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Ethnic-Racial Identity and Friendships in Early Adolescence

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The current study examined how adolescents' ethnic-racial identity (ERI) informed the demographic diversity of their friendship network (Goal 1) and the extent of similarity between adolescents' and their friends' ERI (Goal 2). Participants were sixth and seventh grade students (N = 353; M_{age} = 11.88, SD = .73; 50% girls; 29% African American, 31% White, 13% Latino) in the Midwestern U.S. Results from longitudinal cross-lagged models (Goal 1) indicated that having more diverse friendships at T2 was associated with greater T3 ERI exploration among all youth. In addition, boys who reported higher ERI resolution at T1 had more diverse friendships at T2. Furthermore, findings from longitudinal social network analyses (SNA; Goal 2) suggested that influence drove similarity between adolescents and their friends in ERI exploration and resolution.

Similar to many Western countries, the United States is becoming more ethnically and racially diverse. In such contexts, understanding the process by which youth form friendships with diverse peers in school settings will become increasingly important. This is particularly true because peers comprise a critical group of significant others in the lives of adolescents (Brown & Larson, 2009); having more friendships with individuals from other ethnic-racial groups has been associated with better youth adjustment (Davies, Tropp, Aron, Pettigrew, & Wright, 2011; Graham, Munniksma, & Juvonen, 2014; Munniksma & Juvonen, 2012); and school is where youth have the potential to spend their time engaging with peers of ethnically diverse backgrounds. Moreover, just as identity formation is a salient and normative task of adolescence (Erikson, 1968), the development of one's ethnic-racial identity (ERI) is now recognized as a salient and important aspect of normative development among youth in diverse societies (Williams, Tolan, Durkee, Francois, & Anderson, 2012) that can promote positive psychosocial functioning and academic adjustment (Rivas-Drake et al., 2014). Although youth in ethnically heterogeneous school contexts have opportunities to form diverse friendships, the extent to which they do so may depend on their emerging ERI beliefs, which are known to inform dispositions toward ingroup and outgroup members (Phinney, Cantu, & Kurtz, 1997; Whitehead, Ainsworth, Wittig, & Gadino, 2009). Accordingly, the current study had two primary goals. First, we examined the extent to which ERI predicted ethnic-racial *demographic* diversity of friendship networks over time. Our second goal focused more specifically on how *youths' ERI* informed their selection of friends with similar levels of ERI. Using social network analyses (SNA), we tested the hypothesis that youth with higher levels of ERI would be more likely to have friendship ties with youth who had similarly high levels of ERI.

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Ethnic-Racial Identity and Peer Relationships

Grounded in an Eriksonian framework of identity formation (Erikson, 1968; Marcia, 1994), and Umaña-Taylor and colleagues' (2014) conceptualization of ERI as a multidimensional, psychological construct that encompasses the beliefs and attitudes that individuals have about their ethnic-racial group and the processes by which these develop over time, the current study focused specifically on youths' *exploration* of their group membership and *resolution*, or sense of clarity, about its meaning (Umaña-Taylor, Yazedjian, & Bámaca-Gómez, 2004). The ERI components of exploration and resolution capture the developmental processes by which individuals explore their ethnic background and resolve the meaning of their ethnicity, respectively (Umaña-Taylor et al., 2004). These components of identity formation are important for ensuring that individuals develop a sense of self that gives them confidence to make decisions about the future and to develop positive interpersonal relationships (Erikson, 1968). ERI exploration expands knowledge of one's group, and ERI resolution provides for a sense of clarity regarding one's group membership. As elaborated below, ERI exploration and resolution have been associated with numerous indicators of positive youth development; we argue that these benefits may extend to the realm of adolescents' peer relationships.

An abundance of empirical work has provided support for the benefits that a more achieved ERI (i.e., higher exploration, higher resolution) can have on adolescents' adjustment. For example, studies with pooled ethnic samples have found exploration and resolution to be uniquely and positively associated with self-esteem among ethnic minority high school and college students (Umaña-Taylor et al., 2004). With African American youth, higher exploration was associated with lower delinquency in early and middle adolescence (French, Seidman, Allen, & Aber, 2006), and both exploration and resolution were positively associated with self-esteem among college students (Umaña-Taylor & Shin, 2007). Similarly, with Latino youth, exploration and resolution were each uniquely and positively associated with self-esteem among high school (Umaña-Taylor, Vargas-Chanes, Garcia, & Gonzales-Backen, 2008) and college (Umaña-Taylor & Shin, 2007) students. Among Asian American college students, resolution was positively associated with self-esteem (Umaña-Taylor & Shin, 2007). Few studies, however, have examined the links between ERI and adolescents' peer relationships. Understanding the extent to which ERI informs peer network characteristics, especially diversity of friendships, is essential given that friendships with diverse peers are known to predict important adjustment outcomes for both ethnic minority (Chen & Graham, 2015; Graham et al., 2014) and ethnic majority youth (e.g., Vervoort, Scholte, & Scheepers, 2011; Wilson & Rodkin, 2013).

Adolescents' ERI may inform the ethnic-racial diversity of their friendship network. New age-graded developmental competencies (e.g., gains in social and cognitive maturity) provide youth with tools with which to navigate their ever-expanding social world (Umaña-Taylor et al., 2014). Indeed, during adolescence youth are often exposed to an expanded array of peers within the middle school context. As adolescents explore their growing social world with increasing autonomy, their own ERI and the ways in which they choose to relate to their social groups become more salient. Instead of conceptualizing race and ethnicity as purely literal and observable categories as is the case in childhood (Quintana, 1998), adolescents can consider more complex social differences between themselves and their peers. This shift to a more nuanced understanding of the ERI throughout adolescence is normative, and it is possible that youth who have engaged in greater exploration about their ethnic-racial background, and who have a more confident and secure sense of ERI, may find it easier to engage with and befriend a more diverse group of individuals. It is important to note the alternative, that greater identification with one's ethnic-racial group might engender greater outgroup prejudice or derogation and thus impede intergroup friendship, but a plethora of studies have clarified that this occurs only in conditions of negative emotion or threat (cf. Brewer, 2001, 2010). Moreover, consistent with notions from identity theory (Erikson, 1968), adolescents who have explored their ethnic-racial background or feel more secure about this aspect of their identity may be less likely to limit their friendship networks to ingroup peers because their self-confidence and comfort with this social identity may result in a relatively greater level of comfort in establishing ethnically diverse friendships. If so, then having greater ERI exploration and resolution would facilitate, rather than hinder, diverse friendships.

