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Shifting Attendance Trajectories from Middle to High School: Influences of School Transitions and Changing School Contexts

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Abstract

In the current study, we examine patterns of school attendance across middle and high school with a diverse sample of 8,908 students (48% female; 54% Latino, 31% White, 13% African American, 2% Asian American). Attendance declined from middle through high school, but this overall pattern masked important variations. In total, 44% of students maintained their attendance trajectories from middle to high school (11% stable high, 19% high-decreasing, 10% mid-decreasing, 4% low-decreasing), and shifting attendance trajectories often signaled greater school disengagement (38% shifted to poorer attendance trajectories, 18% experienced improved attendance trajectories). Transition experiences, school structural characteristics, and the divergence between students' middle and high schools provided insights into which students recovered, becoming more engaged in high school versus those who became more disconnected. Implications for identifying and intervening with disengaged youth are discussed.

Keywords

high school transition; adolescent development; school engagement; school context

The U.S. K-12 educational system is structured such that students typically make normative school transitions when they move from elementary to middle school and again from middle to high school. Although predictable in nature, an expansive literature base documents the academic and socioemotional challenges young people encounter during school transitions (Benner, 2011; Eccles & Roeser, 2011; Simmons & Blyth, 1987). A parallel theoretical base—centered on stage-environment fit (Eccles, 2004), cumulative stress (Simmons & Blyth, 1987), and life course theories (Elder, 1998)—offers insights into why school transitions can be difficult to manage and who might be at particular risk for transition disruptions. This question of *who* is at risk is of particular import for educators and policymakers as they seek to improve achievement, increase graduation rates, and encourage greater postsecondary attendance.

To this end, scholarship has taken a more nuanced look at possible variations in transition experiences, investigating who navigates the transition with ease and who exhibits more lasting disruptions to well-being. Such work has identified particular transition challenges for those students encountering multiple life transitions simultaneously (Simmons & Blythe, 1987), for those experiencing substantial changes in their demographic representation at school (Benner & Graham, 2007), and for those whose new educational contexts are poor fits with their developmental needs (Eccles et al., 1993). However, research on school transitions, particularly the move from middle to high school, remains limited in both scope and depth, especially in relation to placing this transition into a larger developmental context. Yet when considering life course trajectories, attention to transitions takes on particular significance, as transitions can serve as turning points that lead to discontinuities or deflections in life trajectories (Elder, 1998).

In the current study, we examine the developmental progression of school engagement, one aspect of school success that prior research indicates is compromised during school transitions (Barber & Olsen, 2004; Seidman, Lambert, Allen, & Aber, 2003). Here, we specifically investigate how school attendance trajectories unfold across middle school, during the high school transition, and across high school. We do so by employing both person- and variable-centered approaches to document overall trends in trajectories as well as subpopulation variation. We also place specific attention on transition disruptions and matches and mismatches in the larger middle and high school contexts in which the high school transition unfolds.

School Engagement and its Developmental Progression during Adolescence

Behavioral engagement—including participatory activities such as attendance, task behaviors, and extracurriculars—is conceptualized as a critical building block for educational success; in essence, by being a present and active participant in school, students form emotional bonds with teachers and peers that, in turn, facilitate school investment and educational effort (Furlong et al., 2003). The repercussions of poor behavioral engagement are far-reaching, including poorer academic performance, more risky behaviors, and greater mental health challenges (Fredricks, Blumenfeld, & Paris, 2004; Henry & Huizinga, 2007; Li & Lerner, 2011).

We know very little, however, about the developmental progression of behavioral engagement during adolescence (Fredricks et al., 2004). School engagement research focused specifically on school transitions documents declines in extracurricular involvement and school attendance (Barber & Olsen, 2004; Roeser, Eccles, & Freedman-Doan, 1999), and life course theorists suggest that engagement declines observed across the transition may have repercussions for subsequent educational life course trajectories, including school dropout (Alexander, Entwisle & Kabbani, 2001). General decreases in behavioral engagement are also observed from middle school through the early high school years (Benner & Graham, 2009; Wang & Eccles, 2012b). Although this research paints a bleak picture of adolescents' behavioral engagement, recent research using more advanced mixture modeling techniques suggests that many students exhibit stable engagement that is either high or moderately high during middle school and high school (Archambault, Janosz, Morizot, & Pagani, 2009; Li & Lerner, 2011).

The current study extends this work in two primary ways. First, existing studies of behavioral engagement tend to combine items tapping into attendance and truancy, discipline, preparation, and participation. This complicates intervention and prevention efforts, both in terms of identifying who is in most need of such services and what specific behaviors to target. In response, the current study provides an in-depth analysis of a single, critical aspect of behavioral engagement—students' school attendance. Selection of attendance was purposeful, as absenteeism is a serious problem in American public schools and has been linked to poorer academic and life course outcomes (Alexander, Entwisle, & Horsey, 1997; Gottfried, 2010). Yet the developmental progression and contextual predictors of attendance and absenteeism have received scant attention in the empirical literature (Goldstein, Little, & Akin-Little, 2003).

Second, much of the existing research base that capitalizes on longitudinal studies tends to take a narrow view of development, generally focusing on only two or three time points. This tighter focus loses the larger developmental backdrop that can better contextualize the change observed (Benner & Graham, 2009). As suggested by life course theory, unfolding trajectories and the role of life transitions are central to understanding development (Elder,

1998). Thus, the current study investigates how students' school attendance unfolds across the three years of middle school and four years of high school. Using both variable- and person-centered approaches, we capture not only the larger normative developmental shifts in engagement that occur across adolescence, but also the subpopulation variation suggested by previous work (Archambault et al., 2009; Lerner & Li, 2011). Attention to heterogeneity is key, as it allows for the possibility that large portions of individuals may not follow the overall developmental trajectories observed (Schulenberg & Maggs, 2002). Given the particular challenges and disrupted trajectories at times of school transition (Benner & Graham, 2009; Simmons & Blyth, 1987), we examine the overall trajectories and trajectory heterogeneity at each school level separately. Such approach also enables us to integrate analyses of multifinality (Schulenberg, Sameroff, & Cicchetti, 2004), in which we identify those students who exhibit similar attendance patterns in middle school but divergent attendance trajectories in high school and explore the correlates of such multifinality. In particular, we focus on transition disruptions—that is, how attendance changes from immediately before to immediately after the high school transition—as well as the larger school context and matches/mismatches in contexts from middle to high school.

School Attendance and the School Context

A comprehensive understanding of behavioral engagement necessitates an exploration of the primary context in which these behaviors unfold—students' schools. Prior studies have documented how classroom instructional climates and interpersonal processes such as social support from parents, peers, and teachers can promote behavioral engagement (Eccles & Wang, 2012a; Goldstein et al., 2003). Less attention has been paid to the more distal structural aspects of schools, yet it is precisely these structural characteristics that may be more amenable to policy and intervention efforts (Crosnoe, Johnson, & Elder, 2004).

