Psychosocial Development From College Through Midlife: A 34-Year Sequential Study

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Two cohorts of alumni, leading-edge and trailing-edge baby boomers, first tested in their college years, were followed to ages 43 ($N = 136$) and 54 ($N = 182$) on a measure of Erikson's theory of psychosocial development. Hierarchical linear modeling was used to model the trajectory of growth for each psychosocial issue across middle adulthood. As predicted, the early psychosocial issues (trust, autonomy, and initiative) showed patterns of slow and steady increases in favorable resolution, as did the midlife issue of generativity. Industry, found in earlier investigations on the samples to change to differing degrees by cohort, continued to show cohort differences through midlife. The quadratic terms indicated that growth was curvilinear for both cohorts on identity and intimacy, and ego integrity showed variations by cohort, with the older cohort showing steeper patterns of increases. Gender differences were observed on intimacy, with women receiving higher initial scores, but the curves showed deceleration through midlife. Tests of variations in growth curves by the life history variables of educational attainment, occupational prestige, commitment to a long-term relationship, and parenthood status showed variations by cohort, but a general pattern of catching up emerged in which those who entered early adulthood at a relative disadvantage in terms of psychosocial development were able to attain favorable outcomes by midlife.

Keywords: adulthood, psychosocial, personality, midlife, generativity

Erik Erikson (1963) provided the first widely accepted perspective in developmental psychology to hold that personality changes throughout life. However, with its basis in clinical observation and emphasis on diverse processes spanning many decades, it has proven notoriously difficult to put to a rigorous empirical test. As an offshoot of psychodynamic theory, Erikson's work is subject to challenges that face its larger perspective and, in a time of computerized assessments and manualized therapy, has waned in popularity within the larger fields of personality and clinical psychology.

Despite these challenges, Erikson's theory retains its appeal within areas of personality psychology that focus on specific developmental periods. The area of identity development in adolescence, for example, seems to have benefited from the Eriksonian perspective, which has stimulated widespread research on the emergence and subsequent shaping of the individual's sense of self from the teenage years to the early 20s (Schwartz, 2006), if not throughout adulthood (Helson & Srivastava, 2001; Marcia, 2002; Zucker, Ostrove, & Stewart, 2002), and has been extended to explain the development of ethnic and racial identity (Sneed, Schwartz, & Cross, 2006). Studies that focus on other Eriksonian concepts, such as generativity and ego integrity, have provided valuable insights as well as empirical data regarding developmental processes in midlife (Bradley & Marcia, 1998; de St. Aubin, McAdams, & Kim, 2004; James & Zarrett, 2005).

Erikson's Psychosocial Theory

The thrust of Eriksonian theory is that personality continually evolves throughout life, a view that contrasts sharply with the increasing emphasis in the field on trait theory, which proposes that personality remains largely stable as an expression of constitutionally or innately determined predispositions (Terracciano, Costa, & McCrae, 2006). In Eriksonian theory, the ego, or conscious self, is the central structure of personality. As the ego evolves in early childhood, it begins to establish certain qualities that can enhance the range of the individual's adaptive responses.

Although Erikson's theory is often characterized as proposing that there are a fixed set of stages through which the ego develops, a more accurate representation of the theory is that it proposes a set

of issues that are most likely to be characterized by certain struggles among the biological, psychological, and social forces acting on the individual and that these issues can become salient at any point in life. When an issue reaches greatest salience for an individual, it is referred to as a crisis. The outcome of each crisis may be either favorable (as in the attainment of identity) or unfavorable (as in the failure to achieve a coherent identity), and having arrived at this resolution, at least for the time being, the individual has more or less of a new ego strength to add to his or her repertoire of adaptive capacity. Erikson proposed that the resolution of earlier psychosocial issues forms the basis for resolution of subsequent issues.

In the matrix of psychosocial issues and age periods proposed by Erikson, the diagonal shows the typical pattern of development in which particular issues match particular ages (e.g., identity in adolescence). However, what is usually not emphasized in discussions of his theory is that earlier issues may arise at a later point in life, and the later ones may move to the forefront in earlier periods if "hazards of existence" (E. H. Erikson, 1963, p. 274) develop that stimulate the individual to confront those particular issues. Our operationalization of Erikson's theory therefore is based on measuring all psychosocial issues simultaneously, allowing individuals to be characterized by more or less favorable resolutions on all eight issues throughout life.

The eight Eriksonian psychosocial issues are as follows: trust versus mistrust, autonomy versus shame and doubt, initiative versus guilt, industry versus inferiority, identity achievement versus identity diffusion, intimacy versus isolation, generativity versus stagnation, and ego integrity versus despair. According to Erikson, the first five issues are found in the diagonal of the matrix up through adolescence; the final three in the middle and later adult years.

Previous Research From the Rochester Adult Longitudinal Study (RALS)

As discussed earlier, research based on Erikson's theory has tended to focus on specific psychosocial issues, but several investigations have examined the entire sequence of all eight. The most extensive study of the entire Eriksonian model is the RALS, begun in 1966 when Constantinople (1969) administered a questionnaire measure of psychosocial development to a sample of over 349 students in the classes of 1965–68. The original sample was followed up 11 years later in 1977 when a new sample of 299 undergraduates was added to allow for sequential analyses in which the two cohorts were compared (Whitbourne & Waterman, 1979). In the second follow-up in 1988–89, yet another undergraduate sample was added. Sequential comparisons were then made among three cohorts of college students and two cohorts of adults in their early 30s. Longitudinal follow-up analyses were also conducted on adults from college up to age 42. Additional data were collected on other measures of identity and life events at each of the follow-up testings (Van Manen & Whitbourne, 1997; Whitbourne, Zuschlag, Elliot, & Waterman, 1992).

The heart of the previous findings from the RALS regarding psychosocial development was the consistency of age changes across cohorts in the two psychosocial issues theorized to be most sensitive to biopsychosocial forces in college and early adulthood: identity achievement versus identity diffusion and intimacy versus

isolation. Analysis of data from another measure given in 1988 to respondents from all three cohorts specifically intended to assess identity development showed convergent support for the notion of its continued growth during adulthood (Whitbourne & Van Manen, 1996).

The Present Investigation

Earlier follow-ups of the RALS used the statistical techniques readily available at the time (i.e., repeated measures analysis of variance) that only allowed for analysis of mean differences rather than investigation of individual patterns of age and cohort effects in the sequential design. The present investigation uses hierarchical linear modeling (HLM; Raudenbush & Bryk, 2002) to track changes in each of the Eriksonian psychosocial issues over the 34 years of the study. This approach has a number of advantages over the previous analytic methods. First, the spacing and number of repeated measurements can vary across individuals. This feature of HLM was important in the present study because participants varied by age within cohort. Second, missing data, as existed in the present study, can be accommodated with the multilevel framework because estimation occurs for each individual separately using all available data for that particular person. Third, because multilevel approaches model change at the individual level, they do not assume that the overall mean pattern over time generalizes to all individuals in the sample. Consequently, individual differences in changes are not relegated to the "bin of random error," as they are in repeated measures analysis of variance (Helson, Jones, & Kwan, 2002, p. 756). The theoretical proposition of Erikson's theory is that personality change in adulthood varies from person to person depending on the particular biopsychosocial issues that bear on the individual, a proposition that was supported in preliminary work on the data from the oldest cohort (Sneed, Whitbourne, & Culang, 2006). We therefore used a data analytic approach that accommodates the possibility of individual differences in the level and rate of change over time.

