Goal and Personality Trait Development in a Transitional Period: Assessing Change and Stability in Personality Development

Oliver Lüdtke
Ulrich Trautwein
Nicole Husemann
Max Planck Institute for Human Development

This longitudinal study examined continuity and change in the Big Five personality traits and in the importance of life goals from eight domains (Personal Growth, Relationships, Community, Health, Wealth, Fame, Image, and Hedonism) in 2,141 students in a 2-year period at the transition from school to college or employment. Both personality traits and life goals demonstrated high levels of rank–order and structural stability and showed significant individual differences in individual change. Moreover, mean-level changes were in line with the maturity principle: Scores on Agreeableness, Conscientiousness, and Openness increased over time, whereas Neuroticism decreased. However, the importance of life goals decreased in all domains except health. Reciprocal effects models revealed that there were effects of prior personality traits on subsequent life goal importance but almost no effects of prior life goal importance on subsequent personality traits. Separate analyses by gender showed that the findings were almost invariant across gender.

Keywords: *personality development; five-factor model; life goals; stability; young adulthood*

How stable is a person's personality? How much change can be observed in central human characteristics over time? Stability and change in personality has always been at the heart of psychological research. In the past three decades, increasing numbers of researchers have begun to collect survey data to address these questions, providing a firmer empirical basis for the identification of patterns of development (Caspi & Shiner, 2006; Mroczek & Little, 2006). In the present investigation, we study change and stability in personality traits in a large longitudinal sample of young adults

at the transition from secondary school to college or employment. The question of change and stability in personality traits warrants particular investigation in this phase of transition (Caspi & Shiner, 2006; Roberts, Caspi, & Moffitt, 2001), which brings a number of significant changes in young adults' lives (Arnett, 2000; Nurmi, 2001). They leave school, move away from home, and may commit to a romantic relationship. Surprisingly, however, little longitudinal research has examined this transitional phase.

In this study, we focused on two domains that have attracted much research attention in recent years. First, we investigated continuity and change in the Big Five personality dimensions (Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to Experience). The five-factor model is the standard model of personality in contemporary research (John & Srivastava, 1999). Second, we examined continuity and change in the importance of life goals. Life goals are the foundation for human behavior; they reflect what people want out of life, what they aspire to achieve, and what kind of life they would like to lead. They are motivational constructs that determine the direction of human action (Pervin, 1989; Roberts & Robins, 2000).

This study offers some important modifications and extensions on previous research (Roberts, O'Donnell, &

Robins, 2004; Robins, Fraley, Roberts, & Trzesniewski, 2001). First, we assessed young adults before and after the transition from school to college or employment, such that there are marked contextual changes between the two points of measurement. Second, the large sample of some 2,000 young adults allows reliable estimates of change in personality and life goals. Moreover, this sample size permits the investigation of gender effects, which have been neglected in many previous longitudinal studies (Roberts et al., 2001). Third, we took a broad and comprehensive approach to the assessment of life goals, with participants' being asked to rate the importance of 32 life goals from eight domains (Personal Growth, Relationships, Community, Health, Wealth, Fame, Image, and Hedonism; Grouzet et al., 2005; Kasser & Ryan, 1996).

CONTINUITY AND CHANGE IN PERSONALITY TRAITS AND LIFE GOALS

The literature on personality development distinguishes several types of personality change and continuity (Caspi & Shiner, 2006). In this section, we introduce the central indexes used to assess change and briefly sketch the main findings for personality traits and life goals.

Rank–Order Stability

Continuity and change are most often indexed by correlations between personality scores across two points in time (i.e., test–retest correlations). These differential or rank–order stability correlations reflect the degree to which the relative ordering of individuals on a given construct remains stable over time. The findings of the numerous studies available on the rank–order stability of personality traits have been synthesized in a meta-analysis (Roberts & DelVecchio, 2000; see also Fraley & Roberts, 2005). The main results were that the consistency of personality traits increased with age and that cross-time correlations became increasingly high in older samples. The meta-analysis found average test–retest correlations of .54 in an age group (18 to 21.9 years) similar to that examined in this study. Studies published after the cutoff point for the Roberts and DelVecchio (2000) meta-analysis have looked specifically at the Big Five personality dimensions in the age group of interest (Asendorpf & Wilpers, 1998; Robins et al., 2001; Vaidya, Gray, Haig, & Watson, 2002). Robins et al. (2001) examined rank–order stability in a sample of college students over a 4-year period and reported correlations between $r = .53$ for Neuroticism and $r = .70$ for Openness. Vaidya et al. (2002) administered the Big Five Inventory (BFI; John & Srivastava, 1999) to 392

students at a 2.5-year interval and found slightly higher correlations between $r = .59$ for Agreeableness and $r = .79$ for Extraversion. Finally, Asendorpf and Wilpers (1998) used the NEO Five-Factor Inventory (NEO-FFI; P. T. Costa & McCrae, 1992) to assess the Big Five in a sample of 132 students at the beginning of their college career and again 18 months later. The rank–order stabilities were between $r = .73$ for Neuroticism and $r = .79$ for Extraversion. All three studies investigated stability of personality dimensions in young adults who had recently entered higher education.

We are only aware of a few longitudinal studies that have examined the importance of life goals.[1] Using the same sample as Robins et al. (2001), Roberts et al. (2004) reported rank–order stabilities of between .55 and .71 for the importance of life goals over a 4-year period, which were thus very similar to the rank–order stabilities found for Big Five personality traits in the same sample of between .53 and .70 (Robins et al., 2001).

Mean-Level and Individual-Level Change

Mean-level change refers to increases or decreases in the average level of a certain attribute in a population over time. In studies on personality development, mean-level change is often equated with normative change, which occurs when most people show the same changes during a specific period of the life course. Normative changes are thought to result from maturational or historical processes shared by a population (e.g., Helson & Moane, 1987). With respect to normative change in the Big Five personality traits over the lifespan, a substantial body of evidence shows that most people become more dominant, agreeable, conscientious, and emotionally stable over the course of their lives. Caspi, Roberts, and Shiner (2005) coined the term *maturity principle* to describe these findings of increasing psychological maturity from adolescence to middle age. Roberts, Walton, and Viechtbauer (2006) conducted a meta-analysis of longitudinal studies assessing mean-level changes in personality. They categorized the personality traits examined according to the five-factor model but subdivided the Extraversion dimension into the two facets of Social Vitality and Social Dominance. Using this categorization, personality traits were found to exhibit some normative change from age 18 to 22 years: Little change was observed in Social Vitality ($d = .06$; number of samples: $K = 15$), Agreeableness ($d = .05$; $K = 11$), and Conscientiousness ($d = .04$; $K = 18$), but there were slight increases in Emotional Stability ($d = .12$; $K = 15$) and moderate increases in Social Dominance ($d = .41$; $K = 15$) and Openness to Experience ($d = .37$; $K = 37$).

When interpreting these findings, it is important to bear in mind that the personality constructs organized

according to the Big-Five taxonomy were, in part, very heterogeneous. The picture of normative change emerging from the studies described above that assessed the five factors directly in the 18- to 22-year age group is indeed somewhat different. Robins et al. (2001) found Agreeableness (*d* = .44), Conscientiousness (*d* = .27), and Openness (*d* = .22) to increase over a 4-year period and Neuroticism (*d* = −.49) to decrease. No statistically significant change was found for Extraversion. Vaidya et al. (2002) reported increases in Conscientiousness (*d* = .51), Extraversion (*d* = .34), Openness (*d* = .34), and Agreeableness (*d* = .10) over a 2.5-year period but no normative change in Neuroticism. Asendorpf and Wilpers (1998) observed a slight increase in Extraversion (*d* = .17) over an 18-month period but little change in Conscientiousness (*d* = .11), Openness (*d* = .09), or Agreeableness (*d* = −.04). Neuroticism (*d* = −.38) decreased over the period of investigation. The general pattern emerging from these three studies is thus that Conscientiousness, Openness, and—to a lesser extent—Agreeableness increase at the start of the college career. No clear picture emerged for Extraversion and Neuroticism, however. Note that the participants in all three studies were first surveyed after the transition to college.