Structural characteristics are also important in terms of what they afford, in terms of smaller and more accepting learning communities. Stage-environment fit theory suggests that much of the challenges tied to school transitions arise from students moving to new contexts not well-matched to their developmental needs (Eccles & Roeser, 2009). Thus, for school transitions, attention to changing school contexts is critical, and divergence between middle and high school contexts should be couched in terms of developmental fit. Attention to changing contexts is also a key component of life course theory, which asserts that the degree of similarity or difference between the sending and receiving contexts can influence how individuals manage transitions. Specifically, the more divergent the contexts are, the more likely transition disruptions and disrupted developmental trajectories will emerge (Caspi & Moffitt, 1993).

In the current study, the focal structural characteristics tend to fall into two categories. The first are school characteristics that could promote or inhibit the formation and maintenance of interpersonal relations and connections to schools, such as school size and teacher experience (Crosnoe et al., 2004). Having responsive relationships with educators is a key developmental need of adolescents (Eccles & Roeser, 2009), and prior research highlights teachers' experience as influential for students' academic success (Hanushek & Rivkin, 2009). Similarly, larger, less intimate educational settings seem to compromise well-being both during adolescence generally and across school transitions specifically (Darling-Hammond, Ainess, & Ort, 2002; Simmons & Blyth, 1987). Attention to structural characteristics such as these are also policy relevant, as over the past few decades, identifying the optimal size for American schools has been at the forefront of the educational policy debate (Leithwood & Jantzi, 2009) and challenges with retention of beginning teachers is an ongoing struggle for American schools (Brown & Wynn, 2009).

The second set of school structural characteristics we attend to can be tied to the larger inequalities in the American educational system that limit resources and opportunities for students, such as the socioeconomic and race/ethnic composition of the study body (Rothstein, 2004). Prior research suggests that while moving to more racially/ ethnically heterogeneous school settings may compromise students' ability to forge close connections with peers and thus result in greater disruptions (Simmons & Blyth, 1987), greater race/ ethnic and SES diversity often promotes educational persistence and success (Gurin, Dey, Hurtado, & Gurin, 2002). Issues of race/ethnic and SES diversity are particularly salient given the recent *Parents Involved* (2007) decision in which the Supreme Court deemed that public schools could not explicitly consider race/ethnicity in school assignments to maintain racial integration; in response, many schools are turning to SES as a possible mechanism for maintaining diverse educational contexts.

Current Study

The current study investigated students' school attendance across middle and high school (6th to 12th grades) to address four research aims. First, how does the developmental progression of attendance unfold over time? Here, we examine how students' attendance changes across middle school, immediately over the transition to high school, and then across high school. Second, we move from a variable-centered to a person-centered approach, exploring whether there are subpopulations of students who exhibit distinct attendance trajectories across middle school and high school. We expected that the overall pattern of change observed in our first research aim masked important variation in attendance.

Our third research aim examines the interrelations of the developmental progression, linking attendance change across middle school and disruptions across the transition to subsequent attendance patterns across high school. Here, we expected that substantial drops in student attendance after entry into high school would signal a turning point in students' lives, with declining or continually low engagement trajectories to follow across high school. In contrast, we expected that those students exhibiting stable behavioral engagement across the transition would continue or improve in this engagement trend over the high school years. Fourth and finally, we investigated the extent to which the developmental progression of behavioral engagement from middle to high school was associated with the difference in school structural characteristics between students' middle and high schools. We hypothesized that when students moved to high schools that were better matched to students' developmental needs (e.g., those with more experienced teachers, stable or improving demographic representation), they would maintain or improve in their attendance trajectories, whereas greater misfit and stress would lead to more disrupted attendance trajectories across high school.

Method

Participants

Data for the current longitudinal study are drawn from student records and school-level demographic data from a large school district in a central city in the south. Student records include data for 10,713 students from two cohorts: those in 8th grade in the 2005–06 school year ($N = 5,276$) and in the 2006–07 school year ($N = 5,437$). From these data, we excluded 1,768 students who did not make a transition to high school, who did not have high school data, or whose attendance data were missing for three or more years in high school. These students were excluded due to the study's focus on the high school transition and attendance trajectories across high school. We also excluded 37 Native American students due to small sample size. Compared to the analysis sample ($N = 8,908$), excluded students were less

likely to be White ($\chi^2(1) = 25.96, p < .001$) and more likely to be immigrant ($\chi^2(1) = 34.34, p < .001$), or receive Free- or Reduced-Price Lunch (FRPL; $\chi^2(1) = 106.62, p < .001$). The final sample ($N = 8,908$) includes 48% females and is racially/ethnically (54% Latino, 31% White, 13% African American, 2% Asian American) and socioeconomically diverse (54% of students receiving FRPL). A majority (96%) of the sample were born in the U.S. There are 18 public middle schools (6th to 8th grade), 14 public high schools (9th to 12th grade), and 7 alternative schools (6th to 12th grade) in the district. The entire analytic sample transitioned to a different school from grade 8 to 9.

Procedure

Student records data were collected by the school district as part of the state's recordkeeping and accountability requirements. The current study includes deidentified data for students from 6th to 12th grade. School demographic data were downloaded from the state education agency website for each student's middle school (2005–06 school year for cohort 1; 2006–07 school year for cohort 2) and high school (2006–07 school year for cohort 1; 2007–08 school year for cohort 2).

Measures

Descriptive statistics for all study variables appear in Table 1.

Attendance—Attendance data were drawn from students' school records. Total days of attendance and absence in the school year were recorded annually from 6th to 12th grades for each student. We calculated the percent days attended by dividing the total days attended by the sum of days attended and days absent. Attendance of students who dropped out of high school was coded as 0 for all school years subsequent to the drop out year. When attendance disruptions were used as predictors, changes in attendance across the transition were calculated as 8th grade attendance minus 9th grade attendance for odds ratio interpretability purposes.

School structural characteristics—Data on school structural characteristics were collected when students were in 8th grade (middle school) and 9th grade (high school). These data included school SES, size, diversity of the student body, and teacher experience. School SES was assessed by the percentage of students in the school receiving FRPL. School size included the total number of students in all grade levels at the school. Diversity of the student body was computed from school-level race/ethnicity data using Simpson's (1949) index of diversity:

$$D_s = 1 - \sum_{i=1}^g p_i^2$$

In this equation, p_i refers to the proportion of the students from each race/ethnic group in the school, and g refers to the total number of race/ethnic groups for students in the school. The diversity index represents the probability (ranging from 0 to approximately 1) that two individuals randomly selected from the same school belong to different race/ethnic groups. A high diversity score reflects a school with more diverse students. Finally, schools' teacher experience was the average years of experience of all teachers in the school weighted by each teacher's full-time equivalent (FTE) count.