As in the previous investigations, the early issues of trust versus mistrust, autonomy versus shame and doubt, and initiative versus guilt were expected to show stability or at least slow patterns of growth from young adulthood to midlife. The issue of industry versus inferiority should theoretically show a similar pattern of slow growth. However, as is well known in the vocational development literature (Robitschek & Woodson, 2006), the process of identifying with society's work ethic, the core of this issue in Erikson's scheme, continues to evolve through early adulthood. For identity achievement versus identity diffusion, intimacy versus isolation, and generativity versus stagnation, we expected initial increases as these emerged through adulthood, followed by a leveling off as individuals confront and resolve the developmental challenges of forming an identity, establishing intimate partnerships, and making family and career decisions (Arnett, 2000). Confronting mortality, making meaning out of life's accomplishments, and gaining self-acceptance, associated with ego integrity versus despair (Torges, Stewart, & Duncan, 2008), were expected to evolve more gradually, showing initial stability and subsequent increases in mature adulthood.

Thus, our first task was to characterize the trajectories of change for each psychosocial issue. Given sufficient interindividual dif-

ferences in change, our next task was to examine the impact of potential moderator variables on these trajectories. In line with the previous investigations, we examined the effect of birth cohort on personality development. Our focus in the present investigation on midlife development led us to include only the two older cohorts, who were followed from college through ages 43 and 54, respectively. We expected that the differences in social context experienced by these two cohorts would be manifest as differences in progress through the psychosocial issues (Whitbourne & Willis, 2006). The older cohort (average birth year = 1946), known as the "leading edge" baby boomers, reached early adolescence during the 1950s and early 1960s, which was the height of the Cold War, a period of increasing prosperity and characterized by traditional social and work roles. By the time they reached college, though, the old social order was crumbling, and they were exposed to widespread questioning and challenging of authority in connection with the Kennedy assassination, the height of civil rights protests, the hippie movement, and the Vietnam War. In contrast, the younger cohort (average birth year = 1957), known as the "trailing edge" baby boomers, grew through their early adolescence during that same tumultuous era but in their own college years were exposed to a far more conservative and traditional set of values. Such fundamental differences in social context would be expected to translate into cohort differences in psychosocial development (Schoon, Martin, & Ross, 2007).

In particular, we expected the older cohort, whose childhood was marked by a more traditional upbringing but whose college years involved rebellion and questioning of the traditional social order, would have had greater difficulty resolving issues of identity and intimacy while in college. Ultimately, with the older cohort having been stimulated to question and challenge authority while in college, their midlife growth would have a stronger and better elaborated foundation. In contrast, the younger cohort while in college may have appeared more mature psychosocially, but perhaps would have prematurely foreclosed on issues related to career and family. Hence, in middle adulthood, these trailing-edge baby boomers would be faced with greater challenges to their earlier, less well considered life decisions. Within these general social trends, individual differences in patterns of change were also expected; the present analyses allowed us to test both variations by person and variations by cohort.

We also know from the previous RALS follow-up (Whitbourne et al., 1992) that ego integrity versus despair is an issue sensitive to sociohistorical effects, and therefore scores for both cohorts were expected to reflect time-of-measurement effects. Thus, cutting across cohorts, the materialism associated with the 1980s seemed to have a dampening effect on all participants, not only from these two cohorts but also from their younger counterparts, then in college.

The next moderator variable we examined was gender. Throughout the course of the RALS, gender differences have been investigated, but previous analyses were limited to comparisons of means. Using HLM, we were able to examine gender differences in trajectories of change rather than be restricted to mean-level analyses. Given the important differences in socialization that have profound effects on men's and women's sense of self (Cross & Madson, 1997), and the strong gender differences that have been observed in longitudinal research on personality development through early adulthood (Kasen, Chen, Sneed, Crawford, &

Cohen, 2006), we expected to see gender differences in both level and rate of change, with women receiving higher scores on intimacy versus isolation and showing a steeper rate of change than men and the converse pattern holding for men in the more traditionally masculine qualities of initiative and industry and, to a lesser extent, identity.

The third set of variables investigated in association with changes in psychosocial development related to the life history variables of education, occupation, long-term relationships, and parenthood. In particular, following up on the RALS findings reported by Van Manen and Whitbourne (1997), and the research of others showing the importance of considering life history variables as predictors of individual differences in change (Helson & Roberts, 1994; Mroczek & Spiro, 2005), we wished to determine whether individuals would differ by cohort in their trajectories through midlife on the psychosocial issues according to the paths they had set for themselves in the early adult years in terms of education, prestige, and family variables (Sneed, Johnson, et al., 2006).

On the basis of the previous findings from the RALS, we hypothesized that more positive circumstances in the life history variables at the testing conducted when participants were, on average, age 31 years would be related to more favorable patterns of change over time through the midlife years. Thus, we examined whether participants who were more successful early in life occupationally in terms of having achieved higher levels of education and prestige would show more favorable patterns of resolution on the relevant psychosocial issues of initiative versus guilt, industry versus inferiority, and identity achievement versus identity diffusion than those who were less successful. Second, we investigated whether individuals who established a stable family life early in adulthood would show more favorable patterns of resolution for issues of intimacy versus isolation and generativity versus stagnation. Finally, in keeping with the previous findings from the RALS, we examined whether gender differences would be found in these patterns of relationships.

Method

Participants

Alumni who attended the University of Rochester from the 1960s through the 1980s served as the participants in this study, forming two distinct cohorts, separated in age by an average of 11 years. The portion of the sample who attended the university in the 1960s was first assessed in 1966–68, and those assessed from the 1970s were first tested in 1977–78. The distribution of participants by cohort and gender for each time of testing is shown in Table 1. Information on race and ethnicity was not obtained, and therefore the sample distribution on these variables is not known.

Of the original 349 participants in the 1946 cohort, 124 (35.5%) had completed their participation only in college, 98 (28.1%) on two occasions, 42 (12%) on three occasions, and 85 (24.4%) on all four test occasions. Of the 299 originally in the 1957 cohort, 142 (47.5%) were tested only in college, 95 (31.8%) twice, and 62 (20.7%) at all three follow-ups.