Although previous work has not examined this specific possibility, on a closely related topic, Phinney et al. (1997) found that youth from an ethnically diverse sample who reported higher ERI (exploration and resolution composite) evaluated

outgroup members more positively. Most recently, Whitehead et al. (2009) found that higher ERI exploration was associated with more positive attitudes toward outgroups among Asian American, Latino, and White ninth grade students. We contend that positive attitudes toward individuals from a broad range of ethnic-racial backgrounds likely result in youth with a more advanced ERI having more diverse friendship networks. Accordingly, we expected that, given the availability of such opportunities, adolescents who had explored or had a clearer sense of their ERI would be more likely than their counterparts with lower ERI to seek diverse friendships. Beyond the selection of a more ethnically and racially diverse peer group (i.e., in terms of ethnic-racial demographic characteristics), however, youth also may more discriminately select friends based on similar levels of ERI.

Adolescents' ERI and Peers' ERI: Do Birds of a Feather Flock Together?

Graham et al. (2014) recently demonstrated that exposure to diversity is beneficial to youth but only to the extent that students take up opportunities to make friendships across ethnic groups. Importantly, some work suggests that more diverse schools create more opportunities for diverse friendship ties but can lower the odds of such ties (Hamm, 2000; Moody, 2001). In Graham et al.'s study, adolescents in ethnically diverse schools had greater opportunities to engage in cross-ethnic friendships at the classroom level, but it was youth who reported having cross-ethnic friendships who then reported significantly fewer feelings of vulnerability (i.e., more safe, less victimized, and less lonely). Thus, as the literature on adolescent intergroup relations suggests (cf. a recent review by Thijs & Verkuyten, 2014), structural diversity is a necessary but insufficient condition for individuals to benefit from exposure to such diversity (see also Pettigrew, 1998).

It is possible that adolescents are initially drawn to one another based on superficial similarities (e.g., perceived shared group membership), but more sophisticated identity processes (i.e., ERI beliefs) become important for sustaining the friendship. Indeed, in a cross-sectional study of college student friendship dyads, Syed and Juan (2012) found that friends demonstrated similarity in both ERI exploration and ERI commitment. As such, our second goal was to examine the extent to which youths' ERI informed their selection of friends with particular ERI beliefs. Although there is abundant sociological evidence of ethnic-racial demographic homophily in social networks (McPherson, Smith-Lovin, & Cook, 2001; Wimmer & Lewis, 2010), there is comparatively less knowledge about homophily with regard to ERI, net of homophily as a function of ethnic-racial group membership. Sociodemographic homophily (e.g., of race/ethnicity category membership) may occur in tandem with identity homophily (i.e., in ERI beliefs), but these two dimensions are not isomorphic. Based on prior findings indicating that youth gravitate toward and attract peers with similar characteristics (McPherson et al., 2001), we hypothesized that adolescents are more likely to seek friendships with youth who had similar levels of ERI versus those with dissimilar levels of ERI.

However, homophily among friends has been demonstrated to be a function of both *selection*, such that individuals with prior similarity select each other as friends, and *socialization*, whereby individuals influence one another via continued exposure to each other (Kandel, 1978). Peer socialization theorists, more specifically, underscore the transactional nature of such influences (e.g., Brown, Bakken, Ameringer, & Mahon, 2008). Moreover, Erikson (1956) theorized that youths' identity development is *relational*, as youth "learn to be most [themselves] where [they] mean most to others—those others, to be sure, who have come to mean most to [them]" (p. 57). Consistent with this idea, a number of empirical studies suggest that peers may regulate the expression of ERI among adolescents (e.g., Carter, 2005; Lee, 1996; Pollock, 2004; Syed & Juan, 2012; Way, Santos, Niwa, & Kim-Gervey, 2008; Yip, Douglass, & Shelton, 2013), but none have been able to demonstrate such influence while accounting for selection processes. The current study examined the alternative possibility that adolescents' ERI would be informed by peers' ERI while taking into consideration factors that informed their friendship formation in the first place. Our longitudinal design, coupled with a social network analytic approach, thus enabled a relatively more rigorous examination of whether selection or socialization processes best explained potential homophily in friends' ERI.

The Current Study

In sum, the current study was designed to address two related, yet unique questions. First, to what extent do adolescents' ERI exploration and resolution inform the demographic ethnic-racial diversity of their friendship network? To do so, Goal 1 focuses on examining the role of ERI in

friendship diversity using Simpson's diversity index, which is increasingly used to measure compositional diversity in developmental science. This index does not simply capture diversity in terms of minority versus majority representation (or in- vs. out-group) but rather estimates the extent to which diversity is a function of increased representation of multiple groups. Second, beyond demographic characteristics, to what extent do adolescents select friends who are more similar to, rather than different from, them with respect to their psychologic, subjective sense of ERI exploration or resolution? Given prior work noting mean level gender differences in ERI (e.g., Spencer, Icard, Harachi, Catalano, & Oxford, 2000), the current study included gender as a control in all analyses. In addition, because ethnic-racial salience can vary significantly based on ethnic-racial minority versus majority status (e.g., Vervoort et al., 2011), our analyses for Goal 1 examined potential moderation by majority/minority status. Finally, our analyses for Goal 1 explored moderation by grade cohort. Our SNA for Goal 2 also took into consideration gender, ethnicity/race, and grade cohort.

Method

Participants

This study draws on data collected at a Midwestern middle school. Of the initial full sample at Time 1 (N = 353), retention rates across waves were 87% at Time 2 and 80% at Time 3. For Goal 1, 20 cases were dropped because they were missing data for ethnicity and gender, which were needed for planned multigroup comparisons, and two additional cases were dropped because they were missing data on all ERI and friendship variables. The analytic sample for Goal 1 (cross-lagged models) thus includes 331 students in sixth (n = 167) or seventh (n = 164) grades (M_{age} = 11.88, SD = .73). This sample is socio-demographically diverse: 50% are girls; 8% are Asian American and Pacific Islander, 29% are African American, 13% are Latino, 1% are Native American, 31% are White, 4% are other, and 14% are multiracial. For Goal 2, 13 cases were dropped because they did not have valid ERI data at any wave. Thus, this analytic sample comprises 340 students in sixth (n = 171) or seventh (n = 169) grades (M_{age} = 11.87, SD = .72). This sample is also socio-demographically diverse: 48% are girls; 8% are Asian American and Pacific Islander, 28% are African American, 13% are Latino, 1% are Native American, 31% are White, 4% are other, and 13% are multiracial.

