


# Stability and Change in Personality Traits and Major Life Goals From College to Midlife

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## Abstract

The association between personality traits and motivational units, such as life goals, has been a long-standing interest of personality scientists. However, little research has investigated the longitudinal associations between traits and life goals beyond young adulthood. In the present study ( $N = 251$ ), we examined the rank-order stability of, and mean-level changes in, the Big Five and major life goals (Aesthetic, Economic, Family/Relationship, Hedonistic, Political, Religious, Social) from college (age 18) to midlife (age 40), as well as their co-development. Findings showed that personality traits and major life goals were both moderately-to-highly stable over 20 years. On average, there were mean-level increases in the Big Five and mean-level decreases in life goals over time. Patterns of co-development suggest people formulate goals consistent with their personality traits, and conversely, investing in goal-relevant contexts is associated with trait change. We discuss the results in light of Social Investment Theory and the developmental regulation literature.

## Keywords

personality development, goals, Big Five, adulthood, self-regulation

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Those who experience enormous success often tout the importance of goals. Albert Einstein once said that, “If you want to live a happy life, tie it to a goal, not to people or things.” Likewise, Mahatma Gandhi was quoted as saying, “Glory lies in the attempt to reach one’s goals and not in reaching it.” Several decades later, Bruce Lee expressed the view that, “A goal is not always something to be reached, it often serves as something to aim at.” Although these public figures achieved renown in fundamentally different areas, the personality characteristics they possessed were likely the driving force behind the types of goals they aimed to achieve. Einstein’s tendency to be creative, curious, and intellectual likely fueled his scientific goals, as well as his more aesthetic goals, such as his passion for playing the violin, whereas Gandhi’s warm, caring, and optimistic nature propelled him toward goals to improve the welfare of, and political landscape for, the people of India. Thus, two questions that arise are: to what extent are personality traits associated with the types of major life goals one chooses to pursue, and to what extent are changes in personality associated with changes in the importance of different life goals?

The present study examines the stability, change, and co-development of personality traits and major life goals across 20 years, from college to midlife, using data from the Berkeley Longitudinal Study (BLS). Specifically, we address the following research questions:

- 1: What is the rank-order stability of the Big Five personality traits and major life goals from age 18 to 40?
- 2: What kinds of mean-level changes occur in the Big Five and major life goals from age 18 to 40?
- 3: How do the Big Five personality traits and major life goals co-develop over time? In other words, to what extent are changes in traits associated with changes in life goals?

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## Stability and Change in Personality Traits Across Adulthood

Stability and change in personality are often discussed in terms of rank-order stability and mean-level change. Rank-order stability refers to consistency in the relative ordering of individuals on a construct over time, whereas mean-level change describes absolute changes in a construct over time. The average rank-order stabilities of, and mean-level changes in, the Big Five personality traits across adulthood are well established. Meta-analyses have shown that the Big Five are moderately stable in young adulthood and midlife, with test–retest correlations ranging from .54 to .70 (Roberts & DelVecchio, 2000). Even across a 20-year time lag, the estimated stability of personality traits is .45 (based on extrapolating test–retest coefficients from shorter-term longitudinal studies), which implies remarkable consistency in the rank-ordering of individuals on the Big Five (Roberts & DelVecchio, 2000). In terms of mean-level change, meta-analytic results indicate that individuals show *increases* in Agreeableness, Conscientiousness, and Emotionality Stability across adulthood, as well as increases in Openness in young adulthood, a plateau in midlife, and slight decreases in old age. Furthermore, the social vitality aspect of Extraversion is largely unchanging until old age when it shows modest declines, and the social dominance aspect of Extraversion increases to age 35 and then plateaus (Roberts et al., 2006).

Despite the wealth of research on stability and change in the Big Five during young adulthood and midlife, few studies have examined stability and change over longer spans of time (i.e., decades). The research that has been conducted used different assessment methods over time (e.g., teacher-reports in childhood and self-reports in adulthood), which limits the conclusions that can be drawn about rank-order stability because the estimates are confounded by the degree of convergent validity between assessment methods (e.g., Edmonds et al., 2013; Harris et al., 2016). One exception to this body of literature is Damian et al. (2018), who investigated personality stability and change across 50 years from age 16 to 66 using the same assessment method (i.e., self-report). When correcting for measurement error, the average rank-order stability across 50 years was .31, which suggests that personality traits have some stable elements across multiple developmental periods. However, the Damian et al. (2018) findings were not based on a widely used measure of personality traits. Additional research on the long-term stability of personality traits will provide insight into whether stability coefficients asymptote at zero across increasing test–retest intervals, or plateau around .20 or .30 (Fraleigh & Roberts, 2005).

## Stability and Change in Major Life Goals Across Adulthood

At the broadest level of motivational units, individuals possess general values and broad worldviews that capture

both idealized and desired principles of the self (Royce & Powell, 1983). At the next level of the hierarchy are mid-level motivational units, such as major life goals, which are considered to be narrower in scope than superordinate values and worldviews (Bogg et al., 2008; Roberts et al., 2004). Major life goals are defined as specific goals a person possesses to shape their life context, establish general life structures, and aid in the pursuit and maintenance of their broader aspirations and general values (Roberts & Robins, 2000). Within the hierarchy of motivational units, major life goals are considered midlevel motivational units, but they have distinct characteristics that set them apart from other types of midlevel motivational units such as personal projects, life tasks, personal strivings, life commitments, wishes, and possible selves. Specifically, personal projects (Little, 1983), personal strivings (Emmons, 1989), life commitments (Novacek & Lazarus, 1990), and wishes (King, 1995) all focus on daily, proximal, and highly contextualized goals that guide individuals' behaviors in their current environment. In contrast, major life goals encompass *broader* goals that influence an individual's life over years and decades rather than days and weeks. For example, a major life goal may include having a high-status career, whereas an analogous mid-level motivational unit would be to ace an exam or apply for an internship. Likewise, major life goals are similar to midlevel motivational units like possible selves, in that they both are broad future- and motivation-oriented constructs. However, major life goals differ from possible selves in that major life goals are more contextualized and typically reflect socially desired outcomes, whereas possible selves include both desired and feared outcomes, positive and negative versions of the self, and are less concrete (Markus & Nurius, 1986). Thus, although there are many midlevel motivational constructs, major life goals have distinct features that set them apart from other related constructs.

The taxonomy of major life goals used in the present study stems from conceptualizations of values and motives, such as agency and communion (Bakan, 1966; Locke, 2015), Schwartz's theory of basic human values (self-transcendence, self-enhancement, openness to change, and conservation; Schwartz, 1992), the "Big Three" (achievement, power, affiliation; McClelland, 1987), and universal psychological needs (competence, autonomy, and relatedness; Ryan & Deci, 2008). In an attempt to gain some granularity, researchers have attempted to re-express value domains into more specific and concrete motivational units, like major life goals (e.g., Wilkowski et al., in press). Previous research with BLS data has shown that major life goals among college students can be organized into seven domains (Roberts et al., 2004; Roberts & Robins, 2000): Aesthetic goals (wanting to be creative and artistic), Economic goals (wanting to have a successful career and be wealthy), Family/Relationship goals (wanting to be

married and have children), Hedonistic goals (wanting to have fun and experience pleasure), Political goals (wanting to have influence in public affairs), Religious goals (wanting to participate in religious institutions), and Social goals (wanting to help others in need). The appendix shows how these major life goals map onto existing value and goal taxonomies.

Compared with research on the Big Five domains, little work has examined rank-order stability and mean-level change in major life goals. Previous longitudinal work with the BLS dataset, however, has shown that major life goals are relatively stable over 1-year intervals in the college years ( $r_s = .70-.89$ ), which is comparable to the rank-order stabilities observed for the Big Five across the same intervals (Roberts et al., 2001, 2004). In addition, other researchers have found that life goals (i.e., personal, relationships, community, health, wealth, fame, image, and hedonism) show moderate rank-order stability across 2 years ( $r_s = .40-.64$ ), which is slightly lower than the Big Five personality traits ( $r_s = .65-.75$ ) across the same interval (Lüdtke et al., 2009). Likewise, in a longitudinal sample of middle-aged twins, agency and communion goals were slightly less stable than personality traits (Bleidorn et al., 2010).

With regard to mean-level change in major life goals, the minimal evidence to date indicates that young adults show *decreases* on the *importance* of all major life goals with age (Bühler et al., 2019; Lüdtke et al., 2009; Roberts et al., 2004). These empirical trends are consistent with developmental regulation theories, such as the Selection, Optimization, and Compensation (SOC) model (Baltes, 1997), which suggest that people will only maintain goals that continue to be consistent with their values/interests and are not in conflict with one another (Emmons & King, 1988; Riediger et al., 2005), to use their limited psychological and social resources wisely. Likewise, there are changing opportunity structures that occur with age (Heckhausen & Schulz, 1993), leading individuals to prune their goals to promote gains and minimize losses associated with successful aging. However, almost all of the previous work examining developmental changes in major life goals has used college-aged samples, or conducted cross-sectional comparisons of younger vs. older samples. Consequently, we know little about whether major life goal importance continues to show mean-level decreases into middle adulthood when participants are followed longitudinally over time. Based on the SOC model, we expect that individuals will continue to winnow their major life goal importance as they age. When individuals reach middle adulthood, they not only have limited psychological and social resources that can impede goal pursuit/maintenance, they may already have achieved some of their major life goals (e.g., getting married) or passed developmental deadlines that make some goals less important and/or impossible to achieve (Bühler et al., 2019; Heckhausen et al., 2001).