Empirical findings on the stability of mean goal importance ratings are, by contrast, scarce. The only exception is the Roberts et al. (2004) study, which indicates that normative change in the importance of life goals might follow a pattern other than the maturity principle. Roberts and colleagues found that the importance of goals in the economic (*d* = −.45), aesthetic (*d* = −.21), political (*d* = −.28), hedonistic (*d* = −.25), and religious (*d* = −.17) domains decreased over a 4-year period, whereas the importance of social and relationship goals remained stable. The authors interpreted this decrease in the mean values of life goal ratings as the result of an adaptive process of selection (see Baltes, Lindenberger, & Staudinger, 2006; Freund & Baltes, 2000). According to this selection hypothesis, individuals only have limited personal and social resources, which have to be focused on selected goals. For example, a high school graduate might focus on his or her career goals and on starting a family at the transition from school to employment and give up on the goal of becoming a successful tennis player. Studies replicating the mean decreases reported by Roberts et al. are lacking, however.

In contrast to mean-level change, which looks at personality development as a population-level phenomenon, *individual-level change* refers to the magnitude of increase or decrease exhibited by each person on any given attribute. Several studies (De Fruyt, Van Leeuwen, Bagby, Rolland, & Rouillon, 2006; Roberts et al., 2001; Robins et al., 2001; Vaidya et al., 2002) have used the Reliable Change Index (RCI; Christensen & Mendoza,

1986; see Method section) to examine reliable change in the Big Five personality traits. The RCI indicates the degree to which the mean-level changes hold for each participant in the sample. For instance, Robins et al. (2001) found that the vast majority of the individuals in their college-age sample (73% to 90%) did not show reliable changes on any of the Big Five personality dimensions over a 4-year period, suggesting that individual-level stability is high during the college years. Vaidya et al. (2002) reported similar results. Again, Roberts et al. (2004) are the only researchers to have examined reliable change in the importance of life goals. They found that most respondents experienced reliable change on either one (40%) or two (16%) of the seven goal dimensions. Overall, then, there was somewhat more intraindividual change in life goals than in personality traits.

Structural Stability

Structural stability refers to the stability of the correlations among traits across time. It is often regarded as a necessary prerequisite for assessing mean-level change across time (e.g., De Fruyt et al., 2006). A lack of structural stability is thought to indicate that the meaning of the constructs has changed between two measurement occasions. Structural stability is usually assessed using structural equation modeling and comparing a model in which the correlations between the two occasions of measurement are freely estimated with a model in which the correlations are constrained to be equal. In one of the few investigations of structural stability of personality, Robins et al. (2001) found that intercorrelations for the Big Five personality dimensions were invariant over a 4-year period in their undergraduate student sample (see also De Fruyt et al., 2006). Based on factor analyses, Vaidya et al. (2002) also concluded that the Big Five showed structural stability over a 2.5-year period. We are not aware of any study that has investigated the structural stability of the importance of life goal dimensions.

Relationship Between Continuity and Change in Personality Traits and Life Goals

How is change in personality traits related to change in life goals? The two traditions of classic personality traits (e.g., the Big Five) and motivational constructs (e.g., motives and goals) have long existed side by side, but separately, in personality research (Pervin, 1994; Winter, John, Stewart, Klohnen, & Duncan, 1998). However, some studies have now examined the extent to which certain personality traits are related to goal formulation and goal importance from a differential perspective (King & Broyles, 1997; Little, Lecci, & Watkinson, 1992; McCrae, 1996; Roberts & Robins, 2000). Life goals are thought to establish relationships

between an individual's personality traits and the contexts in which he or she chooses to live. Different personality traits can thus be expected to be associated with different life goals because they dispose individuals to prefer certain situations and environments. For example, extraverts can be expected to pursue power- and influence-related goals because these goals lead them to environments that correlate with their personality traits. Within these environments, their extraversion is further reinforced, thus increasing over individual development as a result of the goals chosen (Roberts et al., 2004). However, to the best of our knowledge, only one study (Roberts et al., 2004) has investigated the longitudinal relationship between personality and life goals.

THIS STUDY

The move from school to college or employment is one of the major transitional periods in young adulthood, involving various critical events, such as moving away from home and choosing a career. This study addresses two main research questions. First, we investigate stability and change of personality traits and life goals during this phase. We expect to find moderate test–retest stability for both the Big Five and the life goals. For the Big Five, we expect to observe normative developmental change in accordance with the maturity principle postulated by Caspi et al. (2005). For life goals, we test the extent to which the pattern of decreasing mean importance across goal dimensions reported by Roberts et al. (2004) can be replicated (selection hypothesis). Second, we examine the longitudinal relationship between change in personality traits and life goals using reciprocal effects models (see Marsh, Trautwein, Lüdtke, Köller, & Baumert, 2005). To what extent do certain personality traits predict change in certain goal dimensions or, vice versa, do certain goal dimensions predict change in certain personality traits?

Our longitudinal data differ from the data used in previous studies in several respects. Whereas most previous studies did not begin collecting data until shortly after college entry (Asendorpf & Wilpers, 1998; Roberts et al., 2001; Vaidya et al., 2002), we obtained data before the transitional phase, when participants approached the end of secondary schooling, and again 2 years later. Change across the transitional phase could thus be monitored. Second, this study uses a well-established instrument to assess a broad range of life goals. Third, this sample is relatively large, increasing the generalizability of findings and the statistical power of the analyses and permitting gender effects to be systematically examined. Although cross-sectional studies of personality dimensions and life goals have documented

gender differences in means (P. Costa, Terracciano, & McCrae, 2001; Feingold, 1994), longitudinal studies providing reliable tests of gender effects are lacking (see Roberts et al., 2001). Fourth, we use latent variable models (Kaplan, 2000; Marsh et al., 2005) to model the predictive effects on change in personality traits and life goals. By using these models to estimate predictive effects, the influence of measurement errors can be limited.

METHOD

Participants

The data come from a large, ongoing German study (Transformation of the Secondary School System and Academic Careers) conducted by the Max Planck Institute for Human Development, Berlin, and the Institute for Educational Progress at the Humboldt University of Berlin (see Köller, Watermann, Trautwein, & Lüdtke, 2004). The data considered here were obtained from students in 149 randomly selected upper secondary schools in a single German state. The schools are representative of the traditional and vocational gymnasium school types attended by the college-bound student population.

Schools and students were randomly selected to ensure that the data were representative. The participation rate at the school level was 99%, and a satisfactory participation rate of more than 80% was achieved at student level. At Time 1 (T1), the students were in their final year of upper secondary schooling; their mean age was 19.51 years ($SD = 0.77$). Two trained research assistants administered materials in each school between February and May 2002. Students participated voluntarily, without any financial incentive. At T1, all students were asked to provide written consent to be contacted again later for a second wave of data collection. At Time 2 (T2), 2 years after graduation from high school, participants completed an extensive questionnaire taking about 2 hours in exchange for a financial reward of € 10 (about US$12). Because the focus of this investigation is on the stability of effects over time, our analyses are restricted to the responses provided by the 2,141 (45% of the original sample; 63% female) students who completed the Big Five personality measure and the goal importance instrument at both T1 and T2.

To test for attrition effects, we compared continuers, who participated at both time points, to drop outs, who only participated in the first wave. Continuers had lower grade point averages[2] ($M = 2.54$ vs. $M = 2.3$; $SD = .62$ vs. $SD = .63$) and were more likely to be female, $\chi^2(1, N = 4688) = 108.0$, $p < .001$. Selectivity effects exceeding $d = .10$ were found for 5 of the 13 scales.

