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Trust, Identity, and Ego Integrity: Modeling Erikson's Core Stages Over 34 Years

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Abstract Erikson's core stages (trust, identity, and ego integrity) were modeled over 34 years from college through the late 1950s among 175 men and women tested on the Inventory of Psychosocial Development (Constantinople, Dev Psychol 1:357–372, 1969) testing the hypothesis that each, although united by the theme of wholeness and continuity, would show distinct developmental trajectories. Stage 1 (Trust versus Mistrust) followed a positive linear trajectory and Stage 5 (Identity versus Diffusion) followed a curvilinear trajectory that leveled off in middle adulthood. Stage 8 (Ego Integrity versus Despair) followed a curvilinear trajectory with an increasing trend in middle adulthood. The unique trajectories for each of the psychosocial crisis stages were expected on the basis of Erikson's theory. In addition, there was also significant variability in either the mean or slope of each stage demonstrating individual differences in change, a central tenet of Erikson's life span developmental approach.

Keywords Trust · Identity · Ego Integrity · Erikson · Lifespan development · Rochester Adult Longitudinal Study (RALS)

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Introduction

For many developmental psychologists, Erikson's theory provided the impetus if not the inspiration to undertake the scientific investigation of the ways in which people change throughout life, a "vigorous unfolding" (Erikson 1963, p 255). Erikson's approach contrasted sharply with the existing wisdom, as stated by James (1890) that, "In most of us, by the age of thirty, the character has set like plaster, and will never soften again" (p 126). These opposing viewpoints continue to be played out in contemporary research and theory on adult personality development. Researchers argue on one side or the other citing evidence from studies using mean-level or rank-order consistency estimates of change (Costa and McCrae 1994; Helson and Roberts 1994). However, the debates on which these data are based do not fully explore the central issue: the extent to which individual differences in personality change over the life course, the explicit interest of lifespan developmental psychology (Baltes et al. 1988).

Since the advent of more sophisticated statistical techniques such as multilevel modeling (Singer 1998; Singer and Willett 2003), personality researchers have begun to study the stability and change of a variety of adult personality constructs. These techniques model both the average person trajectory and the trajectory at the individual level allowing for the assessment of interindividual differences in intraindividual change (Nesselroade 1991). Using these approaches, all of the basic dimensions of personality have shown both stability and change across the lifespan (Charles et al. 2001; Helson et al. 2002; Mroczek and Spiro 2003). For example, Mroczek and Spiro (2003) examined the trajectories of extraversion and neuroticism in over 1,600 men (mean age of 63) from the Normative Aging Study and observed significant random

variation in both intercept and slope indicating that people start at different levels and change at different rates for both constructs. However, personality research that has used these approaches has focused exclusively on personality traits rather than examining change and stability in personality variables defined in terms of psychosocial developmental issues.

Erikson's (1963) theory of personality development characterizes individual development as occurring through a series of eight bipolar stages across the lifespan. The stages are characterized by psychosocial crises that reach ascendancy on the basis of changes in biological, psychological, and social processes. Although Erikson positioned the crises at particular points along the lifespan continuum, he also left room for individual variability in the timing of these issues. According to Erikson, the eight crises can potentially arise at any point in life as a function of particular psychosocial forces, or what he called the "hazards of existence" (Erikson 1963, p 274). Earlier stages can be revisited in later life and later stages can reach ascendancy earlier in life, so that at all ages, all possible psychosocial issues can potentially arise. Thus, each stage in Erikson's theory has an overall trajectory describing the average person's progression through the stages, but the interaction between person and environment can give rise to individual differences in these developmental trajectories. The present study represents the first attempt to map the appropriate statistical methodology to Erikson's lifespan developmental theory using multilevel modeling techniques.

In a reconceptualization of Erikson's theory, Logan (1986) argued that Erikson's 8-stage developmental theory could be viewed as a cycle that repeats twice, once from Basic Trust versus Mistrust (Stage 1) to Identity versus Role Confusion (Stage 5), and again from identity versus Role Confusion to Ego Integrity versus Despair (Stage 8). According to this view, the core stages that anchor this repetition are trust, identity, and ego integrity because each of these stages is characterized by the theme of continuity and wholeness. Specifically, Stage 1 represents the theme of continuity and wholeness in the self and in another, Stage 5 represents the theme of wholeness and continuity between the self and society, and Stage 8 represents the theme of wholeness and continuity in the sense of belonging to something that transcends the individual lifecycle.

Although linked by the theme of wholeness and continuity, Erikson proposed that each stage would reach ascendancy at different points across the lifespan. In particular, Erikson postulated that resolving the crisis of developing basic trust in others takes place in infancy, the crisis of developing identity [i.e., a coherent sense of self that is accompanied by continuity with the past and direction for the future (Marcia 1994)] takes place in adolescence, and the crisis of establishing ego integrity (e.g., looking back over one's life and feeling good about the life one has lived) takes place in older adulthood. In the present study, we were interested in testing the proposition that each stage would be characterized by unique developmental trajectories despite their common association with the theme of continuity and wholeness over the period from early adulthood (age 20) to late middle adulthood (age 54).