Measures

Inventory of Psychosocial Development (IPD). Constantinople (1969) developed the IPD in the mid-1960s as a question-

Table 1
Percentages of Original Samples by Sex at Each Year of Testing

Cohort	1966		1977		1989		2000	
	N	% of original	N	% of original	N	% of original	N	% of original
1946								
Male	180	100	80	44	62	34	104	58
Female	169	100	76	45	37	22	78	46
Total	349	100	156	45	99	28	182	52
1957								
Male			143	100	43	30	57	40
Female			156	100	40	26	79	51
Total			299	100	83	28	136	46

naire measure of the first six issues in Erikson's psychosocial theory of development. The scales for generativity versus stagnation and ego integrity versus despair were developed in subsequent research and implemented for the first time in the 1977 testing (Whitbourne & Waterman, 1979). The IPD yields eight scores, with five positive items and five negative items contributing to each score. Respondents are asked to indicate how characteristic or uncharacteristic a given item is of them on a 7-point Likert scale. Difference sores are obtained for each scale score by subtracting the summed score of the negative items from the summed scores of the positive items. For each psychosocial issue, the range of possible scores is thus from −30 to 30. The items reflect the key components of each issue, such as "never get what I want" (mistrust), "comfortable in intimate relationships" (intimacy), and "feel productive in my work" (generativity). As in previous reports on the IPD, results are presented in terms of the positive scale names, reflecting the fact that the difference scores are based on subtracting negative from positive subscale scores.

Demographic information. Participants were asked to complete a brief open-ended questionnaire that requested information on their educational, work, and family history since college graduation including dates and names of educational institutions and employers. For family history, participants provided dates of major family life events. The form of these questions was identical to the form of the questions included in the 1977 and 1989 follow-ups.

Analyses involving the relationship between demographic variables and psychosocial development were made based on status in early adulthood (i.e., the age 31 testing). Because more participants were reached in the 2000–2 testing than had been contacted on previous occasions, and because the data they provided spanned the entire postcollege period, it was possible to obtain a larger number of ratings on education, occupation, and family history from prior years than had been available in earlier testings.

Educational attainment was rated according to a scale of 1 to 6: 1 = *bachelor's degree only*, 2 = *master's degree*, 3 = *Ph.D.*, 4 = *degree in dentistry or other non-M.D. health field (e.g., osteopathic medicine)*, 5 = *law degree*, 6 = *M.D.* In subsequent analyses, the sample was divided at the value closest to the median into low (bachelor's or master's degree) versus high (doctorate or professional degree). Additionally, for reporting purposes of sample means, the above categories were converted roughly into years of education as follows, based on the average length of time that participants reported they had taken to obtain their degrees: 1 = 16, 2 = 18, 3 = 21, 4 = 20, 5 = 19, and 6 = 20.

Occupational prestige scores were obtained with the Nakao–Treas scale (1994), which ranges from a low of 21 at the level of blue-collar workers to 97, the prestige rating of physicians. For the purposes of subsequent analyses, the median prestige rating of 73 (managerial level) was used to group participants into high- and low-prestige occupations.

Categories of long-term relationships were coded as follows: 1 = *married*, 2 = *cohabitating*, 3 = *divorced*, 4 = *remarried*, 5 = *widowed*, 6 = *single*, 7 = *separated*. In line with Van Manen and Whitbourne (1997), for the purposes of subsequent analyses, relationship status was coded into the categories of not being involved in a long-term relationship (separated, divorced, single) and being involved in a long-term relationship (married, remarried, or cohabitating). Widowed individuals who had not remarried were not included in these analyses.

Parental status was coded into the categories of parent and nonparent. Participants who had become stepparents through remarriage or cohabitation were considered to be parents if the children had lived in the home of the participant at some point during their upbringing.

Data for both cohorts on all demographic variables included in the present study are summarized in Table 2.

Procedure

The 2000–2 RALS follow-up was initiated in November 1999, when records were obtained from the most recent edition of the University of Rochester alumni directory. To make it possible to request participation from individuals whose information was not listed in the directory, a fee-based service (Find A Friend) was used to generate possible addresses from the existing information in the files. These addresses were used in May 2000 as the basis for an initial mailing of questionnaire packets. In this first mailing, respondents were sent a letter describing the study along with the instruments and a self-addressed stamped envelope to be used for returning the questionnaires. The initial round of requests for participation yielded 105 participants from the 1946 cohort and 73 from the 1957 cohort. In the subsequent efforts to locate participants that took place from June 2000 to October 2002, additional resources were used, including online alumni directories from the university, assistance from the alumni office, another low-fee name search service (Online Detective), and other free search services including AltaVista, Google, Yahoo! Qwest, and Lycos. These efforts produced an additional 77 respondents from the 1946 cohort and 63 from the 1957 cohort. Full

Table 2
Sample Characteristics by Cohort

	1946 cohort			1957 cohort	
Variable	1977 testing	1989 testing	2000 testing	1989 testing	2000 testing
Age					
N	156	99	182	83	136
M	30.59	42.59	55.09	31.8	44.21
SD	1.05	0.99	1.47	1.36	1.6
Education (in years)					
N	273	165	193	163	105
M	18.58	19.41	18.88	18.13	19.09
SD	1.97	1.56	1.94	1.67	1.38
Occupational prestige					
N	208	207	197	16.25	26.26
M	74.62	75.57	75.34	77.92	74.29
SD	14.9	15.74	16.46	16.25	16.26
Relationship status (%)					
Married	159 (71)	132 (68)	120 (62)	103 (66)	102 (70)
Cohabitating	11 (5)	12 (6)	18 (9)	6 (4)	8 (6)
Remarried	6 (3)	18 (9)	29 (15)	4 (3)	9 (6)
Single	35 (16)	14 (7)	6 (3)	36 (23)	12 (8)
Divorced	9 (4)	16 (8)	14 (7)	5 (3)	9 (6)
Separated	4 (2)	0 (0)	1 (1)	0 (0)	1 (1)
Widowed	0 (0)	1 (1)	3 (2)	1 (1)	2 (1)
Total	224	194	194	155	145
Parenthood status (%)					
Nonparent	51 (30)	48 (23)	33 (16)	38 (33)	37 (24)
Parent	118 (70)	160 (77)	167 (84)	77 (67)	115 (76)
Total	169	208	200	115	152

information on participation by cohort is shown in Table 3. There were no significant differences in attrition by cohort, $\chi^2(1) = .83$, $p > .05$.

Of the 182 participants in the 1946 cohort, almost all (90%) were found through the university resources; the remainder was located through a Web search. A large proportion of the 1957 cohort (80%) was also located through the university; the remainder included those obtained through Find A Friend (15%) and Web-based searches (5%).