With respect to the Big Five, continuers had higher Conscientiousness ($d = .16$) and Agreeableness scores ($d = .12$) than did drop outs. With respect to life goals, continuers rated Personal Growth goals ($d = .20$), Relationship goals ($d = .13$), and Community goals ($d = .12$) to be more important than did drop outs. Taken together, although drop outs and continuers differed statistically significantly in some domains, the magnitude of these differences was rather small and indicative of moderate selectivity effects.

Measures

Life goals. Participants rated the importance of 32 life goals from eight broad domains at both time points. Most the items derive from a German translation of the latest version of the Aspiration Index (Deci & Ryan, 1997; Klusmann, Trautwein, & Lüdtke, 2005).[3] Participants were given a list of 32 life goals covering the categories of Personal Growth (example item: "to grow and learn new things"), Relationships ("to have committed, intimate relationships"), Community ("to work for the betterment of society"), Health ("to be physically healthy"), Wealth ("to be a very wealthy person"), Fame ("to have my name known by many people"), Image ("to have people comment often about how attractive I look"), and Hedonism ("to enjoy life to the full"), each of which was represented by four life goals. Participants rated the importance of each goal ("How important is this goal to you?") on a 4-point scale (1 = *not at all important* to 4 = *very important*). Coefficient alpha reliabilities at the two points of measurement were .66 and .70 for Personal Growth, .80 and 84 for Relationships, .82 and .84 for Community, .75 and .77 for Health, .85 and .85 for Wealth, .83 and .83 for Fame, .80 and .82 for Image, .71 and .71 for Hedonism.

Big Five dimensions. We measured the Big Five personality dimensions of Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to Experience using the German version (Borkenau & Ostendorf, 1993) of the NEO-FFI (P. T. Costa & McCrae, 1992). Extensive work on the German translation has demonstrated the instrument's high reliability, validity, and comparability with the English original (e.g., Borkenau & Ostendorf, 1993). In our study, items were rated on a 4-point scale from 1 = *strongly disagree* to 4 = *strongly agree*. In-depth psychometric analyses of the 4-point response format show that this format has some advantages over a 5-point scale (Lüdtke, Trautwein, Nagy, & Köller, 2004). Coefficient alpha reliabilities at the two points of measurement were .78 and .80 for Extraversion, .72 and .73 for Agreeableness,

.83 and .84 for Conscientiousness, .83 and .87 for Neuroticism, .73 and .74 for Openness to Experience.

Analysis Strategy

The RCI was used to assess individual change on each personality trait and life goal dimension. The RCI takes into account measurement error and its effects on variability of scores across measurement points (Christensen & Mendoza, 1986). It has been widely used to evaluate the clinical significance of change in therapeutic situations (Jacobson, Roberts, Berns, & McGlinchey, 1999) and is now increasingly applied in longitudinal studies on personality trait development (Roberts et al., 2001, 2004). It is computed using the formula $RCI = X_2 - X_1 / SE_{diff}$, where X_1 represents a person's score at Time 1, X_2 represents that same person's score at Time 2, and SE_{diff} is the standard error of the difference between the two scores. The standard error of the difference score represents the spread of the distribution of change scores that would be expected if no actual change had occurred. RCI scores smaller than -1.96 or larger than 1.96 are unlikely to occur without true change and are, thus, considered reliable. Furthermore, if individual change were random, we would expect the distribution of RC scores to be normal, with approximately 2.5% of the scores below -1.96, 2.5% above 1.96, and 95% remaining the same.

Researchers seeking to predict interindividual differences in change must bear in mind that unreliability of the measured variables can distort the parameter estimates (Kaplan, 2000). We, therefore, used latent variable models to determine the effect of prior personality traits on subsequent life goal importance as well as the effect of prior life goal importance on subsequent personality traits (see Marsh et al., 2005). These models analyze interindividual differences at the latent level rather than at the observed level. They offer the advantage of distinguishing structural relationships from error of measurement components. We performed a reciprocal effects model for each combination of a personality trait and a life goal dimension. Figure 1 illustrates one such reciprocal effects model. Four item parcels were used to measure each latent personality dimension (Kishton & Widaman, 1994). This approach has two main advantages. First, it reduces the number of model parameters that need to be estimated. Second, importance of life goals is assessed by four items each, the same number of indicators used to measure personality traits. The factor loadings were constrained to be invariant over time, in accordance with the assumption of measurement invariance (Raykov, 2004). As recommended by Marsh and Hau (1996; see also Jöreskog, 1979), correlated uniquenesses were included for the matching items and parcels collected at T1 and T2.
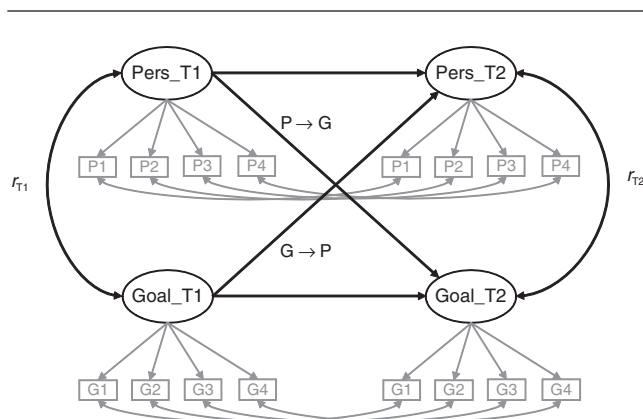
Figure 1 Generic reciprocal effects model assessing prospective relationships among the Big Five personality traits and life goal importance.

NOTE: Pers_T1 = personality trait at the first occasion of measurement; Pers_T2 = personality trait at the second occasion of measurement; Goal_T1 = life goal importance at the first occasion of measurement; Goal_T2 = life goal importance at the second occasion of measurement; r_{T1} = concurrent correlation between T1 personality trait and T1 life goal importance; r_{T2}: concurrent correlation between T2 personality trait residual and T2 life goal importance residual; P → G = prospective effect of T1 personality trait on T2 life goal importance controlling for stability of life goal importance; P → G = prospective effect of T1 life goal importance on T2 personality trait controlling for stability of personality trait.

RESULTS

We begin this section by presenting findings on continuity and change in personality traits and life goals. In the next step, we test our hypotheses on the relationships between the two constructs. Finally, we examine whether the results are invariant across gender.

Stability and Change of Personality Traits

Structural stability. Table 1 shows correlations among the Big Five personality traits at the two points of measurement. Visual inspection of the intercorrelations reported above (T2) and below the diagonal (T1) shows that they are very similar. We formally tested the structural stability of the Big Five using a procedure described by Robins et al. (2001; see also De Fruyt et al., 2006). First, a single-indicator latent variable model was specified in which one latent variable was associated with each of the 10 scores (five dimensions of the NEO-FFI × two time points). This is a fully saturated model, with the variances of latent variables fixed to 1 and the residuals fixed to 0. The correlations between the latent variables were freely estimated. Second, a model was specified in which the correlations between all pairwise traits across the two assessment points were constrained to be equal. The constrained model showed a very good

fit ($\Delta\chi^2(10) = 23.21$, $p = .01$, CFI = 1.00, RMSEA = .02), indicating that the saturated model did not fit better than the model with equal correlations.[4] Therefore, we can conclude that the intercorrelations of the Big Five were structurally invariant across the two measurement points.

Rank–order stability. As shown in Table 1, the rank-order stability coefficients for the Big Five dimensions were medium to large in size, ranging from .65 for Agreeableness and Neuroticism to .75 for Openness. The correlations are, therefore, within the range of values reported in previous studies for this age group (Asendorpf & Wilpers, 1998; Roberts et al., 2001; Vaidya et al., 2002).

Mean-level personality change. The means and standard deviations of each personality dimension at T1 and T2 as well as the standardized difference scores between the two measurement points are reported in Table 1. We expected mean change in the Big Five to follow the maturity principle, which predicts normative developmental change at the mean level in personality. Neuroticism scores decreased over the 2-year period ($d = -.28$). Scores on Agreeableness, Conscientiousness, and Openness showed small- to medium-sized increases over time, with standardized mean differences ranging from .16 to .30. In contrast, Extraversion did not show meaningful change ($d = .05$). With this exception, the mean-level changes observed over the 2-year period under investigation were, thus, in line with the maturity principle.