In order to accomplish this goal, we used data from the Rochester Adult Longitudinal Study (RALS), which was initiated in the 1960s as a study of the factors affecting emotional development in college men and women (Constantinople 1969). At the time, a 60-item inventory of psychosocial development (IPD), covering the first of Erikson's six psychosocial stages, was administered to a sample of students at the University of Rochester. In the mid-1970s, Whitbourne and Waterman (1979) conducted the first follow-up of the men and women in the original sample, and added a new sample of undergraduates at the same undergraduate institution. An expanded IPD covering all eight of Erikson's stages was administered in this and subsequent investigations (i.e., 1988 and 2000–02) in the RALS.

Previous investigations on the RALS using repeated measures multivariate analyses revealed a pattern of stability in Stage 1 scores from ages 20 to 42, increases in Stage 5 from ages 20 to 31 but stability from ages 31 to 42, and decreases in Stage 8 from ages 31 to 42 (Whitbourne et al. 1992). However, previous analyses of RALS data relied on mean level analyses of change, which are limited in that they dismiss a key component of Erikson's theory—namely, intraindividual differences in changes (Nesselroade 1991). In addition, mean level analyses of change such as repeated measures analysis of variance requires complete case data, a technique which excludes those who do not have data at all available time points. Findings from such analyses are biased toward stability because they reflect data from only those who are available at all times of testing (Alder and Scher 1994). One of the great advantages of multilevel modeling is its ability to accommodate missing data, thereby allowing analyses to incorporate participants who have missed one or more occasions of testing (Hox 2002). In addition, by adding a fourth wave of data to the RLS, the present study extends the longitudinal time frame of the RLS to 34 years, providing a more complete account of the trajectories of Erikson's core stages through the middle years of adulthood than was possible in the earlier investigations.

We advanced specific hypotheses for each of the three stages based on Erikson's theory. Logan's (1986) concept of the core stages, and the previous findings of the RALS. Basic Trust versus Basic Mistrust was hypothesized to show stability over the course of the study based on Erikson's proposition that the need to establish faith in the

environment and those who care for the individual would show heightened vulnerability in infancy. With regard to Identity Achievement versuss Identity Diffusion, we hypothesized a curvilinear trajectory with initial increases in early adulthood and relative stability thereafter. The struggle to form a sense of wholeness, to create a bridge between childhood and anticipated adulthood, and to experience continuity between one's self-conception and the self as perceived by others defines the normative identity crisis that is generally experienced and addressed in late adolescence and persists through early adulthood (Waterman 1999). Finally, Erikson positioned the Ego Integrity versus Despair crisis in later adulthood when older adults reflect on the meaning of life and how they have lived it. The essence of this psychosocial stage cuts to the central issues of the core stages notion. Ego integrity involves a sense of wholeness, integration, and a deep sense of acceptance of the life as it has been lived. Although thought by Erikson to peak in later adulthood, the existential issues involved in this crisis can arise at any point in life and indeed, when they do, will have a bearing on trust and identity. Following the decrease observed in this stage from ages 31 to 42 during the 1988–89 testing (Whitbourne et al. 1992), we hypothesized that Ego Integrity versus Despair scores would begin to ascend toward the end of middle adulthood reflecting a combination of ontogenetic processes and a changing cultural climate. Consistent with Erikson's theory, we expected to see random variation in both the intercept and slope of the trajectories of all three stages, indicating individual differences in change over time.

Method

Participants

Participants from this investigation are part of the larger RALS and consist of college educated men and women who were either born into or achieved professional socioeconomic status. The original sample RALS participants in this study were first tested when they were in college in 1966–68 and have been tested in approximately 11-year intervals since then. Their mean ages in subsequent follow-ups were approximately 20, 31, 42, and 54 years of age. There were 347 participants in the 1966–68 testing: 180 men (51.8%) and 166 women (47.8%). In 1977–78, 155 participants were successfully recruited for follow-up; 79 men (50.9%) and 77 women (49.6%). The third follow-up, conducted in 1988–89, yielded 99 participants; 62 men (62.6%) and 37 women (37.3%). In the 2000–02 follow-up, 172 members completed testing; 99 men (57.6%) and 73 women (42.4%).

In order to examine the possibility that the participants who remained available for follow-up were not representative of the original sample, we categorized participants as missing or not-missing in 1977–78, 1988–89, or 2000–02, and compared them on their 1966–68 (college) IPD scores. No relationships were observed between attrition status and IPD scores in 1977 (Wilks' $\Lambda = 0.990$, $F(6, 333) = 0.57$, $p < 0.76$), 1988 (Wilks' $\Lambda = 0.980$, $F(6, 333) = 1.12$, $p < 0.35$), and 2000–02 (Wilks' $\Lambda = 0.990$, $F(6, 333) = 0.58$, $p < 0.75$). We also investigated whether there were systematic differences in the gender composition of the attrition status groups at the three times of testing. Men were more likely than women to participate in the 1988–89, χ^2 $(1, N = 344) = 5.91$, $p < 0.025$, and 2000–02 follow-ups, χ^2 $(1, N = 344) = 4.15$, $p < 0.05$.

