

# From Middle School to College: Developing Aspirations, Promoting Engagement, and Indirect Pathways From Parenting to Post High School Enrollment

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Based on a longitudinal sample of 1,452 African American and European American adolescents and their parents, parenting practices (i.e., monitoring, warmth, and autonomy support) at 7th grade had significant indirect effects on college enrollment 3 years post high school, through their effects on aspirations, school engagement, and grade point average (GPA). All 3 parenting practices were related to aspirations and behavioral engagement at 8th grade, with 2 of the 3 parenting practices related to the emotional (monitoring and warmth) and cognitive (autonomy support and warmth) engagement. The reciprocal relations between aspirations and engagement/GPA were significant, although the effects from 8th aspirations to 11th engagement were stronger than the reverse path. Ethnic differences were found only for parenting practices: monitoring had stronger associations with GPA and behavioral engagement for African Americans, whereas autonomy support had stronger associations with GPA for European Americans. For African American parents, a delicate balance is needed to capture the benefits of higher levels of monitoring for promoting GPA and behavioral engagement *and* the benefits of autonomy support for developing aspirations and cognitive engagement. Parental warmth was equally beneficial for supporting aspirations, engagement, and achievement across ethnicity.

**Keywords:** parenting, aspirations, engagement, adolescence, college-readiness

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College-readiness and postsecondary success are increasingly important developmental milestones for adolescents, especially as a college degree is increasingly necessary to earn a living wage. Adolescents' emerging cognitive and identity development enable them to envision and internalize goals for college attendance and careers and understand the connections among their goals, schoolwork, and opportunities post high school (Hill et al., 2004; Hill & Chao, 2009; Jodl, Michael, Malanchuk, Eccles, & Sameroff, 2001). Parents are essential to helping adolescents develop aspirations, plan, prepare, and succeed throughout high school and postgraduation (Eccles, 2007; Helwig, 2008; Hill et al., 2004) and

have a significant role in and influence on developmental outcomes into early adulthood (Harris, 2008; Melby, Conger, Fang, Wickrama, & Conger, 2008). Parents remain the most important source of information for youth about goals and careers, despite youths' desire for independence from parents (Helwig, 2008). Because the curricular pathways to college begins as early as middle school (Eccles & Harold, 1993), understanding the ways parenting practices equip youth for post high school success is especially salient for adolescence.

Because youth often feel prepared for life upon graduating from high school, but by age 23, report that their high school experiences left them ill-prepared for the job market (Helwig, 2008), youth need significant support in utilizing opportunities in high school and preparing for post high school transitions. This is even more pronounced among ethnic minorities (Greene & Winters, 2002), who are significantly more likely to attend underresourced and underfunded schools that result in disengagement from school and foreclosed opportunities (Hill, 2011). To this end, the current study examined how parenting practices in middle school are related to adolescents' college enrollment 3 years after students' expected high school graduation date and the indirect effects of students' aspirations and school engagement. Further, this study examined the reciprocal relations between adolescents' aspirations and school engagement and tested the comparative strength of these relations as pathways connecting parenting practices to college enrollment (see Figure 1). We hypothesized that parenting practices (i.e., monitoring, warmth, and autonomy support) will be positively related to school engagement, grade point average

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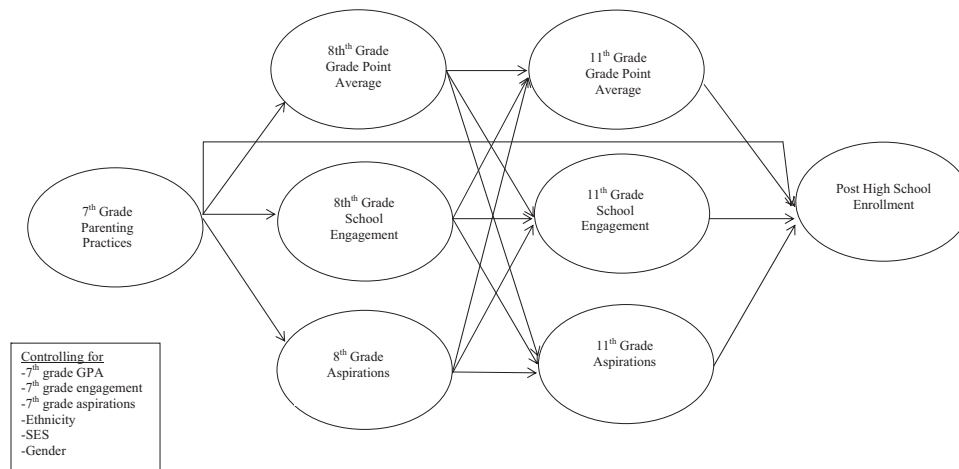


Figure 1. Hypothesized model.

(GPA), and aspirations, which in turn, will be positively associated with post high school enrollment. Finally, based on prior research reviewed later in this introduction, we expected variations across ethnicity and prior achievement levels, whereby monitoring will be more strongly related to GPA, engagement, and aspirations for African Americans, compared with European Americans, and autonomy support will be more strongly related to these constructs for European Americans, compared with African Americans.

Among domains of parenting practices, autonomy support, monitoring, and warmth increase in salience during adolescence as youth have greater control over their own development (Collins & Laursen, 2004; Eccles, 2007; Steinberg & Silk, 2002). Parental autonomy support is the provision of opportunities for youth to make choices, participate in decision-making, and develop solutions to problems independently (Grolnick & Ryan, 1989; Wong, 2008). Parental monitoring includes providing clear and consistent guidelines and maintaining knowledge about youth's whereabouts, activities, and friendships (Coley & Hoffman, 1996; Fulton & Turner, 2008). Parental warmth reflects the affective relationship between the parent and child (Juang & Silbereisen, 2002). These parenting practices are related to outcomes in adolescence and early adulthood, as well as related to more proximal outcomes like school engagement and achievement.

These types of parenting practices are related to school engagement during middle school and educational attainment at age 26 (Melby et al., 2008). Parenting practices also are associated with other outcomes in early adulthood including general life satisfaction (Dumas, Lawford, Tieu, & Pratt, 2009), substance use (Gutman, Eccles, Peck, & Malanchuk, 2011), and relationship quality (Nosko, Tieu, Lawford, & Pratt, 2011). Whereas parenting practices remain important through early adulthood, there are plausibly more proximal factors that explain the impact of parenting on early adult outcomes, including developing aspirations, school achievement, and engagement.

