyed by contemporary work in personality development is that stability and change result from complicated transactions between persons and situations. Therefore, strong forms of both dispositionalism (the view that behavior is determined largely by factors internal to the person) and situationalism (the view that behavior is determined largely by factors external to the person) are difficult to reconcile from a developmental perspective, in which personality characteristics and situations are seen as increasingly interdependent over time (similar to how we described processes relating to nature and nurture transactions in the previous section). Understanding the factors that influence personality consistency and change can help researchers better understand the mechanisms underlying personality development.

Personality Consistency and Transactional Processes

During times when individuals experience dramatic environmental and/or maturational changes, personality consistency tends to be lower. For example, the transition from childhood to adolescence is a fairly volatile transition that involves rapid maturational changes, shifting societal demands, the exploration of new identities and roles, and the initiation of new peer and romantic relationships. These changes may impact individuals in relatively unique ways, thus shifting their relative ordering on a trait and thereby, reducing the stability of personality. However, as individuals make the transition into adulthood, maturational changes are reduced, social roles begin to stabilize, environmental changes are increasingly subject to individual control and a more stable sense of self is formed; thus, leading to increased personality stability. Typically, personality researchers think about several (potentially interrelated) mechanisms of person–situation transactions that promote personality continuity.

First, individuals play an active role in selecting and manipulating their own social experiences (*selection* effect). Given enough agency, individuals will seek out, modify or even create environments that are consistent with their individual characteristics. For example, individuals who are outgoing and sociable may choose careers that fit well with these tendencies and shun solitary occupations with limited potential for social interaction. Second, the social experiences one has may subsequently promote personality continuity, in part because positive interactions may then reinforce dispositions to be friendly and outgoing (*socialization* effect). Last, personality traits may "draw out" or elicit particular responses from the social environment, which can promote personality continuity (*evocation* effect). For instance, individuals who are kinder and friendlier may evoke more pleasant and supportive responses from their peers and this may contribute to more positive social interactions, and then those positive interactions lead the individual to be more sociable. The consequence of all three of these processes is a match between personality traits and characteristics of the situation. It seems as if many life experiences accentuate and reinforce the personality characteristics that were partially responsible for the particular environmental elicitations in the first place. This is often referred to as the *corresponsive principle* of personality development (Caspi et al., 2005).

In childhood, for example, researchers have examined the codevelopment of preschoolers' temperament and social play relationships over the course of an entire school year (Neal, Durbin, Gornik & Lo, 2017). Findings from social network analyses showed that children's traits shaped the formation of play relationships, and the traits of children's playmates shaped the subsequent development of children's own traits. Specifically, although Positive Emotionality and Effortful Control were not predictive of forming social play relationships, preschoolers who were higher in Negative Emotionality were *less* likely to form social play relationships over time. Preschoolers were also more likely to form social play relationships with peers who were similar to their own levels of Positive Emotionality. However, there was no evidence for preschoolers' choice of play partners being influenced by their Negative Emotionality or Effortful Control. Last, over the course of the school year, preschoolers' levels of Positive Emotionality and Effortful Control changed such that they became more similar to their social play partners levels on these traits. These findings are particularly compelling because they show that dynamic influences between persons and situations occur even in early childhood.

In adolescence, researchers have also examined personality trait co-development among friends, but during this developmental period, it appears that individuals change independently from their friends and siblings (Borghuis et al., 2017). Researchers have also begun to examine longitudinal *selection* and *socialization* effects that exist between personality and other types of interpersonal transactions, like being a victim or perpetrator of

relational aggression (e.g., Atherton, Tackett, Ferrer & Robins, 2016). For instance, adolescents who were high on Negative Emotionality and low on Effortful Control showed increases in victimization by their peers (*evocation* effect), and being victimized more by peers led youth to have subsequent increases in Negative Emotionality and decreases in Effortful Control (*socialization* effect). On the other hand, youth who were lower on Effortful Control were more likely to show increases in perpetrating relational aggression over time (*selection* effect), and perpetrating relational aggression led to subsequent increases in Negative Emotionality and Surgency (*socialization* effects). Furthermore, outside of interpersonal transactions, researchers have also looked to the importance of personality in school contexts, which is a particularly salient environmental context during this period. For example, Atherton, Zheng, Bleidorn and Robins (2019) used longitudinal data to examine the codevelopment of temperamental traits, like Effortful Control, and school behavioral problems (e.g., classroom misconduct, absences and suspensions). They found that steeper *decreases* in effortful control were related to steeper *increases* in school behavioral problems.