## The Co-Development of Personality and Major Life Goals

Although some theorists view personality traits and goals as inseparable constructs, where goals are direct expressions of personality traits (Allport, 1961; McCabe & Fleeson, 2016), other theorists make a clear distinction between personality traits (i.e., consistent ways of thinking, feeling, and behaving) and goals (i.e., aspirations for the type of life people want to live; McAdams & Olson, 2010). Given that previous empirical research has shown that personality traits and goals (a) have diverging mean-level change trajectories (Roberts et al., 2004), (b) possess unique genetic and nonshared environmental etiologies (Bleidorn et al., 2010), and (c) independently predict important life outcomes (Winter et al., 1998), we consider personality traits and major life goals to be conceptually distinct constructs. Furthermore, although personality traits are concurrently associated with major life goals, these associations tend to be modest in magnitude, suggesting that traits do not necessarily subsume goals, or vice versa (Roberts et al., 2004).

The concurrent associations between personality traits and superordinate goals suggest that higher levels of Extraversion, Conscientiousness, and Openness are related to more agentic goals (i.e., achievement, power, fame, hedonism), whereas higher levels of Agreeableness are associated with more communal goals (i.e., social relationships, intimacy, community, altruism), and fewer agentic goals (Bleidorn et al., 2010). Furthermore, the concurrent correlations between the Big Five and seven (or eight) major life goal domains generally mirror the broader associations with agency and communion (Lüdtke et al., 2009; Roberts et al., 2004). Specifically, Openness to Experience is related to more aesthetic, social, and hedonistic goals, and fewer economic goals; Extraversion is related to more economic, family/relationship, political, and hedonistic goals; Agreeableness is related to fewer economic, political, and hedonistic goals and more social and family/relationship goals; Conscientiousness is associated with more economic goals; and Neuroticism is not related to any major life goals (Bleidorn et al., 2010; Lüdtke et al., 2009; Roberts & Robins, 2000).

Past research has documented a wide range of conceptually meaningful associations between personality traits and major life goals, but how do these associations play out over time as individuals traverse from one developmental stage to the next? To date, there have been three studies of the longitudinal associations between personality traits and major life goals (Bleidorn et al., 2010; Lüdtke et al., 2009; Roberts et al., 2004). Generally, the longitudinal findings show that there are correlations between change in personality traits and change in major life goals (Roberts et al., 2004), as well as some initial evidence to suggest there are reciprocal effects between personality traits and major life goals (Bleidorn et al., 2010). Other evidence suggests that personality traits

predict life goal importance, but not vice versa (Lüdtke et al., 2009). However, our understanding of the longitudinal associations between personality traits and major life goals is limited by the fact that all previous work has used study designs with two assessments across relatively brief periods of time (Hennecke et al., 2014). Moreover, previous work has either examined these relations during the college years (Lüdtke et al., 2009; Roberts et al., 2004) or during midlife, from approximately age 39 to 46 (Bleidorn et al., 2010), limiting our understanding of how personality traits and major life goals are related from young adulthood (age 18) to midlife (age 40). Arguably, the period of young adulthood to midlife (18 to 40) is the most critical period to investigate how personality traits and major life goals are related because it is a time of life when people begin to pursue, achieve, and/or fail to attain their life goals. In the present study, we used bivariate latent growth curve models (with three assessments of personality, and seven assessments of major life goals) to better understand the co-development of the Big Five and major life goals from young to middle adulthood; these models allow us to test how the Big Five and major life goals change in tandem, and/or predict changes in each other over time.

## Method

### Participants and Procedures

We use data from the Berkeley Longitudinal Study (BLS), which was initially designed to explore personality, achievement motivation, and self-esteem during the college years (for further details, see Robins et al., 2001). The BLS was granted Institutional Review Board approval (Protocol #13550; Protocol #529790-1). A sample of 508 first-year college students ( $M_{\text{age}} = 18.6$  years), who entered the University of California at Berkeley in 1992, received partial course credit for completing questionnaire packets during the first week (Week 1) and the end of the first semester of college (Semester 1). Participants were then contacted by mail at the end of the first (Year 1), second (Year 2), third (Year 3), and fourth (Year 4) year of college, receiving monetary incentives ranging from US\$6 to US\$20 for their participation. The most recent follow-up (Year 24) was conducted approximately 20 years after the participants graduated from college (between 2013 and 2016;  $M_{\text{age}} = 40.8$ ); participants were contacted using email, phone, and postcards, and asked to complete an online questionnaire in exchange for a US\$25 or US\$50 Amazon gift card. The retention rate (relative to the original sample) was ~49% ( $N = 251$ ) at the 20-year follow-up (the retention rate was 59% when excluding the 48 people for whom we were unable to find contact information for).<sup>1</sup>

At the 20-year follow-up, the sample was diverse in sex (59% female, 41% male) and ethnicity (46% Asian, 33% White, 14% Chicano/Latino, 6% African American, 1% Native American). The median annual salary was US\$97,000

( $SD = \text{US}\$329,357$ ), with a range from US\$0 to US\$3.7 million. To investigate the potential impact of attrition, we compared individuals who did and did not participate in the 20-year follow-up on study variables assessed during the first week of college. Individuals who participated in the 20-year follow-up had fewer Political ( $M = 2.77$  vs.  $M = 2.99$ ,  $p = .03$ ) and Relationship/Family ( $M = 4.27$  vs.  $M = 4.43$ ,  $p = .01$ ) goals at the first assessment, compared with individuals who did not participate in the 20-year follow-up. No significant differences were found for Economic, Aesthetic, Social, Hedonistic, or Religious goals, or for any of the Big Five dimensions, all  $ps > .05$  (see Table S1 in the Supplemental Material for the d-scores of attrition effects).

### Measures

**Big Five personality traits.** During the Week 1, Year 4, and Year 24 assessments, the participants completed the 60-item NEO-Five Factor Inventory (NEO-FFI; Costa & McCrae, 1992), which assesses the Big Five personality dimensions: Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to Experience. Ratings were made on a 5-point Likert-type scale ranging from 1 (*not very true of me*) to 5 (*very true of me*). We computed latent factors for each of the Big Five personality domains using three indicators per construct. We used parcels to construct our indicators, which were computed by averaging four randomly selected items for each indicator on each domain. Across the three waves of data collection, omega reliabilities of the latent factors ( $\omega$ ) ranged from .73 to .77 for Agreeableness, .82 to .86 for Conscientiousness, .81 to .85 for Extraversion, .83 to .85 for Neuroticism, and .71 to .77 for Openness to Experience.

**Major life goals.** At each assessment (i.e., Week 1, Semester 1, Year 1, Year 2, Year 3, Year 4, Year 24), participants rated the importance of 23 to 25 major life goals that reflect seven broad domains (Roberts et al., 2004.; Roberts & Robins, 2000): Economic (5–6 items), Aesthetic (4–5 items), Social (3 items), Relationship/Family (4 items), Political (2 items), Hedonistic (3 items), and Religious (2 items). See the appendix for a list of the items included in each goal domain. Participants rated the goals on a 5-point scale ranging from 1 (*not important to me*) to 5 (*very important to me*). We computed latent factors for each of the major life goal domains, using the individual items as indicators on each construct. Omega reliabilities ( $\omega$ ) ranged from .78 to .82 for Aesthetic goals, .77 to .82 for Economic goals, .56 to .68 for Family/Relationship goals, .61 to .72 for Hedonistic goals, .80 to .89 for Political goals, .77 to .84 for Religious goals, and .83 to .88 for Social goals.

### Statistical Analyses

All analyses were conducted using Mplus Version 7 (Muthén & Muthén, 1998–2011). Data, Mplus syntax and output can

be found at <https://osf.io/vruxg/>. We used a robust maximum likelihood estimator (MLR) to account for non-normal distributions of observed variables and full information maximum likelihood procedure (FIML) to account for missing data. We assessed model fit for the univariate latent growth curve models via changes in chi-square and degrees of freedom, as well as the root-mean-square error of approximation (RMSEA), for which adequate fit is indicated by values less than or equal to .06 (e.g., Hu & Bentler, 1999). To assess adequate model fit for longitudinal measurement invariance, we examined changes in comparative fit index ( $\Delta$ CFI) and change in McDonald's non-centrality index ( $\Delta$ NCI), for which adequate fit is less than or equal to .01 and less than or equal to .02, respectively. The  $\Delta$ CFI and  $\Delta$ NCI fit indices have been found to be more accurate fit indices for model comparisons of measurement invariance with large samples, when compared with the traditional tests of changes in chi-square and degrees of freedom (Cheung & Rensvold, 2002; Meade et al., 2008). However, for the sake of transparency, we also report changes in chi-square and degrees of freedom.

To evaluate measurement invariance over time for the Big Five personality traits and major life goal domains, we compared three measurement models: (a) freely estimating the factor loadings for the latent factors at each age of assessment (i.e., configural invariance); (b) constraining the respective factor loadings to be equal at each age of assessment (i.e., weak invariance); and (c) constraining the factor loadings and intercepts to be equal at each age of assessment (i.e., strong invariance). If the more constrained models do not fit worse than the less constrained models, then we can conclude that the structure of the latent constructs is the same over time. When the strong invariance model fit significantly worse than the weak invariance model, we additionally examined a partial strong invariance model (freeing 1–2 of the intercept groupings), to be able to draw stronger conclusions from the data about change over time. When the model comparison fit indices disagree with one another, we chose the model that allowed us to use partially strong (or strong) invariance, as recommended by Widaman et al. (2010).