Parents' role during adolescence is to support the development of sound goals and identities and help youth conduct themselves in ways that are consistent with those identities (Chao & Hill, 2009). Youth move from parent-encouraged pursuits to developing and pursuing their own interests and identities. Parenting practices

during middle school are associated with educational aspirations in late high school (Hill et al., 2004; Jodl et al., 2001; Perry, Liu, & Pabian, 2010). Positive relationships with parents are associated with higher educational expectations in late adolescence (Trusty, 1998) and quality increased likelihood that children will take advantage of opportunities (Bryant, Zvonkovic, & Reynolds, 2006). Autonomy support is particularly effective in helping youth internalize socialization goals (Joussemet, Landry, & Koestner, 2008). As adolescents are solidifying their identities, parents' role is to encourage school engagement, help youth experience successes, help interpret these successes (Eccles et al., 1983), and develop appropriate goals. Therefore, we hypothesized that autonomy support, monitoring, and warmth will be positively related to aspirations.

There is even stronger evidence for the relation between parenting practices and academic achievement during adolescence. Autonomy support, as reflected in authoritative parenting, is positively associated with academic achievement, especially among European American samples (Eccles, Early, Fraser, Belansky, & McCarthy, 1997; Steinberg, Dornbusch, & Brown, 1991; Steinberg, Lamborn, Dornbusch, & Darling, 1992). Youth who are monitored more, even if they are unsupervised, have higher levels of academic achievement than those who are monitored less (Coley & Hoffman, 1996; Eccles et al., 1997; Fulton & Turner, 2008). In addition, parental warmth is associated with self-confidence and efficacy at the transition to middle school and higher grades at the transition to high school (Juang & Silbereisen, 2002). A single composite of "involved parenting" (i.e., communication, use of inductive reasoning, warmth, and responsiveness) was positively related to achievement across 4 years of middle and early high school, even after controlling for prior achievement (Melby & Conger, 1996). Further, it is indirectly related to educational attainment when youth were 26 years old (Melby et al., 2008). Therefore, we also hypothesized that monitoring, autonomy support, and warmth will be positively related to students' grades.

In addition to aspirations and achievement, parenting practices have been shown to increase school engagement. Autonomy support, monitoring, and warmth are associated with increased interest in, engagement in, and motivation for achievement (Annunziata,

Hogue, Faw, & Liddle, 2006; Eccles, 2007; Grolnick & Ryan, 1989; Murray, 2009; Steinberg, Dornbusch, & Brown, 1991). Whereas these studies examined general engagement, school engagement has been conceptualized as three types: *Behavioral*, including completing homework, participating in school activities, and paying attention; *Emotional*, including students' sense of belonging and attachment to school; and *Cognitive*, including students' commitment to school and ability to plan and develop strategies for learning (Fredricks, Blumenfeld, & Paris, 2004). Examining behavioral and cognitive engagement, parental support curbed general declines in engagement (Wang & Eccles, 2012b) and was positively related to emotional engagement (Melby et al., 2008). Based on these findings, we hypothesized a positively relation between parenting and school engagement, as well. However, these seemingly consistent associations between parenting practices and academic outcomes potentially mask ethnic differences.

In contrast to findings with European Americans, autonomy support is not consistently related to academic outcomes among African Americans (Gutman, Sameroff, & Eccles, 2002). Indeed, autonomy support, reflecting youth-involved decision making, is related to lower academic adjustment for African Americans (Baldwin, Baldwin, & Cole, 1990; Gonzales, Cauce, Friedman, & Mason, 1996). Similarly, authoritative parenting practices (i.e., autonomy support and democratic decision making) were not predictors of achievement for African Americans, whereas they were for other ethnic groups (Steinberg, Dornbusch, & Brown, 1991). Instead, directive parenting practices and rule enforcement are related to achievement among African Americans (Brody & Flor, 1998; Steinberg et al., 1992). As a partial explanation, parents who perceive threats to the health and development of their children were found to exercise more controlling parenting practices (Gurland & Grolnick, 2005), often as a means to protect their children. African American parents often find that there are real environmental threats to the likelihood that their children will reach their potential (Cross, 2011; Hill, 2011). Consistent with this premise, African American tend to use more directive parenting practices, including less autonomy-granting, and more monitoring and control and such parenting practices are associated with higher levels of achievement (Mason, Walker-Barnes, Tu, Simons, & Martinez-Arrue, 2004; Pinderhughes, Dodge, Bates, Pettit, & Zelli, 2000). Because of these differences, we examined ethnic variations in our hypothesized model and expect that monitoring might be more strongly related to academic outcomes for African Americans, compared with European Americans, whereas autonomy support is expected to be more strongly related to academic outcomes for European Americans.

In examining parenting, engagement, and achievement, most studies have used a single indicator of parenting or a composite of parenting practices. Further, many of the studies of school engagement only examined one or two types. Finally, most studies have not included students' own aspirations as an organizer or motivator for achievement and as a mediating process through which parenting practices are related to engagement, achievement, and post high school enrollment. The present study simultaneously examined three types of parenting practices, three types of engagement, and adolescents' goals to understand how they function together to support post high school enrollment. As parenting practices cohere and function together, rather than in isolation, the present study

extends our understanding by determining how parenting practices are uniquely related to different types of engagement and achievement, across ethnicity.

Whereas parenting practices are related to school engagement and aspirations and both aspirations and school engagement are central to students' post high school enrollment, it is less clear how aspirations, engagement, and achievement influence each other, function together, and are supported by parents. Do parenting practices encourage the development of youths' goals, which then motivate engagement and ultimately college enrollment (e.g., Eccles, 2007)? Or, do parenting practices increase adolescents' engagement and achievement in school directly, which serve to inform, increase, and solidify aspirations for youth (e.g., Simons-Morton & Chen, 2009)?