In adulthood, individuals are granted more agency to select into a broader range of environments consistent with their personalities (Scarr & McCartney, 1983), leading to an increasing amount of personality stability. Wrzus, Wagner and Riediger (2016) conducted a rigorous experience sampling study where they examined whether personality–situation transactions in daily life are different across age cohorts. They found that while some personality–situation transactions (e.g., association between extraversion and time spent with friends) were only evident among younger cohorts, many personality–situation transactions were evident in all age cohorts, which suggests that dynamic influences between personality traits and the environment may promote personality continuity similarly across the life course. Additionally, researchers have found examples of person-environment transactions in multiple domains of functioning in adulthood. Specifically, Bleidorn (2012) found that higher levels of conscientiousness were associated with greater investments in achievement behavior, and these investments in achievement behavior were related to subsequent increases in conscientiousness in young adulthood. Moreover, marrying someone who has a similar personality to oneself leads to higher personality consistency across adulthood, presumably because similarities in personality between spouses further reinforces existing traits and behaviors (Caspi & Herbener, 1990). Recent research has also shown that higher Openness to Experience leads individuals to engage in more cultural activities (e.g., visiting a museum, going to concerts), and engaging in more cultural activities leads to subsequent increases in Openness to Experience across adulthood (Schwaba, Luhmann, Denissen, Chung & Bleidorn, 2018).

Personality Change and Transactional Processes

Although studies in the previous section show how environmental factors can reinforce and strengthen existing personality traits, a different set of mechanisms may explain personality *changes* (Caspi & Roberts, 2001). Typically, personality psychologists have thought of personality "change" as including more dramatic and lasting shifts in stable patterns of thoughts, feelings and behaviors. Virtually no research has examined environmental influences on personality change in childhood, and very little research has been conducted in adolescence (e.g., Laceulle et al., 2012). Often, researchers have examined environmental influences on personality change in adulthood by investigating phenomena associated with *Social Investment Theory*. Social Investment Theory posits that normative age-graded changes in the Big Five across adulthood occur because of the investments in new social roles that many individuals experience in adulthood (Caspi, Roberts & Shiner, 2005; Helson et al., 2002). By investing in new social roles and experiencing related life events, like entering the workforce, getting married, becoming a parent, losing a spouse and retiring from work, individuals are required to meet specific contingencies in the environment (Bleidorn, Hopwood & Lucas, 2018; Corker & Donnellan, 2017; Hutteman et al., 2014; Luhmann et al., 2014; Senia & Donnellan, 2018). If individuals are responsive to the rewards, punishments and contingencies of a given setting, it is possible that long term exposure to, and changes in contingencies, may produce lasting personality changes (e.g., Laub & Sampson, 2003). Further, recent research has extended this line of work by suggesting that life goals may play an important role in explaining the link between personality and social roles. Although certain personality traits and life goals predict who will enter into certain social roles (*selection* effects), such as spouse and parent, many researchers have looked to these major life events as factors that may alter traits in lasting and life-changing ways (not necessarily reinforcing personality continuity). That is, events, such as entering the work force, marriage or parenthood, launch individuals into more restricted and tightly monitored, goal-relevant environments that have new and salient reward and punishment structures. These clear contingencies may produce enduring changes in personality.

A study of sixty-two nations and about 880,000 people (aged sixteen to forty) examined evidence for Social Investment Theory across cultures (Bleidorn et al., 2013), testing the idea that individuals from cultures that transition into adult social roles (e.g., workforce, marriage, parenthood) earlier should show earlier personality maturation, compared to individuals from cultures that transition to adult social roles later. The findings not only showed that personality maturation in socially desirable ways is a universal phenomenon, but also that common life events (i.e., workforce, marriage, parenthood) predicted personality maturation depending on the timing of transition to the social role. Transitions to the

workforce showed stronger influences on personality change than family role transitions, which suggests that transitions to family roles may be marked by fewer environmental contingencies and more freedom in how to behave, whereas transitions to the workforce may have very strict environmental conditions that clearly reward (or punish) certain personality tendencies.

Additionally, research has also shown the unique effects of military training on personality change, where military trainees showed persistently lower levels of Agreeableness over time, when compared to a control group and while controlling for *selection* effects (Jackson et al., 2012). Further, researchers have also begun to rigorously test the effects of the transition to parenthood on personality change (van Scheppingen et al., 2016). Contrary to what was expected, parents did not show more pronounced changes in Emotional Stability, Agreeableness or Conscientiousness compared to nonparents. Last, compared to nonretirees, individuals who retired from work in older adulthood showed changes in Openness, Agreeableness and Emotional Stability (Schwaba & Bleidorn, 2019). These studies demonstrate the increasing attention that is being given toward studying the influence of life events on personality change in young, middle and older adulthood (see Bleidorn, Hopwood & Lucas, 2016 for a comprehensive review).