Analytic Method

HLM (Version 6.04) was used to fit a series of growth curve models for each dimension of psychosocial development. As noted

Table 3
Response Rates for 2000–2 Testing by Cohort

	1946		1957	
Sample component	N	%	N	%
Original sample	349	100	299	100
Deceased	12	4.15	5	2.02
Was not contacted	1	0.35	3	1.21
Was not an alum	0	0.00	2	0.81
Contact information available	289	82.81	247	82.61
Percent of those with information who participated		62.98		55.06
Percent of those with information who did not participate		37.02		44.94
Reasons for nonparticipation among those for whom information was available				
Did not respond	91	31.49	96	38.87
Agreed but did not complete	16	5.54	3	1.21
Refused	8	2.77	2	0.81

earlier, mixed effects or growth curve models have a number of advantages over more traditional analyses of repeated measures data because they allow for fuller exploitation of the available data. They permit inclusion of individuals not assessed at all time points, are tolerant of unequal intervals between data points, and allow time to be treated flexibly so that the intercept can correspond to any time point in the study. For the present investigation, these advantages were important, given that not all participants were available for each test occasion. Moreover, participants were of differing ages within cohorts. Using HLM made it possible to take maximum advantage of the age structure of the data.

As applied in this study, growth curves provide estimates for each scale of the average level of psychosocial resolution (intercept) as well as the linear and quadratic changes over time that characterize the growth of each issue. In addition, growth curve models provide estimates of the factors (e.g., cohort, gender, and demographic variables) that potentially explain variations among participants in both the level and rate of change in the scale scores. We were interested in comparing predicted values of the outcome when people were in early adulthood (age 31). We therefore centered on this value, giving us a model parameter that we could compare across individuals. Differences in scores in early adulthood could then be predicted from our key moderator variables: cohort, gender, education, occupational prestige, relationship status, and parental status.

Modeling occurred in several stages. First, baseline models were fit that characterized the level (intercept) and rate of change (slope) of each scale over the duration of the study (as well as variation between participants in the intercept and slope). Next, we added a quadratic term to the model to specify further the shape of the trajectories of each scale. Finally, we added cohort and demo-

graphic variables sequentially to test whether these predictors account for variability in the level and rate of change over time in the scales. Improvement in fit between two successive models was formally tested with a chi-square test of the difference between the -2 log-likelihoods of the two models with degrees of freedom equal to the difference between the number of parameters in the two models. (Technical note: Fixed and random effects were estimated for the intercept, linear slope, and quadratic slope for all models. However, because only three time points were available for the last two psychosocial issues [added in 1977], we were unable to estimate the random component of the quadratic for these scales.) All models used full maximum likelihood estimation and treated missing data as missing at random.[1]

Results

Attrition Analyses

To determine whether there was a systematic bias in those who participated in the 2000–2 testing compared with those who did not, we conducted multivariate analyses of variance for each cohort comparing the college IPD scores of those who remained in the study in 2000–2 with those who had dropped out of the study in each prior phase of testing. Thus, three analyses were conducted for the 1946 cohort (comparing scores of follow-ups vs. dropouts at 1966–67, 1977–78, and 1988–89) and two for the 1957 cohort (1977–78 and 1988–89). None of the attrition analyses yielded significant main effects of attrition status on specific scales, although for the 1957 cohort, there was a significant multivariate effect for attrition status comparing those who completed testing in 1989 with those who did not, Wilks's $\Lambda = .728$, $F(8, 74) = 3.455$, $p < .002$. Because there were no significant univariate main effects on the specific scales, this multivariate effect was not further interpreted.

There was differential attrition by gender for the 1946 cohort with men more likely to have completed the 2000–2 follow-up, $\chi^2(1) = 4.49$, $p < .034$. This sex difference was due primarily to the fact that men in this cohort were more likely to be listed in the alumni directory and therefore could more readily be contacted. There were no sex differences in attrition status for the 1957 cohort.

Alumni who had taken part in the study on previous occasions were more likely to complete their participation in 2000–2. Of the 99 in the 1946 cohort who participated in 1988–89, 85 (85%) provided data in 2000–2, and of the 83 in the 1957 cohort with 1988–89 data, 62 (75%) participated in 2000–2. Of those from the 1946 cohort who participated in 1977–78, a similarly large proportion, 113 (72%), remained with the study in 2000–2.

Multivariate analyses of variance comparing the IPD scores of those who completed the questionnaires in 2000 and 2002 produced no differences at any of the prior or current times of measurement. There were also no differences on the IPD scales between participants who were contacted through the alumni directory and those whose names were obtained through other methods, either in their 2000–2 scores or their earlier IPD scores.

Growth Curve Estimates of IPD Scale Scores by Cohort

Table 4 presents the summaries of the best-fitting models for each IPD scale. Cohort differences were inferred when the Level 2 analyses yielded a significant fixed effect of the intercept (linear or quadratic) for cohort. As hypothesized, the first three IPD scale scores (trust, autonomy, and initiative) demonstrated a slow, upward direction of growth across both cohorts, as indicated by the existence of significant positive linear slopes in the fixed-effects estimates. The random-effects estimates show that there was significant variability in the slopes for these scales, indicating that individuals differed in their patterns of change over time (e.g., see Figure 1). On industry, as hypothesized, differing patterns of change were observed by cohort. At the beginning of the period of testing, the 1946 cohort's scores were significantly lower than the 1957 cohort's, but the rise in scores of the older cohort was steeper over the period of the study than the increase for their younger counterparts.

Identity and intimacy, as indicated by the significant fixed quadratic slope, increased across adulthood, but a visual inspection of the graph indicated that deceleration is most prominent from early adulthood to midlife. These two psychosocial issues subsequently showed slow and steady growth toward increasingly favorable resolution, patterns that were similar for both cohorts.

Generativity scores increased steadily throughout midlife, but we did not observe the anticipated curvilinear change in generativity with age. No differences between the cohorts in either the level or rate of change were found. Ego integrity, however, followed a curvilinear change pattern, one that differed between cohorts. Although for both cohorts growth followed a U-shaped pattern, based on a visual inspection of the fitted trajectories, the 1946 cohort's increase was significantly greater than that of the 1957 cohort in the latter portion of the growth curve.

The HLM growth models provide estimates of the covariances among the trajectory parameters (see Table 5). For example, the covariance between the intercept (age 31 trust score) and the linear rate of growth is .152, with a standard error of .096. This indicates that increases in age 31 trust scores are weakly associated with steeper rates of change.

Gender Differences in Growth Curves

The only psychosocial issue to show gender differences was intimacy (see Table 6). In line with the findings from the previous RALS follow-ups, women had higher intimacy scores than men. However, the patterns of change over time differed by gender. Men showed a consistent steady rise, as indicated by a significant linear slope. Although overall women increased in intimacy scores, their significant negative quadratic slope indicated that their rate of growth slowed over time. The peak rise in intimacy for women occurred up through the early 40s, after which it tapered off.

Demographic Variables and Psychosocial Resolution

In addition to cohort and gender, the relevant demographic variables of educational attainment, occupational prestige, length

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[1] In addition to the analyses presented here, we ran models on only the longitudinal sample (i.e., those who participated at all occasions) to check if the pattern of results would be similar to those reported in the main analyses. Although this analysis severely limited the numbers, there were significant linear effects for cohort on industry and ego integrity.