Among the mediating variables, aspirations may inspire, shape, and give meaning to school engagement (Fredricks et al., 2004; Wang & Eccles, 2012a) or engagement might inform aspirations. Based on Social Cognitive Theory (Bandura, Barbaranelli, Caprara, & Pastorelli, 2001) and Self-Determination Theory (Park, Holloway, Arendtsz, Bempechat, & Li, 2012), adolescents internalize their goals and direct their own development by engaging in experiences that foster their emerging identities and goals. Youth who have well-developed aspirations have higher levels of engagement (Deci & Ryan, 2008) because their engagement has meaning for them (Fredricks et al., 2004; Wang & Eccles, 2012a). Similarly, Eccles' expectancy-value model suggests that youth will engage in school when they understand and internalize the importance of engagement and achievement for their future (Eccles, 2007). In contrast, students' school engagement has the potential to inform and shape goals. That is, observing one's own experiences at school (i.e., engagement and grades) provides the information needed to establish and meet realistic goals (Bandura, 1991). As youth understand their own potential through their engagement in school, they develop goals, which, in turn, motivate post high school educational pursuits. Aspirations may help youth internalize their engagement and engagement informs future goals so that they are reciprocal and self-perpetuating. Whereas some studies have only examined a single direction of effect or focused either on aspirations or engagement, this study addresses these directional and reciprocal effects and examines the role of parents in supporting them.

To this end, we tested a prospective, longitudinal model from parenting practices in 7th grade to educational outcomes 3 years postexpected high school graduation, while testing indirect effects through school engagement, GPA, and aspirations. Further, we tested the directional and reciprocal relations between aspirations and engagement, all while controlling for prior levels of achievement, engagement, and aspirations, gender, socioeconomic status (SES), and ethnicity. We also tested for differences between African Americans and European Americans and whether the parenting practices were differentially related to aspirations, engagement, and post high school enrollment across prior achievement levels.

This study used the MADICS dataset. There are numerous studies published on parenting, engagement, and achievement based on these intellectually rich data. The present study replicates some of this research, but extends it in important and significant ways. For example, whereas Wang and Eccles (2012b) found that supportive parenting practices curb declines in engagement, the

present study broadens the focus to three domains of parenting practices and links parenting across four waves of data to post high school enrollment through aspirations and engagement. Eccles et al. (1997) examined autonomy support, connection, and the provision of regulation from parents, peers, and school context as they relate to GPA using a single wave of the MADICS dataset. Our study extends these findings longitudinally and situates them among youth's aspirations, engagement, and post high school enrollment. Gutman, Sameroff, and Eccles (2002) examined parenting and achievement using only the African American sample from Wave 1 and found that democratic parenting was not related to achievement for African Americans, a finding that is consistent with other research on the benefits of more no-nonsense parenting for African Americans. Similarly, Gutman, Eccles, Peck, and Malanchuk (2011) found ethnic differences in the relations between parenting (i.e., negative interactions and positive identity with parents) and cigarette and alcohol use. The present study extends these findings by systematically testing the moderating role of ethnicity for three domains of parenting practices for engagement, achievement, and college enrollment. The present study examined prospective longitudinal relations between parenting and youths' college enrollment and identifies possible indirect effects through engagement, achievement, and aspirations.

## Method

### Participants

Because ethnicity and SES are often confounded, it is often difficult to determine whether differences between ethnic groups are truly ethnic differences and not differences based on SES or other confounding factors. Therefore, to effectively examine ethnic variations in the hypothesized model, it was important that the African American and European American samples are as similar as possible in demographic background and communities of residence. Although economic background and ethnicity are confounding in the United States, the MADICS sample comes close to achieving this level of comparability. The sample is broadly representative of SES levels, with the mean pretax, family annual income between \$45,000 and \$49,999 (range: \$5,000 to >\$75,000), 86% of primary caregivers were employed, 54% were high school graduates, with 40% college graduates. Furthermore, in the county from which MADICS sample was drawn, the socioeconomic distribution is nearly equivalent for the African American and European American populations (Cook, Herman, Phillips, & Settersten, 2002; Eccles et al., 1997; see also [www.rcgs.isr.umich.edu/garp](http://www.rcgs.isr.umich.edu/garp) for details). Parents in African American families reported somewhat lower family income levels (range of \$40K to \$44,999 vs. \$50K to \$54,999) and years of education ( $M = 14.16$  vs.  $M = 15.11$ ) than did parents of European American families (Gutman et al., 2011). Notably, these differences are smaller than usual. Nevertheless, we controlled for SES and examined ethnicity in the analyses.

As described in numerous MADICS publications, participants were recruited from 23 of 25 middle schools in a single large county (e.g., Eccles et al., 1997). Among the 1,961 who agreed to be contacted, a sample of 1,472 families (75%) agreed to participate. Most of those who declined reported time constraints, scheduling conflict, and disinterest as the chief reasons. In this study, we used Wave 1, collected when the adolescents were in 7th grade

(mean age = 12.9 years), Wave 3, collected when the adolescents were in 8th grade (mean age = 14.5 years), Wave 4, collected when most of the adolescents were in 11th grade (mean age = 17.4 years), and Wave 6, collected 3 years beyond when most of the adolescents graduated from high school (mean age = 21.6 years).

The MADICS sample is 58% African American, 35% European American (7% were biracial or other ethnic minorities), and 51% female. In this study, we used data from African Americans and European Americans from Wave 1 ( $n = 1,452$ ), Wave 3 ( $n = 1,157$ ), Wave 4 ( $n = 1,084$ ), and Wave 6 ( $n = 987$ ). Waves 3, 4, and 6 retained 72%, 81%, and 84% of the sample from Wave 1 (Peck & Eccles, nd). For the entire dataset, data are missing at random (MAR; Little & Rubin, 1987). Those with missing data differ from those without missing data, but the differences cannot be predicted from variables used in this study or in the full dataset, with the exception of achievement (Peck & Eccles, nd). However, the full range of GPA was represented in the sample, although the lower end of the distribution was somewhat underrepresented. Therefore, there remains evidence that this sample is valid to address the questions posted in this study.

### Procedures

Letters requesting consent to contact were sent to families of 7th graders. Interested families signed and returned a form. Face-to-face interviews were conducted, along with self-administered questionnaires for adolescents and their primary caregivers, respectively, for Waves 1, 3, and 4. Interviews were conducted by ethnically matched interviewers and took approximately 1 hr and the self-administered questionnaire took approximately 30 min to complete. Adolescents were paid \$20 for participation for Waves 1, 3, and 4. Wave 6 data were self-administered questionnaires. Adolescents received \$35 for their participation in Wave 6.

