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Longitudinal Trajectories of Ethnic Identity During the College Years

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The goals of this study were to examine trajectories of change in ethnic identity during the college years and to explore group-level and individual-level variations. Participants were 175 diverse college students who completed indices of ethnic identity exploration and commitment, self-esteem, and domain-general identity resolution. Multilevel modeling analyses indicated that exploration and commitment continued to increase during the college years. Although there were ethnic differences in initial levels of ethnic identity, the rate of change did not vary by ethnicity. Domain-general identity was positively associated with exploration and commitment and mediated the association between self-esteem and commitment. The findings highlight the ongoing development of ethnic identity beyond adolescence and suggest that ethnic identity is part of the larger identity project.

Ethnic identity formation has long been considered a major developmental task of adolescence (Phinney, 1990). Although few in number, longitudinal studies have contributed a great deal to our understanding of the developmental processes involved in ethnic identity during adolescence (French, Seidman, Allen, & Aber, 2006; Pahl & Way, 2006; Seaton, Scottham, & Sellers, 2006). Recently, theory and research have pointed to emerging adulthood, a proposed new period of life located between adolescence and young adulthood (Arnett, 2006), as fertile ground for continued change and negotiation of ethnic identity (Phinney, 2006; Syed, Azmitia, & Phinney, 2007). However, there are no studies that map trajectories of change in ethnic identity exploration and commitment that go beyond late adolescence (i.e., age 18 or 19). Therefore, the notion that ethnic identity formation is mostly finished by the end of adolescence has been untested. To test this proposal empirically, in the present study we examined trajectories of change in ethnic identity during the college years using multilevel modeling (MLM). Understanding the developmental course of ethnic identity into early adulthood is not only

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valuable in its own right, but can also bring new insights into ethnic identity development during adolescence.

Longitudinal Studies of Ethnic Identity

There have been two general approaches to studying ethnic identity longitudinally. The first approach has been to investigate how ethnic identity changes in response to shifts in social contexts (e.g., Ethier & Deaux, 1994; French, Seidman, Allen, & Aber, 2000). The second approach, which is the approach we used in the present study, has emphasized the developmental course of ethnic identity by examining multiple measurement occasions. Although there is variability in how these studies have assessed ethnic identity, they can be sorted into two general groups: change in strength or levels of ethnic identity exploration and commitment (Altschul, Oyserman, & Bybee, 2006; French et al., 2006; Pahl & Way, 2006; Perron, Vondracek, Skorikov, Tremblay, & Corbière, 1998), and change in ethnic identity status membership (Phinney & Chavira, 1992; Seaton et al., 2006; Syed et al., 2007). In the present study we focused on change in levels of ethnic identity exploration and commitment because we were interested in how college students' strength of identification and involvement with their ethnic group changed over time. This mean-level approach, which has been the most widely adopted method of assessing ethnic identity in both longitudinal and cross-sectional research, is useful because it provides an understanding of the general developmental course of ethnic identity processes.

Processes of ethnic identity development. In proposing the identity status model, Marcia (1980) proposed that engaging in exploration of possible identity alternatives and committing to an identity were the fundamental processes involved in the identity development of adolescents and young adults. Phinney (1990) subsequently extended this model to ethnic identity. The process of exploration has been defined consistently in the literature as individuals' search for the personal significance of their ethnic background, via behaviors such as learning about the history of their group and participating in cultural practices. In contrast, the commitment construct has taken on multiple forms, alternatively referred to as ''group-esteem'' (French et al., 2006), ''affirmation and belongingness'' (Pahl & Way, 2006; Phinney, 1992), and ''affirmation, belonging, and commitment'' (Roberts et al., 1999). All of these conceptualizations share similar item content and pertain to having positive feelings of one's group membership and a sense of belonging; in other words, a commitment to an ethnic identity. We henceforth refer to the construct as ''commitment,'' even when it was referred to by another name by the original authors, as establishing this common language helps align the extant literature on developmental trajectories of ethnic identity.

Trajectories of ethnic identity during adolescence. All but one of the four studies that assessed mean-level change in ethnic identity was conducted in the United States, which is important because of how change in ethnic identity has been linked to school transitions. Accordingly, we excluded from consideration the study that was not carried out in the United States (i.e., Perron et al., 1998), due to country-specific characteristics in the nature and timing of school transitions. School transitions have been shown to be periods of exploration and renegotiation of identity, especially in regard to relationships with friends and family (e.g., Shaver, Furman, & Buhrmester, 1985). The three studies of U.S. adolescents highlight the important role of school transitions for ethnic identity development. French et al. (2006), for example, included two cohorts of adolescents: an early adolescent cohort that was transitioning into junior high school and a middle adolescent cohort that was transitioning into high school. They found that early adolescents increased in their commitment across the transition, but their levels of exploration did not change. The middle adolescents also continued to increase in commitment, but at a more rapid rate than the early adolescents. French and colleagues also found a rapid increase in exploration immediately after the transition to high school, followed by a leveling off in the 10th grade. Similar results were obtained by Altschul et al. (2006), who found that connectedness (i.e., commitment) increased during the transition to high school.[1] These findings suggest that transitioning into high school can serve as a consciousness-raising experience for adolescents.

While French et al. (2006) focused on trajectories of change from early to mid-adolescence across the transition to high school, Pahl and Way's (2006) longitudinal study started at approximately 10th grade, and continued until late adolescence. They found that during this period commitment remained stable and exploration decreased. Based on these findings, Pahl and Way (2006) suggested that ethnic identity development is primarily a task for mid-adolescence, and that by late adolescence individuals have essentially completed their ethnic identity projects. However, the dearth of research on postadolescent samples indicates that there is no empirical support for the notion that adolescence is the central developmental period for ethnic identity.

In the present study, we built upon these prior findings by examining trajectories of change in ethnic identity exploration and commitment during the transition to college, as youth are moving from late adolescence toward young adulthood. Both Erikson (1968) and Marcia (1980) highlighted late adolescence and young adulthood as prime periods for identity development. Indeed, a large body of research with college students in other identity domains has supported the idea that identity development continues on past

[1] Working from a racial-ethnic identity framework, Altschul et al. (2006) included measures of connectedness, awareness of racism, and embedded achievement. However, they did not include a measure of exploration.