We also calculated changes in school characteristics across the transition by subtracting each student's middle school characteristic from the student's high school characteristic. This was done for each of the school structural characteristics. Higher (positive) values indicate an

increase, in for example the average school size, from middle to high school, whereas lower (negative) values indicate a decline from middle to high school. In general, we observed low to moderate correlations among study variables ($r_{\text{range}} = .03 - .66$), and these levels did not reach levels that threatened model collinearity assumptions (see Kline, 2011).

Covariates—Control variables were collected from school records when students were in 8th grade. Students' race/ethnicity was categorized by the district as African American, Latino, Asian American, or White. Each student was identified as either *economically disadvantaged* (1) or *not disadvantaged* (0) based on their eligibility for FRPL or other government assistant program. Students born outside the U.S. were coded as *immigrant* (1), and those born in the U.S. were coded as *non-immigrant* (0). We calculated students' grade point average (GPA) in 8th grade by averaging their grades in all courses, ranging from A (4) to F (0). We also controlled for whether the student attended an alternative school any time from 8th to 12th grade.

Analysis Plan

Data analyses proceeded in four steps. First, to examine the developmental progression of students' behavioral engagement across middle and high school, we used piecewise latent growth curve modeling (Flora, 2008) to fit separate trajectories for attendance in middle school (intercept at 8th grade) and high school (intercept at 9th grade). Attendance changes across the high school transition were captured by the difference between the intercepts, with significance determined by Wald chi-square test of parameter equalities (see Benner & Graham, 2009 for example). We fit two piecewise models—a linear slope model and then a nonlinear model introducing a quadratic slope for attendance across high school, and used the Satorra-Bentler scaled Chi-Square test (Satorra & Bentler, 2001) to determine which model fit the data better.

Second, we explored potential subpopulations of students who exhibited distinct attendance trajectories in middle school and in high school using growth mixture modeling (GMM; Muthén, 2004). For middle school attendance, we fit GMMs with one to five classes; the number of random starts was increased to ensure that models converged at a stable solution (Hipp & Bauer, 2006). All parameters were freely estimated across classes to allow for variation among subpopulations and to increase precision of class specification (Enders & Tofighi, 2008). Multiple model indices, including Bayesian information criterion (BIC), the sample size adjusted BIC (ABIC), and a loglikelihood-based test (i.e., Lo-Mendel-Rubin (LMR) test), were used to strengthen the reliability of class enumeration (Nylund, Asparouhov, & Muthén, 2007). GMMs of attendance in high school were conducted in an identical manner; however, due to the distinct attendance trajectories among school dropouts, they were not included in the GMM but identified as a separate known attendance class for all subsequent analyses.

Third, to examine how attendance disruptions across the high school transition influenced stability and change in attendance trajectories, we conducted separate multinomial logistic regressions within each middle school attendance class to capture multifinality. Each regression estimated the effect of attendance disruptions on the relative possibility of shifting to a different attendance class in high school compared to staying in the same trajectory (e.g., switching from the high attendance to low attendance class compared to remaining in the high attendance class). Finally, we used two strategies to examine the predictors of shifting attendance trajectories from middle to high school. First, using median splits (see Eccles et al., 1993), we categorized middle and high schools as above or below average on each structural characteristic. We then created a categorical variable that captured each structural characteristic's stability (middle school *and* high school similarly

low or high) or change (middle school and high school vary) across the transition. We used crosstabulations and chi-square tests to determine whether the stability or change in a given school characteristic was linked to shifting attendance trajectories from middle to high school. Second, using multinomial logistic regressions, we tested three sets of predictors: middle school structural characteristics (i.e., school size, teacher experience, race/ethnic diversity, school SES), changes in school structural characteristics across transition, and interactions between middle school characteristics and school characteristic changes across transition. We conducted separate models within each middle school attendance class.

All analyses were conducted in *Mplus* 7 (Muthén & Muthén, 1998–2012). Missing data were handled by *Mplus* through full-information maximum likelihood (FIML), which provides estimates based on all the available data (Enders, 2001). In the current study, students are nested in both middle and high schools—to address dual nesting, we created a variable to capture all possible feeder patterns. There were 256 feeder patterns in total, with representation within feeder pattern ranging from 1 to 645 ($M = 34.80$, $SD = 91.10$). We then clustered by feeder pattern to address possible violations to independence assumptions.

Results

Changes in Attendance across Middle and High School

We first explored the developmental progression of attendance across middle and high school using piecewise growth curve models. The nonlinear model (linear growth in middle school, quadratic growth in high school) exhibited good model fit ($\chi^2(8) = 26.71$, $p < .001$; CFI = .999; RMSEA = .016) and a significantly better fit than the linear model ($\Delta\chi^2(6) = 223.12$, $p < .001$); therefore, the nonlinear model was adopted for subsequent analyses. Results indicate that students' attendance declined significantly across middle school (intercept = 94.1% total school days attended, linear slope = -1.0) and high school (intercept = 92.1% total school days attended, linear slope = -2.6 , quadratic slope = -0.6). Students experienced significant attendance disruption across the high school transition from 8th to 9th grade ($M = -2.1\%$ total school days attended; Wald $\chi^2(1) = 36.19$, $p < .001$).

Attendance Trajectory Classes in Middle and High School

Our second research question explored possible variation in attendance trajectories in middle and high school. For middle school attendance trajectories, Table 2 displays the multiple fit indices used for model comparison; the 4-class solution was selected. Although the BIC and ABIC decreased across the 2-class to 5-class models, these declines began to level off from the 4- to 5-class model. In addition, the LMR test showed that the 4-class model fit the data better than the 3-class model ($p = .05$), whereas the fit did not differ significantly between the 4- and 5-class models ($p = .19$). Trajectories for the 4-class model are displayed in Figure 1a. Approximately 22% of the sample maintained a high level of attendance across middle school (labeled “stable-high” attendance class), and an additional 43% exhibited initially high but declining attendance (“high-decreasing”). Initially average and declining attendance over time (“mid-decreasing”) was observed for 27% of students, and 8% exhibited initially low and declining attendance over middle school (“low-decreasing”).

Attendance trajectory classes in high school were examined using an identical approach but excluded students who dropped out of high school (labeled as “dropout” class). The residual variance of attendance at 9th grade was near zero and thus fixed at zero for all groups. Based on the multiple fit indices displayed in the lower portion of Table 2, we determined the 4-class solution was optimal. The four classes were labeled similarly as middle school attendance classes (i.e., “stable-high,” “high-decreasing,” “mid-decreasing,” “low-decreasing;” see Figure 1b).