Individual differences in personality change. In the next step, we considered change at the individual level. Individual scores were classified as having stayed the same if they were within the 95% confidence interval of the RCI, or as having increased or decreased if their RCI score was not covered by the 95% confidence interval. As shown in Table 2, a high level of stability was observed at the individual level. For instance, 91.6% of the sample had similar levels of Extraversion at both assessment points. Most change was seen in the Conscientiousness (19.2%) and Neuroticism (18.5%) scales. Consistent with findings on normative change, 15.2% of participants showed reliable increases in Conscientiousness and 14.0% showed reliable decreases in Neuroticism. We also summed the number of personality dimensions on which each individual experienced reliable change to determine the modal amount of change a participant experienced across the five personality traits. In sum, 44% of participants experienced reliable change (either an increase or a decrease) on one

TABLE 1: Intercorrelations and Change in the Big Five Personality Traits Over 2 Years

| | T1 | | | | Mean | T2 Rank–Order | | | | | |
	M	SD	M	SD	Change d	Stability	1	2	3	4	5
1. Extraversion	2.86	0.40	2.89	0.41	.05	.70	—	.23	.21	−.42	.04
2. Agreeableness	2.94	0.35	3.03	0.36	.25	.65	.24	—	.13	−.15	.09
3. Conscientiousness	2.93	0.44	3.06	0.43	.30	.69	.13	.11	—	−.28	−.08
4. Neuroticism	2.30	0.45	2.17	0.51	−.28	.65	−.39	−.13	−.27	—	.05
5. Openness	2.78	0.44	2.89	0.44	.16	.75	**.03**	.04	−.09	.07	—

NOTE: $N = 2,141$. All changes in mean level are statistically significant at $p < .01$; $d =$ (Mean of T2 − Mean of T1) / Pooled Standard Deviation. Intercorrelations at T1 are reported below the diagonal; intercorrelations at T2 are reported above the diagonal; all correlations except those shown in bold are statistically significant at $p < .05$.

TABLE 2: Percentage of Individuals Showing Reliable Change in the Big Five Personality Traits

	Decrease %	No Change %	Increase %
Extraversion	3.6	91.6	4.8
Agreeableness	1.9	91.8	6.3
Conscientiousness	4.1	80.8	15.2
Neuroticism	14.0	81.5	4.5
Openness	1.5	94.2	4.3

NOTE: $N = 2,141$. Percentage of individuals whose scores on each dimension decreased, stayed the same, or increased, according to the Reliable Change Index. The expected frequencies are 2.5%, 95%, and 2.5%. The observed frequencies differ from the expected frequencies for each of the Big Five dimensions (χ^2 values ranged from 36.5 to 1448.7, all ps < .01).

or more personality dimension in the 2 years. Most participants experienced reliable change on either one (30%) or two (10%) personality dimensions. Of the sample, 4% experienced reliable change on three or more personality dimensions. On average, participants experienced reliable change on .60 Big Five dimensions. Overall, these results indicate a relatively high level of stability at the individual level, congruent with the findings on individual change reported by Robins et al. (2001) for a 4-year period.

Stability and Change of Life Goal Importance

Structural stability. Table 3 shows the correlations between the eight life goal dimensions assessed at both measurement points. We formally tested the structural stability of the life goals using the same procedure as for the Big Five personality dimensions (Robins et al., 2001). First, a single-indicator latent variable model was specified in which one latent variable was associated with each of the 16 scores (eight dimensions of the life goal dimensions × two assessment points). This is a fully saturated model, with the variances of latent variables fixed to 1 and the residuals fixed to 0. The correlations between the latent variables were freely estimated. Second, a model was specified in which all correlations between all pairwise life goals across the two assessment points were constrained to be equal. The constrained model showed a very good fit, $\Delta\chi^2(28) = 102.50, p = .000, \text{CFI} = .99, \text{RMSEA} = .03$, indicating that the saturated model did not fit better than the model with equal correlations. In line with the results for the Big Five personality dimensions, we can, therefore, conclude that the intercorrelations of the life goal dimensions were structurally invariant across the two measurement points.

Rank–order stability. The rank–order stability of the goal dimensions is also documented in Table 3. The correlations were of medium size, ranging from .40 for Relationships to .64 for Wealth. The average 2-year test–retest correlation was .53, which is lower than that computed for the Big Five ($r = .69$).

Mean-level goal change. The means and standard deviations of each goal dimension at T1 and T2 as well as the standardized difference scores between the two measurement points are reported in Table 3. Consistent with the selection hypothesis, which states that the overall importance of goals should decrease in young adulthood, statistically significant decreases in the level of goal importance from T1 to T2 were found for Personal Growth ($d = -.13$), Relationships ($d = -.18$), Community ($d = -.21$), Wealth ($d = -.09$), Fame ($d = -.12$), Image ($d = -.33$), and Hedonism ($d = -.17$). Health goals did not show statistically significant change over time.

Individual differences in goal change. We next computed RCIs for the importance ratings of each goal dimension and classified participants as reliable decreasers, reliable increasers, or nonchangers. As Table 4 shows, we found reliable individual differences in change for all goal dimensions. The proportion of respondents exhibiting reliable change ranged between 27.2% for Relationships and 12.9% for Personal Growth. Individual change in the importance of life goals was

TABLE 3: Intercorrelations and Change in Life Goal Importance Over 2 Years

	T1		T2		Mean Change d	Rank–Order Stability	1	2	3	4	5	6	7	8
	M	SD	M	SD										
1. Personal growth	3.58	0.39	3.53	0.41	–.13	.44	—	.35	.38	.33	–.05	**.04**	.06	.29
2. Relationships	3.79	0.37	3.72	0.42	–.18	.40	.36	—	.21	.29	**–.02**	**–.04**	.14	.21
3. Community	3.02	0.56	2.90	0.60	–.21	.57	.33	.23	—	.21	–.27	.03	–.04	.05
4. Health	3.41	0.46	3.42	0.44	.02	.50	.27	.21	.16	—	.12	.06	.24	.31
5. Wealth	2.61	0.66	2.56	0.63	–.09	.64	**.01**	**–.01**	–.29	.17	—	.49	.51	.29
6. Fame	1.99	0.59	1.92	0.57	–.12	.55	.09	.04	**.04**	.11	.40	—	.49	.25
7. Image	2.56	0.62	2.35	0.64	–.33	.59	.14	.18	**.00**	.36	.46	.43	—	.33
8. Hedonism	3.36	0.45	3.28	0.48	–.17	.52	.33	.21	.08	.29	.30	.28	.35	—

NOTE: $N = 2,141$. All changes in mean level are statistically significant at $p < .01$ except for the importance of health ($p = .11$). $d =$ (Mean of T2 – Mean of T1) / Pooled Standard Deviation. Intercorrelations at T1 are reported below the diagonal; intercorrelations at T2 are reported above the diagonal; all correlations except those shown in bold are statistically significant at $p < .05$.

thus somewhat more pronounced than individual change in the Big Five.

We also summed the number of goals on which each individual showed reliable change to determine the modal amount of change a participant experienced across the eight goal dimensions. In sum, 77% of the sample experienced reliable change (either an increase or a decrease) on one or more goal dimension in the 2 years. Most participants experienced reliable change on one (31%), two (24%), or three (13%) goal dimensions. Of the sample, 9% experienced reliable change on four or more goal dimensions. On average, participants experienced reliable change on 1.59 goal dimensions.