### Measures

**Post high school enrollment.** Adolescents' post-high school enrollment was assessed at Wave 6 by a single, self-reported item: "What is the highest grade of school you have completed?" Responses were on a 10-point scale, ranging from 10th grade or below to completion of a bachelor's degree. All items for all constructs can be found in online Supplemental material, Appendix A.

**School engagement.** Three types of school engagement were assessed (i.e., Behavioral, Cognitive, and Emotional) and GPA, an indicator of effort and achievement. This combination of engagement and GPA as an operationalization of school engagement has been used in prior research (e.g., Melby et al., 2008). Behavioral, emotional, and cognitive engagement were assessed in 7th, 8th, and 11th grades. The assessments have strong psychometric properties across gender and ethnicity (Wang, Willett, & Eccles, 2011). They were scaled such that the higher scores indicate higher school engagement. *Behavioral engagement* was assessed by five items adapted from (Elliott, Huizinga, & Menard, 1989) and reliability was acceptable ( $\alpha = .86-.90$  for African Americans and  $\alpha = .85-.90$  for European Americans between 7th and 11th grades). *Emotional engagement* was assessed by using five items originally from The Michigan Study of Adolescent Life Transitions study (Eccles et al., 1993) and reliability was acceptable ( $\alpha = .89-.94$



for African Americans and  $\alpha = .91$ –.94 for European Americans between 7th and 11th grades). *Cognitive engagement* was assessed by six items (Eccles et al., 1993) and was reliable ( $\alpha = .85$ –.88 for African Americans and  $\alpha = .87$ –.88 for European Americans between 7th and 11th grades). Adolescents' GPAs in 7th and 8th grades were collected from their school records. In 11th grade, they were collected through students' self-report. GPA was an average of adolescents' grades in the core subjects (English, math, science, and social sciences). Letter grades were converted into numerical values (A = 5, B = 4, C = 3, D = 2, and Failing = 1).

**Educational aspirations.** Adolescents' educational aspirations were assessed by two items commonly used in national surveys to assess aspirations at 7th, 8th, and 11th grades (e.g., PSID, Add Health, and NELS and in other published work; Hill et al., 2004; Wang & Eccles, 2012a). The first item was "If you could do exactly what you wanted, how far would you like to go in school?" To increase the likelihood of obtaining realistic and thoughtful goals and to be consistent with other work on aspirations, a second question was asked: "We cannot always do what we most want to do. How far do you think you actually will go in school?" Each question was rated along a 9-point scale, ranging from 9–11th grade to earning a doctorate (e.g., PhD, JD, MD, DO, or DVM). These two items are highly correlated ( $r = .79$ ). A mean score was created at each wave. Higher scores indicate higher levels of educational aspirations.

**Parenting practices.** Parental monitoring, autonomy support, and warmth were assessed from mothers' perspective using items from the Family Management Study (Furstenberg, Cook, Eccles, Elder, & Sameroff, 1999). Items were rated on a Likert Scale ranging from *never* to *always*. For *Parental Monitoring*, four items reflected the degree to which parents monitor their children's activities, whereabouts, and plans in the past three months ( $\alpha = .87$  and .85 for African Americans and European Americans, respectively). For *Autonomy Support*, four items were used to assess the degree of autonomy and decision-making opportunities parents provided ( $\alpha = .86$  and .87 for African Americans and European Americans, respectively). For *Parental Warmth*, six items were used that pertained to the amount of trust, warmth, fun, and togetherness between parents and adolescents in the past 3 months ( $\alpha = .92$  and .90 for African Americans and European Americans, respectively).

**Demographic variables.** Gender and ethnicity were assessed by student self-report (0 = girl, 1 = boy; 0 = European American, 1 = African American). The SES indicators included highest family educational attainment, employment status, and combined family income reported by primary caregiver. To create a composite SES indicator, we standardized these indicators and averaged them ( $M = 0.57$ ,  $SD = 0.86$ ,  $\alpha = .77$ ; range from  $-2.15$  to  $2.31$ ).

## Data Analyses

We used structural equation modeling (SEM) in the Mplus 6.1 program to fit the hypothesized path models to data (see Figure 1). Mplus was chosen, in part, because the data were nested (students were nested within 23 schools). Mplus is able to account for nested data by fitting a multilevel model with random-effects and produce correctly adjusted standard errors in the model estimations. The amount of missing data was less than 7% and the data were

missing completely at random, as evidenced by nonsignificant results derived from the generalized least squares combined test of homogeneity of means and covariance matrices representing complete and incomplete data,  $\chi^2(1,452) = 945.37$ ,  $p = .14$  (Little, 1988). Missing data were handled through full-information maximum likelihood estimation, allowing us to include all available data and identifying the parameter values with the highest probability of producing the sample data (Baraldi & Enders, 2010).

First, we created latent factors for the parenting practices, GPA, and school engagement. We conducted a series of measurement models for each latent variable using confirmatory factor analysis (CFA) to verify that the hypothesized constructs measure discrete, single latent variables. Then, we tested the relations among parenting, school engagement, aspirations, and post high school enrollment using SEM. We used cross-lagged panel analysis to evaluate the reciprocal relations between grades/engagement and aspirations between 8th and 11th grades. We controlled for stability of each construct over time and we controlled for demographic background (i.e., SES gender, and ethnicity) and 7th grade assessments of GPA, school engagement, and aspirations by including paths between each control variable and all variables in the model. We estimated indirect effects of parenting practices on post high school enrollment through aspirations and engagement with delta method of standard errors (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). We examined the model fit on the basis of the  $\chi^2$  Statistic, the Comparative Fit Index (CFI), the Standardized Root Mean Square Residual (SRMR), and the Root Mean Square Error Estimate (RMSEA). Finally, to determine whether the theoretical model was generalizable across ethnicity or students' prior academic achievement levels, we conducted two sets of multi-group models that compared models where the factor loadings were free to vary across ethnicity or prior achievement level with models where the factor loadings were constrained to be equal. If the constraints led to a significant decrease in overall model fit, it would indicate that there were differences across the groups in the pattern of associations. For academic ability, we divided the sample into "high," "moderate," and "low" achievers based on their average grades in 7th grade (Wave 1). The high achieving group was defined as having a GPA that was 0.5 *SD* above the mean (group  $M = 4.50$ ,  $n = 600$ ). The low achieving group included students whose GPAs were 0.5 *SD* below the mean (group  $M = 3.19$ ,  $n = 400$ ). The moderate achieving group included students who had GPAs within 0.5 *SD* of the mean (group  $M = 3.96$ ,  $n = 452$ ). We removed the moderate achieving group and ran the multigroup analysis between the high and low achieving groups to increase confidence in the findings. The two groups differed significantly on GPA,  $t(998) = 37.52$ ,  $p < .001$ . African Americans and European Americans were equally likely to be in the high or low achievement groups ( $\chi^2(3) = 6.13$ , *ns* for high achievement and  $\chi^2(3) = 7.24$ , *ns* for low achievement).