Table 4
Growth Curve Estimates for Inventory of Psychosocial Development Scales, Best-Fitting Models

Scale	Final estimation of fixed effects			Final estimation of random effects				χ^2 vs. linear baseline
	Intercept at age 31 (*SE*)	Linear slope (*SE*)	Quadratic slope (*SE*)	Intercept	Linear slope	Quadratic slope[a]	Residual	
Trust	10.81** (0.28)	.08** (.01)		32.40**	.03**		24.63	NA
Autonomy	8.00** (0.18)	.03** (.01)		11.03**	.01**		15.68	NA
Initiative	11.10** (0.25)	.03** (.01)		24.63**	.01**		26.39	NA
Industry (1946 cohort)	13.45** (0.48)	.46** (.03)	−.01** (.002)	30.51**	.05**	.000	24.01	97.26**
Industry (1957 cohort)	14.37 (0.81)	.29** (.04)	−.002 (.004)					
Identity	9.46** (0.30)	.14** (.02)	−.003** (.001)	21.11**	.03**	.000	18.51	14.69**
Intimacy	13.19** (0.34)	.12** (.02)	−.002* (.001)	30.77**	.04**	.000	19.79	9.54*
Generativity	8.23** (0.23)	.03* (.01)		17.38**	.01**		14.20	NA
Ego integrity (1946 cohort)	7.36** (0.58)	−.56** (.09)	.02** (.004)	30.79**	.01*		27.51	38.99**
Ego integrity (1957 cohort)	3.96** (0.96)	−.12** (.08)	.003* (.006)					

Note. $N = 382$. Absolute fit statistics for all models: trust = 3242.10; autonomy = 3006.36; initiative = 3196.98; industry = 3241.70; identity = 3082.34; intimacy = 3144.90; generativity = 5921.91; ego integrity = 6521.39 (all $df = 6$). NA = could not be estimated.
[a] The quadratic slope for generativity and ego integrity could not be determined.
* $p < .05$. ** $p < .01$.

and types of long-term relationships, and parenthood status were expected to explain significant variability in level and rate of change in psychosocial development over time. To investigate the interactions of these variables with time, we dummy-coded scores on the demographic variables as 0 and 1 based on median splits at age 31. In order to avoid multicollinearity in calculating the interaction terms, the means of each demographic variable were subtracted from the dummy-coded variable for that particular group and used in place of the dummy codes. In plotting these interactions, however, the uncorrected coefficients were used (i.e., 0s and 1s).

Educational and occupational status. The hypothesis that early socioeconomic success would predict more favorable psychosocial resolution was operationalized by using educational and occupational status at age 31 as predictors of change on initiative, industry, and identity. As shown in Table 7, growth curve analyses

by cohort, sex, and educational group produced Education × Cohort interactions that were significantly different from baseline for initiative scores only, $\chi^2(13) = 25.23$, $p < .021$, but not for industry or identity. The Education × Cohort interaction was significant for the linear and quadratic slopes. This model is illustrated in Figure 2, which shows that the 1957 cohort participants with high levels of education began college with the highest initiative scores. Their growth curves then began a decline to the
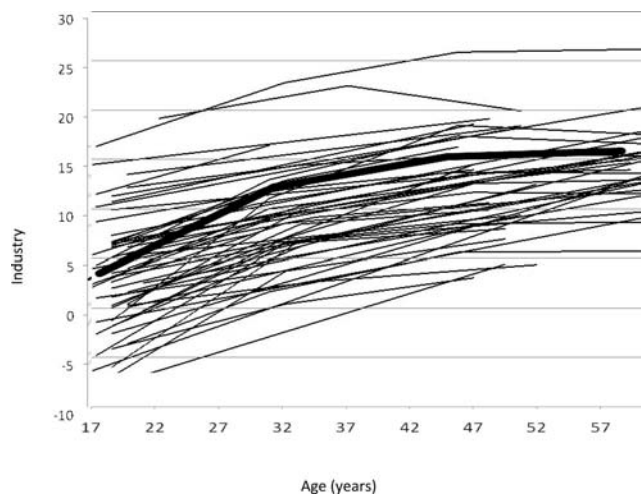

Figure 1. Average model-fitted trajectory for industry superimposed on observed (raw) trajectories for 15% of the participants selected at random.

Table 5
Covariance Terms From Unconditional Models for Each Dependent Variable

Scale	Intercept × Linear Slope	Intercept × Quadratic Slope[a]	Linear × Quadratic Slope[a]
Trust			
Covariance	.152		
SE	.096		
Autonomy			
Covariance	.001		
SE	.042		
Initiative			
Covariance	.108		
SE	.077		
Industry			
Covariance	−.106	.002	−.002
SE	−.155	.011	.001
Identity			
Covariance	.058	−.001	−.001
SE	.112	.008	.000
Intimacy			
Covariance	.234	−.008	−.001
SE	.136	.010	.001
Generativity			
Covariance	−.003		
SE	.066		
Ego integrity			
Covariance	.187		
SE	.119		

[a] Covariance could not be estimated for ego integrity.

Table 6
Growth Curve Estimates for Men and Women, Intimacy Scores

| Gender | Final estimation of fixed effects | | | Final estimation of variance components | | | | |
	Intercept at age 31 (SE)	Linear slope (SE)	Quadratic slope (SE)	Intercept	Linear slope	Quadratic slope	Residual	χ^2 vs. linear baseline
Men	11.56** (0.51)	.08** (.03)	.0002	28.48**	.04**	.000	19.78	34.88**
Women	14.82** (0.67)	.16* (.03)	−.005* (.002)					

Note. N = 323 men, 325 women.
* p < .05.   ** p < .01.

40s, which continued through the 50s. Their counterparts from the 1957 cohort with low levels of education showed a steady downward trajectory, following a slight upturn through the 30s. The effect of education was not pronounced for the 1946 cohort participants, although those below the median educational level eventually reached the same levels of initiative as their more highly educated peers by the 50s.

Next, the interactions of occupational prestige with initiative, industry, and identity were examined with prestige classified into 0 and 1 at the median. As shown in Table 8 and Figures 3 and 4, the 1957 cohort men who were in low-prestige jobs at the age of 31 showed an inverted U shape of gains in industry. They peaked in the late 30s but then continued to slide downward thereafter. Conversely, men in the 1946 cohort with low levels of prestige, whose industry scores were the lowest in college, continued a steady growth upward in industry throughout the late 50s. A strikingly different pattern was obtained for the 1957 cohort women, as it was those women in high-prestige occupations whose industry scores peaked in the 30s and then declined steadily after reaching that high point. However, the low-prestige women in the 1946 cohort showed a similar pattern as the low-prestige men in their cohort, that is, low scores in college and steady gains up through the 50s. All groups other than women in the 1957 cohort

Table 7
Fixed- and Random-Effects Estimates for Growth Curve Models of Initiative