Procedure

Data were collected as part of the school's efforts to understand social, academic, and emotional development among its students given it was implementing a social emotional learning approach to support a positive school climate. Time 1 (T1) data were collected during Spring of 2014; Time 2 (T2) and Time 3 (T3) data were collected 6 months and 1 year later during Fall of 2014 and Spring of 2015, respectively. Student surveys were administered by teachers during homeroom; students were assured of the confidentiality of their responses (i.e., with the statement that "your individual answers will be private and will never be shared with anyone at this school" on the survey cover sheet). Surveys were de-identified such that all names were removed and replaced with ID codes by an external consultant who is not affiliated with the university research team or with the school. After this de-identification process, the surveys were given to the research team for analysis. The project was determined to be exempt by the University of Michigan IRB.

Measures

Ethnic-Racial Identity

ERI exploration and resolution were assessed with the Ethnic Identity Scale (Umaña-Taylor et al., 2004). Exploration items inquire about the extent to which youth have engaged in behaviors to learn more about their ethnicity (seven items; e.g., "I have participated in activities that have taught me about my ethnicity;" T1 α = .82; T2 α = .85; T3 α = .88). For resolution, items asked youth to indicate the extent to which they had a sense of clarity regarding their ethnicity (four items; e.g., "I have a clear sense of what my ethnicity means to me;" T1 α = .90; T2 α = .93; T3 α = .92). All items were scored on a 4-point Likert-type scale (1 = *Does not describe me at all*, 4 = *Describes me very well*), and higher mean values on each scale indicate greater exploration and resolution, respectively.

Friendship Diversity

Youth were asked to list their friends, or who they "hang out with and talk to" in their grade, which is a common name generation approach

among youth in this age group (Ryan, 2001); this is notably the kind of friendship identified by Davies et al. (2011) as being most consistently related to intergroup dynamics. Students could list "as many or as few" names; thus, there were no limits on nominations. The ethnic or racial category for each student listed as a friend was then used to calculate a proportion of each ethnic-racial category represented in the friendship group (e.g., proportion White, proportion Latino, etc.). These proportions were then used to calculate Simpson's index of diversity in their ethnic-racial composition, as described in Juvonen, Nishina, and Graham (2006). This is a measure of entropy, in that it assesses both the number and evenness of groups represented in a given context (Page, 2010). Substantively, this index reflects the relative probability that two randomly selected students are from different ethnic-racial groups. The possible range is 0–1, and higher scores indicate more diversity.

Demographic Information

Ethnic-racial category was obtained from youths' self-reported information. In the demographic portion of the questionnaire and in an open-ended question just before items pertaining to ERI, students were asked to indicate with which ethnic-racial labels they identified (multiple responses permitted). From these responses, ethnic-racial categories were identified that corresponded to six categories available in the U.S. Office of Civil Rights 2011–2012 report of school demographics (http://ocrdata.ed.gov/). The seventh category ("Other") was added to accurately reflect students' self-identification with a category other than the first six (e.g., "Mixed"). Majority/minority status was dummy-coded such that a 1 = White and 0 = all others. Gender was also reported by students and coded 1 for male and 0 for female. Grade level was obtained from school records; each grade level was coded as 1 (i.e., sixth, seventh) and 0 for all else, resulting in two dummy codes.

Analysis Plan

Goal 1

Our first goal was to examine theprospective associations of youths' ERI with the demographic (ethnic-racial) diversity of their friends. A cross-lagged model tested the association of prior ERI on later friendship diversity. Data were analyzed using Mplus 7.2 (Muthén & Muthén, 2015), and full information maximum likelihood was used to handle missing data. We examined variability by majority/minority group status, cohort, and gender. As a preliminary step, we conducted a multigroup analysis with majority/minority group status using the dummy code for "White" (1 = White, 0 = all other groups) as the indicator of majority status. We then conducted a multigroup analysis for each ERI model to examine differences by cohort using a dummy code for grade at T1 (1 = seventh, 0 = sixth). Finally, we conducted a multigroup analysis to examine differences by gender using a dummy code (where 1 = male, 0 = female). For each multigroup analysis, we started with a model that allowed all the parameters to vary freely and then compared it with a model that constrained all coefficients to be equal; if this test indicated that this assumption of equality was untenable, we then tested models that sequentially constrained the parameters of the key study constructs to be equal across groups. We conducted chi-square difference tests to assess whether the fit of a constrained model was significantly different from those in which parameters were allowed to vary freely across groups. A significant change in χ^2 suggests that the given equality constraints across groups are untenable. In all analyses, we followed recommended thresholds of .90 for comparative fit index (CFI) and a standardized root mean square residual (SRMR) and root mean square error of approximation (RMSEA) of < .05 with a 90% confidence interval < .08 for RMSEA (Hu & Bentler, 1999; Kline, 2005) to assess fit.

Goal 2

Our second goal was to explore the extent to which early adolescents tended to select friends who were similar to them in terms of their psychologic, subjective sense of ERI (i.e., exploration and resolution). To do so, we estimated a series of stochastic actor-based models (SABMs; Snijders, van de Bunt, & Steglich, 2010). SABMs permitted us to examine the extent of homophily on ERI exploration and resolution among friends while controlling for friend selection on other important characteristics (e.g., ethnicity/race) and possible peer influence on ERI.

We provide a brief overview of the SAB model here and point the reader to the Appendix for more detailed information on model specification. Our SAB model has two functions: one to model network change and the other to model change in ERI. The network function treats each dyad as the unit of analysis and estimates the liklihood of observing a

tie based upon several effects representing individual and network properties. The key effect of interest is whether ties are more likely in dyads comprising youth who are similar in ERI. In estimating this effect we control for several other friend selection processes that could also promote friendships among youth with similar ERI, among them similarity on race/ethnicity, reciprocity, and triad closure.