Relations Between Personality Trait and Life Goal Development

In the next step of the analysis, we investigated the longitudinal associations between personality traits and life goals. A total of 40 (eight life goal dimensions × five personality traits) reciprocal effects models were estimated to determine the effect of T1 personality traits on T2 life goal importance and vice versa (see Figure 1). The fit of the models was satisfactory (RMSEA: $M = .04$, $SD = .01$; CFI: $M = .97$, $SD = .02$). Table 5 presents the concurrent correlations at T1 and T2 for each goal–trait combination and the cross-lagged path coefficients relating T1 and T2 constructs. The correlations between the Big Five personality traits and life goals at T1 were modest. The most pronounced associations for each trait were the positive relations between Extraversion and Hedonism ($r = .34$), Agreeableness and Community ($r = .41$), Conscientiousness and Health ($r = .22$), Neuroticism and Image ($r = .17$), and Openness and Personal Growth ($r = .54$).

Furthermore, the results showed several statistically significant prospective effects of T1 personality traits on

TABLE 4: Percentage of Individuals Showing Reliable Change in Life Goal Importance

	Decrease %	No Change %	Increase %
Personal growth	8.3	87.2	4.6
Relationships	17.6	72.8	9.6
Community	17.0	75.2	7.8
Health	7.9	83.0	9.2
Wealth	13.3	77.3	9.4
Fame	14.5	76.5	9.1
Image	12.3	85.0	2.8
Hedonism	11.4	83.1	5.5

NOTE: $N = 2,141$. Percentage of individuals whose scores on each dimension decreased, stayed the same, or increased, according to the Reliable Change Index. The expected frequencies are 2.5%, 95%, and 2.5%. The observed frequencies differ from the expected frequencies for each of the goal importance dimensions (χ^2 values ranged from 340.0 to 2,495.5, all ps $< .01$).

T2 life goal importance. Specifically, T1 Extraversion positively predicted T2 Fame (.06) and T2 Hedonism (.09). T1 Agreeableness was positively linked to T2 Relationships (.11) and negatively related to T2 Fame (–.06) and T2 Image (–.06). T1 Conscientiousness positively predicted T2 Wealth (.05) and T2 Fame (.07). T1 Neuroticism was positively related to T2 Community (.08) and negatively linked to T2 Wealth (–.05). Finally, T1 Openness to Experience positively predicted T2 Personal Growth (.25). Only two statistically significant prospective effects of T1 life goal importance on T2 personality traits were found: T1 Relationships (.06) and T1 Community (.06) positively predicted T2 Conscientiousness.

Gender Differences in Life Goal Importance and Personality Traits

We tested for gender differences in each of the four forms of continuity and change for the five personality

TABLE 5: Correlations Between Big Five Personality Traits and Life Goal Importance at T1 and Predictive Effects of Big Five Personality Traits and Life Goal Importance

Goal Importance	Extraversion				Agreeableness				Conscientiousness				Neuroticism				Openness			
	r_{T1}	P→G	G→P	r_{T2}	r_{T1}	P→G	G→P	r_{T2}	r_{T1}	P→G	G→P	r_{T2}	r_{T1}	P→G	G→P	r_{T2}	r_{T1}	P→G	G→P	r_{T2}
Personal growth	**.22**	−.01	.00	**.10**	**.11**	.08	−.02	**.10**	**.07**	−.01	−.01	**.07**	**.08**	.06	.04	−.02	**.54**	**.25**	.03	**.13**
Relationships	**.21**	.02	.03	**.05**	**.25**	**.11**	−.01	**.13**	**.08**	.01	.06	.04	**.07**	.03	−.01	.02	**.11**	.06	.01	**.06**
Community	**.22**	−.05	.01	**.06**	**.41**	.04	.00	**.11**	.03	−.05	.06	.03	**.10**	**.08**	.01	−.02	**.30**	.02	.03	**.10**
Health	**.21**	.05	.01	**.06**	**.09**	.05	.00	**.06**	**.22**	.05	−.01	**.10**	−.07	−.01	.01	−.04	−.05	.02	.00	.02
Wealth	**.12**	.03	−.03	.03	**−.38**	−.02	−.03	**−.11**	**.15**	.05	−.03	.04	**−.07**	−.05	.02	−.01	**−.26**	−.04	.01	**−.08**
Fame	**.24**	**.06**	.01	.03	**−.20**	−.06	.00	**−.13**	−.02	**.07**	−.02	−.01	**.07**	−.03	.04	.04	.05	−.05	.00	−.01
Image	**.22**	−.02	.01	.02	**−.12**	−.06	.00	**−.07**	.05	−.02	.04	−.01	**.17**	.00	.03	**.04**	**−.09**	−.01	.01	−.04
Hedonism	**.34**	**.09**	−.01	**.11**	−.03	.05	.00	.03	**−.08**	−.04	.00	.02	−.04	−.02	.02	−.04	**.14**	.05	.01	**.06**

NOTE: $N = 2{,}141$. Correlations and standardized path coefficients statistically significant at $p < .01$ are shown in bold print. r_{T1} = concurrent correlations among T1 personality traits and T1 life goal importance; P → G = prospective effect of T1 personality traits on T2 life goal importance controlling for stability of life goal importance; P → G = prospective effect of T1 life goal importance on T2 personality traits controlling for stability of personality traits; r_{T2} = concurrent correlations among T2 personality trait residuals and T2 life goal importance residuals.

traits and the eight life goal dimensions. Table 6 contains information on gender differences in personality and life goal importance, gender differences in change, gender differences in reliable change, and test–retest stability for men and women. First, with respect to gender differences in the mean levels of personality traits, women scored higher than men did at T1 and T2 on Extraversion, Agreeableness, Neuroticism, and Openness. There was virtually no gender difference in Conscientiousness. With respect to life goals, women's importance ratings of life goals from the domains of Personal Growth, Relationships, Community, Health, and Image were higher than men's. Men rated the domains of Wealth and Fame to be more important. No statistically significant differences were found for the Hedonism scale. Second, we examined whether the mean-level change from T1 to T2 interacted with gender. Only one statistically significant Time × Gender interaction effect was found ($p < .01$), with men showing a more pronounced decrease on Neuroticism in the 2-year period. The effect size associated with that interaction was very small, however. We can thus conclude that mean-level change is largely independent of gender. Third, with respect to individual-level change, we recoded the RCI such that individuals who changed statistically significantly in either direction were given a score of 1 and nonchangers were given a 0 on each scale. We cross-tabulated these scores with gender (scored 0 = male, 1 = female) to determine whether men or women were more likely to demonstrate reliable change on any given scale. The phi correlations in Table 6 reveal that more men than women showed reliable change on Personal Growth ($r = −.07$) and Relationships ($r = −.11$) goals, but the effect sizes for these gender differences were small. No gender differences in reliable change were found for the Big Five dimensions. Fourth, with respect to differential stability, the final column of Table 6 shows that the test–retest correlations between T1 and T2 were comparable for men and women; the average test–retest correlation was .59 for men and .58 for women.

Finally, we tested the longitudinal associations between personality traits and life goals separately for gender. To this end, analogous to the procedure described above, a total of 40 (eight life goal dimensions × five personality traits) reciprocal effects models were estimated for men and women separately. The models showed a good degree of fit for men (RMSEA: $M = .04$, $SD = .01$; CFI: $M = .97$, $SD = .01$). The results showed several statistically significant prospective effects of T1 personality traits on T2 life goal importance. Specifically, T1 Extraversion positively predicted T2 Health (.08); T1 Agreeableness was negatively linked to T2 Fame (−.08); T1 Conscientiousness positively predicted T2 Fame (.08); T1 Neuroticism was positively related to T2 Community (.08); and T1 Openness to Experience positively predicted T2 Personal Growth (.24) and T2 Relationships (.08) and negatively predicted T2 Wealth (−.08). Four statistically significant prospective effects of T1 life goal importance on T2 personality traits were found for men: T1 Personal Growth negatively predicted T2 Extraversion (−.07); T1 Image negatively predicted T2 Agreeableness (−.08); and T1 Relationships (.08) and T1 Community (.06) positively predicted T2 Conscientiousness. The 40 models also showed a very good degree of fit for women (RMSEA: $M = .04$, $SD = .02$; CFI: $M = .98$, $SD = .02$). Again, the results showed several statistically significant prospective effects of T1 personality traits on T2 life goal importance.