Variable	Intercept	Linear component	Quadratic component
Fixed-effects estimates			
Intercept (age 31)	11.94** (0.37)	.04* (.02)	−.005 (.001)**
Time × Cohort	1.24 (0.81)	−.03 (.04)	−.008 (.004)
Time × Education	.31 (0.76)	−.03 (.03)	.004 (.003)
Time × Cohort × Education	−1.16 (1.64)	−.18* (.08)	.02 (.009)*
Random-effects estimates			
Intercept	24.06**		
Linear slope	.03**		
Quadratic slope	.00		
Residual	23.74		
χ^2 vs. linear baseline (df = 13)	25.23*		

Note. Values in parentheses are standard errors. Cohort: 0 = 1946 cohort; education: 0 = below the median for sex. Degree of freedom for random-effects estimates = 185.
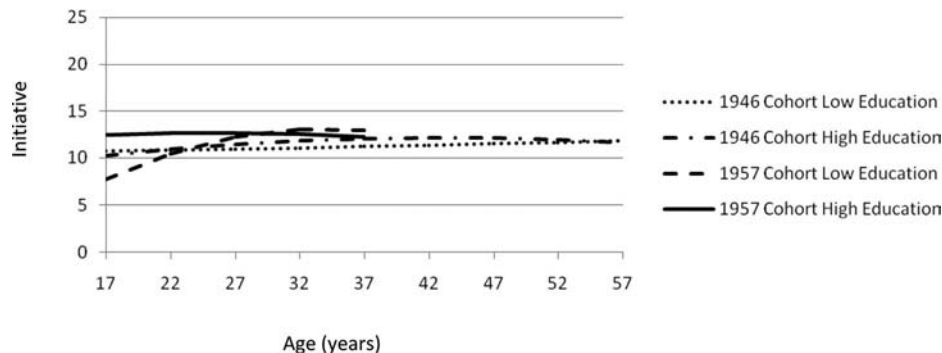* p < .05.   ** p < .01.

with high-prestige occupations showed gains throughout midlife in this psychosocial quality.

Intimacy and long-term relationships. Although favorable outcomes in the world of relationships is not easily defined, for the purposes of the present study, as in the previous RALS follow-up, a long-term committed relationship was considered to represent greater success. However, in the present study, unlike the previous follow-up, involvement in a committed relationship was defined as living with or married to a person of the same or other sex. As noted above, the ratings for long-term relationships were based on the individual's status at the age of 31.

This definition led to an uneven distribution, however, of relationship commitment, with only one third of participants in the noncommitment category. However, the alternative of grouping participants on the basis of married versus unmarried failed to capture the quality sought in these analyses. As shown in Table 9 and Figure 5, there was an interaction of cohort and relationship status. The 1957 cohort individuals in committed relationships, though higher in intimacy in college, peaked in the 30s and declined continuously thereafter. The opposite pattern was shown for the 1957 cohort individuals who were not in a committed relationship by early adulthood. For the 1946 cohort, a similar pattern was obtained, with the committed peaking and then declining and the noncommitted continuing a slow steady pace of growth.

Parenthood status. As noted earlier, the majority of participants in both cohorts were parents. Although there was little variation in parenthood status, there was variation in the ages at which participants became parents. Holding parental status controlled by selecting only those participants who were parents, we then investigated the predictive effect of parental status by the age of 31 on generativity growth through midlife. As shown in Table 10 and Figure 6, there was a significant interaction of cohort and parental status at age 31. Parents in Cohorts 1 and 2 showed opposite trajectories of growth over adulthood, with the 1946 cohort parents declining and the 1957 cohort parents showing a pattern of increases. However, perhaps most striking about these growth curves was the increase in generativity among the 1946 cohort participants who became parents after the age of 31. Although initially lower in generativity scores, these individuals continued to show gains until by the 50s their generativity scores nearly equaled those of parents in the 1957 cohort and slightly exceeded those of their peers in the 1946 cohort who had become parents by early adulthood.

Figure 2. Model-fitted trajectories for initiative scores by education status at age 31 and cohort.

Discussion

The growth curves modeled in this sequential analysis of personality change from college through midlife provide evidence that personality continues to evolve throughout the adult years. This overall conclusion is consistent with an emerging literature documenting the complexity of midlife personality development (Lachman, 2004) and the potential for changes in personality over the life course (Roberts, Walton, & Viechtbauer, 2006). In cases such as trust, autonomy, and initiative, theorized to be most typically associated with early childhood, growth continued through the mid-50s. Although the rate of change was gradual, the fact that any change was observed to occur at all in these qualities would seem to challenge the view that personality is fixed by early life. Conversely, the observed increases in ego integrity that occurred throughout early to middle adulthood indicate that later psychosocial issues can become salient at earlier points in the life course.

Table 8
Fixed- and Random-Effects Estimates for Growth Curve Models of Industry

Variable	Intercept	Linear component	Quadratic component
Fixed-effects estimates			
Intercept (age 31)	14.00** (0.44)	.35** (.02)	−.01 (.002)**
Sex	2.24* (0.88)	.02 (.05)	−.003 (.004)
Cohort	1.43 (0.90)	−.18** (.05)	−.001 (.004)
Prestige	.84 (0.88)	−.06 (.05)	.001 (.004)
Sex × Cohort	.79 (1.80)	.05 (.10)	−.004 (.008)
Sex × Prestige	.13 (1.77)	−.04 (.10)	−.01 (.008)
Cohort × Prestige	.50 (1.81)	.10 (.10)	−.004 (.009)
Sex × Cohort × Prestige	3.20 (3.61)	.31 (.20)	−.04* (.02)
Random-effects estimates			
Intercept	27.91**		
Linear slope	.04**		
Quadratic slope	.00		
Residual	23.89		
χ² vs. linear baseline			
(df = 25)	99.96*		

Note. Values in parentheses are standard errors. Sex: 0 = male; cohort: 0 = 1946 cohort; prestige: 0 = below the median. Degree of freedom for random-effects estimates = 169.
* $p < .05$.   ** $p < .01$.

The present findings thus support the interpretation that Erikson's model of psychosocial development describes not a ladder, often used to depict it, but a matrix in which issues that are associated with earlier ages on the matrix are continuously revisited throughout life, and issues that Erikson associated primarily with later adulthood can be confronted at earlier ages. In fact, some have argued that complete resolution is impossible at the "typical" age, given the changes that are experienced throughout life, and that, by necessity, each psychosocial issue must be continually reworked in the context of later issues (J. M. Erikson, 1991).

In contrast to other longitudinal studies of personality through midlife, which follow single cohorts, the present analyses also provided support for the importance of examining changes over time in multiple cohorts. In the present study, we were able to compare generational differences in personality growth particularly as these interacted with key events in the lives of the participants. Although the preponderance of data supported the generality of the growth models, cohort differences continued to be demonstrated in industry and ego integrity, as was true in the previous investigation carried out in the late 1980s. Moreover, the interaction of cohort with education, prestige, relationship status, and parenthood status points to the differential socialization experiences that can alter the course of psychosocial development throughout adulthood.