Based on the enumerated attendance classes, we then identified the patterns of shifting attendance classes from middle to high school. Table 3 presents the group size and the percentage of the overall sample for each shifting pattern. In total, 44% of students maintained their attendance trajectories from middle to high school. Shifting attendance trajectories often signaled greater school disengagement, as 38% of students shifted to poorer attendance trajectories, whereas only 18% experienced improved attendance trajectories.

Linking Transition Disruptions to Shifting Attendance Trajectories

Our third research question explored the associations between attendance disruptions across the high school transition and changing attendance trajectory classes from middle to high school. Results are displayed in the upper portion of Tables 4a and 4b. Odds ratios (ORs) represent the relative probability of being in a given class compared to a reference class. Due to low cell sizes, results for some shifting attendance profiles are masked. The effects of transition disruptions were extremely consistent. In all cases, students who experienced greater transition disruptions (i.e., who exhibited poorer attendance from 8th to 9th grade) were less likely to move to higher attendance classes and more likely to move to lower attendance classes from middle to high school. As an example, for students who were in the high-decreasing class in middle school, those with greater transition disruptions were less likely to move to the stable-high class in high school and more likely to move to the mid-decreasing, low-decreasing, or dropout classes in high school. This pattern was identical for those in the stable-high, mid-decreasing, and low-decreasing attendance groups in middle school.

Linking School Characteristics to Shifting Attendance Trajectory Classes

Our final research question investigated the extent to which school contexts mattered for shifts in attendance trajectory classes from middle to high school.

Independent effects of changing contexts—We first conducted exploratory crosstabulations and chi-square tests to examine the independent effects of changes in each school structural characteristic. Estimates for these models are presented in Tables 5a and 5b. In general, we found that students whose middle *and* high schools were small, were segregated, served larger percentages of economically disadvantaged students, and had less experienced teachers were more likely than other students to shift to a lower attendance trajectory and they were the least likely to shift to a higher attendance trajectory. In contrast, students whose middle *and* high schools were large, diverse, and affluent and had experienced teachers were most likely to shift to a higher attendance class and least likely to shift to a lower attendance trajectory.

For students who experienced variability in structural characteristics from middle to high school, attendance trajectories generally improved when students moved from middle schools that were small or segregated, that served more economically disadvantaged students, or that had less experienced teachers to high schools that were large or diverse, that served more affluent students, or had more experienced teachers. The reverse experience (e.g., moving from an affluent middle school to a more economically disadvantaged high school) was generally linked to shifts to lower attendance classes.

Conjoint and conditional effects of changing contexts—We next captured the changing school contexts through structural characteristic difference scores (e.g., high school size minus middle school size) using multinomial logistic regressions. In these analyses, we included all school structural characteristics simultaneously, and the models integrated attendance disruptions across the transition and all control variables as predictors.

As seen in the middle portion of Tables 4a and 4b, differences in school size and racial/ethnic diversity were related to trajectory class membership. Specifically, greater increases in school size over the transition were associated with a lower likelihood of moving from the stable-high class to either the high-decreasing or mid-decreasing class in high school. Similarly, greater increases in school diversity were linked to greater likelihood of shifting from the stable-high to the high-decreasing class and less likelihood of shifting from the mid-decreasing to the stable-high class. Changes in school SES and teacher experience were not associated with shifting attendance patterns.

We then investigated whether the influences of changing school contexts were conditioned by the kinds of middle schools students attended. As displayed in the bottom panels of Tables 4a and 4b, significant interactions emerged for teacher experience and school SES. Follow-up simple slope analyses showed that, for students with highly experienced teachers in middle school, increases in teacher experience from middle to high school were associated with an increased likelihood of moving from the high-decreasing attendance trajectory in middle school to the stable-high attendance trajectory in high school ($OR = 1.12, p < .05$; see Figure 2a). Students with less experienced middle school teachers did not show similar gains from increased teacher experience from middle to high school ($OR = 1.02, p = .67$). We observed a similar pattern for students' likelihood of shifting from the low-decreasing attendance trajectory to the mid-decreasing trajectory from middle to high school (i.e., benefits of improving teacher experience from middle to high school for students with more but not less experienced teachers; $OR = 1.04, p < .05$), although follow-up simple slope analyses were non-significant.

In regard to school SES, as shown in Figure 2b, for students who attended middle school with more low-SES peers, greater increases in the percentage of students receiving FRPL across the high school transition was associated with a higher likelihood of shifting from the stable-high attendance trajectory in middle school to the low-decreasing trajectory in high school ($OR = 2.13, p < .01$). Students attending more affluent middle schools were unaffected by the declines in school SES from middle to high school ($OR = .92, p = .77$).

Discussion

School attendance is a serious concern for parents, educators, and policymakers, and understanding the developmental progression of attendance is critical to identifying those students at greatest educational risk. The current study sought to comprehensively examine adolescents' school attendance during middle school, across the high school transition, and during high school. Our findings document that the general decline in attendance from 6th to 12th grade masked important variation for certain subpopulations of students. In total, 44% of students maintained their attendance trajectories from middle to high school, and shifting attendance trajectories often signaled greater school disengagement. Transition experiences and shifting school contexts provided key insights into who was most at risk for heightened school disengagement following the move to high school.

Linking Attendance Trajectories with High School Transition Disruptions

Taking the transition and attendance trajectory results as a whole, our findings suggest that the transition to high school can disrupt school engagement, but not uniformly for all students. For a large subset of students, school attendance remained consistently high across the transition to high school and these levels were maintained or decreased slightly across high school. These students may be benefiting from cumulative advantage; according to life course theory, early educational success essentially begets later success (Elder, 1998), and these accumulated educational advantages may buffer highly engaged students from the

normative disruptions associated with life course transitions such as the move to high school.

In contrast, students who experienced the greatest attendance declines across the high school transition were substantially more likely to shift to more problematic attendance trajectories in high school. This was particularly evident for those students who exhibited mid-decreasing or low-decreasing attendance during middle school. These students are seemingly at the other end of the continuum described by life course theory, one of accumulating disadvantage. For these students, the high school transition served as an additional educational stressor, further disrupting already challenged educational trajectories. This is key given when we consider the educational implications for these students, particularly in regard to decisions to persist or drop out of school. Life course theory suggests that school dropout is best conceptualized as a process that unfolds over time (Elder, 1998; Rumberger & Larson, 1998), where the educational challenges students experience across their school careers slowly accumulate and ultimately lead to dropout decisions. The findings reported here provide further evidence for this conceptualization, as within the low-decreasing attendance group, the transition to high school seemingly served as a developmental turning point (Rutter, 1996), where greater transition disruptions in attendance differentiated those students who persisted in school from those who dropped out.