To assess the rank-order consistency of the Big Five and major life goal domains, we computed the test–retest correlations between adjacent assessments and across the entire study period (i.e., Week 1 to Year 24). To assess mean-level change in the Big Five and major life goal domains, we used second-order univariate latent growth curve (LGC) models. LGC models describe the average initial level (intercept) and growth over time (slope) of a construct, as well as how much variability there is in the intercept and slope (i.e., the amount of individual differences in where individuals start, and how they change, over time).<sup>2</sup> To find the best-fitting growth trajectory for each of the Big Five and major life goal domains, we conducted a series of model comparisons and evaluated changes in chi-square, degrees of freedom, RMSEA, CFI, and Tucker–Lewis index (TLI). Specifically, we compared

three models: (a) *no growth model*, where the slope is fixed to be zero over time; (b) *linear growth model*, where the slope linearly changes by assessment-equivalent units over time (i.e., 0, 4, 24 for the Big Five; 0, .5, 1, 2, 3, 4, 24 for major life goals); and (c) *a latent basis model*, where the first and last time points of the slope are fixed (at “0” and “24,” respectively) and the middle time points are freely estimated to the data.<sup>3</sup> In all models, path coefficients from the intercept to the repeated assessments are fixed to 1, and the intercept and slope are allowed to covary.

To examine the co-development of personality traits and major life goals, we conducted second-order bivariate LGC models and specified correlations among the levels and slopes of personality trait and major life goal trajectories. These correlations provide unique information about how personality and life goals are associated. A correlation between the levels represents an association between the initial level of personality and the initial level of major life goals during the first week of college and can be interpreted similar to a concurrent correlation. A correlation between the slopes indicates an association between change over time in personality and change over time in major life goals, but does not imply directionality. A correlation between the level of a personality trait and the slope of a major life goal suggests that a higher (or lower) level of the trait during the first week of college is related to a greater increase (or decrease) in the life goal across the subsequent 24 years (and vice versa, for the level of a major life goal and the slope of a personality trait). The level–slope correlations imply a directional effect. It is possible for the magnitude, direction, and significance of these correlations to vary in the same model (i.e., if one correlation is significant, that does not mean the other correlations will be significant). For example, a significant level–level correlation and non-significant slope–slope correlation would indicate that there is a concurrent association between personality and major life goals, but there is no longitudinal association between their trajectories.

We conducted Monte Carlo sensitivity power simulations for the key parameters of interest: the level–level, slope–slope, and level–slope correlations. We estimated simulations to understand the power for detecting effect sizes of .10, .20, and .40 with the sample size and missing data patterns observed in the present study. These sensitivity simulations were conducted post hoc with 500 replications each. The power to detect associations of .10, .20, and .40 were 45%, 95%, and 100% for the level–level correlations; 63%, 99%, and 100% for the slope–slope correlations; and 51%, 97%–99%, and 100% for the level–slope correlations. Across all models, we found that at least 94% (if not more) of the simulated replications contained the population parameter value(s) of interest within the 95% confidence interval(s). Furthermore, as indicated by Schwaba et al. (2019), the results from these simulations are conservative estimates given that the unreliability of the measures are accounted for

**Table 1.** Test–Retest Correlations and Standardized Mean-Level Change Effect Sizes (Cohen's *d*) of the Big Five Personality Traits and Major Life Goals.

Construct	<i>r</i> (Cohen's <i>d</i> ) Week 1 to Year 4 (age 18.6–22.6)	<i>r</i> (Cohen's <i>d</i> ) Year 4 to Year 24 (age 22.6–40.8)	<i>r</i> (Cohen's <i>d</i> ) Week 1 to Year 24 (age 18.6–40.8)
Big Five personality traits			
Extraversion	.69 (.02)	.66 (–.05)	.62 (–.03)
Agreeableness	.70 (.42)	.61 (.23)	.52 (.64)
Conscientiousness	.68 (.41)	.57 (.56)	.52 (.98)
Neuroticism	.57 (–.44)	.46 (–.26)	.46 (–.69)
Openness to experience	.77 (.12)	.81 (.04)	.64 (.16)
Average	.68	.62	.55
Major life goals			
Aesthetic	.65 (–.18)	.62 (–.20)	.57 (–.38)
Economic	.67 (–.04)	.49 (–.12)	.36 (–.16)
Family/relationship	.58 (–.03)	.68 (–.10)	.58 (–.13)
Hedonistic	.55 (–.05)	.44 (–.09)	.41 (–.14)
Political	.50 (–.17)	.50 (–.23)	.46 (–.40)
Religious	.80 (–.09)	.65 (–.10)	.63 (–.19)
Social	.63 (–.01)	.49 (–.07)	.44 (–.08)
Average	.63	.55	.49

Note. We used the latent variables for the test–retest correlations, so the values in the table are corrected for measurement error. The Cohen's *d* effect sizes of standardized mean-level changes (in parentheses) are based on raw scale scores.

by using latent variables. Taken together, the sensitivity power simulations suggest that the present study was well powered by conventional standards. However, to transparently communicate uncertainty in parameter estimates, we focus on describing the patterns of the findings rather than the individual parameter estimates.

## Results

Table S2 (Supplemental Material) shows descriptive statistics for all study variables. Table S3 shows the raw correlations among all study variables.

### Measurement Invariance

Model comparisons of longitudinal measurement invariance tests for the Big Five traits and life goal domains are shown in Tables S4 and S5, respectively. Agreeableness, Neuroticism, and Openness to Experience were strongly invariant across 24 years, whereas Extraversion and Conscientiousness showed partial strong invariance. All of the life goal domains were strongly invariant.

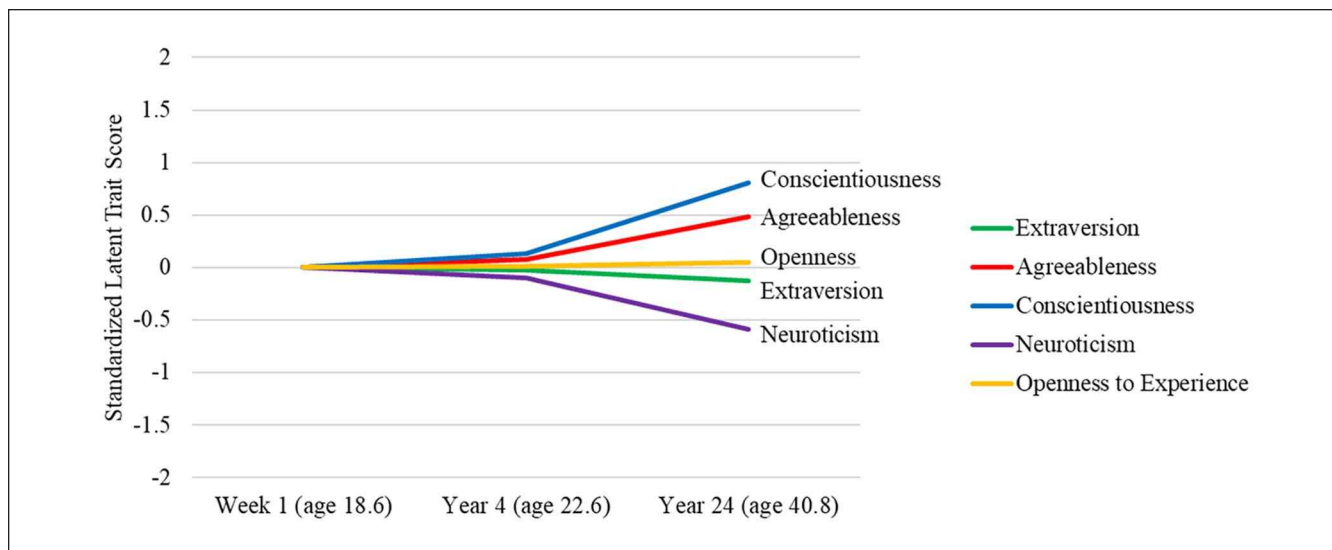
### Rank-Order Consistency of Personality and Major Life Goals

Table 1 shows the test–retest correlations of the Big Five and major life goals from Week 1 to Year 4, Year 4 to Year 24, and Week 1 to Year 24.<sup>4</sup> Across 20 years, from the end of college to midlife, the rank-order consistency of the Big Five was moderate-to-high, ranging from a low of .46 for

Neuroticism to a high of .81 for Openness to Experience. Likewise, all of the life goal domains were moderately stable across 20 years, ranging from a low of .44 for Hedonistic goals to a high of .68 for Family/Relationship goals. When we took the average rank-order stability across the Big Five traits (.55 to .68) and the life goal domains (.49 to .63) at each interval, we found that the average rank-order stabilities of traits and life goals were similar in magnitude, as shown in Table 1. Moreover, as expected, the rank-order stabilities of the Big Five and life goals were generally higher across smaller time intervals (e.g., Week 1 to Year 4) than they were across larger time intervals (e.g., Week 1 to Year 24). However, the difference in magnitude is not as high as one would expect, given that we compared interval lengths of 4 and 20 years, suggesting that there is more rapid change happening during college than there is from the end of college to midlife.