## Results

Correlations among the study variables and a multivariate analysis of covariance (MANCOVA) to test mean differences across ethnicity were calculated (see online Supplemental material Appendix B for correlations and Table 1 for means). The magnitudes and direction of the correlations provide support for our model. There were mean level differences across ethnicity, with European

Table 1  
Summary of Adjusted Means From Analyses of Covariance

	Overall <i>M</i> ( <i>SD</i> )	African American <i>M</i> ( <i>SD</i> )	European American <i>M</i> ( <i>SD</i> )	Multivariate <i>F</i>
Parental monitoring (7)	4.26 (0.77)	4.21 (0.78)	4.35 (0.73)	5.61**
Provision of autonomy (7)	2.94 (0.73)	2.87 (0.73)	3.06 (0.72)	12.96***
Parental warmth (7)	4.11 (1.01)	4.19 (1.09)	3.96 (1.05)	19.17***
Educational aspiration (8)	7.42 (1.36)	7.41 (1.38)	7.49 (1.25)	4.48*
Educational aspiration (11)	6.76 (1.59)	6.65 (1.62)	6.98 (1.53)	5.31**
GPA (8)	3.64 (0.86)	3.44 (0.86)	4.01 (0.75)	58.23***
GPA (11)	3.32 (0.96)	3.06 (0.95)	3.55 (0.96)	5.51**
Behavioral engagement (8)	4.23 (0.96)	4.13 (0.97)	4.39 (0.92)	10.48***
Emotional engagement (8)	3.30 (0.81)	3.34 (0.81)	3.24 (0.81)	1.67
Cognitive engagement (8)	3.76 (0.69)	3.72 (0.71)	3.84 (0.67)	0.75
Behavioral engagement (11)	4.03 (1.16)	4.09 (1.11)	3.94 (1.23)	1.04
Emotional engagement (11)	3.22 (0.87)	3.22 (0.85)	3.24 (0.91)	4.52*
Cognitive engagement (11)	3.96 (0.66)	3.98 (0.65)	3.95 (0.66)	0.81
Post high school enrollment	7.62 (1.93)	7.44 (1.97)	7.98 (1.85)	7.04***
SES	6.07 (1.73)	6.00 (1.46)	6.22 (0.50)	14.21***

Note. SD = standard deviation; GPA = grade point average; SES = socioeconomic status. We included socioeconomic status and 7th grade achievement as covariates.

Americans reporting higher monitoring and provision of autonomy. Autonomy support is similar to, although a broader construct than, the single item on decision-making reported in Gutman and Eccles (2007), which reported similar ethnic differences. In contrast, African Americans reported higher levels of warmth. European Americans had higher GPAs and educational aspirations at 8th and 11th grade, higher levels of behavioral engagement at 8th grade (but not 11th), and higher levels of emotional engagement at 11th grade (but not 8th). These findings are similar to ethnic differences in Wave 1 levels reported in Wang and Eccles (2012a). Finally, European Americans had higher post high school enrollment than did African Americans.

### Model Testing

We began by testing the fit of the measurement model using CFA. All variables were allowed to intercorrelate simultaneously.

The measurement model provided good fit. The standardized factor loadings ranged from .39 to .81 and were all statistically significant at the .05 level. To test the fit of the hypothesized model and the cross-lagged panel analysis, we first tested a baseline model (Model 1 in Table 2) that examined the temporal stability of GPA, educational aspirations, and school engagement across time and the relations between parenting at 7th grade and these variables and their impact on post high school enrollment, all while controlling for 7th grade levels of the constructs, gender, ethnicity, and SES. The fit of this baseline model was poor,  $\chi^2(46, 1,452) = 432.45, p < .001$ , CFI = .88, RMSEA = .11, SRMR = .12. To test our hypothesized model and the reciprocal relations among aspirations, grades, and school engagement, we examined three alternative models (Models 2, 3, and 4, in Table 2). With Models 2 and 3, we tested the direction of effects and reciprocal relations among aspirations, grades, and school engagement.

Table 2  
Summary of Goodness-of-Fit Statistics for Hypothesized Model Fitting and Model Comparison

Model testing	$\chi^2$	<i>df</i>	<i>p</i>	CFI	RMSEA	SRMR
Model 1: Baseline model (stability)	432.45	46	<.001	.88	.11	.12
Model 2: Alternative model (Aspiration to engagement and GPA)	421.57	42	<.001	.90	.10	.10
Model 3: Alternative model (Engagement and GPA to aspiration)	419.23	42	<.001	.91	.08	.08
Model 4: Alternative model (cross-lagged)	401.63	38	<.001	.97	.02	.03
Model 5: Trimmed model	404.67	40	<.001	.97	.02	.03
Model comparison	$\Delta\chi^2$	<i>df</i>	<i>p</i>			
2 vs. 1	10.88	4	<.05			
3 vs. 1	13.22	4	<.05			
4 vs. 1	30.82	8	<.001			
2 vs. 4	19.94	4	<.01			
3 vs. 4	17.57	4	<.01			
4 vs. 5	3.04	2	<i>ns</i>			

Note. CFI = Comparative Fit Index; RMSEA = root mean square error estimate; SRMR = standardized root mean square; GPA = grade point average.