Industry, identity, and intimacy tended to change over time in a linear fashion, but each was subject to the influence of life history factors. In the two prior follow-ups, possible interpretations were raised for the dramatically lower scores of participants in the 1946 cohort on industry compared with those of their younger counterparts during college. In the present study, with the availability of long-term follow-up data and the modeling capability of HLM, it was possible to gain additional insight into the processes affecting industry development during adulthood. It would appear from the present analyses that the very lowest industry scores were obtained in college by participants who, in early adulthood, had jobs with relatively low prestige. However, they managed to exceed their peers in industry scores throughout the course of the study. In interpreting the scores of the women in particular, the findings support those of other studies of midlife women (Stewart, Ostrove, & Helson, 2001) in which gains in self-confidence and determination occurred through involvement in their jobs, allowing them to feel increasingly competent and effective. It is possible that for
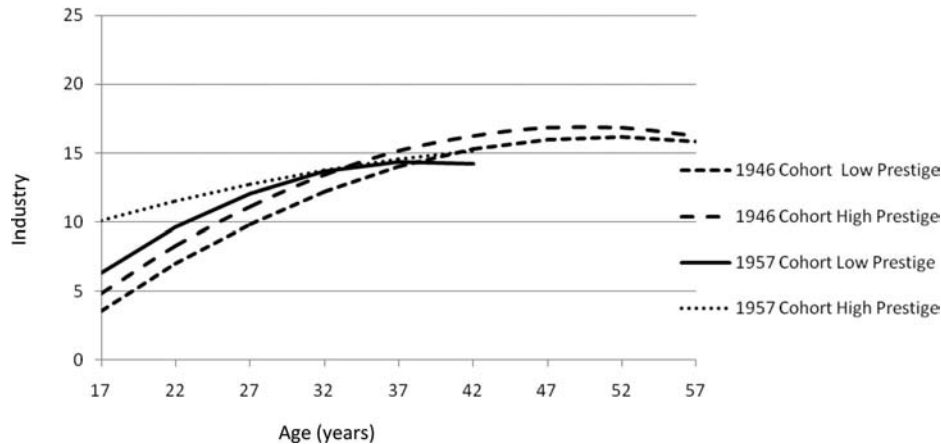
Figure 3. Model-fitted trajectories for industry scores by prestige at age 31 and cohort, men.

these leading-edge baby boomer women, feelings of competence were suppressed in college, when it seemed as though their careers would not play an important role in their future success. With transitions in women's roles, they then became better able to fulfill their desires for making contributions to the world of work outside the home.

Other findings including those for initiative, intimacy, and generativity support the idea that individuals can overcome early psychosocial deficits to catch up with, if not exceed, their initially more advantaged peers. In the area of intimacy, participants who were not in a committed relationship early in adulthood showed continued gains throughout the period of the study and in fact moved toward an increasingly favorable resolution of this issue that exceeded those of their peers who early in adulthood were in a committed relationship. This effect was particularly noteworthy for the 1957 cohort, perhaps reflecting the changing norms between the 1960s and 1970s regarding age of marriage. A similar trend of enhanced developmental gains was also shown for participants who became parents after the age of 31. Perhaps by waiting until their mid-30s or beyond, when their careers were already established, they were best able to enjoy their new parenthood status to the fullest. In the case of men, there can be a number of possible reasons that they delay fatherhood, each of which can have different consequences for generativity development (Snarey,

Son, Kuehne, Hauser, & Vaillant, 1987). However, the findings indicate that gains in psychosocial resolution can occur and perhaps even be relatively greater when individuals enter this status at a later age than when they do so in their 20s.

For both men and women, an important set of sociocultural factors influence ego integrity, the psychosocial issue involving questions regarding the meaning of existence and the sense of connectedness with social values. The previous follow-up raised the question of whether participants would continue to show the downward trend in ego integrity that was attributed to the "me generation" mentality of the 1980s (Whitbourne et al., 1992). In the present follow-up, participants in both cohorts did show increases in their ego integrity scores. If the time of measurement interpretation still holds, this finding suggests that the decade of the 1990s, exemplified by movements such as President Bill Clinton's initiation of AmeriCorps in 1993, may have helped stimulate participants in the RALS to feel more connected with the world outside themselves and their own immediate concerns.

Sociocultural influences may also have contributed to the pattern of cohort differences, given that, as noted earlier, the 1946 and 1957 cohorts represent, respectively, the leading-edge and trailing-edge baby boomers. Demographers note that intracohort differences in the baby boom generation are important to
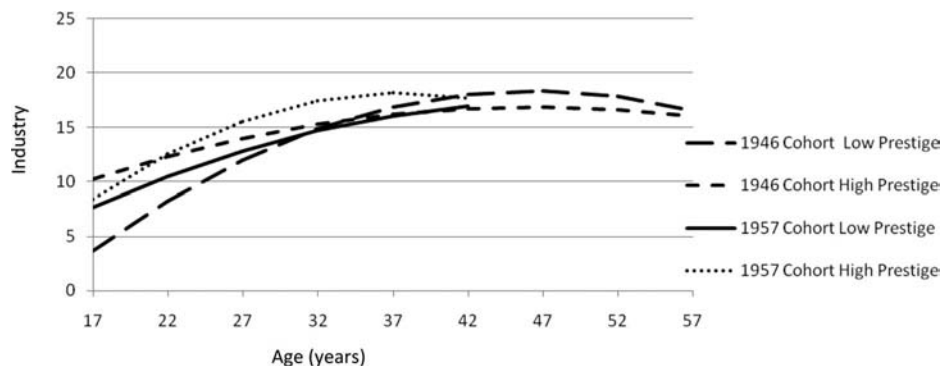

Figure 4. Model-fitted trajectories for industry scores by prestige at age 31 and cohort, women.

Table 9
Fixed- and Random-Effects Estimates for Growth Curve Models of Intimacy

Variable	Intercept	Linear component	Quadratic component
Fixed-effects estimates			
Intercept (age 31)	13.60** (0.38)	.12** (.02)	−.005** (.002)
Relationship status	3.81** (0.96)	.06 (.04)	−.013** (.001)
Cohort	2.55** (0.78)	−.02 (.04)	−.007 (.004)
Relationship Status ×			
Cohort	4.88 (1.96)	−.004 (.09)	−.17* (.009)
Random-effects estimates			
Intercept	27.28*		
Linear slope	.04**		
Quadratic slope	.00		
Residual	18.72		
χ^2 vs. linear baseline			
(*df* = 13)	43.13*		

Note. Values in parentheses are standard errors. Marital status: 0 = unmarried at age 31; cohort: 0 = 1946 cohort. Degree of freedom for random-effects estimates = 185.
* $p < .05$. ** $p < .01$.