### Mean-Level Change in Personality and Major Life Goals

Table 1 shows the Cohen's *d* effect sizes for standardized mean-level changes in the Big Five and major life goals from Week 1 to Year 4, Year 4 to Year 24, and Week 1 to Year 24. Across the full study period (age 18–40), individuals, on average, *increased* in Agreeableness ( $d = .64$ ) and Conscientiousness ( $d = .98$ ) and *decreased* in Neuroticism ( $d = -.69$ ). Furthermore, on average, individuals slightly decreased in Extraversion ( $d = -.03$ ) and slightly increased in Openness to Experience ( $d = .16$ ). As for major life goals, individuals decreased on all goal domains across the study



**Figure 1.** Mean-level trajectories of the Big Five across 24 years.

**Table 2.** Best-Fitting Univariate Latent Growth Curve Models of the Big Five and Major Life Goals.

Construct	Level mean (variance)	Slope mean (variance)
<b>Big Five personality traits</b>		
Extraversion	.00 (0.32*)	-.01* (0.00)
Agreeableness	.00 (0.29*)	.02* (0.00)
Conscientiousness	.00 (0.35*)	.03* (0.001*)
Neuroticism	.00 (0.37*)	-.03* (0.001*)
Openness to experience	.00 (0.26*)	.002 (0.0001*)
<b>Major life goals</b>		
Aesthetic	.00 (1.17*)	-.03* (0.001*)
Economic	.00 (1.23*)	-.04* (0.002*)
Family/relationship	.00 (1.23*)	-.05* (0.002*)
Hedonistic	.00 (0.53*)	-.03* (0.00)
Political	.00 (2.34*)	-.05* (0.003*)
Religious	.00 (10.53*)	-.04* (0.01*)
Social	.00 (0.81*)	-.02* (0.001*)

Note. Values in table are unstandardized. All of the means of the levels are fixed at zero, to estimate the variances and for the second-order models to be identified.

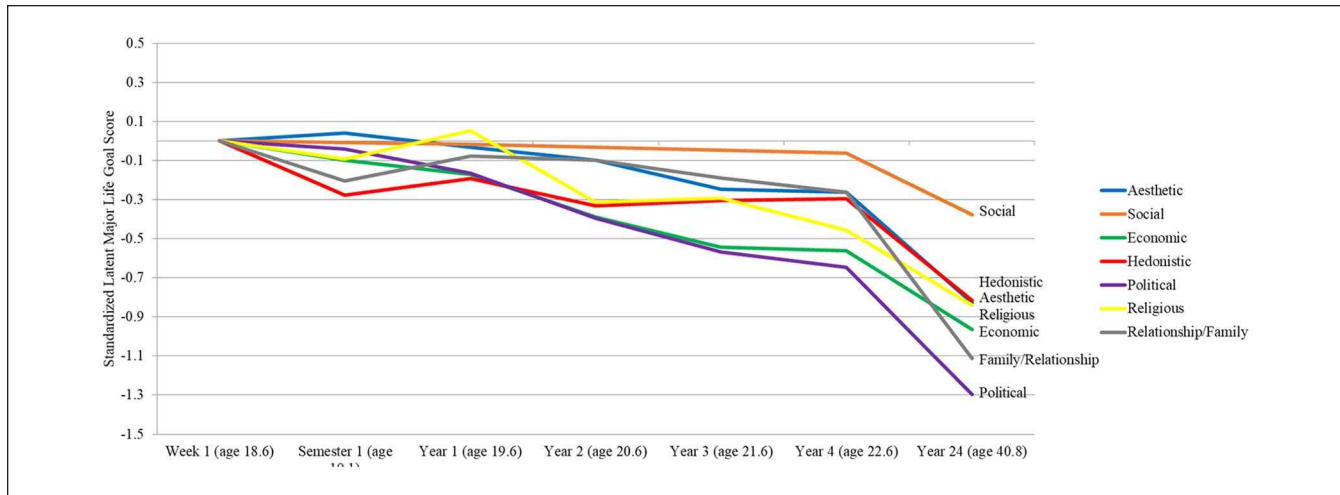
\* $p < .05$ .

period (age 18–40). Social goals showed the smallest mean-level changes ( $d = -.08$ ), whereas Political goals showed the largest mean-level changes ( $d = -.40$ ). A comparison of the effect sizes across assessment intervals for the Big Five demonstrate that the young adult years are a time of profound change, with more change occurring during the 4 years of college (between .005 and .11 units per year) than during the 20-year period from young adulthood to midlife (between .002 and .03 units per year). In contrast, major life goals, on average, exhibit much smaller mean-level changes than the Big Five, and the amount of change occurring during the 4 years of college (between .003 and .05 units per year) is similar to the amount of change occurring during the 20-year

period from young adulthood to midlife (between .004 and .01 units per year).

Table S7 shows the model comparisons of the univariate LGC trajectories for the Big Five traits. In all cases, linear change trajectories fit the data better than the no change trajectories. Figure 1 shows mean-level change trajectories for the Big Five (Table 2 shows the means and variances of the levels and slopes).

Table S8 shows the model comparisons of the univariate LGC trajectories of the major life goal domains. With the exception of Social goals (where a linear change trajectory fit the data best), model comparisons demonstrated that latent basis change models were the best fit to the data for the



**Figure 2.** Mean-level trajectories of major life goals across 24 years.

remaining major life goal domains. Figure 2 shows mean-level change trajectories for major life goals (Table 2 shows the means and variances of the levels and slopes).<sup>5</sup>

### Co-Development of Personality and Major Life Goals

Table 3 shows the results from the bivariate LGC models between the Big Five personality traits and major life goal domains. As Table 3 indicates, the correlations between the levels are very similar to the concurrent correlations that were reported with the BLS data in Roberts et al. (2004), with a few discrepancies (outlined in the Supplemental Material). Given that the concurrent associations were largely the same as what was reported in Roberts et al. (2004), we focus on the slope–slope and level–slope correlations below. We provide example figures of the slope–slope and level–slope correlations for Extraversion, and point readers to the Supplemental Material for the remaining figures.

**Extraversion.** The trajectory of Extraversion was most strongly associated with the trajectory of Hedonistic goals such that greater *increases* in Extraversion were related to greater *increases* in Hedonistic goals over time ( $r = .70$ ; see Figure 3). Moreover, individuals who had higher levels of Extraversion at the beginning of college showed greater *decreases* in Political goals ( $r = -.30$ ; see Figure 4) over time. Last, individuals who had higher levels of Hedonistic goals at the beginning of college showed greater *decreases* in Extraversion ( $r = -.34$ ; see Figure 5). However, individuals who were higher on Hedonistic goals at age 18 still showed higher Extraversion overall, compared with individuals who had fewer Hedonistic goals at age 18.

**Agreeableness.** There was one significant correlation between the trajectory of Agreeableness and the major life goal

trajectories. Greater *increases* in Agreeableness over time were associated with greater *increases* in Social goals ( $r = .39$ ; see Figure S1). Furthermore, individuals who had higher levels of Agreeableness at the beginning of college showed greater *decreases* in Family/Relationship ( $r = -.27$ ; see Figure S2) and Social goals ( $r = -.30$ ; see Figure S3), although their overall goal trajectories were, on average, much higher than individuals who had lower levels of Agreeableness at the beginning of college. There were no significant correlations between the levels of major life goals at the beginning of college and change over time in Agreeableness.

**Conscientiousness.** Conscientiousness showed significant co-developmental patterns with both Economic goals and Family/Relationship goals. Greater *increases* in Conscientiousness over time were associated with greater *increases* in Economic goals ( $r = .23$ ; see Figure S4) and Family/Relationship goals ( $r = .53$ ; see Figure S5). Furthermore, higher levels of Family/Relationship goals at the beginning of college were associated with fewer *increases* in Conscientiousness over time ( $r = -.21$ ; see Figure S6). However, individuals who were higher on Family/Relationship goals still had higher Conscientiousness trajectories overall, when compared with the individuals who were lower on Family/Relationship goals. There were no significant correlations between Conscientiousness at the beginning of college and change over time in major life goals.

**Neuroticism.** There were no significant concurrent or co-developmental associations between Neuroticism and any of the major life goals, with the exception of two slope-to-slope correlations: individuals who *increased* in Neuroticism tended to *increase* in Aesthetic goals ( $r = .32$ ; see Figure S7) and Religious goals ( $r = .23$ ; see Figure S8).