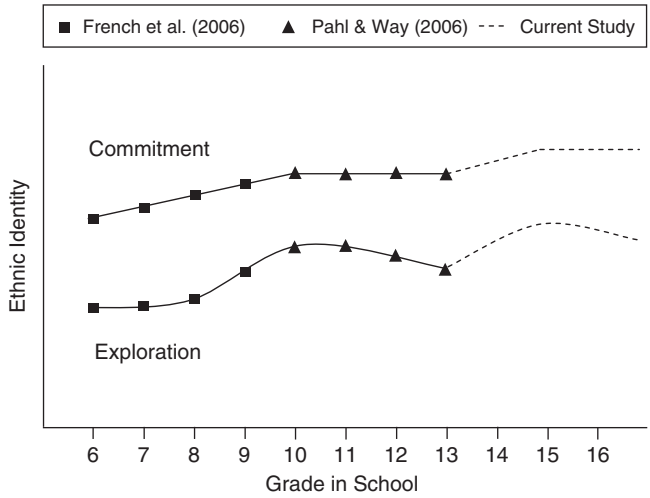

FIGURE 1 Approximate graphical representation of past longitudinal findings on ethnic identity exploration and commitment and hypothesized trajectories for the current study.

adolescence. For example, research has indicated that a substantial number of college students do not reach identity achievement by the end of college, both for a domain-general sense of identity (Kroger, 2007; Meeus, Iedema, Helsen, & Vollebergh, 1999) as well as for identity domains such as sexual identity (Thompson & Morgan, 2008), social class (Radmacher, 2007), and ethnicity (Syed et al., 2007).

That ethnic identity continues to be a developmental concern in college is supported by research on shifts in ethnic identity status membership (Phinney & Chavira, 1992; Syed et al., 2007) and the work exploring ethnic identity in varying social milieus (Ethier & Deaux, 1994; Juang, Nguyen, & Lin, 2006). These studies have demonstrated that college students' ethnic identities are contextually situated and still unresolved. Based on the prior studies with adolescents, we expected that the transition to college would serve as a consciousness-raising experience that would trigger both ethnic identity exploration and commitment. Figure 1 highlights that the available evidence indicates a stabilization or decrease in ethnic identity processes toward late adolescence and provides a visual representation of our hypotheses on continued change during the college years.

Group-Level Variation: Ethnicity, Gender, Socioeconomic Status (SES), and Immigrant Generational Status

In addition to mapping trajectories of change in ethnic identity, we were interested in understanding group-level variations in change in ethnic

identity. To do so, we turned to the four most common demographic characteristics included in the ethnic identity literature: ethnicity, gender, SES, and immigrant generational status. Numerous scholars (e.g., Azmitia, Syed, & Radmacher, 2008; Hooks, 2003; Hurtado, 1997) have argued that demographic group memberships, or social identities, intersect with one another to provide unique experiences and developmental sequelae. Thus, theoretically, gender, SES, and generational status may be related to the strength of ethnic identity as well as to its developmental trajectory. Unfortunately, these social identities have received less attention in studies of ethnic identity, and the available findings are not conclusive.

A considerable amount of research has addressed ethnic variations in levels of ethnic identity, consistently showing that ethnic minority adolescents in the United States report higher levels of ethnic identity than White adolescents (e.g., Fuligni, Witkow, & Garcia, 2005; Roberts et al., 1999). These findings are consistent with social identity theory (Tajfel & Turner, 1986), which posits that membership of subordinate social groups is heightened in minority contexts as a means for creating a sense of belongingness and fostering self-esteem. Longitudinal research with adolescents indicates that there are also some ethnic variations in the rate of change over time. African-American and Latino early and middle adolescents appear to increase in commitment at a faster rate than White adolescents (French et al., 2006), but by late adolescence Latinos appear to decrease in exploration whereas Black adolescents remain stable (Pahl & Way, 2006). Thus, the available evidence suggests that ethnic variations in the rate of change in ethnic identity may be specific to certain developmental periods and ethnic groups. In the present study we evaluated this proposal by assessing ethnic variations in ethnic identity trajectories among Black, Latino, White, and Asian-American college students, the latter of which is a group that is noticeably absent from the existing longitudinal research. Additionally, to contribute to understanding the diversity in ethnic identity development, we explored variations in ethnic identity trajectories by gender, SES, and immigrant generational status.

Individual-Level Variation: Ethnic Identity and Domain-General Identity

Erikson's (1968) theory of life span development specifies that a successful and positive identity comes about, in part, through the synthesis of an individual's multiple identifications. Despite this theoretical emphasis on identity integration, few studies have empirically assessed the relation among multiple identity domains. Thus, we explored whether individual-level, time-varying aspects of the self were associated with ethnic identity. In particular, we addressed the question of whether ethnic identity constitutes a separate domain of identity that has its own developmental course, or whether it is part of a larger identity project that subsumes various identities (Erikson, 1968; Meeus et al., 1999). We examined this question by including

measures of self-esteem and generalized identity resolution. There is a litany of studies that have demonstrated the modest, yet consistent, positive relation between ethnic identity and self-esteem (e.g., Phinney & Chavira, 1992; Roberts et al., 1999). This body of research suggests that developing a stronger ethnic identity is associated with higher-order, domain-general conceptions of the self (i.e., self-esteem). In the present study we extended these past findings by examining the relation between ethnic identity and self-esteem over time, and exploring whether ethnic identity is domain-specific developmental task or whether it is associated with general identity development.