Measures

Psychosocial Development

Stage scores for Basic Trust versus Basic Mistrust (Stage 1), Identity Achievement versus Identity Diffusion (Stage 5), and Ego Integrity versus Despair (Stage 8) were obtained from the 80-item IPD. Constantinople (1969) developed the scale's first six scales from a Q-sort devised to assess the Eriksonian development and Whitbourne and Waterman (1979) developed scales measuring Stages 7 and 8 for the 1977–78 follow-up. There are ten items for each stage, five representing the positive resolution of the stage and five representing the negative resolution of the stage. Respondents are asked to indicate how characteristic or uncharacteristic a given item is of them on a 7-point Likert scale. Stage scores are created by subtracting the sum of the five negative items on each scale from the sum of five positive items. For each stage, the possible scores therefore range from −30 to +30. Representative Stage 1 items are "placid and untroubled (Basic Trust)," and "pessimistic, little hope" (Basic Mistrust). Representative Stage 5 items are "know who I am and what I want out of life," (Identity Achievement) and "never know how I feel" (Identity Diffusion)." Representative Stage 8 items are "proud of what I've done" (Ego Integrity) and "Regret the mistakes I've made" (Despair). Estimates of Cronbach's alpha for Stages 1, 5, and 8 in the 2000–02 testing were estimated at 0.82, 0.71, and 0.77, respectively.

Procedure

At the beginning of the follow-up period in early 2000, participants were contacted by mail using addresses obtained in previous follow-ups, information provided in

the most current University of Rochester Alumni Directory (both printed and online), and Internet services. The questionnaire packets that participants received in 2000 were similar to those used in the previous follow-ups, including a letter explaining the study with space for an informed consent signature, a set of questions assessing major changes in family and work situations, the IPD, a debriefing form, and additional measures of personality not reported in the present paper. Approximately 1 month after the initial mailing, a follow-up letter was mailed to non-respondents requesting their help in by completing the questionnaires. Participants who had still not responded were emailed or called based on contact information obtained from the University of Rochester's online directory or from Internet searches conducted between 2001 and 2002. The initial mailings yielded data from 106 participants. Additional efforts using the University of Rochester on-line directory and Internet searches yielded another 69 participants, 44 of whom were obtained through University of Rochester sources and 22 of whom were located by means of Internet searches.

It should be noted that the reason we were able to obtain more participants in 2000–02 was because of the availability of the Internet. This was both "good news" and "bad news." In prior follow-ups, there was no such available mechanism to locate individuals regardless of where they resided. Consequently, our sample size in 2000–02 was approximately twice that obtained in the previous follow-up; unfortunately, a large number of these individuals were tested only once on one of the stages of interest (Stage 8) because only the first six stages were included in the original 1966 testing.

Data Analysis

Multilevel analyses or growth curve modeling for Stages 1 (Trust versus Mistrust), 5 (Identity Achievement versus Identity Diffusion), and 8 (Ego Integrity versus Despair) were carried out using the SAS PROC MIXED procedure (Singer 1998). Multilevel approaches differ from ordinary multiple regression analysis in that they estimate the average intercept and slope for the sample and the random variation in intercept and slope; that is, intercepts and slopes are allowed to vary between individuals enabling the effective modeling of interindividual differences in intra-individual change. For the purposes of this analysis, year was centered at 17 for Stages 1 and 5 which, as mentioned earlier, have been assessed since 1966. Since Stage 8 was initially assessed in 1977, we centered year at 11, which corresponded to the 1988–89 testing and approximated the half-way point between the 1977–78 and the 2000–02 testings. The intercept for Stages 1 and 5 is interpreted as the average level of the dependent variable at year 17, whereas the intercept for Stage 8 is interpreted as the average level of the dependent variable at year 11. The linear slope indicates how much the intercept changes for a given stage for every increase in year. A quadratic slope indicates how much the slope changes for a given stage with each increase in year. Gender differences were tested but no differences in intercept or slope for the three stages were detected, and therefore, are not reported.

Model fitting proceeded in three steps (Singer 1998; Singer and Willett 2003). First, we calculated the intraclass correlation (ICC) using the intercept only model, which allows an estimate of the proportion of variation in the dependent variable that is between and within persons in the sample. Next, we estimated a linear growth curve model by adding year (time) as a random and fixed effect to the intercept only model. Finally, we tested a quadratic growth model by adding time^2 to the linear model for each stage. All models tested in this paper for improved fit were nested, that is, each could be derived from a preceding model. In order to test nested models for improved fit, we tested the difference between their respective -2 Log Likelihoods (-2LL), which is distributed as a Chi-square with degrees of freedom equal to the difference in the number of parameters (fixed and random) between the two models (Hox 2002; Singer and Willett 2003).