Attendance Trajectories and the School Context

When investigating links between schools' characteristics and students' attendance trajectories, it was the structural difference between students' middle schools and high schools that explained changes in attendance over time. Such findings are consistent with life course theory and its attention to the divergence of sending and receiving contexts for negotiation of life transitions (Caspi & Moffitt, 1993). Further, when examining the independent effects of the changing structural characteristics, developmental fit (Eccles & Roeser, 2009) played an important role in students' transition experiences. When students moved to high schools that were more in line with their developmental needs than their middle schools, their attendance trajectories were more commonly maintained or improved. In contrast, when high schools were an even poorer developmental fit than their middle schools, students' attendance suffered. This is particularly relevant given that we specifically focused on structural characteristics as they are more amenable to policy intervention (Crosnoe et al., 2004), and the work reported here suggests that focusing on enhancing racial/ethnic and socioeconomic diversity and promoting teacher retention may be potentially important policy strategies to enhance students' attendance.

In examining the conjoint and conditional effects of changing school structural characteristics, four particular findings were of note. First, increasing school size seemed to promote more positive attendance trajectories from middle to high school. Debates around school size have persisted for decades, contrasting the economy of scale benefits of larger schools with the personal attention of smaller learning communities (Leithwood & Jantzi, 2009). Recent research suggests that moderate school size is ideal for students' academic achievement and socioemotional well-being (Lee & Smith, 1997; Weiss, Carolan, & Baker-Smith, 2010). The benefits of school size we observed may be, in part, due to the restricted size range of the sampled schools, as the largest high school enrolled 2,800 students, and on average the high schools enrolled approximately 1,800 students. The larger schools in our sample also tended to serve more racially/ethnically diverse student bodies and earn higher academic accountability ratings, both of which would also promote student achievement and engagement.

Second, we observed that when students attended high schools that were more racially/ethnic diverse than their middle schools, they were more likely to exhibit declining attendance across the transition. Although racial/ethnic diversity in schools confers advantages both in terms of academic achievement (Gurin et al., 2002) and interracial relations (Goldsmith, 2004), it is not without its challenges. As diversity increases, representation of any one race/ethnic group declines, and thus students in more racially/ethnically diverse schools have fewer same-race/ethnic peers. Given that shared race/ethnicity is one of the strongest determinants of friendship formation and maintenance (Aboud, Mendelson, & Purdy, 2003), it may be that students who move to more diverse contexts may find it difficult to fit in and find their niche, and thus it is this feeling of misfit and cumulative stress that accompanies greater diversity that leads students to disengage from school.

Third, we observed particular advantages of improving teacher experience from middle to high school for those students who had more experienced middle school teachers. However, attendance trajectories were not affected by increasing teacher experience for those students whose middle school teachers were less experienced. This finding is consistent with life course theory's concept of accumulating advantage, whereby advantage begets advantage (Elder, 1998). In this case, it may be that students who are exposed to high-quality teachers learn in middle school how to best capitalize on the benefits of having such teachers, and thus are well-positioned in high school to continue to maximize these benefits. In contrast, students with less experienced teachers do not build these skills and thus when exposed to higher quality teachers in high school, these students may not be as equipped to solicit the support necessary to benefit from the improved quality (see Roderick, 2003).

Finally, we found that declining school SES from middle to high school was a particular risk factor for those students in lower-SES middle schools. This is consistent with a large empirical literature highlighting the extensive challenges that students in under-resourced schools face both academically and socioemotionally (Rothstein, 2004). It is also reflective of accumulating disadvantage (Elder, 1998), as students in the current study who are continually enrolled in low-SES schools are clearly disengaging from the educational context. Taken together, our findings suggest that intervention efforts seeking to promote students' behavioral engagement might benefit from increased attention to maximizing the fit between students' developmental needs and the affordances and structures of schools and specifically targeting students whose school contexts shift in directions that make them a poorer fit with students' developmental needs. It also suggests that attention to the demographic diversity of schools' student bodies should remain at the forefront of policy debates around school assignments.

Caveats, Limitations, and Implications

Although the current study provides a more nuanced understanding of students' behavioral engagement, some caveats and limitations should be noted. First, in the current study, we are unable to distinguish between students who are truant (and who thus have unexcused absences) versus those absent with excused causes, such as medical problems (Kearney, 2008). Given prior work documenting students with greater absences tended to be absent for unexcused reasons (Gottfried, 2009) in combination with the fact that the trajectories in our sample often include students with rather poor attendance (either at one time point or consistently across high school), we feel more confident that these absences are a signal of disengagement from school and thus serve as a warning sign identifying students at educational risk. Regardless, distinguishing between excused and unexcused absences when exploring engagement trajectories is an important next empirical step.

Moving to the school context, although school structural characteristics were useful in distinguishing between some attendance trajectory groups, much is left to understand regarding the links between school context and behavioral engagement trajectories. Development unfolds within social spaces, and individuals' development is inextricably linked to their interpersonal interactions (i.e., linked lives; Elder, 1998). These interactions and linked lives are, in essence, the mediators that explain the mechanisms by which structural characteristics exert their influence (Benner, Graham, & Mistry, 2008). Measures of linked lives were not available in the current study, nor were more comprehensive measures of developmental fit, but future research with such data may be able to shed light on the divergent behavioral engagement trajectories observed in the current study.

Regarding the larger social context, life course theory suggests that the salience of stratification markers, such as race/ethnicity or SES, may be more or less pronounced depending on the composition of the larger sociocultural context (Schiller, 1999; Schulenberg & Maggs, 2002). As such, understanding the intersection between stratification markers and school composition (a person-context interaction) may offer critical insights into individuals' development. For example, when students experience race/ethnic incongruence—that is, substantial declines in their same-ethnic representation as they transition from middle to high school—attendance can be particularly disrupted (Benner & Graham, 2009). Similarly, when low-income students attend high school with more middle- or high-income peers, they experience more academic and socioemotional difficulties (Cronsoe, 2009). In the current study, we did not have a sufficient number of racially/ethnically incongruent students to explore this person-context interaction, nor did we have data on family income at the student or school level to enable us to explore SES incongruence. However, such work should be pursued in future studies that include larger samples with more diverse feeder patterns and more extensive race/ethnicity and SES data. Such larger samples would also enable us to capture greater diversity of other school structural characteristics and changing school structural characteristics from middle to high school, allowing for replication and extension of the current findings. Our data also do not provide information regarding possible educational interventions occurring at the schools under study. Districts across the nation have implemented truancy and dropout prevention programming, and these efforts can have positive effects on students' behavioral engagement (e.g., Goldstein et al., 2003; Kearney, 2008). Future studies of behavioral engagement should integrate data on intervention participation.