The Present Study

The purposes of the present longitudinal study were to examine trajectories of mean level change in ethnic identity among college students and to explore variations in ethnic identity trajectories by group-level and individual-level characteristics. To this end, our three objectives and hypotheses were as follows:

(1) To assess trajectories of ethnic identity exploration and commitment from the beginning of college through the senior year. We hypothesized that both ethnic identity exploration and commitment would increase across the college years (Figure 1).
(2) To explore variations in levels and trajectories of ethnic identity exploration and commitment as a function of ethnicity, gender, SES, and immigrant generational status. We predicted that Black, Latino, and Asian-American college students would show higher levels of ethnic identity than the White students, although we made no specific predictions about how ethnicity would be related to change over time. Furthermore, due to inconclusive findings, we made no predictions about how gender, SES, or immigrant generational status would be related to levels or change in ethnic identity.
(3) To assess whether ethnic identity exploration and commitment are related to larger, more general aspects of self and identity development. We hypothesized that ethnic identity development would be positively associated with self-esteem and domain-general identity resolution, both between individuals and within individuals over time.

METHOD

Participants

The participants were 175 college students attending a public university in California (62% women; 85% U.S.-born; mean age at Time 1 = 18.02 years,

SD = 0.43). The participants' self-reported ethnicities were 37% White, 30% Asian American (Chinese, Filipino, and Japanese heritage), 23% Latino (primarily Mexican heritage), and 10% Black. Ethnic groups were determined through the participants' primary self-designation. Approximately 20% of the participants came from mixed-ethnic backgrounds. To validate our decision to use their primary ethnic designation, we compared levels of ethnic identity exploration and commitment between mixed and nonmixed participants within each ethnic group at each time point. This resulted in 32 *t*-tests (4 Ethnic Groups × 2 Constructs × 4 Time Points), only 2 of which (6%) were significant at $p < .05$, which is approximately what would be expected by chance. Most of the participants born outside of the United States were either Asian American (44%) or Latino (44%), with very few coming from White ($n = 3$) or Black ($n = 1$) backgrounds. SES was computed as a composite of parent education and occupation using the Hollingshead Two-Factor Index of Social Position (Hollingshead, 1957). This measure ranges from 1 to 5, and was reverse coded so that higher numbers indicated higher SES ($M = 3.65$, $SD = 1.03$).[2]

Data were collected in the fall (Time 1 [T1]) and spring (Time 2; 7 months from T1) quarters of the participants' first year of college, the spring quarter of their sophomore year (Time 3; 19 months from T1), and the fall quarter of their senior year (Time 4; 36 months from T1). All participants had complete data for at least two of the four measurement occasions, with 70% having at least three complete waves, and 36% having data at all four waves. However, attrition did not proceed linearly; for example, many participants completed the survey at Time 4 but not at Time 3. Participants with varying numbers of measurement occasions (from two to four) did not differ on any of the variables included in the current analysis.

Sample recruitment. The participants were drawn from a larger multiyear longitudinal study on the transition to college among diverse students. Ethnic minority participants were recruited from a list of all ethnic minority first-year students admitted to the university provided by the office of Educational Opportunity Programs. Potential participants were randomly selected and invited to participate in a longitudinal study of the transition to college in a letter sent before their enrolling in the university. Approximately 50% of the students who were sent a letter returned a postcard indicating their willingness to participate. This response rate did not vary substantially by ethnicity. Additional ethnic minority participants and the White sample were recruited through flyers

[2] SES data were missing for nine participants, so we imputed the mean SES for the participant's ethnic group. All analyses were conducted with the imputation as well as with the nine participants excluded. Comparisons of the sets of analyses indicated no differences between them. Therefore, the analyses with the imputation were retained.

posted on campus. Students were paid $15 for their participation in the fall and winter sessions, $20 in the spring session, $25 in the sophomore session, and $40 in the senior session. Given the wide variability in reported levels of ethnic identity and that the larger study was advertised as pertaining generally to the transition to college, and not to ethnic identity in particular, there is little reason to believe that our sample was biased in a particular direction.

Measures

Ethnic identity. We used the revised 12-item version of the Multigroup Ethnic Identity Measure (MEIM; Phinney, 1992; Roberts et al., 1999), which has shown strong reliability and validity (Roberts et al., 1999). The scale contains a five-item exploration subscale and a seven-item commitment subscale. Participants responded on a 4-point Likert scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). Items were averaged for each subscale so that higher values represent greater exploration or commitment. Sample items include ''To learn more about my ethnic background, I have often talked to other people about my ethnic group'' for the exploration subscale and, ''I feel a strong attachment towards my own ethnic group'' for the commitment subscale. Confirmatory factor analyses verified the two-factor solution at each time point ($\chi^2/df = 1.46–2.74$, CFI = .95–.99, RMSEA = .07–.13). Cronbach's αs for exploration were .72, .74, .72, and .72 for Times 1–4, respectively, for commitment the corresponding αs were .90, .89, .89, .91, which are similar to those obtained in previous ethnic identity research (Roberts et al., 1999).

Identity resolution. Participants completed an 11-item version of the identity resolution subscale of the Erikson Psychosocial Inventory Scale (EPSI), which has demonstrated adequate reliability and validity (Rosenthal, Gurney, & Moore, 1981; Schwartz, 2007). The EPSI identity scale assesses global identity resolution and is not domain specific. Previous factor analytic work has suggested that 1 of the original 12 items does not fit with a one-factor solution, so that item was not used in the present study (see Reis & Youniss, 2004). The scale includes items that reflect both successful and unsuccessful identity resolution pertaining to clarity, authenticity, and satisfaction with the self. Sample items include, ''I've got a clear idea of what I want to be'' and ''I change my opinion about myself a lot'' (reverse coded). Items were measured on a 5-point Likert scale ranging from 1 (*hardly ever true*) to 5 (*almost always true*). Negatively worded items were reverse coded and all items were averaged so that higher values represent a greater degree of identity resolution. Scree plots generated through principal axis factoring confirmed a one-factor solution at

each time point. Cronbach's αs in the present study were .85, .87, .82, and .88 for Times 1–4, respectively, which are similar to the αs obtained in the aforementioned studies.

Self-esteem. Participants completed the 10-item Rosenberg (1989) self-esteem measure. Agreement was measured on a 4-point Likert scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). Negatively worded items were reverse coded and all items were averaged, with greater values indicating higher self-esteem. This scale has been widely used in studies with ethnically diverse adolescents and college students (e.g., Umaña-Taylor, 2004; Way & Robinson, 2003). Scree plots generated through principal axis factoring confirmed a one-factor solution at each time point. Cronbach's αs in the present study were .86, .88, .83, and .89 for Times 1–4, respectively, which are similar to those obtained in the aforementioned studies.