Results

Means and standard deviations for Stages 1 (Basic Trust versus Basic Mistrust), 5 (Identity Achievement versus Identity Diffusion), and 8 (Ego Integrity versus Despair) are displayed in Table 1. As shown in this table, Stages 1 and 5 scores increase over the study period. In contrast, Stage 8 scores decrease from the first to the second testing, and increase again from the third to fourth testings. The standard deviations also indicate that the variance for each of the stages were relatively homogeneous across testings.

Table 1 Means and standard deviations for Stage 1 (Basic Trust versus Basic Mistrust), Stage 5 (Identity Achievement versus Identity Diffusion), and Stage 8 (Ego Integrity versus Despair)

	1966 ($N = 344$)	1977 ($N = 155$)	1988 ($N = 99$)	2001 ($N = 175$)
Stage 1	9.77 (7.78)	10.94 (8.30)	11.49 (8.09)	12.76 (8.47)
Stage 5	7.38 (6.59)	9.71 (6.22)	10.53 (6.72)	11.52 (6.25)
Stage 8	–	7.74 (7.83)	3.85 (8.12)	5.69 (8.48)

Note: Stage 8 (Ego Integrity versus Despair) was not included in 1966 testing

Stage 1

The fixed and random effects estimates for the three models fitted for Stage 1 (Trust versus Mistrust) are presented in Table 2. As shown here, the intercept only model for Stage 1 yielded an ICC of 0.54 indicating that 54% of the total variation reflects interindividual differences and 46% of the total variation represents intraindividual differences (although the proportion of variance within person also consists of measurement error). The −2LL for this model consisting of three parameters was 5,244.5. Next, we estimated the linear growth model, which yielded a significant effect of time. With each additional year, the average person in our sample increased in Stage 1 scores by 0.084 points. There was also significant random variation in this model in both the intercept and slope indicating that people differ in their level of Stage 1 resolution at year 17 of the study as well as in their growth curves. The −2LL for this model with five parameters was 5,200.1, which represents a significant improvement in fit from the intercept only model (Δ − 2LL = 44.4, χ^2 (2) > 13.81, $p < 0.001$). In order to test the possibility of curvilinear change in Stage 1, we added time^2 to the linear model, which did not improve model fit. The linear trajectory for Stage 1 scores over time for the average participant is presented in Fig. 1. In addition, Fig. 1 depicts the empirical trajectories of a random sample of participants with complete data to demonstrate differences in change over time.

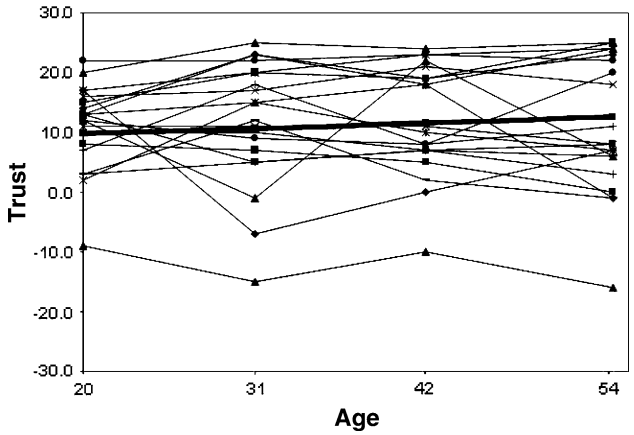

Fig. 1 Fitted linear trajectory in *bold* of Stage 1 (Basic Trust versus Basic Mistrust) for the average participant and the empirical trajectories of a random sample of participants ($n = 20$) with complete data demonstrating differences in change over time

Stage 5

The fixed and random effects estimates for the three models fitted for Stage 5 are presented in Table 3. The ICC estimated from the intercept only model was 0.44 indicating that 44% of the total variation in identity represents intraindividual change and 56% of the total variation in identity reflects interindividual differences. The −2LL for the intercept only model consisting of three parameters was 5,002.6. Next, we estimated the linear growth model by adding a fixed and random linear slope component. With five parameters and a −2LL of 4,917.1, this represented a significant improvement in fit from the intercept only model (Δ − 2LL = 85.5, χ^2 (2) > 13.81, $p < 0.001$). The average person in our sample increased in Stage 5 scores by 0.12 points a year. There was also significant random variation in both the intercept and slope indicating that people differ in their level of Stage 5 resolution at year 17 of the study and in their rate of change.

We had hypothesized, however, that Stage 5 scores would show curvilinear change with initial increases and then a leveling off. In order to test the possibility of this

Table 2 Growth curve models of Stage 1 (Basic Trust versus Basic Mistrust)

	Intercept only model	Linear growth model	Quadratic growth model
Fixed effects estimates			
Intercept	10.67, $t(343) = 27.52$***	11.20, $t(343) = 28.08$***	11.08, $t(343) = 21.12$***
Time		0.084, $t(221) = 5.00$***	0.085, $t(221) = 5.01$***
Time^2			0.00056 $t(206) = 0.35$
Random effects estimates			
Intercept	35.34, $z = 8.99$***	36.99, $z = 9.59$***	37.01, $z = 9.59$***
Time		0.024, $z = 3.35$***	0.024, $z = 3.35$***
Time^2			–
Residual	30.085, $z = 14.98$***	21.95, $z = 10.96$***	21.95, $z = 10.96$***
−2LL (number of parameters)	5,244.5 (3)	5,200.1 (5)	5,200.0 (6)