Simply observing similarity in ERI among friends is not sufficient to infer homophilous selection because such similarity could be a product of peer influence. The ERI function controls for the possibility that youth influenced one another's ERI. The ERI function predicts each youth's level of ERI using friends' ERI and several other characteristics that might affect ERI (e.g., one's ethnicity/race, mother's immigration status, gender). In this manner, the SABM allows for endogenous change in both ERI and friendships, enabling us to differentiate the effects of selection and influence while controlling for confounding processes.

Data were analyzed using the RSiena function within R (Ripley, Snijders, Boda, Vörös, & Preciado, 2015). To prepare the data for the SABMs, ERI exploration and resolution were recoded into ordinal measures, which was necessary for the SABM to estimate their change across waves (Ripley et al., 2015). Specifically, we rounded ERI values to the nearest integer, creating a measure that ranged from 1 to 4. Cases missing data on exploration and resolution were coded as missing and retained during model estimation using standard SABM imputation procedures (Huisman & Steglich, 2008). We estimated a joint model for students in sixth and seventh grade. This approach respects that ties only exist between students in the same grade but constrains effects to be equal for each grade thereby maximizing power. As part of our follow-up diagnostics we tested whether ERI effects differed in strength between grades (and found no such differences). We performed additional diagnostics to address potential time heterogeneity and ensure adequate goodness of fit.

Results

Goal 1: Examination of Cross-Lagged Models for ERI and Friendship Diversity

Preliminary Results

Youth reported having engaged in ERI exploration (T1 $M = 2.59$, $SD = .69$; T2 $M = 2.67$, $SD = .71$; and T3 $M = 2.62$, $SD = .79$) and having somewhat high feelings of ERI resolution (T1 $M = 2.92$, $SD = .82$; T2 $M = 3.04$, $SD = .81$; and T3 $M = 2.98$, $SD = .82$). Friendships were also somewhat diverse on average (T1 $M = 0.51$, $SD = .22$; T2 $M = 0.58$, $SD = .23$; and T3 $M = 0.66$, $SD = .19$). At the bivariate level, T1 exploration was not significantly correlated with T1 friendship diversity ($r = .09$, $p = .15$) but was significantly associated with T2 friendship diversity ($r = .16$, $p = .02$); T2 exploration was significantly correlated with friendship diversity at T2 ($r = .28$, $p < .001$) but not at T3 ($r = .08$, $p = .28$). T3 exploration was not significantly correlated with friendship diversity at T3 ($r = .08$, $p = .24$). T1 resolution was significantly correlated with friendship diversity at T1 ($r = .20$, $p = .001$) and T2 ($r = .24$, $p < .001$). T2 resolution was significantly correlated with friendship diversity at T2 ($r = .35$, $p < .001$) but not at T3 ($r = .12$, $p = .09$). T3 resolution was not significantly correlated with T3 friendship diversity ($r = .09$, $p = .18$).

Primary Results

The cross-lagged model tested the cross-time association between ERI and friendship diversity (see Fig. 1). We first compared the baseline model (freely estimated parameters) to a fully constrained model, which constrained all coefficients to be equal across majority/minority status groups. The fully constrained model did not differ significantly from the model in which hypothesized paths were allowed to vary freely ($\Delta\chi^2 = 31.97$, $\Delta df = 26$, $p > .05$). Therefore, we proceeded to test a multigroup model in which we used grade cohort as the grouping variable.

Our initial test of model constraints suggested it was not tenable to constrain all hypothesized paths and covariances to be equal across grade groups ($\Delta\chi^2 = 39.04$, $\Delta df = 26$, $p < .05$); therefore, we proceeded to test models in which we sequentially constrained each of the hypothesized paths. First, we examined models in which we constrained the T1 exploration→T2 friendship diversity, T1 resolution path→T2 friendship diversity, T2 exploration→T3 friendship diversity, and T2 resolution→T3 friendship diversity paths to be equal across grade cohorts, respectively; findings of χ^2 difference tests for each of these models indicated that we could constrain these paths to be equal (T1 exploration→T2 friendship diversity: $\Delta\chi^2 = 1.27$, $\Delta df = 1$, $p > .05$; T1 resolution→T2 friendship diversity: $\Delta\chi^2 = 1.27$, $\Delta df = 2$, $p > .05$; T2 exploration→T3 friendship diversity: $\Delta\chi^2 = 2.43$, $\Delta df = 3$, $p > .05$; T2 resolution→T3 friendship diversity $\Delta\chi^2 = 2.45$, $\Delta df = 4$,

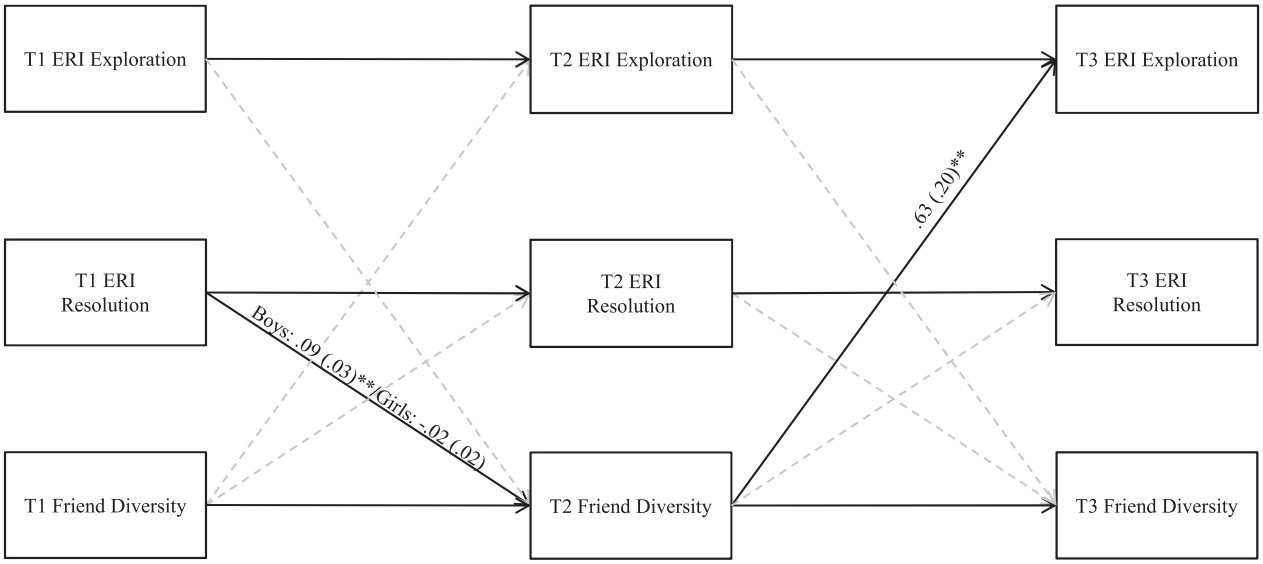

Figure 1. Relationship of ERI exploration (a) and resolution (b) with friendship diversity (n = 331).
Note. Dashed lines represent nonsignificant paths. Unstandardized coefficients and standard errors shown. When parameters were free to vary across groups, two coefficients are presented. Covariances among ERI dimensions within and across time and between ERI and friend diversity within each timepoint were also included in the models but are not shown for ease of presentation. **$p < .01$.