At the same time, the results reported in the current study provide key insights for those designing intervention programs. Our findings suggest that while dropout prevention programming should place particular attention on those students displaying initially low levels of behavioral engagement at the beginning of high school, interventions must also be sensitive enough to target students at any point in high school when they seem to be falling off track and disengaging from school. By taking the longer view on behavioral disengagement proposed by life course theory and illustrated in the current study, educators can better identify students at risk and ensure greater academic success for all students.

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a.

b.

Figure 1.

a Growth mixture model results for adolescents' school attendance in middle school.

b Growth mixture model results for adolescents' school attendance in high school.

a.

b.

Figure 2.

a. Odds ratio for the interaction effect between teacher experience in middle school and changes in teacher experience across transition on students' likelihood to shift from the high-decreasing attendance class in middle school to the stable-high class in high school versus staying in the high-decreasing class in high school.

b. Odds ratio for the interaction effect between FRPL percentage in middle school and changes in FRPL percentage across transition on students' likelihood to shift from the stable-high attendance class in middle school to the mid-decreasing class in high school versus staying in the stable-high class in high school.

Table 1

Descriptive Statistics for Study Variables

Variable	<i>N</i>	%	<i>M</i>	<i>SD</i>
Adolescent Attendance				
6 th grade	7,946		96.12	4.90
7 th grade	8,444		95.27	5.93
8 th grade	8,908		94.09	7.64
9 th grade	8,807		92.09	11.72
10 th grade	8,766		88.80	17.22
11 th grade	8,239		85.86	21.83
12 th grade	7,709		81.17	26.56
Attendance change over the transition	8,807		2.02	8.49
Adolescent Characteristics				
White	8,907	31.03		
African American	8,907	12.90		
Latino American	8,907	53.76		
Asian American	8,907	2.30		
Gender (female)	8,907	47.74		
Economically disadvantaged	8,907	54.23		
Immigrant	8,907	3.77		
GPA in 8 th grade	8,893		2.46	.73
Ever in alternative school	8,908	19.37		
Middle School Characteristics ^a				
School size	8,906		964.78	231.65
Average teacher experience (in years)	8,897		10.86	2.22
Diversity of student body	8,906		0.49	0.12
School SES (% receiving FRPL)	8,906		57.82	28.66
High School Characteristics ^a				
School size	8,908		1835.88	672.97
Average teacher experience (in years)	8,906		11.65	2.04
Diversity of student body	8,908		0.51	0.10
School SES (% receiving FRPL)	8,908		46.78	25.68
School Demographic Change Scores ^a				
School size	8,906		871.38	637.61
Average teacher experience (in years)	8,895		0.79	2.54
Diversity of student body	8,906		0.02	0.11
School SES (% receiving FRPL)	8,906		-11.05	20.04

Note. Total possible *N* = 8,908. Attendance change over the transition = 9th grade attendance minus 8th grade attendance. FRPL = Free or Reduced-price Lunch.

^aDescriptive statistics for school variables reported at the individual (adolescent) level.

Table 2

Growth Mixture Modeling Results for Attendance Trajectories in Middle and High School

	1 class	2 classes	3 classes	4 classes	5 classes
Middle School					
Loglikelihood	-76238.6	-65710.8	-63478.4	-62635.5	-62200.2
Number of parameters	8	17	26	35	44
BIC	152550.0	131576.2	127193.3	125589.2	124782.4
ABIC	152524.6	131522.2	127110.7	125478.0	124648.9
Entropy	--	0.84	0.77	0.76	0.75
LMR p-value	--	0.03	0.00	0.05	0.19
High School					
Loglikelihood	-113466.1	-97271.5	-94188.0	-93047.1	-92498.1
Number of parameters	12	25	38	51	64
BIC	227040.6	194768.8	188719.1	186554.7	185574.1
ABIC	227002.4	194689.3	188598.4	186392.7	185370.7
Entropy	--	0.90	0.85	0.82	0.79
LMR p-value	--	0.02	0.01	0.01	0.72

Movers and Stayers in Attendance Trajectory Classes from Middle to High School (*N* = 8,908)

Table 3

		High School									
		Stable-High		High-Decreasing		Mid-Decreasing		Low-Decreasing		Dropout	
Middle School		%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>
Stable-High		11.4	1018	7.3	653	2.4	212	0.8	67	0.1	12
High-Decreasing		8.6	770	19.0	1690	10.5	936	3.8	335	1.2	103
Mid-Decreasing		0.7	62	6.8	607	10.0	892	7.1	636	2.3	208
Low-Decreasing		0.0	3	0.3	31	1.2	109	3.6	322	2.7	242

Table 4

a Multinomial logistic regression predicting attendance class membership by school structural characteristics for students in stable-high and high-decreasing attendance trajectories in middle school

High School Attendance Class	Stable-High in Middle School			High-Decreasing in Middle School			
	High-Decreasing vs. Stable-High	Mid-Decreasing vs. Stable-High	Low-Decreasing vs. Stable-High	Stable-High vs. High-Decreasing	Mid-Decreasing vs. High-Decreasing	Low-Decreasing vs. High-Decreasing	Dropout vs. High-Decreasing
Predictors	OR(CI)	OR(CI)	OR(CI)	OR(CI)	OR(CI)	OR(CI)	OR(CI)
<i>Attendance Disruptions across the High School Transition</i>							
	1.77*** (1.64–1.90)	2.13*** (1.96–2.32)	2.50*** (2.29–2.73)	0.79*** (0.76–0.82)	1.26*** (1.23–1.30)	1.51*** (1.45–1.57)	1.54*** (1.46–1.61)
<i>Middle School Characteristics</i>							
School Size	0.79 (0.44–1.43)	0.48 (0.23–1.00)	0.65 (0.09–4.72)	1.46 (0.83–2.54)	1.24 (0.65–2.35)	0.66 (0.20–2.13)	1.16 (0.32–4.23)
Teacher Exp.	1.00 (0.92–1.09)	1.02 (0.89–1.17)	1.26 (0.90–1.76)	1.10 (0.99–1.23)	1.01 (0.88–1.16)	1.10 (0.89–1.35)	1.20 (0.90–1.60)
Diversity	1.12 (0.98–1.28)	0.94 (0.76–1.15)	1.03 (0.63–1.70)	0.84* (0.72–0.99)	1.01 (0.84–1.23)	0.93 (0.72–1.19)	0.87 (0.60–1.27)
School SES	0.99 (0.91–1.08)	1.06 (0.90–1.25)	1.68* (1.13–2.49)	1.00 (0.91–1.10)	1.12 (1.00–1.26)	1.28* (1.05–1.55)	1.24 (0.98–1.58)
<i>Changes in School Characteristics across Transition</i>							
School Size	0.78* (0.63–0.98)	0.57*** (0.40–0.81)	1.32 (0.52–3.33)	1.18 (0.98–1.41)	1.15 (0.92–1.45)	1.35 (0.95–1.92)	0.91 (0.54–1.54)
Teacher Exp.	0.99 (0.91–1.07)	1.02 (0.90–1.15)	1.17 (0.88–1.56)	1.07 (0.96–1.18)	0.98 (0.86–1.11)	1.04 (0.89–1.23)	1.12 (0.88–1.44)
Diversity	1.18* (1.03–1.36)	1.23 (0.88–1.70)	1.23 (0.71–2.12)	0.99 (0.84–1.16)	1.06 (0.93–1.21)	0.91 (0.74–1.11)	1.04 (0.74–1.46)
School SES	0.97	0.95	1.50	1.07	1.06	1.13	1.07

a Multinomial logistic regression predicting attendance class membership by school structural characteristics for students in stable-high and high-decreasing attendance trajectories in middle school