Note: −2LL, −2 Log Likelihood. All models use full maximum likelihood estimation

–indicates parameter could not be estimated

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Table 3 Growth curve models of Stage 5 (Identity Achievement versus Identity Diffusion)

	Intercept only model	Linear growth model	Quadratic growth model
Fixed effects estimates			
Intercept	8.93, $t(343) = 29.01$***	9.67, $t(343) = 30.79$***	10.35, $t(343) = 23.67$***
Time		0.12, $t(221) = 8.86$***	0.12, $t(221) = 8.56$***
Time^2			−0.0032, $t(206) = -2.24$*
Random effects estimates			
Intercept	19.47, $z = 7.69$***	20.81, $z = 8.50$***	20.91, $z = 8.55$***
Time		0.0095, $z = 1.80$*	0.010, $z = 1.96$*
Time^2			–
Residual	24.64, $z = 14.95$***	18.43, $z = 10.95$***	18.03, $z = 10.92$***
−2LL (number of parameters)	5,002.6 (3)	4,917.1 (5)	4,912.1 (6)

Note. −2LL, −2 Log Likelihood. All models use full maximum likelihood estimation

– indicates parameter could not be estimated

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

curvilinear change in Stage 5, we added both fixed and random quadratic slope (time) terms to the linear growth model. The random component of the quadratic slope, however, could not be estimated. Removing this component resulted in a final model (consisting of six rather than seven parameters) for Stage 5, which represented a significant improvement in fit from the linear model ($-2LL = 4{,}912.1$, $\Delta - 2LL = 5$, $\chi^2\ (1) > 3.84$, $p < 0.05$). This model revealed that the increase in Stage 5 resolution that we observed over time tends to slow down with each additional year. In addition, this model revealed individual differences in both intercept and the linear slope. Change over time for the average study participant is depicted in Fig. 2. In addition, Fig. 2 depicts the empirical trajectories of a random sample of participants with complete data to demonstrate differences in change over time.

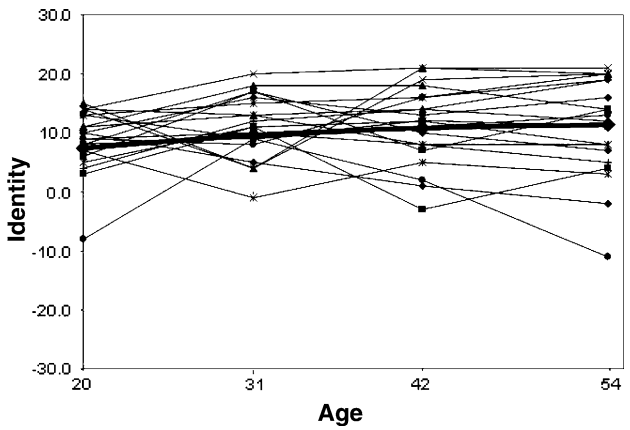

Fig. 2 Fitted linear trajectory in *bold* of Stage 5 (Identity Achievement versus Identity Diffusion) for the average participant and the empirical trajectories of a random sample of participants ($n = 20$) with complete data demonstrating differences in change over time

Stage 8

The fixed and random effects estimates for the three models fitted for Stage 8 are presented in Table 4. The ICC estimated from the intercept only model was 0.60 indicating that 60% of the total variation in identity reflects interindividual differences and 40% represents intraindividual change. The −2LL for the intercept only model consisting of three parameters was 2,918.9. Next, we estimated the linear growth model by adding a fixed and random slope (time) component to the intercept only model. The random component of the linear slope could not be estimated in this model. Removing this component from the linear growth model (consisting of four rather than five parameters) yielded a significant improvement in fit from the intercept only model ($-2LL = 2{,}905.2$, $\Delta - 2LL = 13.7$, $\chi^2\ (1) > 10.82$, $p < 0.001$). According to this model, the average person in our sample decreased in Stage 8 by 0.10 points a year. There was also significant random variation in the intercept indicating that people differed in their level of Stage 8 resolution at year 11 of the study. We had hypothesized, however, that Stage 8 scores would show curvilinear change characterized by initial decreases and subsequent increases in resolution. In order to test this hypothesis, we added quadratic time term to the fixed part of the linear growth model. As expected, this 5-parameter model represented a significant improvement in fit ($-2LL = 2{,}876.8$, $\Delta - 2LL = 28.4$, $\chi^2\ (1) > 10.82$, $p < 0.001$). Change in Stage 8 over the 23-year period of the study for the average study participant is depicted in Fig. 3. In addition, Fig. 3 depicts the empirical trajectories of a random sample of participants with complete data to demonstrate differences in change over time.