$p > .05$). Finally, we examined models in which we constrained the reverse paths from friendship diversity-to-ERI to be equal across cohorts. Results of the χ^2 difference tests for these models respectively suggested that each of these four diversity-to-ERI paths could also be constrained to be equal across cohorts (T1 friendship diversity→T2 exploration: $\Delta\chi^2 = 2.45$, $\Delta df = 5$, $p > .05$; T1 friendship diversity→T2 resolution: $\Delta\chi^2 = 2.64$, $\Delta df = 6$, $p > .05$; T2 friendship diversity→T3 exploration: $\Delta\chi^2 = 2.82$, $\Delta df = 7$, $p > .05$; and T2 friendship diversity→T3 resolution: $\Delta\chi^2 = 5.35$, $\Delta df = 8$, $p > .05$).

Our final multigroup comparisons modeled gender as the grouping variable. Our initial test of model constraints suggested it was not tenable to constrain all hypothesized paths and covariances to be equal across gender ($\Delta\chi^2 = 54.85$, $\Delta df = 26$, $p < .05$); therefore, we proceeded to test models in which we sequentially constrained each of the hypothesized paths as before. Results of χ^2 difference tests for each of these models indicated that we could constrain the T1 exploration→T2 friendship diversity path to be equal across gender ($\Delta\chi^2 = 1.35$, $\Delta df = 1$, $p > .05$). However, results of the χ^2 difference test indicated that we could not constrain the T1 resolution→T2 friendship diversity path to be equal across gender ($\Delta\chi^2 = 14.48$, $\Delta df = 2$, $p < .05$), and, thus, it was allowed to vary in subsequent models. Results of the T2 exploration→T3 friendship diversity ($\Delta\chi^2 = 1.58$, $\Delta df = 2$, $p > .05$) and T2 resolution→T3 friendship diversity ($\Delta\chi^2 = 1.62$, $\Delta df = 3$, $p > .05$) tests indicated these paths could be constrained to be equal. Finally, results of the χ^2 difference tests for the diversity→ERI paths, respectively, suggested that each of these four diversity-to-ERI paths could also be constrained to be equal across cohorts (T1 friendship diversity→T2 exploration: $\Delta\chi^2 = 1.82$, $\Delta df = 4$, $p > .05$; T1 friendship diversity→T2 resolution: $\Delta\chi^2 = 1.82$, $\Delta df = 5$, $p > .05$; T2 friendship diversity→T3 exploration: $\Delta\chi^2 = 4.62$, $\Delta df = 6$, $p > .05$; and T2 friendship diversity→T3 resolution: $\Delta\chi^2 = 5.39$, $\Delta df = 7$, $p > .05$).

As shown in Figure 1, the final model was one in which stability, prior ERI→later friendship diversity, and prior friendship diversity→later exploration paths were constrained to be equal across gender, with the exception of the T1 ERI resolution→T2 friendship diversity path. The final model fit the data adequately (CFI = .96; RMSEA = .07 [.04, .11]; and SRMR = .08. Results indicated that T1 ERI resolution was positively associated with T2 friendship diversity for boys ($\beta = .32$) but not for girls ($\beta = -.10$). In addition, T2 friendship diversity was significantly associated with T3 ERI exploration (boys: $\beta = .22$, girls: $\beta = .16$) for all youth. Thus, boys who earlier reported greater resolution of ERI later had more diverse friends, and all youth who

had more diverse friends in the fall semester of the subsequent academic year (T2) reported engaging in more exploration of their ERI in the following spring semester (T3).

Goal 2: Examination of ERI Homophily in Friendship

Table 1 reports results of SAB models for ERI exploration and ERI resolution; because of space constraints, all technical aspects and controls are presented in the Appendix. We note that the model for ERI exploration converged adequately, as indicated by an overall maximum convergence ratio of .144. With regard to Goal 2, we begin with how ERI exploration affected youths' choice of friends. As shown under the Network (friendship) function section, the positive *ERI ego* effect indicates that youth with greater ERI exploration selected more friends overall ($b = 0.11$, $SE = 0.04$, $p < .001$) but, as indicated by the nonsignificant *ERI alter* effect, were no more or less likely to be selected as a friend. In terms of homophily on ERI exploration, the coefficient for selection based on *ERI similarity* was in the hypothesized positive direction but not significant ($b = 0.20$, $SE = 0.18$, $p = .28$). However, the estimate for peer influence (i.e., *average similarity* in the *ERI function* section) on ERI exploration was statistically significant ($b = 4.78$, $SE = 1.67$, $p < .001$). These results indicate that youth and their friends tended toward similar levels of ERI exploration over time. The convergence in ERI exploration among friends was not a product of youth selecting friends with similar ERI, but rather, driven by youth adapting their exploration to the same level as that of their friends.