Model 2 examined solely the effects from 8th grade aspirations to 11th grade school engagement and GPA, along with the role of parenting and the effects on post high school enrollment and the fit was adequate  $\chi^2(42, 1,448) = 421.57, p < .001$ , CFI = .90, RMSEA = .10, SRMR = .10. Similarly, Model 3, which tested the effects from 8th Grade GPA and school engagement to 11th grade aspirations fit the data adequately,  $\chi^2(42, 1,448) = 419.23, p < .001$ , CFI = .91, RMSEA = .08, SRMR = .08. However, Model 4, which included the reciprocal effects of school engagement, GPA, aspirations, along with 7th grade parenting and post high school enrollment fit, the data significantly better than the baseline model,  $\Delta\chi^2(8) = 26.82, p < .001$ , and better than the alternative models (see comparison at the bottom of Table 2). Finally, we removed nonsignificant paths from Model 4 and tested the fit of the trimmed model (Model 5) and compared the fit to Model 4. The  $\chi^2$  difference test was not significant,  $\Delta\chi^2(2) = 3.04, ns$ , indicating that removing the nonsignificant paths did not affect the fit of the model. Because the trimmed model (i.e., Model 5) is more parsimonious than Model 4, we selected this model as our final model (see Figure 2; see online Supplemental material Appendix C for table of coefficients for control variables).

As shown in Figure 2, all three parenting practices were positively and significantly related to aspirations, GPA, and behavioral engagement. In addition, warmth was positively related to cognitive and emotional engagement. In fact, warmth was related to all four endogenous constructs. Autonomy support was also positively associated with cognitive engagement and monitoring was positively related to emotional engagement. Among the endogenous variables, higher levels of educational aspirations at 8th grade were related to increases in GPA and the three types of school

engagement between 8th and 11th grades. Further, higher levels of GPA and school engagement at 8th grade were associated with increases in educational aspirations. The cross-lagged paths were significant. All three types of engagement, aspirations, and GPA in 11th grade were positively associated with post high school enrollment, with slightly stronger relationships for GPA and aspirations, than for school engagement.

To determine whether the paths from 8th grade aspirations to 11th Grade GPA and school engagement were stronger or weaker than the paths from 8th Grade GPA and school engagement to 11th grade aspirations, we tested the differential contribution of the cross-lagged paths. We compared the model with another model in which the four cross-lagged paths were constrained to be equal. The model specifying invariant cross-lagged paths differed significantly from the model without the invariant constraints,  $\Delta\chi^2(4) = 14.51, p < .01$ . We then released the constraint on the cross-lagged paths between aspirations and the three types of school engagement and the model was not significantly different,  $\Delta\chi^2(1) = 1.02, ns$ . The findings suggest that the contributions of 8th grade aspirations to 11th grade behavioral, emotional, cognitive engagement ( $\beta = .22, .20$ , and  $.26$ , respectively) were stronger than the contributions of 8th grade behavioral, emotional, and cognitive engagement to 11th grade aspirations ( $\beta = .10, .09$ , and  $.16$ , respectively).

Further, looking across middle and high school (i.e., from 7th grade to post high school), controlling for prior levels of engagement, aspirations, GPA, and demographics, parenting practices had a significant indirect effects on post high school enrollment (see Table 3). The direct effects from parenting to post high school enrollment were not significant. Next, we tested whether the final

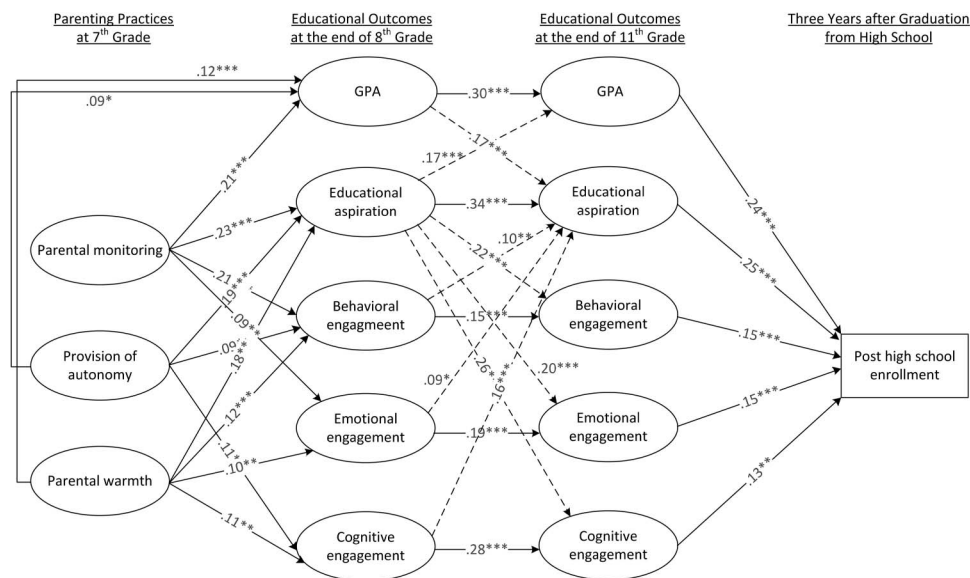


Figure 2. Path model depicting the longitudinal relations among parenting practices, educational aspiration, engagement, and post high school enrollment. All coefficients are standardized and statistically significant at  $p < .05$ . Dashed lines between the mediating variables at 8th and 11th grades reflect the hypothesized paths of interest (i.e., alternative models), whereas the solid lines represent the stability coefficients (i.e., Baseline Model). Paths for the controlling variables (i.e., gender, ethnicity, socioeconomic status [SES], educational aspiration, grade point average [GPA], and school engagement in 7th grade) to outcome variables at 8th, 11th, and post high school can be accessed in online Supplemental material Appendix B.

Table 3  
Standardized Direct, Indirect, and Total Effects for the  
Final Model

Predictors	Post high school education		
	Direct effect	Indirect effect	Total effect
Parental monitoring	.08	.25***	.33***
Autonomy support	.06	.19***	.25***
Parental warmth	.07	.20***	.27***

trimmed model fit similarly across ethnicity and prior achievement levels.

### Ethnic Variations

To determine whether ethnicity moderated the trimmed model, a multigroup SEM analysis was conducted where a model that allowed the factor loadings to vary across ethnicity was compared with a model where the factors loadings were constrained to be equal (see Table 4). The multigroup model with paths allowed to vary across ethnicity provided a good fit to the data,  $\chi^2(80) = 947.42$ ,  $p < .001$ , CFI = .96, RMSEA = .03, SRMR = .03. However, when the paths were constrained to be equal across groups, the model fit the data less well,  $\Delta\chi^2(30) = 51.22$ ,  $p < .01$ . There were significant ethnic differences. Parental monitoring was more strongly associated with GPA and with behavioral engagement for African Americans (GPA:  $\beta = .29$ ,  $p < .001$ ; behavioral engagement:  $\beta = .30$ ,  $p < .001$ ) than for European Americans (GPA:  $\beta = .14$ ,  $p < .01$ ; behavioral engagement:  $\beta = .16$ ,  $p < .01$ ).