TABLE 6: Cross-Sectional and Longitudinal Gender Differences in the Big Five Personality Traits and Life Goal Importance

| | Cross-Sectional Differences | | | | | | Longitudinal Differences in Change | | | |
| | T1 | | T2 | | Gender d Score[a] | | Change Over Time d Score[b] | Gender × Time η^{2} [c] | Gender Correlation With Reliable Change[d] | Test–Retest Stability Coefficient |
	M	SD	M	SD	T1	T2				
Personality										
Extraversion					.18	.25		.00	−.04	
Women	2.88	0.40	2.92	0.41			.10			.71*
Men	2.82	0.40	2.83	0.42			.02			.68*
Agreeableness					.32	.34		.00	.02	
Women	2.98	0.34	3.07	0.34			.27			.63*
Men	2.87	0.36	2.95	0.37			.22			.65*
Conscientiousness					.02	.12		.00	.02	
Women	2.93	0.44	3.07	0.43			.33			.68*
Men	2.92	0.46	3.02	0.44			.22			.70*
Neuroticism					.46	.54		.01*	−.01	
Women	2.37	0.45	2.27	0.49			−.21			.64*
Men	2.17	0.42	1.99	0.48			−.35			.61*
Openness					.23	.23		.00	−.01	
Women	2.81	0.43	2.88	0.43			.19			.74*
Men	2.71	0.45	2.79	0.45			.18			.76*
Goal Importance										
Personal growth					.45	.57		.00	−.07*	
Women	3.64	0.35	3.60	0.37			−.03			.41*
Men	3.48	0.42	3.40	0.44			−.16			.42*
Relationships					.37	.38		.00	−.11*	
Women	3.84	0.31	3.78	0.35			−.18			.34*
Men	3.70	0.44	3.62	0.49			−.17			.40*
Community					.47	.37		.00	−.03	
Women	3.12	0.51	2.97	0.59			−.24			.56*
Men	2.86	0.59	2.77	0.59			−.15			.56*
Health					.13	.16		.00	−.03	
Women	3.43	0.45	3.45	0.43			.05			.49*
Men	3.36	0.48	3.38	0.47			.02			.49*
Wealth					−.45	−.35		.00	−.04	
Women	2.51	0.63	2.47	0.61			−.08			.62*
Men	2.80	0.66	2.70	0.65			−.17			.63*
Fame					−.19	−.17		.00	−.04	
Women	1.95	0.56	1.88	0.53			−.13			.55*
Men	2.05	0.62	1.98	0.62			−.13			.53*
Image					.39	.30		.00	.03	
Women	2.65	0.59	2.42	0.62			−.40			.57*
Men	2.41	0.65	2.22	0.66			−.29			.60*
Hedonism					.00	.06		.00	−.03	
Women	3.36	0.45	3.29	0.47			−.17			.52*
Men	3.36	0.46	3.25	0.50			−.23			.52*

NOTE: N (women) = 1,344. N (men) = 797.
a. The T1 and T2 gender d scores represent differences between women and men divided by the pooled standard deviation.
b. The change over time d scores reflect the magnitude of the change from T1 to T2 for women and men divided by the pooled standard deviation.
c. The Gender × Time η^{2} represents the magnitude of the effect size of the interaction between gender and time on personality change.
d. Reliable change was recoded such that 0 = *no change* and 1 = *reliable change in either direction*; gender was coded such that 0 = *male*, 1 = *female*; the numbers represent phi correlations.
*p < .01.

Specifically, T1 Extraversion positively predicted T2 Hedonism (.10); T1 Agreeableness was positively linked to T2 Relationships (.11) and negatively related to T2 Image (−.07); T1 Neuroticism was positively related to T2 Community (.08); and T1 Openness to Experience positively predicted T2 Personal Growth (.25). No statistically significant prospective effects of T1 life goal importance on T2 personality traits were found.

DISCUSSION

This study examined the development of personality traits and life goals at an important transition period in young adulthood. The three most important findings are as follows. First, our findings confirmed the maturity principle, which predicts normative developmental changes in personality traits across the lifespan. In contrast, the mean importance of life goals decreased in the 2-year investigation period. Second, reciprocal effects models revealed that there were effects of prior personality traits on subsequent life goal importance but almost no effects of prior life goal importance on subsequent personality traits. Third, separate analyses by gender showed that the findings were almost invariant across gender. In the discussion that follows, we first consider how this study contributes to research on continuity and change in personality traits and life goals. Against the background of the findings reported, we then discuss the theoretical integration of personality traits and life goals.

Continuity and Change in Personality Traits and Life Goals

This research examined four types of psychological continuity and change in a longitudinal sample of young adults. First, we investigated the structural stability of the Big Five personality traits and life goal importance. Our results showed that both domains showed structural stability across time. Whereas a number of previous studies have already demonstrated the structural stability of the Big Five (see De Fruyt et al., 2006; Robins et al., 2001; Vaidya et al., 2002), this study is, to our knowledge, the first to present evidence for the structural stability of life goal importance.

Second, the rank–order stability of the Big Five personality dimensions was of the magnitude expected on the basis of the meta-analytical findings by Roberts and DelVecchio (2000). The rank–order stability of life goal importance was somewhat lower, however. The average 2-year test–retest correlation was .53, which is lower than that computed for the Big Five ($r = .69$). The correlations reported by Roberts et al. (2004) for seven goal dimensions over the 4 years of the undergraduate college career were, on average, of a similar magnitude ($r = .56$). It is important to bear in mind that the environments of the students in the Roberts et al. study remained relatively constant. Taking into account that the participants in our study experienced major environmental changes at the transition from school to college, the test-retest correlations reported attest to considerable stability in life goal importance.

Third, the mean-level change observed in the Big Five personality dimensions was consistent with the maturity principle, which predicts normative developmental change in personality traits over time. In line with the findings of the three previous studies (Asendorpf & Wilpers, 1998; Robins et al., 2001; Vaidya et al., 2002) investigating mean-level change in the Big Five personality dimensions in the college years, Conscientiousness and Openness increased over time. Furthermore, our findings provide empirical support for the assumption that Agreeableness increases and Neuroticsm decreases in this age group. No significant increase was observed in Extraversion in our sample. The findings of the meta-analysis by Roberts et al. (2006) indicate that mean-level changes in the Extraversion facets of Social Vitality and Social Dominance might profitably be examined separately. In our age group, mean increases can be expected in Social Dominance but less so in Emotional Stability. With respect to the importance of life goals, the pattern of mean-level change indicates that normative change in life goals does not parallel the normative trends found in personality traits. Rather, the importance of life goals decreases in all domains except health over the transitional period investigated. The mean decrease in the life goal dimensions was of approximately the same magnitude as reported by Roberts et al. (2004). These findings thus support the selection hypothesis, according to which individuals focus their limited personal and social resources on a few selected goals or goal dimensions (see Baltes et al., 2006). In this population, this process of selection is reflected in a mean decrease in life goal importance across all dimensions. It is possible that no statistically significant decrease was observed in the importance of Health goals because the meaning of health tends to increase with age (Heckhausen, 1997; Nurmi, 1992).

Fourth, RCI scores were used to investigate individual-level change. Despite the normative change in mean scores observed for the Big Five personality traits, only a moderate number of individuals showed reliable change on any of the five dimensions (below 20% for all five dimensions). The percentage of participants showing a reliable increase or decrease in a personality trait was consistent with the mean-level change in that trait. Conscientiousness was both the personality trait with the greatest mean increase and the trait for which most participants showed a reliable increase. A similar picture emerged for life goal importance, although there was, on average, somewhat more reliable change in life goals than in personality traits (see also Roberts et al., 2004).