We now turn to the results for ERI resolution, shown in the second column of Table 1; this model also converged adequately as indicated by an overall maximum convergence ratio of .134. ERI resolution had a positive effect (i.e., *ERI ego* term) on youths' tendency to select friends ($b = 0.12$, $SD = .04$, $p < .001$) but no significant effect (i.e., *ERI alter* term) on their likelihood of being selected as a friend. Here, again we find evidence of homophily among friends but not as a function of selection. The coefficient for *ERI similarity* in resolution for friend selection was not significant ($b = 0.29$, $SE = 0.19$, $p = .13$). Rather, we found a statistically significant positive effect of peer influence (*average similarity*) on ERI resolution ($b = 4.60$, $SE = 1.54$, $p < .001$). These results suggest that, over time, youth tended to have similar ERI resolution as their friends. This similarity occurred not because of youth selecting similar friends but instead was a

Table 1
Coefficients and Standard Errors for ERI Friendship Stochastic Actor-Based Models

	Exploration		Resolution	
	b	*SE*	*b*	*SE*
Network (Friendship) function				
Rate, 6th grade T1–T2	12.838	0.786***	12.749	0.917***
Rate, 6th grade T2–T3	12.007	0.830***	11.916	0.790***
Rate, 7th grade T1–T2	16.803	1.090***	16.814	1.207***
Rate, 7th grade T2–T3	11.839	0.772***	11.780	0.855***
Outdegree	−2.011	0.136***	−1.988	0.136***
Reciprocity	2.136	0.075***	2.128	0.078***
Transitive triplets	0.329	0.025***	0.331	0.024***
Transitive reciprocated triplets	−0.302	0.037***	−0.306	0.037***
Number of actors at distance 2	−0.208	0.018***	−0.213	0.019***
Indegree—popularity (sqrt)	0.332	0.038***	0.329	0.038***
Outdegree—activity (sqrt)	−0.206	0.029***	−0.212	0.028***
ERI alter	0.009	0.034	0.063	0.034†
ERI ego	0.105	0.041***	0.117	0.037***
ERI similarity	0.200	0.184	0.291	0.192
Male alter	−0.011	0.037	−0.007	0.038
Male ego	−0.074	0.044†	−0.069	0.043
Male same	0.221	0.036***	0.217	0.037***
Race/ethnicity same	0.176	0.037***	0.201	0.038***
Transitive triplets × 7th grade T1–T2	−0.059	0.019***	−0.056	0.019***
Transitive triplets × 7th grade T2–T3	−0.070	0.024***	−0.064	0.025***
Transitive reciprocated triplets × 6th grade T2–T3	−0.071	0.043†	−0.077	0.042†
Male same × 7th grade T2–T3	−0.103	0.071	−0.112	0.075
ERI function				
Rate, 6th grade T1–T2	2.248	0.454***	1.837	0.318***
Rate, 6th grade T2–T3	1.074	0.215***	1.812	0.360***
Rate, 7th grade T1–T2	1.418	0.318***	1.601	0.351***
Rate, 7th grade T2–T3	1.669	0.400***	2.345	0.550***
Linear shape	0.031	0.072	0.260	0.079***
Quadratic shape	0.051	0.180	0.226	0.142
Average similarity	4.784	1.666***	4.596	1.539***
Male	0.114	0.160	−0.009	0.153
Asian	0.087	0.370	0.051	0.352
Black	0.628	0.225***	0.624	0.226***
Latino	0.329	0.323	0.160	0.281
Other race	1.040	0.507*	0.394	0.459
Multi-ethnic	0.014	0.255	0.084	0.229
Mother's immigration status	0.358	0.237	0.342	0.232
Latino × 7th grade T1–T2	−1.171	0.631†		
Latino × 7th grade T2–T3	1.047	0.690		
Black × 6th grade T2–T3			1.675	0.551***

Note. *SE* = Standard error. *$p < .05$. ***$p < .001$. †$p < .10$.

product of youth adjusting their ERI resolution in accordance with their friends' resolution.

Discussion

Given that school diversity has been shown to increase the salience of ERI (e.g., Yip et al., 2013), and interactions with diverse peers are known to predict important adjustment outcomes (Graham et al., 2014), the present study sought to elucidate how ERI exploration and resolution might inform friendship networks among youth in a heterogeneous setting. As noted in recent reviews, the developmental significance of youths' ERI during adolescence is well-established (e.g., Rivas-Drake et al., 2014; Umaña-Taylor et al., 2014). What is less clear is the role that specific dimensions of ERI play in youths' engagement with significant others in their everyday, proximal contexts. This is particularly the case as it regards the role of ERI in friendship networks in ethnically heterogeneous contexts such as the focal school in the present study. As discussed in detail next, the current findings shed light on the nuanced nature of how specific aspects of youths' ERI can function as a lens through which youth experience their peer context, particularly in terms of their choices regarding with whom they spend their time and talk to at school. Furthermore, findings from the present study particularly underscore the critical role that context plays in ERI formation, as the ethnic-racial diversity of youths' friendship networks significantly predicted changes in ERI exploration over time, and there was strong evidence that youths' ERI became more like their peers' ERI over time, over and beyond what would be expected because of shared initial selection into the friendship and to homophily by ethnicity, race, gender, and other attributes.

Our first goal was to examine the extent to which youths' ERI exploration and resolution, respectively, were prospectively associated with the demographic (ethnic-racial) diversity of their friends. Based on ERI development theory and models (Umaña-Taylor & Fine, 2004), we hypothesized that youth who were exploring or gaining clarity about their ERI may be more confident and comfortable in heterogeneous settings; our hypotheses, however, were only partially supported. We found that, among boys, higher ERI resolution was indeed prospectively related to having more diverse friends approximately 6 months later, suggesting that when ERI exploration and resolution are considered in tandem, resolution is a particularly salient predictor of friendship network diversity for boys. This sense of security in their ERI may facilitate boys' ability to befriend others who are from different ethnic and racial groups. One possible mechanism may be that such youth are less prejudiced toward outgroups. This would be the case if having greater clarity about their own group does not necessarily imply ingroup bias but rather encourages youth to want to learn more about other groups, feel less anxiety about difference, or increase their perspective taking and empathy with outgroup members (see Pettigrew & Tropp, 2008). In addition, youth may be able to have strong ERI that does not necessarily impede intergroup contact if, for instance, the *meaning* of their ERI is one that can be inclusive of identifications with others along other dimensions (e.g., Brewer, 2010; Knifsend & Juvonen, 2012; Cameron, Rutland, Brown, & Douch, 2006). The capacity to navigate diversity in such ways seems especially critical in spaces in which there is potential for cross-group collaboration; youth who successfully interact with diverse ethnic-racial peers exhibit stereotype reduction (Smith, Boulton, & Cowie, 1993) and more positive intergroup attitudes (Cooper & Slavin, 2004).

Although we did not find a similar association for girls, an examination of descriptive statistics by gender revealed that, on average, girls tended to demonstrate higher friendship diversity in their peer group, and less variability on this construct, relative to boys (e.g., boys' T2 $M = 0.52$, $SD = .26$; girls' T2 $M = 0.64$, $SD = .18$); thus, it is possible that we were unable to detect a significant association for girls, given the more limited variability. Given that the current study is the first, to the best of our knowledge, to prospectively examine these associations over time, it will be important to test if these gender differences replicate in other samples.