Table 4 Growth curve models of Stage 8 (Ego Integrity versus Despair)

	Intercept only model	Linear growth model	Quadratic growth model
Fixed effects estimates			
Intercept	5.91, $t(221) = 11.62$***	6.065, $t(221) = 11.87$***	3.46, $t(221) = 4.97$***
Time		−0.10, $t(206) = -3.77$***	−0.13, $t(205) = -4.87$***
Time^2			0.024, $t(205) = 5.51$***
Random effects estimates			
Intercept	40.86, $z = 7.37$***	42.058, $z = 7.56$***	43.86, $z = 7.90$***
Time		–	–
Time^2			–
Residual	26.82, $z = 10.35$***	25.05, $z = 10.31$***	21.91, $z = 10.27$***
−2LL (number of parameters)	2,918.9 (3)	2,905.2 (4)	2,876.8 (5)

Note: −2LL −2 Log Likelihood. All models use full maximum likelihood estimation

– indicates parameter could not be estimated

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

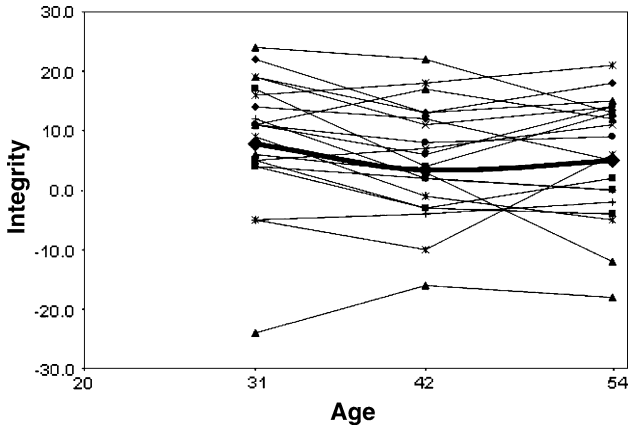

Fig. 3 Fitted linear trajectory in *bold* of Stage 8 (Ego Integrity versus Despair) for the average participant and the empirical trajectories of a random sample of participants ($n = 20$) with complete data demonstrating differences in change over time

Discussion

The present study is the first to use multilevel modeling techniques to examine the stability and change of what Logan (1986) referred to as Erikson's core stages: Stage 1 (Basic Trust versus Basic Mistrust), Stage 5 (Identity Achievement versus Identity Diffusion), and Stage 8 (Ego Integrity versus Despair). We found distinct developmental trajectories across young and middle adulthood in each of the core stages consistent with Erikson's prediction that the timing of the ascendancy of these stages would be unique to each one even though they share the underlying dynamic of being located at the core of the self (cf. Figs. 1–3). Furthermore, we observed individual variability in the means and slopes of Basic Trust versus Basic Mistrust and Identity versus Identity Diffusion, and in the intercept for Ego Integrity versus Despair (see Figs. 1–3). This indicates that, although there is an overall developmental trajectory that describes the average person from college through midlife, there is also significant variation around this overall trajectory. Although these stages are linked by the theme of wholeness and continuity, and therefore are considered Erikson's "core" stages, each stage assumes its own unique trajectory with a distinct period of ascendancy. These findings also support the lifespan developmental focus on intraindividual differences in change (Nesselroade 1991).

Although on the basis of Erikson's theory we predicted that Basic Trust versus Mistrust would remain stable over adulthood, we instead observed a significant positive linear trajectory. This finding is consistent with the "matrix" interpretation of Erikson's theory, that is, that psychosocial issues continued to be revisited and reworked throughout life (Erikson 1991; Whitbourne 2008). In fact, some have argued that complete resolution is impossible given the changes that are experienced throughout life, and that, by necessity, each stage must be continually reworked in the context of later stages (Erikson 1991). Nevertheless, the positive linear trajectory yielded an increase of only 2.9 points over a 34-year period, or less than one point per decade. This suggests that although there is some increased resolution of the Basic Trust versus Basic Mistrust psychosocial crisis over the course of young and middle adulthood, the majority of this resolution took place before age 20. Such an observation makes sense given that Erikson, as well as others (Mahler et al. 1975), has postulated that the development of a basic sense of trust in infancy is a fundamental precursor to further healthy personality development. Of course, this interpretation of the overall trends does not take into account individual variation. Further analyses using predictors of individual differences in patterns of change are required to examine why

individuals might or might not revisit this first psychosocial issue that lies at the very core of the self.

Supporting earlier findings from the RALS using mean level analyses of change and specific indices of identity status (Whitbourne and Van Manen 1996), the present findings provide evidence that identity resolution evolves throughout the decade of the 20s and even beyond. Erikson positioned the timing of the Identity Achievement versus Identity Diffusion crisis as taking place in adolescence, but it is clear from the present findings that substantial resolution does not occur until the late 20s and early 30s. This finding is consistent with research showing that, even after individuals had initially reached identity achievement, they often reentered the moratorium status (i.e., identity exploration without commitment) and subsequently returned to identity achievement on multiple occasions later in life (Stephen et al. 1992). Nevertheless, there may be different styles with which people grapple with the physical, psychological, and social role changes associated with development across the lifespan that necessarily compel a reconsideration of how they see themselves in relation to others (Sneed and Whitbourne 2003).