Procedure

The participants completed a survey and interview individually during the first 5 weeks of each quarter (fall, winter, spring) of their first year of college, during the spring quarter of their sophomore year, and during the fall quarter of their senior year. The measures used in the present study were included in the fall and spring of the first year surveys and the sophomore and senior surveys. Participants completed the survey by themselves at their own pace in a campus laboratory with a researcher available to answer any questions.

RESULTS

Analysis Plan

We used MLM (Raudenbush & Bryk, 2002; Singer & Willet, 2003) using SAS PROC MIXED to investigate change in ethnic identity exploration and commitment during college. MLM is a useful analytic technique for investigating trajectories of development that has several advantages over traditional repeated-measures analyses of variance, such as allowing for missing data in the level 1 submodel (i.e., individual growth), permitting uneven measurement occasions, and providing accurate estimates with relatively small samples (Bryk & Raudenbush, 1987).

We tested two sets of models using full information maximum-likelihood estimation (Singer & Willet, 2003): one for ethnic identity exploration and one for ethnic identity commitment. At level 1 we modeled intraindividual linear and quadratic change in ethnic identity by allowing participants to have a unique set of parameters defining their individual growth trajectories. Normal quantile–quantile plots and standardized

residuals indicated that the dependent measures did not violate the assumption of normal distribution. We then added time-invariant predictors (i.e., group-level demographic variables) at level 2 to predict variations at level 1. We used a set of three dichotomized (i.e., 0, 1) indicator variables to code our four ethnic groups: Black, Latino, and Asian, with White as the reference group for each. Gender and immigrant status was similarly coded with males and nonimmigrants as the reference groups, respectively. We centered the continuous measure of SES to indicate that a value of 0 corresponds to middle class.

We then included our two individual-level time-varying predictors, identity resolution and self-esteem, to investigate whether changes in these predictors were associated with changes in ethnic identity exploration and commitment over time (see Table 1 for bivariate correlations). Both of these predictors were person-mean centered, wherein participants' values at each time were subtracted from their own personal mean averaged over time (the *within-person* effect). We also entered participants' personal mean value at level 2 (the *between-person* effect). Including both of these terms in the model allows for a disaggregation of within-person and between-person effects (see Schwartz & Stone, 1998). Unconditional growth models for identity resolution and self-esteem indicated that these time-varying covariates themselves did not change over time.

We scaled the variable Time so that a value of 0 indicated the beginning of the fall quarter 2002, when all of the participants entered college. Therefore, the intercept in all equations represents the participants' initial levels of ethnic identity exploration and commitment when they started college. We scaled Time in months to enhance precision due to the variation in measurement schedules across participants (Singer & Willet, 2003).

Model selection was guided by past theory and research as well as three commonly used fit statistics (Singer & Willet, 2003): the deviance statistic (i.e., likelihood ratio), which allows for direct comparisons of nested models using the χ^2 test, and the Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC), which allow for comparisons of nonnested models and account for model complexity. Lower values are indicative of better model fit for all three fit statistics.

Ethnic Identity Exploration

Unconditional models for ethnic identity exploration. We first tested two unconditional models: an unconditional means model and an unconditional growth model. The significant random effect for the unconditional means model indicated that there was within-person and between-person variation to be explained (estimate = .25, $SE = .03$, $p < .001$), and thus

TABLE 1
Means, Standard Deviations, and Zero-Order Correlations Among Ethnic Identity Exploration, Ethnic Identity Commitment, Identity Resolution, and Self-Esteem

	M	*SD*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*
1 T1 EI Exploration	2.48	.64	—														
2 T2 EI Exploration	2.45	.63	.73*	—													
3 T3 EI Exploration	2.46	.63	.45*	.56*	—												
4 T4 EI Exploration	2.75	.65	.48*	.56*	.66*	—											
5 T1 EI Commitment	2.91	.68	.66*	.57*	.40*	.32*	—										
6 T2 EI Commitment	2.93	.63	.61*	.69*	.38*	.51*	.76*	—									
7 T3 EI Commitment	2.94	.65	.41*	.48*	.59*	.40*	.71*	.70*	—								
8 T4 EI Commitment	3.14	.64	.41*	.47*	.50*	.69*	.55*	.67*	.74*	—							
9 T1 Identity Resolution	3.45	.68	.13	.15	.04	.14	.32*	.25*	.23*	.30*	—						
10 T2 Identity Resolution	3.57	.70	.09	.13	−.01	.11	.30*	.25*	.29*	.31*	.78*	—					
11 T3 Identity Resolution	3.63	.59	−.01	.05	−.05	−.10	.17	.19	.18	.18	.64*	.77*	—				
12 T4 Identity Resolution	3.67	.69	.15	.17	.08	.22*	.27*	.26*	.32*	.42*	.63*	.76*	.79*	—			
13 T1 Self-esteem	3.25	.43	.15	.12	.01	.15	.27*	.23*	.15	.26*	.63*	.62*	.48*	.43*	—		
14 T2 Self-esteem	3.29	.46	.11	.09	−.03	.11	.26*	.27*	.27*	.29*	.57*	.72*	.63*	.57*	.65*	—	
15 T3 Self-esteem	3.30	.39	−.06	−.08	−.18	−.20	.22*	.22*	.16	.12	.44*	.54*	.67*	.59*	.57*	.65*	—
16 T4 Self-esteem	3.31	.43	.12	.05	−.02	.11	.24*	.21*	.38*	.32*	.48*	.58*	.62*	.68*	.51*	.66*	.70*

Note. EI = ethnic identity. Socioeconomic Status was negatively correlated with commitment at each time point, but was no longer significant after controlling for ethnicity.

*$p < .05$.

examining an unconditional growth model was warranted. The intraclass correlation coefficient, which quantifies the proportion of the total variation that is attributable to between-person differences, was $\rho = .60$.