.01). Conversely, the parental autonomy support was more strongly and positively related to GPA for European American adolescents ( $\beta = .15$ ,  $p < .001$ ); the coefficient for African American youth failed to reach significance ( $\beta = .05$ ,  $ns$ ). All other paths were similar across ethnicity.

### Variations Across Prior Achievement Levels

Similar to the analysis across ethnicity, a multigroup SEM analysis was conducted to test for differences based on prior achievement levels (see Table 4). The multigroup model with paths estimated freely for high and low achievers provided a good fit to the data,  $\chi^2(80) = 884.30$ ,  $p < .001$ , CFI = .95, RMSEA = .03, SRMR = .04. When equality constraints were imposed, three paths between parenting practices and educational outcomes at 8th grade were found to be significantly different across groups,  $\Delta\chi^2(30) = 37.54$ ,  $p < .05$ . The positive associations between parental monitoring and GPA and behavioral engagement were stronger for low achievers (GPA:  $\beta = .30$ ,  $p < .001$ ; behavioral engagement:  $\beta = .27$ ,  $p < .001$ ) than for high achievers (GPA:  $\beta = .13$ ,  $p < .001$ ; behavioral engagement:  $\beta = .14$ ,  $p < .001$ ). Further, the positive association between autonomy support and educational aspiration was stronger for high achievers ( $\beta = .27$ ,  $p < .001$ ) than for low achievers ( $\beta = .10$ ,  $p < .05$ ). All other paths were similar across achievement levels.

In summary, parenting practices in 7th grade had significant indirect effects on college enrollment 3 years post high school, through their effects on aspirations, school engagement, and GPA. All three parenting practices were related to aspirations and behavioral engagement at 8th grade, with two of the three parenting

Table 4  
Multigroup Analysis by Race/Ethnicity and Academic Ability

Racial/ethnic differences	Model statistics and comparisons	
	$\chi^2(df)$	$P$ (for $\Delta\chi^2$ )
1. Baseline model	947.42 (80)	—
<b>2. Parenting practices → Educational outcomes at 8th grade</b>	<b>978.10 (95)</b>	<b>.01</b>
<b>Monitoring → GPA (stronger for black)</b>	<b>975.60 (94)</b>	<b>.05</b>
<b>Monitoring → Behavioral engagement (stronger for black)</b>	<b>969.95 (93)</b>	<b>.05</b>
<b>Autonomy support → GPA (stronger for white)</b>	<b>964.97 (92)</b>	<b>.05</b>
3. Educational outcomes at 8th grade → Educational outcomes at 11th grade	986.73 (105)	<i>ns</i>
4. Educational outcomes at 11th grade → Post high school education	996.52 (110)	<i>ns</i>
Academic ability differences	Model statistics and comparisons	
	$\chi^2(df)$	$P$ (for $\Delta\chi^2$ )
1. Baseline model	884.30 (80)	—
<b>2. Parenting practices → Educational outcomes at 8th grade</b>	<b>914.89 (95)</b>	<b>.01</b>
<b>Monitoring → GPA (stronger for low achievers)</b>	<b>910.25 (94)</b>	<b>.05</b>
<b>Monitoring → Behavioral engagement (stronger for low achievers)</b>	<b>906.74 (93)</b>	<b>.05</b>
<b>Autonomy support → Educational aspiration (stronger for high achievers)</b>	<b>902.07 (92)</b>	<b>.05</b>
3. Educational outcome at 8th grade → Educational outcomes at 11th grade	924.32 (105)	<i>ns</i>
4. Educational outcomes at 11th grade → Post high school education	930.34 (110)	<i>ns</i>

Note. GPA = grade point average. Bolded pathways denote differences across groups.



practices related to emotional and cognitive engagement. The reciprocal relations between aspirations and engagement/GPA were significant, although the effects from 8th aspirations to 11th engagement were stronger than the reverse path. Ethnic differences were found only for parenting practices: monitoring had stronger associations with GPA and behavioral engagement for African Americans, whereas autonomy support had stronger associations with GPA for European Americans. Across achievement levels, monitoring was more strongly related to GPA and behavioral engagement for low achievers, whereas autonomy support was more strongly related to aspirations for high achievers.

### Discussion

Parenting practices during middle school has both short term positive associations with aspiration, grades, and school engagement and long term effects on college enrollment post high school. Longitudinally, from 7th grade to 3 years post high school, the three parenting practices had significant indirect effects on college enrollment through the reciprocal effects of engagement and aspirations. Whereas this is counter to conventional beliefs that parental influence wanes during adolescence, it is consistent with a critical review of the research on developmental patterns of parent-adolescent relationships (Laursen & Collins, 2009). Further, the pathways from 8th grade aspirations to 11th grade engagement and GPA were stronger than the reverse paths from 8th Grade GPA/engagement to 11th aspirations. The primacy of aspirations is consistent with Self-Determination Theory and Social Cognitive Theory, which suggest that when connected to their aspirations, engagement in school becomes self-motivating (Deci & Ryan, 1985; Fredricks et al., 2004; Park et al., 2012). Similarly, prior research shows that aspirations (i.e., career planning) serve to increase school engagement (Kenny, Blustein, Haase, Jackson, & Perry, 2006) and that parental support is related to aspirations and, in turn, engagement and grades (Perry et al., 2010). That said, the best fitting model included the reciprocal effects between aspirations and engagement/GPA, suggesting a dynamic and self-perpetuating cycle. More important, parents remain a significant influence through adolescence and early adulthood by promoting aspirations and helping youth see how their current endeavors fit their longer term goals and identities.

### Parental Warmth Matters Broadly; Autonomy Support and Monitoring Matter Specifically

Warmth was directly related to aspirations, all three types of engagement, and GPA, and was indirectly related to college enrollment. Parental warmth provides an emotional foundation for youth that increases their sense of self-efficacy and beliefs in their abilities (Juang & Silbereisen, 2002) and promotes a internalized sense of competence that results in healthy exploration, adaptation, and attachments with people at school and with school itself (Furrer & Skinner, 2003; Perry et al., 2010). Parental warmth provides support that adolescents need to grapple with their goals, develop attachments to school (i.e., emotional engagement), think planfully about school (i.e., cognitive engagement), and stay focused (i.e., behavioral engagement; Ehrlich, Dykas, & Cassidy, 2012). Not only does parental warmth support aspirations, but through engagement and GPA, it helps youth achieve their post-secondary school goals.