Given its relatively large sample size, this study was suitable for testing gender differences in aspects of life goal importance and personality. First, the established cross-sectional pattern of gender differences (P. Costa et al., 2001; Feingold, 1994) was replicated. Women scored higher than men did on the Big Five personality traits of Extraversion, Agreeableness, Neuroticism, and

Openness and rated life goals from the dimensions of Personal Growth, Relationships, Community, Health, and Image to be more important. Men rated Wealth and Fame goals to be more important than did women. Gender differences in the different types of stability have been the subject of relatively little previous research, however (see Roberts et al., 2001). With two exceptions, our findings were almost invariant across gender. First, men showed a somewhat larger decrease in Neuroticism than women did. This finding is in line with the longitudinal findings of Roberts et al. (2001), who found that men aged 18 to 26 years showed a stronger mean decrease in Negative Emotionality than women did. Second, men showed slightly more reliable change in the importance of Personal Growth and Relationship goals than women did. Overall, then, despite mean-level gender differences, men and women evidenced almost identical developmental trajectories for personality traits and life goal importance over the period of investigation.

The Relationship Between Personality Traits and Life Goals

What does this study tell us about the relationship between personality traits and life goals? At first glance, life goals and personality traits seem to have much in common. Both test–retest correlations and individual-level change as measured by the RCI were of comparable magnitude in the two domains. The moderate synchronous correlations found between the Big Five personality traits and life goals also support the assumption that the formulation and pursuit of life goals is associated with the individual personality (Little et al., 1992; Roberts & Robins, 2000). However, the divergent patterns of normative change reported in both this study and the Roberts et al. (2004) study indicate that life goals and personality also assess distinct aspects of human functioning. Whereas the Big Five personality traits follow the maturity principle, both studies observe a general decrease in the importance of the goal dimensions assessed. These differences in normative developmental trends underscore the conclusion drawn by Roberts et al. (2004, p. 548) that, "as a unit of analysis, life goals deserve more attention in longitudinal research."

The reciprocal effects models reveal prospective effects of personality traits on subsequent life goal importance; however, the size of the effects was rather small. According to the criteria established by Cohen (1988) for effect sizes, only the effect of Openness to Experience on Personal Growth was of a substantive size. This effect may partly be attributable to an increased level of participation in cultural activities among people high in Openness. Using the same sample as in this study, Kröner, Lüdtke, Maaz, Trautwein, and Köller (2008) showed

that, during this transition period, Openness predicts subsequent cultural activities even when controlling for artistic interest and social background.

On the other hand, almost no substantive effects of prior life goal importance on subsequent personality traits were found. This finding is consistent with prior research in the study of personality–relationship transactions, which found the Big Five personality traits to be largely immune to experiences in relationships (Asendorpf & van Aken, 2003; Neyer & Asendorpf, 2001).

Limitations and Future Directions

Several limitations of this study warrant attention. First, our analysis was restricted to self-reports. It would have been possible to obtain observer ratings for personality traits to reduce the common method variance, but it is doubtful that the importance of life goals could have been assessed by observer ratings. Second, the analyses are based on data from just two points of measurement, meaning that no conclusions can be drawn on the shape of the developmental trajectory in different personality domains. Future studies obtaining data several points of measurement could use growth curve models to examine interindividual differences in intraindividual developmental trajectories (for an overview, see Mroczek, Almeida, Spiro, & Pafford, 2006). Third, from a theoretical perspective, it is important to learn more about developmental trajectories in the importance of life goals. At just 2 years, our period of investigation was relatively short, and it remains unclear to what extent the general decrease observed in the importance of life goals continues after this transitional period. Fourth, the focus of future studies on personality development should be shifted to identifying predictors or possible causes of change. In future research, we will examine the extent to which contextual influences (e.g., higher education vs. vocational or professional training) affect the main principles of personality development.

NOTES

1. Several longitudinal studies have assessed personal goals using idiographic techniques (Nurmi & Salmela-Aro, 2002; Salmela-Aro & Nurmi, 1997), such as Emmons's (1989) personal striving approach or Little's (1989) personal projects. Because of the individualized nature of these open-ended techniques, it is more difficult to quantify the degree of stability in these studies than in studies using standardized questionnaires (e.g., NEO Five-Factor Inventory).

2. In the German education system, lower grade point averages indicate higher achievement.

3. The factorial structure of the Aspiration Index was clearly replicated at item level in the German version. Each item had its highest loading on the expected factor.

4. Because, in large samples, the χ^2 statistic has a tendency to reject models that are only marginally inconsistent with the data, the CFI

and RMSEA were used to evaluate the fit of the models. CFIs in the mid-.90s or above and RMSEAs of .05 or smaller were considered a good approximation of the data (Hu & Bentler, 1999).

REFERENCES

Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist*, *55*, 469-480.

Asendorpf, J. B., & van Aken, M. A. G. (2003). Personality–relationship transaction in adolescence: Core versus surface personality characteristics. *Journal of Personality*, *71*, 629-666.

Asendorpf, J. B., & Wilpers, S. (1998). Personality effects on social relationships. *Journal of Personality and Social Psychology, 74,* 1531-1544.

Baltes, P. B., Lindenberger, U., & Staudinger, U. M. (2006). Life span theory in developmental psychology. In W. Damon & R. M. Lerner (Eds.), *Handbook of child psychology: Vol. 1. Theoretical models of human development* (6th ed., pp. 569-664). New York: Wiley.

Borkenau, P., & Ostendorf, F. (1993). *NEO-Fünf-Faktoren Inventar nach Costa und McCrae.* [NEO Five Factor Inventory after Costa and McCrae]. Göttingen: Hogrefe.

Caspi, A., Roberts, B. W., & Shiner, R. L. (2005). Personality development: Stability and change. *Annual Review of Psychology*, *56*, 453-484.

Caspi, A., & Shiner, R. L. (2006). Personality development. In N. Eisenberg, W. Damon, & R. M. Lerner (Eds.), *Handbook of child psychology: Vol. 3. Social, emotional, and personality development* (6th ed., pp. 300-365). Hoboken, NJ: Wiley.

Christensen, L., & Mendoza, J. (1986). A method of assessing change in a single subject: An alteration of the RC index. *Behavior Therapy*, *17*, 305-308.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Hillsdale: Erlbaum.

Costa, P., Jr., Terracciano, A., & McCrae, R. R. (2001). Gender differences in personality traits across cultures: Robust and surprising findings. *Journal of Personality and Social Psychology*, *81*, 322-331.

Costa, P. T., & McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO PI-R) and NEO Five Factor Inventory (NEO-FFI): Professional manual.* Odessa, FL: Psychological Assessment Resources.

Deci, E. L., & Ryan, R. M. (1997). *Aspiration Index: Scale description.* Rochester, NY: Rochester University, Department of Clinical and Social Science in Psychology. Retrieved December 2001 from http://www.psych.rochester.edu/SDT/measures/aspir.html

De Fruyt, F., Van Leeuwen, K. G., Bagby, R. M., Rolland, J.-P., & Rouillon, F. (2006). Assessing and interpreting personality change and continuity in patients treated for major depression. *Psychological Assessment*, *19*, 71-80.

Emmons, R. A. (1989). The personal striving approach to personality. In L. A. Pervin (Ed.), *Goal concepts in personality and social psychology* (pp. 87-126). Hillsdale, NJ: Erlbaum.

Feingold, A. (1994). Gender differences in personality: A meta-analysis. *Psychological Bulletin*, *116*, 429-456.

Fraley, R., & Roberts, B. W. (2005). Patterns of continuity: A dynamic model for conceptualizing the stability of individual differences in psychological constructs across the life course. *Psychological Review*, *112*, 60-74.

Freund, A. M., & Baltes, P. B. (2000). The orchestration of selection, optimization, and compensation: An action-theoretical conceptualization of a theory of developmental regulation. In W. J. Perrig & A. Grob (Eds.), *Control of human behavior, mental processes and consciousness* (pp. 35-58). Mahwah, NJ: Erlbaum.