High School Attendance Class	Stable-High in Middle School			High-Decreasing in Middle School		
	High-Decreasing vs. Stable-High	Mid-Decreasing vs. Stable-High	Low-Decreasing vs. Stable-High	Stable-High vs. High-Decreasing	Mid-Decreasing vs. High-Decreasing	Low-Decreasing vs. High-Decreasing
Predictors	OR(CI)	OR(CI)	OR(CI)	OR(CI)	OR(CI)	OR(CI)
<i>Interaction</i>						
School Size	0.43 (0.15–1.20)	0.39 (0.09–1.63)	0.12 (0.01–2.68)	0.50 (0.19–1.27)	1.73 (0.82–3.62)	1.13 (0.38–3.37)
Teacher Exp.	0.99 (0.97–1.01)	1.00 (0.97–1.03)	1.03 (0.96–1.11)	1.02* (1.00–1.04)	0.98 (0.96–1.01)	0.97 (0.92–1.02)
Diversity	1.04 (0.97–1.13)	1.04 (0.90–1.21)	0.87 (0.72–1.05)	1.00 (0.93–1.07)	1.00 (0.91–1.11)	0.94 (0.81–1.09)
School SES	1.03 (1.00–1.06)	1.03 (0.99–1.08)	1.16** (1.07–1.27)	1.00 (0.97–1.02)	1.02 (1.00–1.04)	1.02 (0.98–1.07)

b Multinomial logistic regression predicting attendance class membership by school structural characteristics for students in mid-decreasing and low-decreasing attendance trajectories in middle school

High School Attendance Class	Mid-Decreasing in Middle School			Low-Decreasing in Middle School		
	Stable-High vs. Mid-Decreasing	High-Decreasing vs. Mid-Decreasing	Low-Decreasing vs. Mid-Decreasing	Dropout vs. Mid-Decreasing	Mid-Decreasing vs. Low-Decreasing	Dropout vs. Low-Decreasing
Predictors	OR(CI)	OR(CI)	OR(CI)	OR(CI)	OR(CI)	OR(CI)
<i>Attendance Disruptions across the High School Transition</i>						
School Size	0.86*** (0.82–0.90)	0.90*** (0.88–0.92)	1.18*** (1.15–1.21)	1.22*** (1.19–1.25)	0.95*** (0.94–0.97)	1.01 (1.00–1.02)
<i>Middle School Characteristics</i>						

b Multinomial logistic regression predicting attendance class membership by school structural characteristics for students in mid-decreasing and low-decreasing attendance trajectories in middle school

High School Attendance Class	Mid-Decreasing in Middle School			Low-Decreasing in Middle School		
	Stable-High vs. Mid-Decreasing	High-Decreasing vs. Mid-Decreasing	Low-Decreasing vs. Mid-Decreasing	Dropout vs. Mid-Decreasing	Mid-Decreasing vs. Low-Decreasing	Dropout vs. Low-Decreasing
Predictors	OR(CI)	OR(CI)	OR(CI)	OR(CI)	OR(CI)	OR(CI)
School Size	0.50 (0.07 – 3.70)	0.96 (0.50 – 1.85)	0.96 (0.62 – 1.48)	0.71 (0.31 – 1.63)	1.59 (0.53 – 4.73)	0.58 (0.28 – 1.19)
Teacher Exp.	1.19 (0.84 – 1.68)	0.99 (0.86 – 1.15)	1.02 (0.90 – 1.15)	0.89 (0.76 – 1.05)	1.08 (0.84 – 1.41)	0.96 (0.80 – 1.14)
Diversity	0.65 (0.40 – 1.06)	0.89 (0.71 – 1.12)	1.01 (0.85 – 1.20)	0.76* (0.59 – 0.99)	1.10 (0.70 – 1.73)	0.95 (0.70 – 1.27)
School SES	0.85 (0.60 – 1.19)	0.89 (0.78 – 1.03)	1.13 (0.99 – 1.29)	0.89 (0.71 – 1.12)	0.98 (0.74 – 1.29)	0.99 (0.80 – 1.22)
<i>Changes in School Characteristics across Transition</i>						
School Size	0.53 (0.24 – 1.19)	0.92 (0.67 – 1.28)	0.98 (0.75 – 1.30)	0.66 (0.43 – 1.01)	1.24 (0.65 – 2.39)	0.83 (0.59 – 1.15)
Teacher Exp.	1.27 (0.95 – 1.71)	0.97 (0.84 – 1.12)	1.04 (0.93 – 1.18)	0.88 (0.74 – 1.04)	1.05 (0.82 – 1.33)	0.94 (0.81 – 1.09)
Diversity	0.48* (0.27 – 0.87)	0.82 (0.66 – 1.01)	1.03 (0.86 – 1.23)	0.88 (0.69 – 1.12)	0.80 (0.55 – 1.18)	0.87 (0.69 – 1.10)
School SES	0.98 (0.66 – 1.46)	0.91 (0.79 – 1.04)	1.09 (0.95 – 1.26)	0.86 (0.69 – 1.08)	0.94 (0.65 – 1.37)	0.90 (0.73 – 1.10)
<i>Interaction</i>						
School Size	2.69 (0.09 – 83.52)	1.69 (0.62 – 4.62)	0.80 (0.39 – 1.66)	0.58 (0.18 – 1.87)	1.15 (0.40 – 3.32)	1.65 (0.90 – 3.02)
Teacher Exp.	1.01 (0.95 – 1.07)	1.00 (0.97 – 1.02)	1.01 (0.98 – 1.03)	0.99 (0.96 – 1.03)	1.04* (1.00 – 1.08)	1.01 (0.98 – 1.04)
Diversity	0.86	0.95	1.00	1.02	1.03	0.95

b Multinomial logistic regression predicting attendance class membership by school structural characteristics for students in mid-decreasing and low-decreasing attendance trajectories in middle school