The hypothesis was supported by Ego Integrity versus Despair scores that would begin to ascend toward the end of the middle adult years following the initial decrease observed from age 31 to 42 in the 1988–89 testing (Whitbourne et al. 1992). These findings are consistent with an ontological interpretation that the issue of Ego Integrity versus Despair gains in importance when the individual begins to come to grips with the notion of accepting his or her lifecycle as being the only one that could have been lived.

It is also possible, however, that the rise in Ego Integrity versus Despair scores continues to reflect the time of testing effect described in the previous RALS follow-up. The decrease in Ego Integrity versus Despair scores observed during the 1988–89 testing, and the increase in the current follow-up, are trends that may be interpreted as reflecting the dramatic effect of the environment on personality. For example, Whitbourne et al. (1992) concluded that the decline in Ego Integrity versus Despair scores following the 1988 testing reflected a general "erosion of philosophical values" (p 269) consistent with the 25% drop in college freshman scores from 1970 to 1988 on the goal of developing a coherent life philosophy. These findings are consistent with the decreases in responsibility observed using the California Personality Inventory that corresponded to a simultaneous rise in individualism as assessed using the Secular Trends Index throughout the 1960s and 1970s (Helson et al. 2002). Following this line of reasoning, the upturn in Ego Integrity versus Despair scores following the 2000–02 testing may be a product of a rise in values throughout the 1990s oriented toward volunteerism and the goal of going beyond the self to connect with those who are in need. This sample, representing the leading edge of the Baby Boomers, may in particular have experienced a heightened sense of social responsibility as they assume the role of the leaders in their communities, the nation, and the world (Whitbourne and Willis 2006).

The individual differences found in the present investigation highlight the importance of considering interindividual differences in intraindividual change. All three core stages showed significant random variation in their means, and Basic Trust versus Mistrust and Identity Achievement versus Diffusion also showed significant variation in their slopes. Not only do people differ in their levels of these variables at the study's mid-point, then, but they also differ in their rate of change. McAdams (1994) has argued that stability and change issues depend on the level of personality that is examined. According to this view, considerable stability is expected when personality is assessed through paper and pencil measures that are by definition somewhat removed from the day-to-day reality of people's life experiences. Despite relying on such an abstract measure of psychosocial development, the present findings showed substantial individual variability in both means and slopes. The fact that this variability was demonstrated to exist highlights the importance of examining development using procedures that make it possible to assess the individual differences inherent in Erikson's developmental model.

There are a number of reasons why individual differences in the slope of Stage 8 (Ego Integrity versus Despair) were not observed. One possibility is that participants in this study at the time of the latest testing were on average only 54 years old, and therefore, have not begun to grapple fully with the existential issues inherent in this psychosocial crisis stage. Another possibility is likely due to the fact that these scores were the only ones for which three time points were available for analysis (the minimum necessary to model growth curves) and there were large number of participants with fewer than three time points. Only 84 participants had Stage 8 scores across all three waves, 39 provided data on two waves, and 99 provided data on only one wave of testing between the 1977–78 (when Stage 8 scores were first collected) and 2000–02 testings. Estimation of variance components requires a large enough sample size with a sufficient number of time points to quantify the variation in the residuals after taking the fixed effects into account (Singer and Willett 2003). As a result, it was difficult to estimate the random variance components for this stage. Therefore, the lack of individual differences in the rate of change in Stage 8 should not be taken as evidence refuting the Eriksonian position on intraindividual change.

The limitations of the present study are balanced by its unique methodological strengths. The RALS is the only 34-year longitudinal study systematically examining Erikson's stages over men and women from early to middle adulthood, allowing for the rigorous evaluation of predictions in Erikson's model that have largely gone untested. Such an extensive longitudinal investigation, however, naturally falls prey to attrition, which can potentially bias research findings toward stability; i.e., those who remain in the study are more likely to show personality stability either in their life situations or their willingness to participate in personality research. The possibility of greater stability in the follow-up samples may partially explain the lack of significant random variation in the slope of Stage 8. However, Roberts and DelVecchio (2000) 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. It should also be noted that the sample consists primarily of educated, middle, and upper-middle class men and women. Although this relatively advantaged sample is typical of longitudinal studies, homogeneity with respect to socioeconomic status does not allow for generalization beyond this particular sector of the population.

It is apparent from the present study that simply polarizing the issues surrounding adult personality development into the extremes of the stability versus change position is no longer useful or valid. The trajectories observed for the stages at the core of Erikson's psychosocial model showed trajectories that primarily supported a developmental sequence predicted by his theory. We also documented important individual differences in change that substantially support Erikson's focus on the idiosyncrasies of the individual's personality evolution over the life course. This study was the first to use the appropriate statistical techniques to address adequately this aspect of his theory. It seems the logical question to ask next is not *is* there change in adulthood but *who* changes and *what* predicts that change. Future research will attempt to explain individual variation in the intercepts and slopes of the core and other stages by exploring the impact of cohort membership and life events on growth curve trajectories throughout the adult years.