We then tested two unconditional growth models, one including only the linear predictor Time and the other including linear Time and a Time × Time term to model quadratic change. The model with the linear and quadratic term had significantly better fit than the linear-only model, $\Delta\chi^2(1) = 9.28$, $p = .002$, AIC = 836.21, BIC = 861.83; therefore the quadratic model was selected for further analysis. The quadratic unconditional growth model contains three parameters: the intercept, which is the value at the initial measurement occasion; the linear slope, which describes the instantaneous rate of change (i.e., direction and rate) from when Time = 0; and the quadratic slope, which describes the rate of change in the linear slope per change in each unit of time (months). In the quadratic growth model, the quadratic term was significant ($b = .0003$, $SE = .0001$, $p = .002$), and the linear term was marginally significant ($b = -.009$, $SE = .005$, $p = .08$). Although small in absolute magnitude, recall that the coefficients represent rates of change in exploration per month. These coefficients indicate a net increase in exploration of .31 from the start to the end of college, which is approximately one-half of a standard deviation increase in exploration, and is similar to rates of change found in prior studies (French et al., 2006; Pahl & Way, 2006).

The random effect was significant for the linear term, but not for the quadratic term, suggesting that there was variability in the instantaneous rate of change, but not in the rate of change over time. Therefore, we chose to remove the quadratic random effects term from the model. Thus, our final unconditional growth model included a linear term with fixed and random effects and a quadratic term with fixed effects only (Table 2, Model A). In other words, in subsequent models we attempted to predict variation only in the instantaneous rate of change and not in the curvature of growth.

We tested the possibility that the variances indexed by the random effects varied by ethnic group, thereby rendering the aggregated estimates inaccurate.[3] In particular, less variability may be found in the White group compared with the ethnic minority groups. Accordingly, we tested another unconditional growth model allowing all random effects to vary by ethnicity (White vs. ethnic minority). This model did not have significantly better fit than the aggregated model, $\Delta\chi^2(5) = 0.07$, *ns*, AIC = 839.1 versus 827.8, BIC = 889.7 versus 828.3, respectively, and was therefore rejected in favor of the aggregated model. We also examined three alternative error covariance structures for the unconditional growth model: standard, unstructured, and

[3] Thanks to an anonymous reviewer for suggesting this possibility.

TABLE 2
Growth Models for Ethnic Identity Exploration

	Model A		*Model B*		*Model C*	
	Coefficient	*SE*	*Coefficient*	*SE*	*Coefficient*	*SE*
Fixed effects						
Initial status						
Intercept	2.50*	.05	2.08*	.09	2.10*	.09
Black			0.64*	.14	0.63*	.13
Latino			0.58*	.10	0.60*	.10
Asian American			0.45*	.09	0.46*	.09
Female			0.05	.08	0.03	.08
Social class			0.02	.04	0.01	.04
Immigrant status			0.30*	.13	0.27*	.13
Mean identity resolution					0.16*	0.06
Linear slope						
Intercept	−0.009†	.005	−0.007	.005	−0.008†	.005
Immigrant status			−0.009*	.004	−0.009*	.004
Quadratic slope						
Intercept	0.0003*	.0001	0.0003*	.0001	0.0004*	.0001
Identity resolution						
Intercept					0.02	.06
Random effects						
Intercept	0.30*	.05	0.21*	.03	0.20*	.03
Linear slope	0.0001*	.0004	0.0001*	.00004	0.0001*	.00004
Covariance	−0.002	.004	−0.002*	.001	−0.002*	.001
Level 1 residual	0.13*	.01	0.13*	.01	0.13*	.01
Deviance	814.93		761.49		753.81	
AIC	828.93		789.49		785.81	
BIC	858.81		849.25		854.09	

AIC = Akaike Information Criterion; BIC = Bayesian Information Criterion.
†$p < .10$; *$p < .05$.

heterogeneous autoregressive (Singer & Willet, 2003). Results indicated that the standard model was the best fit and was thus the structure retained in further analyses.

Group-level variations in ethnic identity exploration. Following resolution of the unconditional growth model, we tested a demographic model that included ethnicity, gender, SES, and immigrant generational status (Table 2, Model B). This model had significantly better fit than the unconditional growth model, $\Delta\chi^2(7) = 53.44$, $p < .001$, AIC = 789.49, BIC = 849.25, indicating that the demographic predictors added significantly to the model. There were significant ethnic group differences

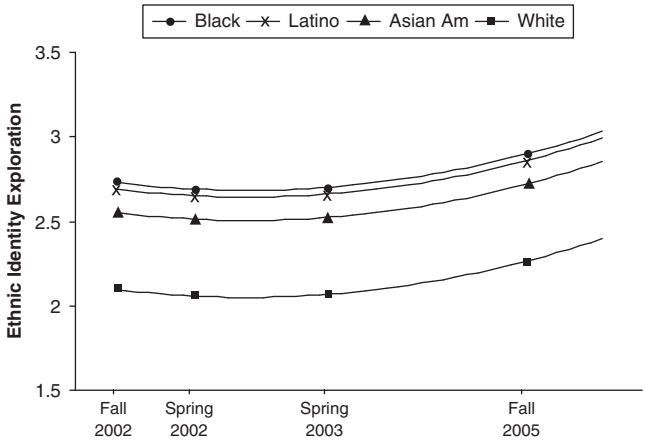

FIGURE 2 Fitted growth curves for ethnic identity exploration. For illustrative purposes, growth curves are for U.S.-born, middle-class males with average levels of identity resolution. Possible range of values is 1–4.

in initial status, but not in linear change. Consistent with theory and past research (e.g., Phinney, 1990; Tajfel & Turner, 1986), Black ($b = .64$, $p < .001$), Latino ($b = .58$, $p < .001$), and Asian-American ($b = .45$, $p < .001$) participants all started college at significantly higher levels of exploration than did Whites (Figures 2 and A1). There were no effects of gender or SES for the intercept or slope, but immigrant status was a significant predictor of both