Furthermore, a recent meta-analysis demonstrates robust influences of interventions (e.g., experimental and therapeutic) on personality change (Roberts et al., 2017). Impressively, longitudinal follow-up of the samples suggested that the personality changes persisted six months to more than one year after the intervention. Not surprisingly, Emotional Stability was the primary trait showing changes as a result of therapy, followed by Extraversion. Together, this emerging body of work suggests that it is possible for environmental influences to lead to lasting personality change. Future work is needed to pinpoint which experiences and events have the most systematic influences on personality stability and change.

The Self-Reflective Perspective

Aside from genetic, biological and environmental influences on personality development, volitional (self-directed) processes can also influence personality consistency and change. These *self-reflective processes* may promote personality consistency, in part, because we want to see ourselves (and others want to see us) act consistently across situations and over time, a motivational pattern referred to as the "Consistency Seeker" metaphor of the self (Robins, 2020). This consistency-seeking motive also shapes how individuals construe situations. For example, an extraverted person may perceive virtually all situations as requiring a high level of sociability, whereas introverts will perceive only a limited range of situations as necessitating sociability, thus promoting personality stability. However, very little empirical research has examined how self-related constructs (e.g., self-concept, self-insight) are related to personality consistency and change.

One area that has gained an increasing amount of attention is research on volitional (self-directed) personality change. Recent research has shown that a majority of college students want to change aspects of their personality (Hudson & Roberts, 2014); 87 percent of college students reported wanting to be more extraverted, and 97 percent of college students reported wanting to be more conscientious. Although these desired trait changes were slightly less prevalent among older adults, at least 78 percent of people at any age wanted to have higher levels of the socially desirable dimensions of the Big Five (Hudson & Fraley, 2016). These findings suggest that people generally view their current self as discrepant from their ideal self, and consequently often have a desire to change aspects of their personality. This motivation toward self-improvement may be a necessary catalyst for personality change. Indeed, a belief in the power of self-reflection to promote change is the essence of insight-oriented psychotherapy; that is, therapy is most successful when people want to change core aspects of themselves. An intensive longitudinal experiment recently showed that college students who expressed goals to change their personality traits reported actual changes in their personality traits and daily behaviors over sixteen weeks when they deliberately attended to changing the self (Hudson & Fraley, 2015). Furthermore, the researchers found that desired trait change was particularly likely to occur for students in an experimental condition in which they were asked to generate specific implementation intentions (e.g., "If I feel stressed, then I will call my mom to talk about it") to reach their personality goals (Hudson & Fraley, 2015).

EMERGING ISSUES AND FUTURE DIRECTIONS IN PERSONALITY DEVELOPMENT RESEARCH

We see four main issues impeding further progress in the study of personality development. First, we know little about the relative importance of different developmental periods – childhood, adolescence, adulthood, and old age – on personality consistency and change. Some researchers have argued that young adulthood is the crux of personality development, in part, because this is a time when many life transitions occur (e.g., workforce, marriage, having children) (Roberts & Davis, 2016). Yet, few would argue that childhood, adolescence and even old age are replete with profound maturational, socio-emotional, relational and social-contextual changes that rival, if not exceed, those occurring during young adulthood. However, due to the dearth of longitudinal research tracking participants across multiple developmental periods, the relative influence of these life stages on personality development remains largely a mystery. Recent work has begun to systematically examine the influence of antecedents from

multiple levels of analysis (i.e., individual, familial, social influence, school, neighborhood, cultural) on personality development from late childhood to young adulthood (Atherton, Lawson & Robins, 2020), but research that spans multiple developmental periods (especially earlier in the lifespan) remains rare.

Second, personality researchers have spent a significant amount of time describing mean-level and rank-order trends in personality across the lifespan. However, in moving forward, it will be particularly useful to dedicate attention toward understanding when, why, and for whom these trends occur. Understanding the general conditions, as well as the mechanisms, responsible for personality stability and change will likely require personality psychologists to consider factors other than traits – including broader environmental contexts like culture and socioeconomic status, in addition to micro-level aspects of traits like goals, motives, identities and emotions. Relatedly, it will be important for researchers to consider personality development across the entire lifespan when developing unifying theories to explain stability and change in personality. The most common theoretical approach used to explain personality development is a contextual perspective such as Social Investment Theory; however, Social Investment Theory primarily focuses on life experiences that occur predominantly in adulthood (without consideration of childhood and adolescence). Thus, there is room for researchers to develop theories that encompass lifespan personality development, and/or to refine existing theories, like Social Investment Theory, to include specific explanatory hypotheses of personality development processes.