References

Alder, A. G., & Scher, S. J. (1994). Using growth curves analyses to assess personality changes and stability in adulthood. In T. F. Heatherton, & J. L. Weinberger (Eds.), *Can personality change?* (pp. 149–173). Washington, DC: American Psychological Association.

Baltes, P. B., Reese, H. W., & Nesselroade, J. R. (1988). *Life span developmental psychology: Introduction to research methods*. Hillsdale, NJ: Lawrence Erlbaum Associates.

Charles, S. T., Reynolds, C. A., & Gatz, M. (2001). Age-related differences and change in positive and negative affect over 23 years. *Journal of Personality and Social Psychology, 80*, 136–151.

Constantinople, A. (1969). An Eriksonian measure of personality development in college students. *Developmental Psychology, 1*, 357–372.

Costa, P. T., & McCrae, R. R. (1994). Set like plaster? Evidence for the stability of adult personality. In T. F. Heatherton, & J. L. Weinberger (Eds.), *Can personality change?* (pp. 21–40). Washington, DC: American Psychological Association.

Erikson, E. H. (1963). *Childhood and society* (2nd ed.). New York: Norton.

Erikson, J. M. (1991). *Wisdom and the senses: The way of creativity*. New York: W. W. Norton & Company, Inc.

Helson, R., Jones, C., & Kwan, V. S. Y. (2002). Personality change over 40 years of adulthood: Hierarchical linear modeling analyses of two longitudinal samples. *Journal of Personality and Social Psychology, 83*, 752–766.

Helson, R., & Roberts, B. W. (1994). Ego development and personality change in adulthood. *Journal of Personality and Social Psychology, 66*, 911–920.

Hox, J. (2002). *Multilevel analysis: Techniques and applications*. Mahwah, NJ: Lawrence Erlbaum Publishers.

James, W. (1890). *Principles of psychology*. New York: Holt.

Logan, R. D. (1986). A reconceptualization of Erikson's theory: The repetition of existential and instrumental themes. *Human Development, 29*, 125–136.

Mahler, M., Pine, F., & Bergman, A. (1975). *The psychological birth of the human infant*. New York: Basic Books.

Marcia, J. E. (1994). Ego identity and object relations. In J. M. Masling, & R. F. Bornstein (Eds.), *Empirical perspectives on object relations theory* (vol. 5). Washington, DC: American Psychological Association.

McAdams, D. P. (1994). Can personality change? Levels of stability and growth in personality across the life span. In T. F. Heatherton, & J. L. Weinberger (Eds.), *Can personality change?* (pp. 299–313). Washington, DC: American Psychological Association.

Mroczek, D. K., & Spiro, A. (2003). Modeling intraindividual change in personality traits: Findings from the normative aging study. *Journal of Gerontology: Psychological Sciences, 58B*, P153–P165.

Nesselroade, J. R. (1991). Interindividual differences in intraindividual change. In J. L. Horn (Ed.), *Best methods for the analysis of change* (pp. 92–105). Washington, DC: American Psychological Association.

Roberts, B. W., & DelVecchio, W. F. (2000). The rank-order consistency of personality traits from childhood to old ages: A quantitative review of longitudinal studies. *Psychological Bulletin, 126*, 3–25.

Singer, J. D. (1998). Using SAS PROC MIXED to fit multilevel models, hierarchical models, and individual growth models. *Journal of Educational and Behavioral Statistics, 24*, 323–355.

Singer, J. D., & Willett, J. B. (2003). *Applied longitudinal data analysis: Modeling change and event occurrence*. NY: Oxford University Press.

Sneed, J. R., & Whitbourne, S. K. (2003). Identity processes and self-consciousness in middle and later adulthood. *Journals of Gerontology, 58B*, P313–319.

Stephen, J., Fraser, E., & Marcia, J. E. (1992). Moratorium-achievement (Mama) cycles in lifespan identity development: Value orientations and reasoning system correlates. *Journal of Adolescence, 15*, 283–300.

Waterman, A. S. (1999). Identity, the identity statuses, and identity status development: A contemporary statement. *Developmental Review, 19*, 591–621.

Whitbourne, S. K. (2008). *Adult development and aging: Biopsychosocial perspectives* (3rd ed.). NY: John Wiley & Sons, Inc.

Whitbourne, S. K., & Van Manen, K. W. (1996). Age differences in and correlates of identity status from college through middle adulthood. *Journal of Adult Development, 3*(2), 59–70.

Whitbourne, S. K., & Waterman, A. S. (1979). Psychosocial development during the adult years: Age and cohort comparisons. *Developmental Psychology, 15*, 373–378.

Whitbourne, S. K., & Willis, S. L. (2006). *The baby boomers grow up: Contemporary perspectives on midlife*. Mahwah, NJ: Erlbaum.

Whitbourne, S. K., Zuschlag, M. K., Elliot, L. B., & Waterman, A. S. (1992). Psychosocial development in adulthood: A 22-year sequential study. *Journal of Personality and Social Psychology, 63*, 260–271.