Table 10
Fixed- and Random-Effects Estimates for Growth Curve Models of Generativity

Variable	Intercept	Linear component
Fixed-effects estimates		
Intercept (age 31)	8.66** (0.38)	.08 (.05)
Parental status	1.72 (1.03)	−.12* (.05)
Cohort	−.02 (1.14)	−.09 (.05)
Parental Status × Cohort	−.43 (1.37)	.19** (.07)
Random-effects estimates		
Intercept	14.68**	
Linear slope	.01*	
Residual	14.14	
χ^2 vs. linear baseline (*df* = 6)	12.70*	

Note. Values in parentheses are standard errors. Parental status: 0 = not a parent by age 31; cohort: 0 = 1946 cohort. Degree of freedom for random-effects estimates = 212.
* $p < .05$. ** $p < .01$.

consider in socioeconomic status, given that the leading-edge baby boomers were forced to compete economically with a larger number of age peers (Easterlin, 1987). Although the findings from the present study were consistent with large-scale demographic analyses showing only modest differences in socioeconomic status between leading-edge and trailing-edge baby boomers, exposure to the differing value systems prevalent during their college and early adult years may have played a role in differentially affecting their values, attitudes, and relationship qualities and dynamics (Eggebeen & Sturgeon, 2006). These factors, in turn, may have had an impact on their patterns of change through middle age in the psychosocial issues examined here.

There were several constraints limiting the conclusions that can be drawn from the present investigation. First, it is possible that attrition has substantially compromised the internal validity of the findings. According to Roberts and DelVecchio (2000), high attrition rates bias research findings in longitudinal studies of personality toward stability, because the people who remain in longitudinal studies are by

definition stable. Furthermore, attrition rates increase as a function of the length of the follow-up interval, with smaller intervals finding greater stability and longer intervals finding greater change. Roberts and DelVecchio did not find any effect of attrition in their meta-analysis of 152 studies and concluded that researchers should question the assumption that attrition is a major distorting influence in longitudinal studies of personality development. In the present study, significant effects were not observed in the overall multivariate analyses used to test attrition effects for the 1946 cohort or on individual scales for the 1957 cohort, indicating that the pattern of scores for those who remained in the study and those who did not was not significantly different.

This study was also limited because it exclusively relied on a single self-report measure, thus potentially producing surplus construct irrelevancies that cannot be dissociated from the measurement of the target construct (Cook & Campbell, 1979). The sample of the present study also allows for limited generalization, as it consisted of primarily White, educated, middle-class and upper-middle-class men and women attending a private university in the 1960s and 1970s. Although this kind of sample is typical of longitudinal studies, homogeneity with respect to ethnicity and social class does not allow for
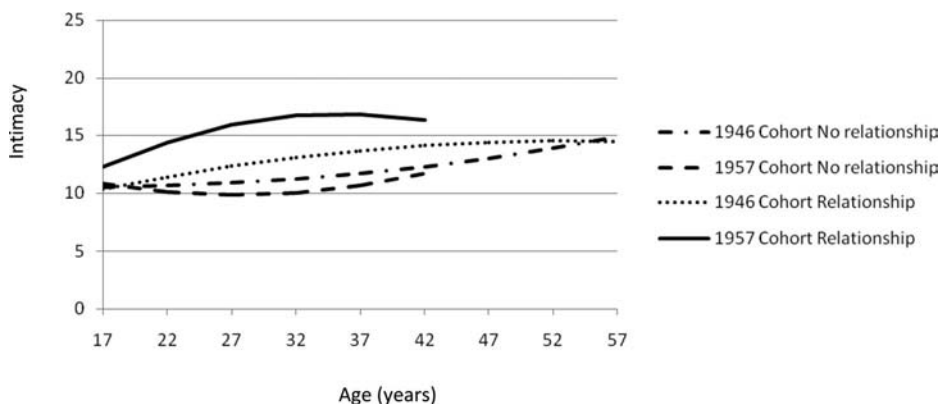

Figure 5. Model-fitted trajectories for intimacy scores by relationship status at age 31 and cohort.
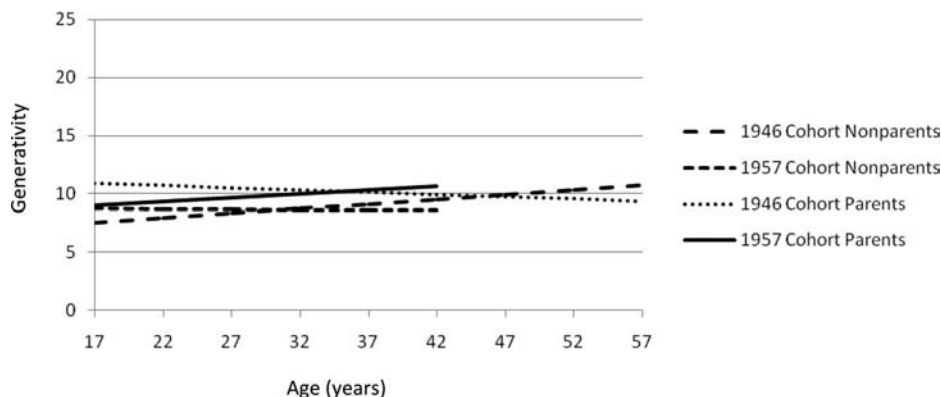
Figure 6.   Model-fitted trajectories for generativity scores by parental status at age 31 and cohort for parents.

generalization beyond the traditional 4-year White college student. Although having two cohorts studied sequentially increases the generalizability compared with single-cohort studies, the findings may also be limited to the historical eras in which they attended college.

Social desirability may have also played a role in the present findings such that individuals are willing to acknowledge only those aspects of the self that they believe to be favorable. Given the positive and negative items that contribute to each IPD scale score, it seems possible that socially desirable responding may have been an issue. However, Costa and McCrae (1994) maintained that social desirability is not as serious a contaminant as researchers once thought. According to these authors, a substantial body of work has demonstrated that individual differences in the propensity to endorse socially desirable items are weak compared with individual differences in traits. Indeed, social desirability shows very little effect on the factor structures of personality measures when groups of honest and socially desirable responders are compared (Ellingson, Smith, & Sackett, 2001). Although we were not in fact measuring traits, Whitbourne and Waterman (1979) assessed the impact of socially desirable responding by correlating IPD scale scores with the Marlowe–Crowne Social Desirability Scale in the 1977 follow-up. Correlations between the Marlowe–Crowne Social Desirability Scale and the first six scales on the IPD ranged from .16 to .28 for the 1957 cohort and from .05 to .20 for the 1946 cohort, suggesting that the IPD is relatively insensitive to social desirable response bias. Thus, social desirability did not appear to limit significantly this investigation's findings.

The present study is unique in that it is the only investigation to date involving systematic comparisons of Eriksonian psychosocial issues in adulthood across several cohorts and several times of measurement. The findings have provided additional evidence to support the notion that resolutions of psychosocial issues evolve continuously and cumulatively over the years of adulthood. This evolution continues at least through the mid-50s in a pattern of steady progress toward enhanced growth on issues typically linked to childhood and in a pattern of more rapid growth for the psychosocial issues that typically confront individuals through the decades of adulthood.

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