**Openness to experience.** Openness to Experience showed significant co-developmental associations with Aesthetic,



**Table 3.** Bivariate Latent Growth Curve Models of the Big Five Personality Traits and Major Life Goals.

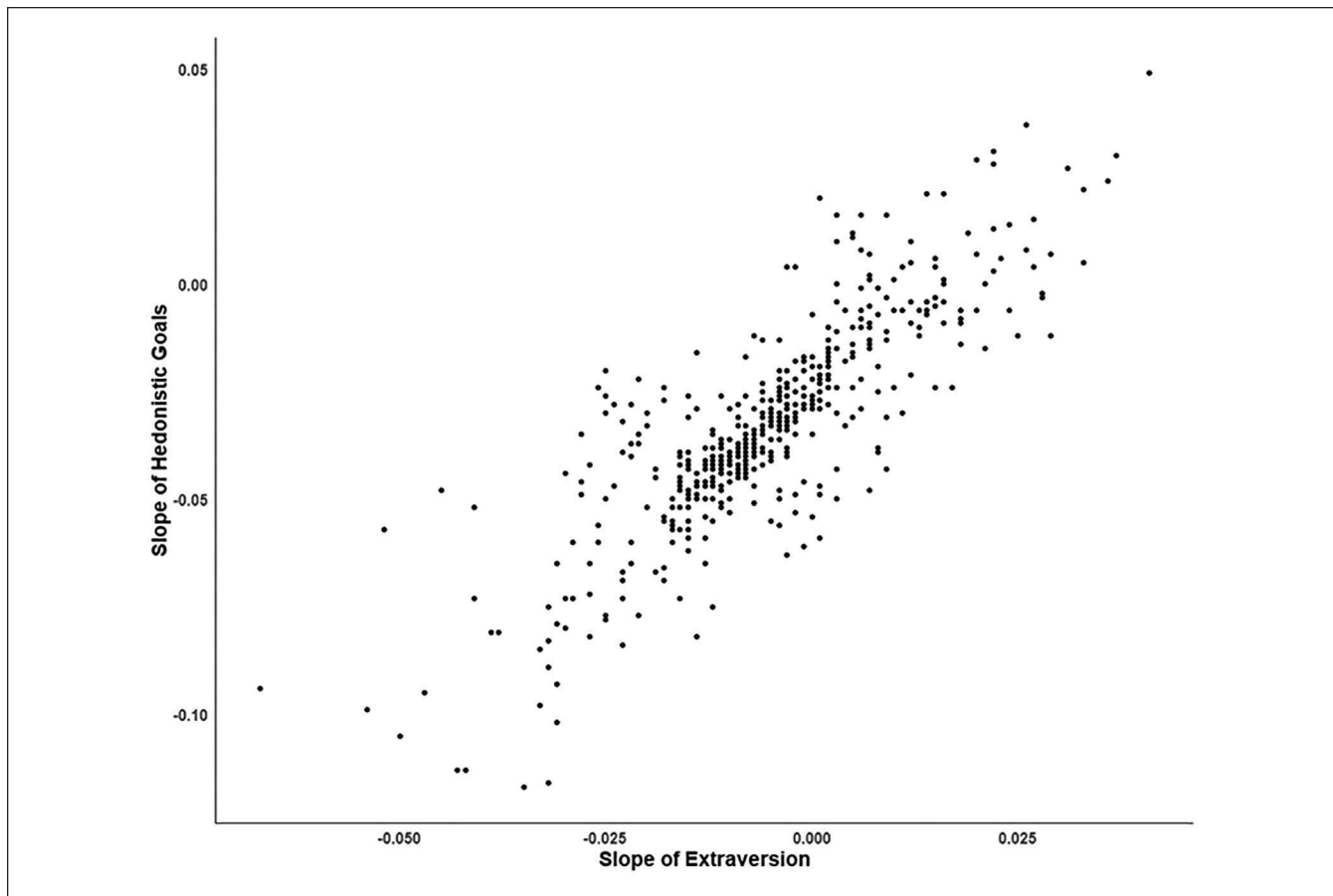
Construct	$r$ (level <sub>(BS)</sub> , level <sub>(Goal)</sub> )	$r$ (slope <sub>(BS)</sub> , slope <sub>(Goal)</sub> )	$r$ (level <sub>(BS)</sub> , slope <sub>(Goal)</sub> )	$r$ (level <sub>(Goal)</sub> , slope <sub>(BS)</sub> )
<b>Extraversion</b>				
Aesthetic	-.05 [-.18, .07]	-.02 [-.70, .67]	.12 [-.10, .33]	.02 [-.48, .51]
Economic	.23* [.11, .34]	.49 [-.52, 1.50]	-.14 [-.31, .03]	-.22 [-.74, .29]
Family/relationship	.49* [.36, .61]	.34 [-.63, 1.31]	.04 [-.19, .26]	-.29 [-1.10, .52]
Hedonistic	.63* [.51, .74]	.70* [.51, .88]	-.07 [-.25, .10]	-.34* [-.53, -.15]
Political	.39* [.28, .50]	.47 [-.30, 1.24]	-.30* [-.51, -.08]	.18 [-.16, .53]
Religious	.06 [-.07, .18]	-.07 [-.61, .48]	-.03 [-.19, .14]	.19 [-.61, .99]
Social	.17* [.05, .29]	.30 [-.30, .91]	-.02 [-.19, .15]	.24 [-.26, .73]
<b>Agreeableness</b>				
Aesthetic	-.16* [-.29, -.03]	-.13 [-.46, .19]	-.06 [-.29, .15]	.11 [-.14, .36]
Economic	-.19* [-.32, -.07]	-.12 [-.40, .17]	-.04 [-.22, .13]	.08 [-.13, .28]
Family/relationship	.45* [.31, .58]	.43 [-.19, 1.06]	-.27* [-.50, -.03]	-.23 [-.58, .13]
Hedonistic	-.02 [-.18, .14]	.68 [-.89, 2.25]	-.50 [-1.54, .55]	.07 [-.19, .33]
Political	-.15* [-.29, -.02]	-.12 [-.44, .20]	-.03 [-.26, .20]	.21 [-.08, .51]
Religious	.11 [-.02, .24]	.10 [-.16, .35]	.01 [-.18, .20]	.01 [-.19, .21]
Social	.49* [.38, .61]	.39* [.14, .63]	-.30* [-.50, -.10]	-.04 [-.24, .16]
<b>Conscientiousness</b>				
Aesthetic	-.13* [-.25, -.01]	-.04 [-.28, .21]	-.09 [-.30, .13]	.06 [-.11, .23]
Economic	.20* [.09, .31]	.23* [.01, .44]	-.13 [-.29, .04]	-.11 [-.27, .05]
Family/relationship	.23* [.10, .36]	.53* [.30, .77]	-.01 [-.23, .21]	-.21* [-.38, -.03]
Hedonistic	.07 [-.07, .22]	.55 [-.13, 1.23]	-.21 [-.63, .21]	-.09 [-.29, .12]
Political	.04 [-.09, .16]	.10 [-.15, .35]	-.09 [-.30, .11]	.02 [-.15, .19]
Religious	.04 [-.08, .16]	-.06 [-.27, .15]	.01 [-.16, .17]	.07 [-.10, .25]
Social	.11 [-.01, .23]	.03 [-.16, .22]	.11 [-.06, .28]	.08 [-.09, .25]
<b>Neuroticism</b>				
Aesthetic	.06 [-.08, .20]	.32* [.08, .56]	-.01 [-.23, .21]	.04 [-.14, .23]
Economic	.03 [-.10, .17]	.10 [-.14, .33]	.10 [-.09, .29]	-.11 [-.28, .06]
Family/relationship	-.13 [-.29, .02]	.09 [-.17, .36]	.15 [-.10, .39]	-.18 [-.36, .01]
Hedonistic	-.10 [-.27, .06]	-.12 [-.68, .45]	-.25 [-.88, .39]	.01 [-.20, .22]
Political	-.11 [-.25, .04]	.07 [-.18, .33]	.04 [-.19, .27]	-.03 [-.21, .15]
Religious	-.01 [-.13, .15]	.23* [.02, .45]	-.11 [-.30, .08]	-.06 [-.25, .12]
Social	.03 [-.11, .16]	.13 [-.07, .33]	-.12 [-.31, .07]	-.12 [-.31, .06]
<b>Openness to experience</b>				
Aesthetic	.58* [.48, .69]	.43* [.09, .77]	-.44* [-.67, -.22]	-.02 [-.24, .20]
Economic	-.33* [-.44, -.21]	-.11 [-.40, .17]	.13 [-.05, .30]	.10 [-.11, .31]
Family/relationship	-.15* [-.29, -.01]	.14 [-.18, .45]	.02 [-.21, .24]	.08 [-.15, .30]
Hedonistic	.35* [.20, .50]	.63* [.37, .90]	-.13 [-.32, .07]	-.60* [-.85, -.35]
Political	.05 [-.08, .19]	.06 [-.26, .37]	.16 [-.05, .37]	.001 [-.22, .22]
Religious	-.24* [-.38, -.10]	-.37* [-.64, -.11]	.27* [.09, .44]	.26* [.03, .49]
Social	.23* [.11, .36]	.27* [.03, .51]	-.03 [-.20, .14]	.08 [-.15, .31]

Note. Values in brackets are the 95% confidence intervals.

\* $p < .05$ .

Hedonistic, Religious, and Social goals. Specifically, greater *increases* in Openness to Experience were associated with greater *increases* in Aesthetic ( $r = .43$ ; see Figure S9), Hedonistic ( $r = .63$ ; see Figure S10), and Social goals ( $r = .27$ ; see Figure S11) over time. In addition, greater *increases* in Openness to Experience were associated with greater *decreases* in Religious goals over time ( $r = -.37$ ; see Figure S12). In terms of the level–slope correlations, we found that individuals who were higher in Openness to Experience at

the beginning of college showed greater *decreases* in Aesthetic goals over time ( $r = -.44$ ; see Figure S13), but their overall trajectory was much higher than individuals who were lower in Openness to Experience. Individuals who were higher in Openness to Experience at the beginning of college also showed low and little mean-level change in their Religious goals ( $r = .27$ ; see Figure S14), whereas individuals who were lower in Openness to Experience showed higher overall trajectories and greater *decreases* in Religious



**Figure 3.** Correlation between the slope of extraversion and the slope of hedonistic goals.

Note. Higher positive numbers = greater increases in construct over time. Higher negative numbers = greater decreases in construct over time.

goals over time. Last, individuals who had more Religious goals at the beginning of college showed greater *increases* in Openness to Experience over time ( $r = .26$ ; see Figure S15), and individuals who had more Hedonistic goals at the beginning of college showed fewer *increases* in Openness to Experience over time ( $r = -.60$ ; see Figure S16).