Our findings for Goal 1 also indicated that having more diverse friends at the beginning of the academic year was prospectively associated with increases in both boys' and girls' ERI exploration by the end of the academic year. Consistent with the notion that the context in which ERI is developing is crucial for informing salience of ERI and, in turn, adolescents' engagement in identity-specific developmental processes such as ERI exploration (Umaña-Taylor & Shin, 2007), adolescents' exposure to a more ethnically diverse friendship network may have prompted greater engagement in activities that helped youth learn more about their own ethnic-racial background. It is worthy of note that friendship diversity predicted increases in ERI exploration but not ERI resolution. This may be a

function of our focus on the period of early to middle adolescence, during which time youth are steeped in the preliminary stages of ERI formation in which they are increasingly being exposed to nonfamilial influences and to abstract concepts that they can more fully grasp, given increased cognitive abilities (Umaña-Taylor et al., 2014). Conceptually, this exposure is believed to result in more questioning and information seeking, as youth attempt to make sense of new experiences and to gain an understanding of how they fit in to the world around them (Erikson, 1968). It will be interesting for future studies to examine if findings with samples capturing the developmental period of late adolescence demonstrate a comparable influence of friendship diversity on ERI *resolution*. These findings provide critical insights into ERI development during early to middle adolescence while raising new questions that encourage further exploration of potential directionality of ERI-peer relations.

Of note, we found no grade cohort or majority/minority status differences in the hypothesized paths of the cross-lagged models. The lack of grade cohort differences suggests that at this period (early adolescence) there may be fewer developmental differences in the posited relations than might be expected among older youth. However, the lack of majority/minority status differences appears to run counter to previous research on adolescents' cross- and same-group attitudes and friendship ties. For example, research has found racial differences in terms of how similarity in ERI related to friend selection among African American, Asian American, and European American adolescents in the U.S. (e.g., Hamm, 2000). Also, among Dutch adolescents, the proportion of ethnic minority students in a classroom is differentially related to minority and majority students' same-group attitudes (e.g., Vervoort et al., 2011). Additional investigations are necessary to tease out how majority/minority status and ERI function synergistically in different types of contexts.

Our second goal was to explore the extent to which early adolescents tended to choose friends who were similar to them in their psychologic, subjective sense of ERI (i.e., exploration and resolution), above and beyond their similarity on other demographic characteristics (e.g., ethnicity/race, gender). Overall, the results were supportive of homophily but not through the process of selection as we had posited. Rather, after accounting for important network structural features and individual-level covariates, SABM results suggested that friends' ERI became more similar over time. In short, although many did indeed "flock together" along ethnic-racial lines as expected, members of the flock influence each other's subjective, psychologic sense of identity. This opens up possibilities for youth from different ethnic-racial groups to form bonds based on their shared engagement in the process of developing their identities rather than demographic categories that are relatively more superficial. In addition, there are a number of ways such influence may potentially emerge: mutual regulation of ERI expression; implicit and explicit information regarding how to interpret ethnic-racial situations and dynamics, especially in school; and modeling of how ERI "should" be performed. Given that we are unable to determine precisely how peers influence one another's ERI construction, future research should seek to unpack this further.

Together, these complementary findings underscore the ways in which youths' ERI plays a role in their agency among peers within the school setting. Depending on the degree to which they are exploring or finding clarity in their ERI, early adolescents are actively co-constructing this aspect of the self within the context of their friendships. Given the broad influences of peers on youth in school, exploring the extent of adolescents' impetus in changing and broadening their friend network is critical in understanding their academic and social experiences. Furthermore, the finding that ERI exploration and resolution serve as dimensions of homophily for youth suggests considerable thoughtfulness in their friendship patterns, as information regarding their peers' stage of ERI development is not as readily available as are other characteristics along which peer homophily is evidenced (e.g., race, ethnicity, age, and gender).

Limitations and Future Directions

A few important caveats are worthy of mention. First, the study focused on one school and although it was ethnically and racially diverse (with no single numerical ethnic majority group), the subsample sizes were not large enough to fully explore ethnic-racial differences among minority groups (e.g., Black vis-à-vis Latino) in the cross-lagged models (e.g., Chen & Graham, 2015). In addition, the cross-lagged models assessed change over 6 months and 1 year, which are developmentally appropriate lengths of time to observe change in early adolescents' friendships (e.g., Chan & Poulin, 2007) but may not be a long enough period to observe change in their ERI. The cross-lagged modeling approach

itself, though commonly used in developmental research, is also only one way to attempt to establish directionality, and as is the case for numerous longitudinal survey-based studies, it is limited by its reliance on correlational data. Indeed, as Leszczensky (2013) argued, a multiple-difference-score modeling approach may be a useful avenue in future research seeking to establish causal directionality using nonexperimental data (cf. Allison, 2009). Using this alternative modeling approach, Leszczensky (2013) found that, among Turkish ninth and 10th graders in Germany, change in national identification did not significantly predict change in the proportion of interethnic friendships, and change in the proportion of interethnic friendships also did not significantly predict change in the national identification. Future work on ERI and friendship diversity should continue to weigh the advantages and limitations of cross-lagged modeling as compared with other approaches in attempting to model causality.

Furthermore, although drawing on data collected at a single school facilitated the collection of a fairly complete peer network, which is rare, the generalizability of the results is limited in this regard. It is not possible to assess the extent to which the present social network analytic findings, for instance, would replicate in another school with similar demographics or one with very a different demography; collection of such data across multiple sites would undoubtedly be resource intensive but yield valuable insights into the universality of the present results.

Another consideration for future research in this area is the measurement of friendships. In this study, we drew from prior work on cross-group friendships (e.g., Davies et al., 2011) and followed established protocols from prior peer studies by asking youth to name their friends based on who they "hang out with and talk to" (e.g., Ryan, 2001); however, as Vervoort et al. (2011) noted, the *quality* of the friendship may be particularly important in diverse schools that afford opportunities for cross-group interactions (see also Syed & Juan, 2012). Because of resource and time limitations, we were unable to capture the quality of youths' friendships, but as shown by Chen and Graham (2015), this is an important feature to consider in the design of future work in this area.