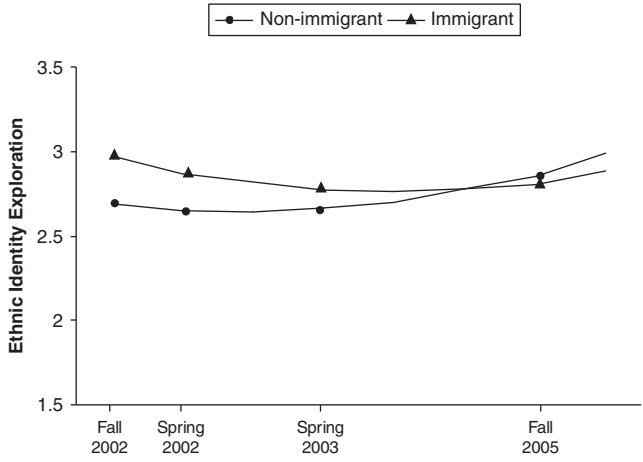

FIGURE 3 Fitted growth curves for variations in growth by immigrant status for ethnic identity exploration. For illustrative purposes, growth curves are for middle-class, Latino males with average levels of identity resolution. Possible range of values is 1–4.

initial status ($b = .30$, $p < .05$) and linear change ($b = -.009$, $p < .05$). Immigrant participants started college with higher exploration scores than did nonimmigrants, but had a steeper initial decline in exploration (Figure 3).

Individual-level variations in ethnic identity exploration. We next added self-esteem and identity resolution to the previous model, both as within-person, time-varying predictors at level 1, and as between-person, time-invariant predictors at level 2. We first added the self-esteem variables to the model, which were not significant. We then added the identity resolution predictors, which marginally significantly added to the model with self-esteem, $\Delta\chi^2(2) = 5.37$, $p = .07$, AIC = 789.04, BIC = 865.82. Inspection of the fixed effects indicated that only the between-person effect of identity resolution was significant ($b = .16$, $p < .01$). The model with identity resolution only was preferred over the model with self-esteem and identity resolution because it was more parsimonious and did not decrease fit, $\Delta\chi^2(2) = 0.77$, *ns*, AIC = 785.81, BIC = 854.09 (Table 2, Model C).

Ethnic Identity Commitment

Unconditional models for ethnic identity commitment. We followed the same procedure for testing models of ethnic identity commitment as with exploration. The unconditional means model was significant (estimate = .31, $SE = .04$, $p < .001$), indicating that it was appropriate to test an unconditional growth model (intraclass correlation coefficient, $\rho = .70$). The unconditional growth model indicated that only the linear term (fixed and random effects) was significant ($b = .004$, $SE = .001$, $p < .01$; Table 3, Model A). This coefficient indicates a net increase in commitment of .17 from the start to the end of college, which is approximately one-third of a standard deviation increase and is similar to what was observed in prior studies (French et al., 2006; Pahl & Way, 2006). Paralleling the analysis strategy for the exploration model, examinations of variability in the random effects and error covariance structure for the commitment model indicated that specifying aggregated random effects and standard error structure was optimal.

Group-level variations in ethnic identity commitment. There were significant ethnic group differences in initial status, with Black ($b = .78$, $p < .001$), Latino ($b = .62$, $p < .001$), and Asian-American ($b = .48$, $p < .001$) participants entering college with higher levels of commitment than Whites (Figures 4 and A2). However, ethnicity was not a significant predictor of the linear slope. Furthermore, neither gender nor SES was a significant predictor of the intercept or slope. Immigrant status was a

TABLE 3
Growth Models for Ethnic Identity Commitment

	Model A		*Model B*		*Model C*	
	Coefficient	*SE*	*Coefficient*	*SE*	*Coefficient*	*SE*
Fixed effects						
Initial status						
Intercept	2.91*	.05	2.49*	.09	2.54*	.08
Black			0.78*	.14	0.75*	.13
Latino			0.62*	.11	0.64*	.10
Asian American			0.48*	.09	0.52*	.09
Female			0.03	.08	− 0.01	.07
Social class			− 0.01	.04	− 0.03	.04
Immigrant status			0.30*	.11	0.22*	.11
Mean identity resolution					0.34*	.06
Linear slope						
Intercept	0.004*	.001	0.004*	.001	0.004*	.001
Identity resolution						
Intercept					0.07	.05
Random effects						
Intercept	0.35*	.05	0.24*	.03	0.20*	.03
Linear slope	0.0001*	.00004	0.0001*	.00004	0.0001*	.00004
Covariance	− 0.002*	.001	− 0.002*	.001	− 0.002*	.001
Level 1 residual	0.10*	.01	0.10*	.01	0.10*	.01
Deviance	760.74		695.34		657.03	
AIC	772.74		719.34		685.03	
BIC	798.32		770.50		744.69	

AIC = Akaike Information Criterion; BIC = Bayesian Information Criterion.
*$p < .05$.

significant predictor of initial status ($b = .30$, $p < .01$), but unlike the case with exploration, it was not associated with the linear slope. This model had significantly better fit than the unconditional growth model, $\Delta\chi^2(6) = 65.40$, $p < .001$, AIC = 719.34, BIC = 770.50, indicating that the demographic predictors added significantly to the model (Table 3, Model B).

Individual-level variations in ethnic identity commitment. We first added the within-person and between-person terms for self-esteem to the model, which added significantly to the previous demographic model, $\Delta\chi^2(2) = 28.10$, $p < .001$, AIC = 695.24, BIC = 754.90. Examination of the fixed-effects revealed that the between-person effect for self-esteem was significant ($b = .47$, $p < .001$), and that the within-person effect was marginally

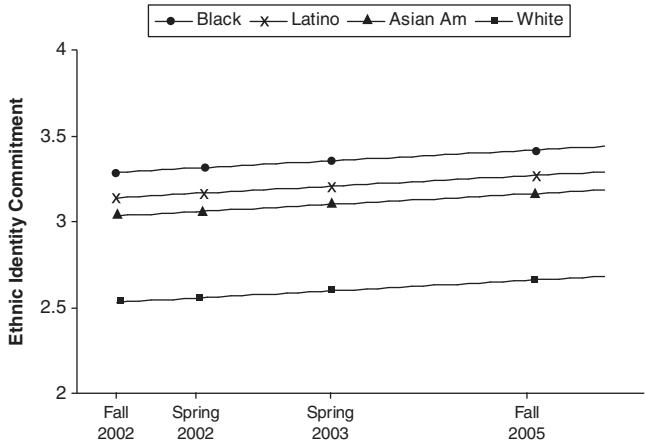

FIGURE 4 Fitted growth curves for ethnic identity commitment. For illustrative purposes, growth curves are for U.S.-born, middle-class males with average levels of identity resolution and self-esteem. Possible range of values is 1–4.