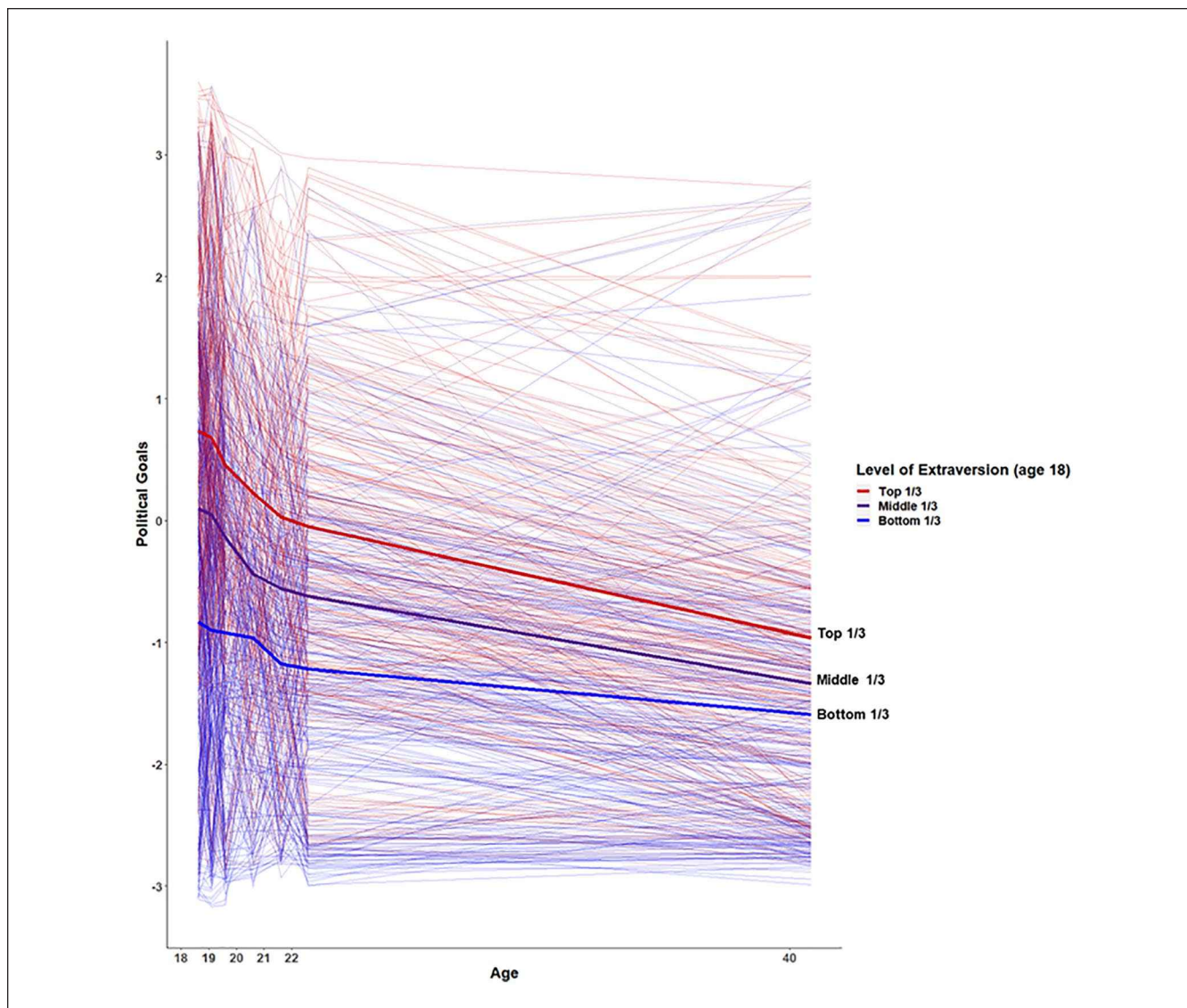
## Discussion

We used data from a longitudinal study spanning more than two decades to answer questions about stability and change in, as well as co-development of, personality traits and major life goals. Personality traits and major life goals were moderately-to-highly consistent over time, yet also showed significant mean-level changes from age 18 to 40. Furthermore, the patterns of co-development between personality traits and major life goals suggest that people formulate goals consistent with their personality traits, and conversely, investing in goal-relevant contexts is associated with changes in some traits. Below we describe the findings in more detail and discuss the results in light of Social Investment Theory and the developmental regulation literature. By doing so, we hope to

highlight the implications for future research aimed at understanding *why* personality changes across the lifespan.

### Stability and Change in Personality Traits and Major Life Goals

One of the strengths of the present research was our ability to examine rank-order stability and mean-level change from late adolescence (age 18) to middle adulthood (age 40) using the same measures across waves. As Damian et al. (2018) noted, there has been very little research on the rank-order stability of the Big Five across multiple decades. Echoing their findings, we found that personality traits show a remarkable degree of consistency over more than two decades. In fact, our average estimate of the 20-year rank-order stability of personality traits was much higher than what was suggested in Roberts and DelVecchio's (2000) meta-analysis, which estimated the stability of personality traits across 20 years to be .45. In the present study, the average rank-order stability of the Big Five across 18 years (from age 22 to 40) was .62. Neuroticism showed the lowest rank-order stability and Openness to Experience showed the highest rank-order stability.

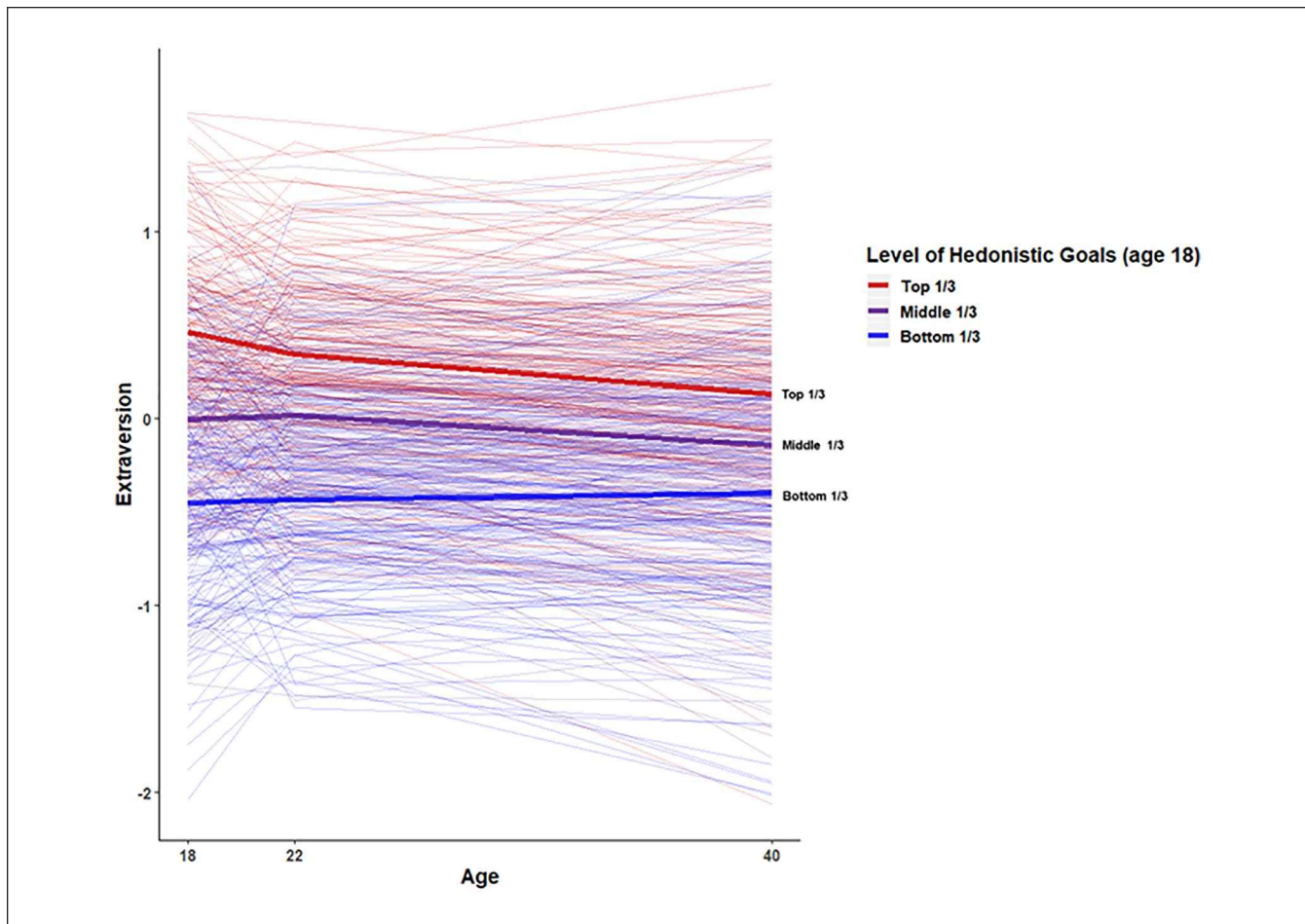


**Figure 4.** Visual depiction of the association between the level of extraversion and the slope of political goals.

Likewise, we found that the rank-order stabilities of the major life goal domains were similar to, albeit slightly lower than, those found for the Big Five domains. Specifically, the average rank-order stability across 18 years (from age 22 to 40) for major life goals was .55, with Hedonistic goals showing the lowest rank-order stability and Family/Relationship goals showing the highest rank-order stability. Although the rank-order stabilities of the major life goal domains were not as high as the rank-order stabilities of the Big Five, the major life goal domains were notably “trait-like” in the degree of their consistency over a long span of time. The relative ordering of individuals on major life goal importance may depend, in part, on the timing of when goals are accomplished or are viewed as past their deadlines. Future research should investigate the extent to which goal achievement and developmental

deadlines predict the rank-order stability of major life goals across the lifespan.