Despite the noted limitations, it is important to consider the methodologic implications of the multiple peer methods implemented in the present study: Youth report on interactions (i.e., asking them to list their friends), an objective measure of friendship demography (i.e., Simpson's diversity index constructed from nominees' self-reported ethnicity/race), and examination of networks using a social network analytic approach (i.e., SABMs). All are useful and relevant for understanding ERI in context, and the use of multiple methods helps to provide complementary knowledge concerning how ERI informs youths' experiences of their peer contexts. Though not feasible in the present study, additional research with qualitative methods such as individual interviews and focus groups has the potential to yield richer insights into the peer dynamics of diverse schools, generally, and the potential role of ERI in peer relations, in particular (cf. Way et al., 2008).

In conclusion, this study represents a preliminary though critical step toward better understanding how ERI informs youths' subjective experiences of diversity within an objectively diverse school setting (cf. Graham et al., 2014). Prior work has demonstrated a consistent association of various aspects of ERI with academic adjustment (e.g., motivation to learn, engagement with school, and grades) and psychosocial functioning (e.g., self-esteem, depressive symptoms, well-being) among Latino, African American, and Asian American adolescents (e.g., Rivas-Drake et al., 2014). The present findings contribute to this literature by identifying how ERI might be implicated in the structure of youths' friendship networks in the school context. Continued longitudinal research inquiry into ERI in context will be critical to advancing the field.

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Appendix: Stochastic Actor-Based Model Specification

Our SAB models contained two functions that were evaluated simultaneously: The network selection function and the ERI function (Steglich et al. 2010). The network function estimated the likelihood that friendships would form or persist over time (vs. not form or dissolve, respectively) based on several indicators of individual attributes and network structure. The ERI function estimated youths' level of ERI based on their own attributes and friends' ERI level. By estimating these functions simultaneously, the model allowed for endogenous change in both friendships and ERI.

Network Function

The network function estimated change in friendship ties over time. For each time point, dyads were coded as having a tie present (1) or absent (0) if one youth (ego) nominated another youth (alter) as a friend. Conditioning on T1, the SABM predicted whether a new tie formed or, for dyads with existing ties, whether the tie persisted (vs. dissolving) at subsequent time points. The network function included several types of effects that predicted the likelihood of a friendship between two youth.

To begin, the network function estimated endogenous network processes that could affect friendship change over time and artificially inflate the estimates of ERI on friend selection. *Reciprocity* captured the likelihood that a tie from A to B was matched by a tie from B to A. We included several effects to control for the tendency toward triad closure, such as in friendship cliques where youth have many friends in common. These effects included *transitive triplets,* which predict a friendship between A and C if, for instance, friendships were also present between A and B and B and C. We also included an interaction between this effect and reciprocity because they are usually not additive (Block, 2015). The *number of actors at distance 2* effect is a variation on the effect of triad closure that controls for the tendency to have indirect connections to others. This effect is typically negative, suggesting that youth tend to avoid ties that create many indirect connections (perhaps by converting those indirect ties to direct ties). The *indegree–popularity* effect estimated how the number of incoming nominations predicted the likelihood of a youth receiving future nominations, while the *outdegree–activity* effect captured whether youth with more outgoing ties tended to send more ties at future time points. We used a square root transformation of these effects to give greater weight to differences in popularity/activity among less popular/active youth (e.g., one additional friend increases tie likelihood more for youth with few friends vs. youth with many friends). Last, the network function included an *outdegree* effect to control for the overall probability of a tie and *rate* effects to control for the volume of friendship change between each time point. These outdegree and rate effects were necessary to estimate the model but not of substantive interest.

The network function also estimated how youths' attributes affected friendship likelihood. These effects were specified at the level of the friendship sender (*ego* effects) and friendship recipient (*alter* effects). For example, if boys nominated more friends than girls, the male ego effect would be positive, and if boys received more nominations than girls then the male alter effect would be positive. The similarity of ego and alter on an attribute might also affect tie likelihood. For a given dyad, *similarity* was measured as the absolute difference between the adolescents' scores, which was then reverse coded and centered using the average similarity across all possible dyads (see Ripley et al., 2015). For these effects, higher values indicated greater similarity. Similarity effects were included for the ERI measures. For the categorical measures gender and ethnicity/race, we measured similarity as 1 if two adolescents were exactly the same, or 0 if they differed (using the attribute *same* effect).

ERI Function

The models included a behavior function to estimate change in ERI over time. Several effects are necessary to simply estimate the function. Two terms controlled for the distribution of ERI: the *linear* shape effect expressed the basic tendency toward higher or lower values of ERI, whereas the *quadratic* shape effect allowed for a nonlinear distribution. Like the friend selection function, the behavior functions also included *rate* parameters, which controlled for the volume of ERI change between time points. These three effects were necessary to estimate the model but were not of substantive interest in the current study.

Several effects were included in the behavior functions as controls for change in ERI. We controlled for the effect of gender, mother's immigration status, and ethnicity/race on ERI, the latter using dummy variables to represent Asian, Black, Latino, other, and multi ethnic (leaving White the reference category). Last, the primary effect of interest in the ERI function was peer influence, which was measured as *average similarity*. Average similarity was calculated as the sum of the absolute differences between ego's score and the scores of the friends nominated by ego. The sum was reverse coded, divided by the number of alters, and centered based on the average level of similarity across all dyads (Ripley et al., 2015). A positive and statistically significant effect for average similarity on ERI suggests that adolescents' ERI was more likely to become similar to their friends or remain similar to their friends over time.

After model estimation, we tested for heterogeneity in model effects over time and between

grades following the procedure outlined by Lospinoso, Schweinberger, Snijders, and Ripley (2011). Grade heterogeneity would exist if an effect were stronger in one grade than the other; temporal heterogeneity would exist if an effect were stronger during one transition period, say T1–T2, than the other (e.g., T2–T3). Upon completion of model estimation, we used a score-type test to evaluate the composite hypothesis that all parameters have the same magnitude for each grade and each transition period. When the composite test indicated heterogeneity, we examined test statistics and provisional estimates for each effect. We then added interaction (s) between the effect and dummy variables representing grade and/or time period for the test statistic with the greatest magnitude, and re estimated the model. We repeated this procedure until obtaining a composite test indicating no heterogeneity in effects. The full model results, with interactions between effects and period, are shown in Table 1.