All three parenting practices were related to aspirations, GPA, and *behavioral* engagement. The provision of a warmth, opportunities to make decisions (i.e., autonomy support), and appropriate monitoring, together, create a developmental niche in which youth can explore their interests, develop goals, manage day to day schoolwork, and do well (i.e., behavioral engagement and GPA), and, through these, enroll in college post high school. In contrast to behavioral engagement, *emotional* and *cognitive* engagement, which are more internal to the student, seem to benefit from more targeted parenting practices. Autonomy support was related to aspirations, GPA, behavioral and *cognitive* engagement, and indirectly to post high school enrollment, but not to emotional engagement. Whereas Autonomy Support has been associated with achievement and engagement more generally (Grolnick & Ryan, 1989; Steinberg et al., 1992; Wong, 2008), the current study differentiates engagement and demonstrates the value of autonomy support for encouraging independent planning around schoolwork. Through autonomy support, parents can scaffold youth's ability to take responsibility for their schoolwork and think comprehensively about schoolwork, by knowing when to provide support and when to let students succeed and fail on their own.

In contrast, monitoring was related to aspirations, GPA, behavioral and *emotional* engagement, and indirectly to post high school enrollment, but not cognitive engagement. Youth who are monitored more have been shown to have higher achievement levels (Coley & Hoffman, 1996; Fulton & Turner, 2008). However, the current study also demonstrates its impact on students' sense of belonging to school and aspirations. As youth move through secondary schools that are more complex socially and bureaucratically, parental monitoring may provide a guide and checkpoint to assure that youth are associating with peers who affirm their identities and to steer them away from contexts and situations that might put them at risk. Indeed, with middle school samples, parental monitoring was associated with fewer behavioral problems (Lowe & Dotterer, 2013) and a reduction in associating with "problem-behaving" friends (Simons-Morton & Chen, 2009). Parental monitoring serves to help youth stay on task (behavioral engagement), find their connection to school, achieve, and develop aspirations, and ultimately be prepared for college.

### Ethnicity Matters Only for Parenting

There were ethnic differences in the relations between parenting and the mediators. Parental monitoring had a stronger and more positive relation with GPA and *behavioral* engagement for African Americans. The greater significance of parental monitoring for African Americans is consistent with prior research that has demonstrated the developmental benefits of higher levels of control for African Americans and those who perceive threats to the success and opportunity structure for their youth (Gurland & Grolnick, 2005; Mason et al., 2004; Pinderhughes et al., 2000). Such threat may be because of stereotypes of low achievement, negative peer influences, or other types of threat (Hill, 2011). Similarly, given that those who enter middle school with lower levels of achievement are at greater risk for declines in school engagement (Li & Lerner, 2011), parenting practices that track or monitor the pragmatics of school (e.g., behavioral engagement and GPA) may be more necessary to support students' ultimate success.

In contrast to parental monitoring, parental autonomy support was more strongly and positively related to GPA for European Americans, but was not significant for African Americans. Although autonomy support is a hallmark of parenting for adolescence (Collins & Laursen, 2004; Steinberg & Silk, 2002), African American families, like many ethnic minority families, are less likely to prioritize the development of independence and autonomy during adolescence (Garcia Coll, Meyer, & Brillion, 1995; Gurland & Grolnick, 2005). This is consistent with the findings showing the increased salience of monitoring. An interesting finding was that although monitoring, and not autonomy support, was positively associated with GPA and the pragmatics of school (i.e., *behavioral* engagement), there were no ethnic differences in the role of autonomy support for developing aspirations and *cognitive* engagement. For African American parents, a delicate balance is needed to capture the benefits of higher levels of monitoring and control for promoting good grades and staying on task *and* the benefits of promoting autonomy for developing aspirations and the playful independence to achieve them. Parental warmth, not surprisingly, is equally beneficial for supporting aspirations, engagement, and achievement across ethnicity and prior achievement levels.

Whereas many studies have examined associations among parenting, school engagement, and academic achievement (Annunziata et al., 2006; Eccles et al., 1997; Furrer & Skinner, 2003; Murray, 2009; Simons-Morton & Chen, 2009; Taylor & Lopez, 2005), this study builds on this literature by determining the specificity by which parenting practices are linked to specific types of school engagement, school performance, aspirations, and ultimately college enrollment. The present study extends the work in this area by showing the greater significance of the paths from aspirations to engagement; the significance of the reciprocal relations between aspirations and engagement; and the role of parenting practices in guiding and promoting aspirations, engagement, and the longer term realization of these goals through college enrollment 3 years beyond one's expected high school graduation date.

This study is not without limitations. First, our assessment of aspirations is based on two questions (what students hope to achieve educationally and realistically believe they will achieve). Adolescents have deeper and fuller ideas about their goals and how to achieve them, which were not captured in this two pronged measure. Further, students' aspirations, engagement, and family characteristics alone do not fully determine whether they will successfully enroll in college. This study does not address important contextual factors such as knowledge about and practical support for applying to college, beliefs about the opportunity structure in society, financial aid, and peer influences on college going identity development. We account for some of these contextual factors by controlling for SES. However, specific attention should be paid to these other factors. Finally, this study focuses solely on African Americans and European Americans when the American school population is increasingly diverse ethnically, economically, and linguistically. Despite these limitations, this study demonstrates the how parents can continue to support their youth through high school and beyond.

Adolescence is a time when parents struggle as they renegotiate their relationships with their teens and recalibrate their parenting practices to meet the demands for (and readiness for) increased

autonomy and responsibility from their youth (Laursen & Collins, 2009), while curbing trends of decreased school engagement and achievement (Eccles, 2007; Wang & Eccles, 2012a). Capitalizing on youths' developmental needs for identity development and meaning making, imagining, and "trying on" plausible goals and aspirations is an elemental part of adolescent development (Oyserman, Bybee, & Kathy, 2006). Understanding parents' roles in helping to elicit purpose and engagement is essential. This study highlights the importance of parenting practices, especially establishing a warm and supportive relationship, in helping youth develop their aspirations and see meaning in their work, which can become self-motivating and keep youth engaged in school and on the right track post high school.

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