Third, an increasing amount of attention has been dedicated toward understanding normative and nonnormative development by examining the intersection of personality and psychopathology. Recent work suggests that psychopathological symptoms are better organized as a set of continuous dimensions (e.g., externalizing problems), rather than as distinct disorders (e.g., Attention Deficit Hyperactivity Disorder [ADHD], Oppositional Defiant Disorder [ODD], Conduct Disorder [CD]), and furthermore, that personality traits may lie on the same underlying continua as psychopathological symptoms (Kotov et al., 2017). Much of the work to date has focused on cross-sectional data with adult samples; however, recent work has begun to use longitudinal data to delineate the boundaries of personality and psychopathology in adolescence (e.g., Atherton, Lawson, Ferrer & Robins, 2020; Mann et al., under review). This work has found, for example, that ADHD, ODD and CD symptoms all share a common externalizing trajectory (i.e., they develop similarly over time), and that greater *decreases* in effortful control are related to greater *increases* in externalizing symptoms over time (Atherton, Lawson, Ferrer & Robins, 2020). Moreover, effortful control had few unique associations with the individual disorders above and beyond their common externalizing trajectory, highlighting the importance of conceptualizing these disorders as part of the same underlying continuum.

Last, recent research has identified limitations with existing statistical models of change, including cross-lagged regression model, bivariate latent growth curve model, random intercept cross-lagged panel model, latent change score model and trait-state-error models (Berry & Willoughby, 2017; Clark, Nuttall & Bowles, 2018; Hamaker, Kuiper & Grasman, 2015; Orth, Clark, Donnellan & Robins, 2020). In our view, there is no single correct model to use, but rather, researchers should select the longitudinal model that is best suited to their particular research question. For example, does the research question revolve around between-person or within-person effects? Is the researcher interested in relative or absolute change? How many waves of data are available? How far apart are the intervals between assessments? The answers to these types of questions can help researchers determine which longitudinal model (or set of models) is most appropriate for answering their questions of interest. In some cases, researchers may want to report the results of more than one model to provide a more comprehensive picture of longitudinal change patterns (e.g., Atherton, Zheng, Bleidorn & Robins, 2019; Harris et al., 2015; Orth et al., 2018).

CONCLUSION

We have summarized below the five major take home messages of this chapter in a list, based on our reading of the current literature. In closing, we wish to acknowledge that one of the biggest challenges facing the study of personality development is the fact that the field tends to take a "trait's eye view" of development. However, *individuals*, not isolated traits, engage in dynamic transactions with social situations over time. Thus, there is an inherent tension between the units of analysis favored by personality psychologists and the reality of human development. The trick for future studies is to find ways to maintain personality psychology's traditional focus on the person while maintaining its dedication to empirical rigor. Nonetheless, over the past decade, the field has witnessed a dramatic accumulation of new knowledge about the ways that personality changes across the lifespan, and we believe that there is every reason to be optimistic about the future of the scientific study of personality development. A summary of core themes in personality development is as follows:

Table 12.2 Summary of core themes in personality development

1.	Temperament and personality trait taxonomies have a high degree of overlap, which facilitates research on personality trait development across the entire lifespan.

Continued

Table 12.2 (cont.)

2.	A complete understanding of personality development requires attention to several conceptually and statistically distinct types of stability and change, including absolute stability (i.e., mean-level stability), differential stability (i.e., rank-order consistency), structural stability and ipsative stability.
3.	Absolute changes in personality traits reflect increasing psychological maturity with age, with the exception of several *disruption* effects in adolescence (where some socially desirable traits may show temporary declines).
4.	Differential stability increases across the life span and peaks at around age sixty, before declining in old age. Contrary to the idea that personality traits are ephemeral in children, an appreciable degree of differential stability is also evident during this phase of the life span.
5.	The processes responsible for personality development (both stability and change) can be best understood through three perspectives: the *intrinsic maturational perspective* (e.g., genes, biology, physiology), the *environmental perspective* (e.g., social interactions, life experiences, social roles, major life events) and the *self-reflective perspective* (e.g., volitional or self-driven factors). Each perspective has a unique contribution to our understanding of personality development across the life course.

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