significant ($b = .12$, $p = .08$). We then added identity resolution to the model, which added to the model fit significantly beyond the model with self-esteem, $\Delta\chi^2(2) = 13.53$, $p = .001$, AIC = 685.71, BIC = 753.86. The fixed-effects terms indicated that only the between-person effect for identity resolution was significant ($b = .29$, $p = .001$). Interestingly, with the addition of the identity resolution terms, the self-esteem predictors attenuated and became nonsignificant, suggesting that identity resolution accounts for the observed association between ethnic identity commitment and self-esteem. Accordingly, the self-esteem predictors were dropped from the model, which did not result in a significant reduction in fit, $\Delta\chi^2(2) = 3.32$, *ns*, AIC = 685.03, BIC = 744.69 (Table 3, Model C).

DISCUSSION

The goals of the present study were to examine longitudinal trajectories of mean level change in ethnic identity among college students and to explore variations by group-level and individual-level characteristics. Taken together, our findings contribute to the existing literature by questioning the belief that ethnic identity development is a task located only in adolescence. Our results indicate that a great deal of development continues during the college years, and that ethnic identity may even continue to develop thereafter. Each of our three goals and hypotheses are discussed in detail below.

The Developmental Course of Ethnic Identity During the College Years

The results supported our hypotheses that ethnic identity exploration and commitment would increase from the beginning to the end of college.[4] Although prior research has shown a decrease in ethnic identity exploration in late adolescence (Pahl & Way, 2006), our findings suggest that the transition to college may serve as a consciousness-raising experience that triggers exploration, similar to what has been found for the transition to high school (French et al., 2006). In addition to increases in exploration, we also found that college students' levels of ethnic identity commitment increased linearly throughout their time in college.

Based on prior research on the transition to high school (French et al., 2006; Pahl & Way, 2006), we expected that the students in the present study would show a sharp increase in exploration after transitioning to college and then slow down in the later years of college (see Figure 1). However, rather than a sharp initial increase, we found a relatively flat curve until the second year of college, when levels of exploration began to increase. Furthermore, rather than tapering off, our participants continued to increase in exploration into their senior year, indicating an ongoing level of engagement with their ethnic backgrounds. These results suggest that the nature of change of the consciousness-raising experience afforded by college may be qualitatively different than what has been observed with adolescents in high school. Although both the transition to high school and college involve shifting educational and social contexts, the nature of the changes may be more dramatic for the transition to college (see Hurtado & Gurin, 2004), especially for those who leave their home communities to attend college.

Educationally, the structure and expectations of college are much different from those of high school, drawing on more diverse perspectives theretofore unfamiliar to students (Hurtado & Gurin, 2004). However, the stability in exploration during the first year of college observed in the present study may be related to the sequence of college curriculum. That is, the first year of college is generally spent taking large, lower division, general education classes that may not afford as many opportunities for learning about one's ethnic background. Moreover, first-year college students may generally not find their ethnic identity as important or may not have the skills to articulate their thoughts about it in a survey or interview setting. It may not be until the second year, when students begin taking smaller, more specialized classes and their level of cognitive development allows them to reflect more broadly about their multiple identities, that opportunities for

[4] Our discussion of the possible role of college is limited to a residential college context, where the majority of students are not from the immediate area, such as in the present study. It is possible that the same findings and interpretations would not hold at a "commuter" college.

ethnic identity exploration truly present themselves. Furthermore, during their first year of college, students may be so consumed with the challenges of adjusting to the academics and developing friendships (i.e., developing a ''student identity'') that they do not have time to engage in ethnic identity exploration (Azmitia et al., 2003). It is not until the second year of college that they really begin to explore their ethnicity. In a sense, it might take some time for the new context to ''settle in'' and become an issue for ethnic identity development.

Group-Level Variations in Ethnic Identity

The second goal of the present study was to explore how levels and trajectories of ethnic identity exploration and commitment varied as a function of ethnicity, gender, SES, and immigrant generational status. As predicted, at each time point the ethnic minority students in our sample (e.g., Black, Latino, and Asian American) reported higher levels of ethnic identity exploration and commitment than the White students. However, unlike past research with adolescents (Pahl & Way, 2006), we did not find ethnic-group variations in the trajectories of change in exploration or commitment. Although our prospective statistical power for these comparisons was adequate (approximately .60 based on a standardized effect size of .50), our observed power was low (.16–.32) due to rather small actual group differences. Furthermore, we did not even find significant variability around the observed quadratic increase in exploration. One potential reason for these differing findings is that the nature of ethnicity-related change varies by developmental period. It also could be due to the different socioeconomic backgrounds of the two samples, as the participants in Pahl and Way's (2006) study were primarily from low-income families, whereas the college students who participated in our study were from a range of SES levels. While we did not find a main effect for SES in the present study, future research should explore this possibility further. Additionally, despite arguments that gender is constructed differently within ethnic groups (e.g., Hurtado, 1997), we did not find any gender differences in our study. This finding is consistent with the existing ethnic identity literature and suggests that gender may not be related to ethnic identity processes as currently measured or conceptualized.

Consistent with past research (Phinney, 2003), we did find differences by immigrant generational status, with immigrant students reporting higher levels of ethnic identity exploration and commitment at the start of college. However, for exploration this difference narrowed over time. Immigrant students had a steeper initial decline in exploration than did nonimmigrants, resulting in similar levels at the end of college. This steeper decline, primarily occurring during their first year of college, could be the result of an assimilation process, in which they are more concerned with U.S. university-based

exploration and adjustment than with exploration of their ethnic background. However, it is important to note that our immigrant sample was small relative to our nonimmigrant sample, and therefore, these findings should be considered exploratory and interpreted with caution.