In terms of mean-level change, we found that, on average, individuals increased in Agreeableness and Conscientiousness, decreased in Neuroticism, and showed little change in Openness to Experience and Extraversion from age 18 to 40. These findings largely replicate previous empirical work in this area and provide further support for the broader *maturity principle* of personality development, which states that Agreeableness, Conscientiousness, and Neuroticism change in positive ways across the lifespan (Roberts et al., 2006). Our findings also echo previous research suggesting the young adult years are a time of profound change, with considerably more personality change occurring during the 4 years of college than the amount of change occurring across 20 years from young adulthood to midlife (Roberts et al., 2006). From



**Figure 5.** Visual depiction of the association between the level of hedonistic goals and the slope of extraversion.

age 22 to 40, the mean-level change effect sizes in the present study for Extraversion ( $-.05$ ), Agreeableness (.23), Conscientiousness (.56), Neuroticism ( $-.26$ ), and Openness (.04) are similar to the cumulative effect sizes that were reported in Roberts et al. (2006) for the social vitality aspect of Extraversion ( $-.12$ ), Agreeableness (.23), Conscientiousness (.48), Emotionality Stability (.49), and Openness (.06) from age 22 to 40.

Interestingly, we also found that, on average, individuals showed mean-level decreases in the rated importance of all major life goal domains from age 18 to 40. The percentage of the sample that showed negative slopes (i.e., declining importance over time) was 100% for Hedonistic, 98% for Aesthetic, 97% for Family/Relationship, 96% for Political, 90% for Economic, 77% for Social, and 63% for Religious goals. Furthermore, when we examined how the major life goal trajectories were related to each other, many of the slope–slope correlations were not significant. Of the slope–slope correlations that were significant, the coefficients were always large and positive (see Table S9). These findings suggest that the vast majority of individuals are declining in their importance ratings of all major life goal domains (and not necessarily

replacing “lost” goals with newfound importance on other goals). Rather, greater declines in the importance of one goal is related to greater declines in the importance of other goals. These findings are consistent with the SOC model and previous empirical research suggesting that people narrow their goal importance (how much value is placed on a goal) with age (Baltes, 1997; Lüdtke et al., 2009; Roberts et al., 2004). However, declines in goal importance do not necessarily mean that goal *effort* (the amount of energy and resources allocated toward reaching a goal) also declines with age because these two aspects of goals are not mutually exclusive. People often consider many goals important even when they do not have the time, effort, and resources to expend effort toward all of them. Goal effort is a zero-sum resource (i.e., dedicating effort toward some goals comes as the expense of others), whereas goal importance is limitless (i.e., an individual can find many goals important). In contrast to goal importance, goal effort seems to be positively associated with age (e.g., Haase et al., 2013, but see Rothermund & Brandstädter, 2003), though these associations vary by the types of goals individuals are pursuing (e.g., effort toward traditional goals is positively associated with age, whereas effort toward

prominence goals is negatively associated with age; Wilkowski et al., in press). Although we examined developmental changes in goal importance (not goal effort/commitment) in the present study, it is important to consider how predictions, theories, and empirical research may differ for these two goal processes.

It has been suggested that young adults winnow their goal importance because they have limited resources, and thus, focus on pursuing their most important values and interests (Lüdtke et al., 2009; Roberts et al., 2004). Although middle-aged adults likely also winnow their major life goal importance for similar reasons, it is possible that by age 40, adults may have additional reasons for decreasing on major life goals. For example, they may have achieved some of their goals, rendering them no longer important, or they may have reached the conclusion that some of their goals are no longer possible to attain or were in conflict with other more important goals (Bühler et al., 2019; Emmons & King, 1988; Heckhausen et al., 2001; Riediger et al., 2005). It would be interesting for future research to examine how goal accomplishments (e.g., becoming a parent, finding a relationship partner, finding a high paying job, etc.) influence one's rated importance of major life goals and also one's effort (or re-engagement) with goals that have not been accomplished yet. In addition, it is possible that middle-aged adults winnow their major life goals because they know themselves better and have a stronger sense of identity than they did as young adults. By identifying their own personal strengths and limitations, middle-aged adults may place less importance on certain major life goals because some goals may no longer be viewed as self-relevant. Moreover, it is important to note that individuals are, on average, developing more mature personalities (i.e., increasing on positive traits) at the same time that they are de-emphasizing the importance of many life goals. It may be that young people endorse more goals than they can reasonably achieve, and winnowing the life goals they value/pursue is a key component of personality maturation. Future work should aim to identify common and unique correlates of these divergent trajectories across adulthood, and to examine the complex intertwining nature of the development of goal importance, goal effort, and personality traits over time.

### *The Co-Development of Personality Traits and Major Life Goals*

We found several, meaningful co-developmental patterns between personality traits and goals that have implications for prominent theories such as Social Investment Theory (SIT; Roberts & Wood, 2006) and the developmental regulation literature (Haase et al., 2013). According to SIT, normative changes in the Big Five occur because individuals invest in age-graded social roles associated with "universal" major life events such as entering the workforce, getting married, and becoming a parent (e.g., Roberts & Wood, 2006).

Although useful in describing population-level trends in personality development, the assumptions of SIT (i.e., universality of social roles) do not account for individual differences in how people choose to invest their time, effort, and resources (e.g., not all individuals want to get married, bear children, or enter the workforce). On the other hand, the developmental regulation literature suggests that individuals play an important role in influencing their own adaptive development by selecting and pursuing goals (Haase et al., 2013). In other words, peoples' personalities become more mature with age because they are pursuing goals that facilitate gains and minimize losses associated with successful aging (Schulz & Heckhausen, 1996). Interestingly, personality development as a function of social roles (SIT) versus personality development as a function of goals (developmental regulation) seem to be more intertwined than separate. In fact, it may be the case that goals are one of the explanatory mechanisms that link personality traits and social roles across the life course, and further exploring the role of goals will push personality science forward in taking a more individualized perspective on personality maturation.

*Correlated change patterns.* Aligned with the few existing longitudinal studies of personality trait and major life goal co-development (Bleidorn et al., 2010; Lüdtke et al., 2009; Roberts et al., 2004), we found significant associations between changes in the Big Five personality traits and changes in major life goals from age 18 to 40. With respect to Extraversion, Agreeableness, and Conscientiousness, we found that each trait was associated with a "cardinal" goal trajectory. For example, we found that people who became more extraverted over time also placed increasing importance on goals that maximized rewards and pleasure (Hedonistic goals). Moreover, people who became more agreeable over time were more likely to place greater importance on improving the welfare of others and helping those in need (Social goals). In addition, people who became more conscientious over time placed increasing emphasis on goals related to achievement (Economic goals) and family harmony (Family/Relationship goals). Altogether, these findings suggest that individuals are influencing their own maturation by possessing goals that facilitate their trait strengths (and vice versa) to further successful aging, which is aligned with the developmental regulation literature. The co-developmental patterns with Agreeableness/Conscientiousness and associated goals are also modestly supportive of SIT, given that previous work has shown that Agreeableness and Conscientiousness are most susceptible to developmental changes as a result of occupying "universal" social roles in the domains of love and work (e.g., Roberts & Wood, 2006).

Contrary to previous research that has failed to find associations between Neuroticism and major life goals (Bleidorn et al., 2010; Lüdtke et al., 2009; Roberts & Robins, 2000), we found that people who became more

neurotic over time placed more emphasis on the arts (Aesthetic goals) and religious/spiritual endeavors (Religious goals). Although somewhat counterintuitive to the proposition that Neuroticism is generally not related to approach behaviors and goals, the co-developmental association between Neuroticism and Aesthetic goals relates, in some ways, to the psychodynamic idea that emotionally unstable, anxious, and depressive tendencies can fuel creative expression (Simonton, 2014). In other words, people who become more neurotic over time may be more likely to emphasize Aesthetic goals because the arts serve as an outlet for expressing their emotions, which has been suggested by case studies of creative geniuses like Leonardo da Vinci (Freud, 1964), large-scale empirical research on the diversifying experiences of eminent African Americans (Damian & Simonton, 2015), and theoretical review pieces showing that creativity (and hence Aesthetic goals) may be a by-product of intense, prolonged rumination about hypothetical problems and/or daydreaming (Perkins et al., 2015; but see Pickering et al., 2016). Another possibility is that Neuroticism may be positively related to Aesthetic goals because to be a good artist, musician, or writer, one must dedicate prolonged systematic effort and have a narrow, rigid focus (i.e., cognitive persistence) to pursue one particular creative specialty (e.g., Baas et al., 2013); and/or becoming an artist (of any type) is typically associated with much greater occupational uncertainty (and thus, possibly more neurotic tendencies). Similarly for Religious goals, spiritual dedication may be another outlet for more neurotic individuals to cope with the anxious and anhedonic symptoms they often face.

Finally, we found that Openness to Experience co-developed with the largest number of major life goals. Specifically, individuals who showed greater increases in Openness to Experience placed increasing emphasis on pursuing the arts and being creative (Aesthetic goals), maximizing rewards and pleasures (Hedonistic goals), and helping others in need (Social goals). Furthermore, individuals who showed greater increases in Openness to Experience also placed less importance on being involved in religious institutions (Religious goals). The observation that Openness to Experience is related to the most major life goal domains is not surprising given the multidimensional nature of Openness as capturing curious, sensation-seeking, intellectual, creative, and unconventional tendencies and when considering prior work that shows cognitively-based traits are related to the greatest number of values (e.g., Parks-Leduc et al., 2015). However, it is also worth highlighting that Openness to Experience was not related to more traditional goals like Economic and Family/Relationship goals, which comports with previous research showing Openness is also not related to “universal” social role experiences in the domains of work and love (Schwaba et al., 2019). It may be the case that individuals who are higher on Openness direct the course of

their lives by possessing goals that are less stereotypically valued, such as Aesthetic and Social goals, as opposed to occupying more traditional social roles (e.g., becoming part of the workforce, being a parent).