Grouzet, F. M. E., Kasser, T., Ahuvia, A., Dols, J. M. F., Kim, Y., Lau, S., et al. (2005). The structure of goal contents across 15 cultures. *Journal of Personality and Social Psychology*, *89*, 800-816.

Heckhausen, J. (1997). Developmental regulation across adulthood: Primary and secondary control of age-related challenges. *Developmental Psychology*, *33*, 176-187.

Helson, R., & Moane, G. (1987). Personality change in woman from college to midlife. *Journal of Personality and Social Psychology*, *59*, 311-320.

Hu, L.-T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, *6*, 1-55.

Jacobson, N. S., Roberts, L. J., Berns, S. B., & McGlinchey, J. B. (1999). Methods for defining and determining the clinical significance of treatment effects: Description, application, and alternatives. *Journal of Consulting and Clinical Psychology*, *67*, 300-307.

John, O. P., & Srivastava, S. (1999). The Big Five trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (2nd ed., pp. 102-138). New York: Guilford.

Jöreskog, K. G. (1979). Statistical estimation of structural models in longitudinal investigations. In J. R. Nesselroade & P. B. Baltes (Eds.), *Longitudinal research in the study of behavior and development* (pp. 303-351). New York: Academic Press.

Kaplan, D. (2000). *Structural equation modeling*. Newbury Park, CA: Sage.

Kasser, T., & Ryan, R. M. (1996). Further examining the American dream: Differential correlates of intrinsic and extrinsic goals. *Personality and Social Psychology Bulletin*, *22*, 280-287.

King, L. A., & Broyles, S. J. (1997). Wishes, gender, personality, and well-being. *Journal of Personality*, *65*, 49-76.

Kishton, J. M., & Widaman, K. F. (1994). Unidimensional versus domain representative parceling of questionnaire items: An empirical example. *Educational and Psychological Measurement*, *54*, 757-765.

Klusmann, U., Trautwein, U., & Lüdtke, O. (2005). Intrinsische und extrinsische Lebensziele: Reliabilität und Validität einer deutschen Fassung des Aspirations Index [Reliability and validity of a German translation of the Aspiration Index]. *Diagnostica*, *51*, 40-51.

Köller, O., Watermann, R., Trautwein, U., & Lüdtke, O. (2004). *Wege zur Hochschulreife in Baden-Württemberg. TOSCA—Eine Untersuchung an allgemein bildenden und beruflichen Gymnasien* [Educational pathways to college in Baden-Württemberg. TOSCA—A study of traditional and vocational Gymnasium schools]. Opladen: Leske + Budrich.

Kröner, S., Lüdtke, O., Maaz, K., Trautwein, U., & Köller, O. (2008). Künstlerisches Interesse und Offenheit für Erfahrung als Prädiktor für Veränderungen kultureller Partizipation in der Emerging Adulthood [Openness to experience as a predictor of changes in cultural participation during emerging adulthood]. *Zeitschrift für Entwicklungspsychologie und Pädagogische Psychologie*, *40*, 100-110.

Little, B. R. (1989). Personal project analysis: Trivial pursuits, magnificent obsessions, and the search for coherence. In D. M. Buss & N. Cantor (Eds.), *Personality psychology: Recent trends and emerging directions* (pp. 15-31). New York: Springer.

Little, B. R., Lecci, L., & Watkinson, B. (1992). Personality and personal projects: Linking Big Five and PAC units of analysis. *Journal of Personality*, *60*, 501-525.

Lüdtke, O., Trautwein, U., Nagy, G., & Köller, O. (2004). Eine Validierungsstudie zum NEO-FFI in einer Stichprobe junger Erwachsener: Effekte des Itemformats, faktorielle Validität und Zusammenhänge mit Schulleistungsindikatoren [A validation of the NEO-FFI in a sample of young adults: Effects of the response

format, factorial validity, and relations with indicators of academic achievement]. *Diagnostica*, 50, 134-144.

Marsh, H. W., & Hau, K.-T. (1996). Assessing goodness of fit: Is parsimony always desirable? *Journal of Experimental Education*, 64, 364-390.

Marsh, H. W., Trautwein, U., Lüdtke, O., Köller, O., & Baumert, J. (2005). Academic self-concept, interest, grades, and standardized test scores: Reciprocal effects models of causal ordering. *Child Development*, 76, 397-416.

McCrae, R. R. (1996). Integrating the levels of personality. *Psychological Inquiry*, 7, 353-356.

Mroczek, D. K., Almeida, D. M., Spiro, A., & Pafford, C. (2006). Modeling intraindividual stability and change in personality. In D. K. Mroczek & T. D. Little (Eds.), *Handbook of personality* (pp. 163-180). Mahwah, NJ: Erlbaum.

Mroczek, D. K., & Little, T. D. (2006). *Handbook of personality development*. Mahwah, NJ: Erlbaum.

Neyer, F. J., & Asendorpf, J. B. (2001). Personality–relationship transaction in young adulthood. *Journal of Personality and Social Psychology*, 81, 1190-1204.

Nurmi, J.-E. (1992). Age differences in adult life goals, concerns, and their temporal extension: A life course approach to future-oriented motivation. *International Journal of Behavioral Development*, 15, 487-508.

Nurmi, J.-E. (2001). *Navigating through adolescence: European perspectives*. New York: Falmer.

Nurmi, J.-E., & Salmela-Aro, K. (2002). Goal construction, reconstruction and depressive symptoms in a life-span context: The transition from school to work. *Journal of Personality*, 70, 385-420.

Pervin, L. A. (Ed.). (1989). *Goal concepts in personality and social psychology*. Hillsdale, NJ: Lawrence Erlbaum.

Pervin, L. A. (1994). A critical analysis of current trait theory. *Psychological Inquiry*, 5, 103-113.

Raykov, T. (2004). Behavioral scale reliability and measurement invariance evaluation using latent variable modeling. *Behavior Therapy*, 35, 299-331.

Roberts, B. W., Caspi, A., & Moffitt, T. E. (2001). The kids are alright: Growth and stability in personality development from adolescence to adulthood. *Journal of Personality and Social Psychology*, 81, 670-683.

Roberts, B. W., & DelVecchio, W. F. (2000). The rank–order consistency of personality traits from childhood to old age: A quantitative review of longitudinal studies. *Psychological Bulletin*, 126, 5-25.

Roberts, B. W., O'Donnell, M., & Robins, R. W. (2004). Goal and personality trait development in emerging adulthood. *Journal of Personality and Social Psychology*, 87, 541-550.

Roberts, B. W., & Robins, R. W. (2000). Broad dispositions, broad aspirations: The intersection of personality traits and major life goals. *Personality and Social Psychology Bulletin*, 26, 1284-1296.

Roberts, B. W., Walton, K. E., & Viechtbauer, W. (2006). Patterns of mean-level change in personality traits across the life course: A meta-analysis of longitudinal studies. *Psychological Bulletin*, 132, 1-25.

Robins, R. W., Fraley, R. C., Roberts, B. W., & Trzesniewski, K. H. (2001). A longitudinal study of personality change in young adulthood. *Journal of Personality*, 69, 617-640.

Salmela-Aro, K., & Nurmi, J.-E. (1997). Goal contents, well-being, and life context during transition to university: A longitudinal study. *International Journal of Behavioral Development*, 20, 471-491.

Vaidya, J. G., Gray, E. K., Haig, J., & Watson, D. (2002). On the temporal stability of personality: Evidence for differential stability and the role of life experiences. *Journal of Personality & Social Psychology*, 83, 1469-1484.

Winter, D. G., John, O. P., Stewart, A. J., Klohnen, E. C., & Duncan, L. E. (1998). Traits and motives: Toward an integration of two traditions in personality research. *Psychological Review*, 105, 230-250.