Individual-Level Variations in Ethnic Identity

We found support for our hypothesis that ethnic identity is associated with general identity development. The between-person effect of identity resolution was a significant predictor of both exploration and commitment, indicating that participants who were higher on domain-general identity resolution across time also reported greater levels of exploration and commitment. A particularly interesting finding was that self-esteem was a significant predictor of initial levels of commitment until identity resolution was added to the model, which caused it to attenuate substantially and become nonsignificant. The self-esteem–commitment association is one of the most reliable findings in the ethnic identity literature. The present findings suggest, however, that this association can be understood in the context of more general identity development. That is, the greater self-esteem that is associated with a strong ethnic identity commitment may be accounted for by a more general sense of identity resolution, of which ethnicity may be a part.

Taken together, the findings in the present study on the interconnections of ethnic identity, domain-general identity, and self-esteem are consistent with Erikson's (1968) notion of coherence across multiple identities and provide evidence for the integrated nature of the self and identity. It would be beneficial for future research to continue piecing together identities that have traditionally been considered in isolation, such as gender identities, social class identities, and occupational identities, to understand identity in its broader developmental context (see also Azmitia et al., 2008).

Limitations and Future Directions

The generalization of our findings may be limited by the particular college context that the participants attended. The university was a large, public, residential university with a majority of White (60% of the student body) and middle- and high-SES students. In addition, the university is particularly liberal politically, which may create an environment that is conducive for ethnic identity exploration. Accordingly, these findings may not be applicable to more conservative college environments, to students attending nonresidential colleges, or those not attending college. The transition from high school to work may be a particularly fruitful context to explore, as it would allow us to compare ethnic identity trajectories in noncollege and college-attending youth and assess better the role of college as a trigger for ethnic identity. Future research would also do well to extend ethnic identity

investigations to older populations. Our findings demonstrate continued increases in exploration and commitment at the end of college, suggesting that for college students the developmental processes have not come to a close and, like adolescence, the college years represent just one phase in the developmental process.

One limitation in our analyses is that we combined mono-ethnic and mixed-ethnic participants. Although we have previously argued against this practice (Syed & Azmitia, 2008), we have also suggested that the MEIM is not particularly suited for assessing ethnic identity for individuals who claim a mixed-ethnic identity (see also Bracey, Bámaca, & Umaña-Taylor, 2004; Phinney, 1990). Future research should study mixed-ethnic adolescents, college students, and emerging adults in their own right, so long as measurement of ethnic identity is carefully considered. Additionally, although adequate, the sample size in the present study was not large. It would be beneficial to replicate the current findings with larger samples of all of the ethnic groups. Finally, it is possible that the students who agreed to participate in the study were more open to new experiences and, thus, were more likely to engage in ethnic identity exploration.

Conclusion

Our findings contribute to the existing literature by revealing that ethnic identity development continues beyond adolescence. Furthermore, our results on the relations among ethnic identity, domain-general identity, and self-esteem suggest that ethnic identity is part of a larger identity project. When integrated with past longitudinal studies of ethnic identity development, our findings help describe the developmental course of mean level change in ethnic identity exploration and commitment from early adolescence to young adulthood, a span of nearly 15 years. Taken together, the current research suggests that exploration rises and falls in conjunction with school transitions, whereas commitment steadily increases. Consistent with Erikson's (1968) original notions of identity development, our findings show that the college years are a period of continued change in ethnic identity and also suggest that they are not an end point for this important domain of identity.

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APPENDIX A: Plots of Raw Longitudinal Data for Ethnic Identity Exploration and Commitment (Figures A1 and A2).

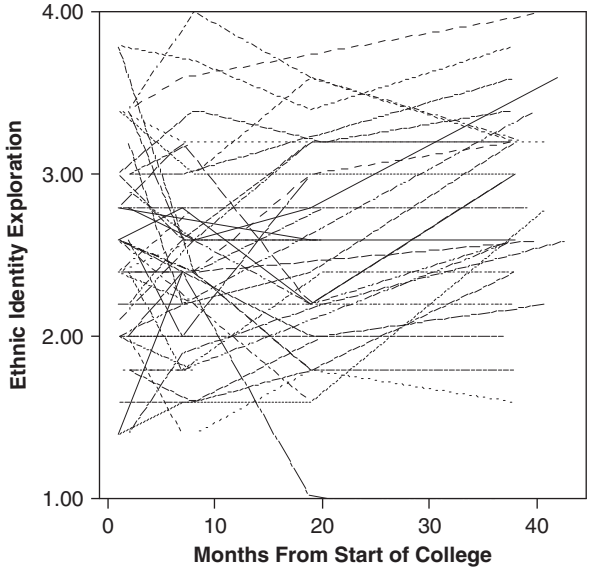

FIGURE A1 Raw longitudinal plot for 50 randomly selected participants' ethnic identity exploration data.

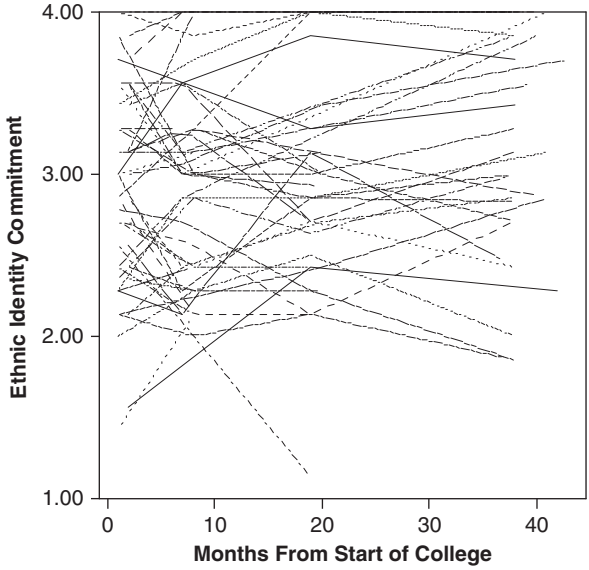

FIGURE A2 Raw longitudinal plot for 50 randomly selected participants' ethnic identity commitment data.

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