*Directionality.* In the present study, we were also able to examine whether early levels of personality traits predict major life goal trajectories into middle adulthood, and vice versa. In general, we found evidence suggesting that initial levels of personality traits at age 18 were related to subsequent trajectories of major life goals from age 18 to 40, which echoes previous research showing that earlier levels of personality traits are associated with later importance of major life goals (Bleidorn et al., 2010; Lüdtke et al., 2009). In general, these results demonstrated that people who have high initial levels of these traits showed greater decreases in goal importance over time, which suggests that (a) these individuals may just have more goal importance to lose over time, and/or (b) their personality traits are proving to be helpful conduits in pursuing their goals over time, which leads to greater decreases in goal importance over time as a result of achieving those goals. For example, it is possible that individuals who are higher in Agreeableness at age 18 show greater decreases in Family/Relationship goals across adulthood because their high levels of Agreeableness allow them to invest in goal-relevant activities that facilitate the achievement of their most valued goals. That is, individuals who are highly agreeable as college students may devote much of their post-college life to searching for a relationship partner and starting a family, thereby achieving these goals so that they become less important by midlife.

Furthermore, consistent with Bleidorn et al. (2010) and Lüdtke et al. (2009), we also found some evidence for reciprocal associations over time; that is, in a few cases, initial levels of major life goals at age 18 were associated with subsequent trajectories of the Big Five from age 18 to 40. It is worth noting that we found significant associations between goals and personality change for the two traits (Conscientiousness and Openness) that showed the most individual variability in their trajectories; therefore, goals may predict subsequent personality change for the other traits, but we do not have enough variability in those trajectories to detect those effects. Furthermore, individuals who showed lower initial levels of goals had greater increases in trait change over time, which suggests that these individuals may be “catching up” to their peers by virtue of developmental pressures associated with goal attainment that naturally act on their traits. For example, it is possible that individuals who possess fewer Family/Relationship goals at age 18 show greater increases in Conscientiousness over time because even if an individual does not find Family/Relationship goals important in young adulthood, they may find themselves married and with children later in life anyway, given that these are

fairly normative life events. Thus, these individuals may end up occupying social roles (i.e., becoming a spouse and a parent) that cause them to become more conscientious by compelling them to respond to the norms, demands, and affordances of these roles.

Taken together, the co-developmental associations between personality traits and major life goals suggest that self-regulatory mechanisms likely play a role in directing the course of people's lives and personality development. To the extent that self-regulation encompasses controlling one's behavior in the service of goals, then the present findings indicate that individuals "self-regulate" in their own ways, by formulating goals that are consistent with their personality traits; and conversely, placing importance on certain goals promotes changes in respective traits, presumably because investing in goal-relevant contexts places rewards, punishments, and contingencies on certain traits. It will be important for future research to examine (a) whether experiencing a life event associated with one's goals (e.g., getting married, becoming a parent) impacts the co-developmental associations between personality traits and major life goals; (b) intentionally versus unintentionally occupying social roles is related to personality trait and major life goal co-development; and (c) whether the strength of the association between personality traits and major life goals varies across developmental periods. A better understanding of how personality traits, major life goals, and social role transitions are interrelated will provide new insights into why individuals increase or decrease on particular personality traits across the life course.

### Limitations

The present study has several limitations. First, although there were few significant differences between the participants who did, or did not, take part in the 20-year follow-up on our key constructs of interest, it is possible that sample attrition biased our findings in other ways. Second, although the sample was diverse in terms of sex and ethnicity, all of the participants were UC Berkeley students, and therefore mostly high socioeconomic status. Future

work should investigate whether the present findings hold across different socioeconomic strata. Third, although we assessed personality traits and major life goals across the same 24-year time period, we assessed life goals more frequently (seven assessments) than the Big Five (three assessments). It will be important for future research to obtain equally fine-grained assessments for the Big Five and major life goals from young adulthood to midlife, in order to conduct longitudinal models that allows for teasing apart between- and within-person changes over time. Fourth, the Big Five and major life goals were both assessed via self-report, which may inflate our effect sizes due to shared method variance. It would be useful to obtain informant-reports of personality to determine how robust the findings are to this alternative assessment method. Finally, our measure of life goals covers a broad range of domains, but it does not provide a comprehensive assessment of all of the life goals an individual might possess (e.g., friendship goals).

### Conclusion

In summary, we found that personality traits and major life goals showed remarkable rank-order consistency across a 20-year period, yet also showed a great deal of mean-level change, with personality trait change supporting the maturity principle of personality development and life goal change supporting the idea that people gradually winnow their life goals as they age. Analyses of the co-development of personality and life goals indicate that people formulate goals consistent with their personality traits, and conversely, investing in goal-relevant contexts is associated with change in related trait domains. The present research also has implications for integrating predictions from Social Investment Theory and the developmental regulation literature to better understand the ways in which goals are a mechanism through which personality traits and social roles are associated over time. The current work suggests there is much to learn about how, why, and when personality traits, major life goals, and social roles co-develop across the lifespan.

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### Appendix. Goal Items Used in the Present Study and How They Map Onto Existing Value and Goal Taxonomies.

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#### Economic goals:

- Having a high-status career.
  - Having an influential and prestigious occupation.
  - Having a high standard of living and wealth.
  - Having a career.
  - Owning my own business.
  - Becoming a business executive (*not asked at the Year 24 assessment*).
- 

(continued)

**Appendix. (continued)**

## Aesthetic goals:

- Produce good artistic work.
- Becoming accomplished in one of the performing arts.
- Be an accomplished musician.
- Write good fiction and prose.
- Supporting artistic activities and the fine arts (*not asked at the Year 24 assessment*).

## Social goals:

- Working to promote the welfare of others.
- Helping others in need.
- Taking part in volunteer community and public service.

## Political goals:

- Becoming a community leader.
- Be influential in public affairs.

## Religious goals:

- Participating in religious activities.
- Devoting attention to my spiritual life.

## Hedonistic goals:

- Having new and different experiences.
- Having fun.
- Having an exciting lifestyle.

## Relationship/family goals:

- Make my parents proud.
- Having a satisfying marriage/relationship.
- Having harmonious family relationships.
- Having children.

Goal Domain (Present Study)	Values		Goals
	Agency & communion (Bakan, 1966; Locke, 2015)	Openness to change & conservation (Schwartz, 1992)	PINT taxonomy of major life goals (Wilkowski et al., in press)
Aesthetic goals	Agency <sup>a</sup>	Openness to change	Prominence
Economic goals	Agency	Openness to change	Prominence
Family/relationship goals	Communion	Conservation	Tradition
Hedonistic goals	Agency	Openness to change	Prominence <sup>b</sup>
Political goals	Agency	Openness to change	Inclusiveness
Religious goals	Communion	Conservation	Tradition
Social goals	Communion	Openness to change	Inclusiveness

Note. Agency (self-enhancement) = achievement, power, autonomy, competence; Communion (self-transcendence) = belonging, affiliation, benevolence, relatedness, altruism; Conservation = security, conformity, tradition; Openness to change = self-direction, stimulation, hedonism; Prominence = championship, competition, power, privilege; Inclusiveness = activism, diplomacy, equity, interconnectedness, philanthropy, transcendence; Tradition = conservatism, marriage, parenthood, pureness, patriotism, obedience, obligation.

<sup>a</sup>Although it may not seem intuitive that aesthetic goals are conceptually part of the agency domain, the items we used to assess aesthetic goals are largely focused on success and accomplishment in the arts, which more broadly reflects agentic goals than communal goals. <sup>b</sup>Hedonistic goals do not cleanly fall into any category, but they do share an emphasis on approach motivation with the other prominence goals, which is why we note Hedonistic goals as falling within this broad domain.

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**Supplemental Material**

Supplemental material is available online with this article.

**Notes**

1. One previous publication has used the Big Five and major life goals data from BLS. Roberts et al. (2004) reported on the concurrent and longitudinal associations between the Big Five and



major life goals during the college years. However, no published study has examined personality and major life goals using the 20-year follow-up data or using bivariate latent growth curve modeling to explore how personality traits and major life goals co-develop over time. For a full list of BLS publications, see <https://osf.io/54qv6/>.

2. Even when the slope variance was not significant in the univariate models, we proceeded with conducting bivariate latent growth curve models. The significance level of the slope variance in the univariate models indicates how much certainty (or uncertainty) there is around the parameter, and should not prevent researchers from examining parallel growth processes. Furthermore, there is higher statistical power to detect slope variability when covariates are added to the model, making it possible for there to be significant predictors of a slope even when the slope shows nonsignificant variability in the univariate model.
3. It is only possible to test a latent basis model for constructs that have more than three assessment waves because otherwise the model is overidentified. Thus, we were only able to examine latent basis models for the major life goal domains, not for the Big Five personality traits.
4. Table S6 shows the test–retest correlations for life goals between all other assessment intervals.
5. As Table 2 shows, Extraversion, Agreeableness, and Hedonistic goals did not have significant slope variability. Theoretically, the lack of slope variance suggests that changes in these traits/goals may be driven by normative developmental processes that lead people to change in the same way. Alternatively, the lack of slope variability could be due to methodological reasons such as sample homogeneity (i.e., all participants were UC Berkeley undergraduates in the 1990s and are predominantly middle-to-upper class adults). Thus, it is likely that the sample homogeneity led to homogeneity in the personality trajectories. The lack of slope variance may also be due to attrition; individuals who dropped out of the study may have followed a more divergent trajectory in their Extraversion, Agreeableness, and Hedonism scores (and those who stayed in the study followed a more similar trajectory).

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