High School Attendance Class	Mid-Decreasing in Middle School			Low-Decreasing in Middle School		
	Stable-High vs. Mid-Decreasing	High-Decreasing vs. Mid-Decreasing	Low-Decreasing vs. Mid-Decreasing	Dropout vs. Mid-Decreasing	Mid-Decreasing vs. Low-Decreasing	Dropout vs. Low-Decreasing
Predictors	<i>OR(CI)</i>	<i>OR(CI)</i>	<i>OR(CI)</i>	<i>OR(CI)</i>	<i>OR(CI)</i>	<i>OR(CI)</i>
School SES	(0.72 – 1.03) 0.99 (0.91 – 1.09)	(0.88 – 1.02) 0.99 (0.97 – 1.01)	(0.94 – 1.07) 1.01 (0.99 – 1.03)	(0.93 – 1.11) 1.02 (0.98 – 1.06)	(0.91 – 1.17) 0.97 (0.92 – 1.02)	(0.87 – 1.04) 1.00 (0.97 – 1.04)

Note. Main effects of middle school characteristics and changing school characteristics were estimated without interaction terms. School SES = percent of students qualifying for Free- or Reduced-Price Lunch.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Note. Main effects of middle school characteristics and changing school characteristics were estimated without interaction terms. School SES = percent of students qualifying for Free- or Reduced-Price Lunch. Exp = experience.

* $p < .05$.

** $p < .01$.

*** $p < .001$; significant results are also in bold.

Table 5

a Crosstabs of attendance class membership and four-category changing school contexts among students in the stable-high and high-decreasing classes in middle school

	Stable-High in Middle School						High-Decreasing in Middle School					
	stable-high	high-decr	mid-decr	low-decr	dropout	total	high-decr	stable-high	mid-decr	low-decr	dropout	total
<i>School Size</i>	χ^2	23.7***	69.7***	63.0***	-- ^a			25.3***	58.7***	123.0***	41.2***	
Low-Low	N	225	191	98	43	563	427	148	350	178	54	1157
	%	40%	34%	17%	8%	100%	37%	13%	30%	15%	5%	100%
Low-High	N	172	123	39	9	345	349	147	175	50	18	739
	%	50%	36%	11%	3%	100%	47%	20%	24%	7%	2%	100%
High-Low	N	185	134	39	8	369	234	85	150	53	14	536
	%	50%	36%	11%	2%	100%	44%	16%	28%	10%	3%	100%
High-High	N	436	205	36	7	685	680	390	261	54	17	1402
	%	64%	30%	5%	1%	100%	49%	28%	19%	4%	1%	100%
<i>Diversity</i>	χ^2	9.4	65.3***	72.1***	-- ^a			3.3	72.5***	119.7***	51.9***	
Low-Low	N	198	151	87	42	481	363	147	324	160	52	1046
	%	41%	31%	18%	9%	100%	35%	14%	31%	15%	5%	100%
Low-High	N	197	150	56	10	417	324	140	201	68	22	755
	%	47%	36%	13%	2%	100%	43%	19%	27%	9%	3%	100%
High-Low	N	163	101	20	8	295	316	143	155	50	9	673
	%	55%	34%	7%	3%	100%	47%	21%	23%	7%	1%	100%
High-High	N	460	251	49	7	769	687	340	256	57	20	1360
	%	60%	33%	6%	1%	100%	51%	25%	19%	4%	1%	100%
<i>Teacher Exp.</i>	χ^2	8.9	37.1***	43.9***	-- ^a			25.1***	57.7***	73.1***	14.5	
Low-Low	N	220	153	82	36	494	384	129	287	126	37	963
	%	45%	31%	17%	7%	100%	40%	13%	30%	13%	4%	100%
Low-High	N	275	169	42	8	498	480	204	204	58	23	969
	%	55%	34%	8%	2%	100%	50%	21%	21%	6%	2%	100%
High-Low	N	189	152	48	16	408	327	137	251	100	25	840
	%	46%	37%	12%	4%	100%	39%	16%	30%	12%	3%	100%

a Crosstabs of attendance class membership and four-category changing school contexts among students in the stable-high and high-decreasing classes in middle school

	Stable-High in Middle School						High-Decreasing in Middle School					
	stable-high	high-decr	mid-decr	low-decr	dropout	total	high-decr	stable-high	mid-decr	low-decr	dropout	total
High-High	N 334	179	40	7	2	562	498	300	194	51	18	1061
	% 59%	32%	7%	1%	0%	100%	47%	28%	18%	5%	2%	100%
School SES	χ^2	12.6	69.4***	84.6***	--a			16.9	75.3***	152.3***	59.8***	
Low-Low	N 588	326	64	12	1	991	917	482	348	65	20	1832
	% 59%	33%	6%	1%	0%	100%	50%	26%	19%	4%	1%	100%
Low-High	N 111	68	18	3	1	201	164	69	111	42	8	394
	% 55%	34%	9%	1%	0%	100%	42%	18%	28%	11%	2%	100%
High-Low	N 98	81	39	4	3	225	168	69	108	42	16	403
	% 44%	36%	17%	2%	1%	100%	42%	17%	27%	10%	4%	100%
High-High	N 221	178	91	48	7	545	441	150	369	186	59	1205
	% 41%	33%	17%	9%	1%	100%	37%	12%	31%	15%	5%	100%

b Crosstabs of attendance class membership and four-category changing school contexts among students in the mid-decreasing and low-decreasing classes in middle school

	Mid-Decreasing in Middle School						Low-Decreasing in Middle School					
	mid-decr	stable-high	high-decr	low-decr	dropout	total	low-decr	stable-high	high-decr	mid-decr	dropout	total
School Size	χ^2	10.9	17.2	50.5***	34.1***			--a	--a	8.4	8.1	
Low-low	N 341	17	185	339	116	998	184	1	11	55	156	407
	% 34%	2%	19%	34%	12%	100%	45%	0%	3%	14%	38%	100%
Low-high	N 177	7	119	80	29	412	41	0	5	15	21	82
	% 43%	2%	29%	19%	7%	100%	50%	0%	6%	18%	26%	100%
High-low	N 112	8	66	99	35	320	47	2	5	10	42	106
	% 35%	3%	21%	31%	11%	100%	44%	2%	5%	9%	40%	100%
High-high	N 262	30	237	118	28	675	49	0	10	29	22	110
	% 39%	4%	35%	17%	4%	100%	45%	0%	9%	26%	20%	100%
Diversity	χ^2	17	9.7	35.5***	37.4***			--a	--a	4.6	2.3	
Low-low	N 272	13	171	276	108	840	134	0	13	45	105	297

b Crosstabs of attendance class membership and four-category changing school contexts among students in the mid-decreasing and low-decreasing classes in middle school

		Mid-Decreasing in Middle School						Low-Decreasing in Middle School					
		mid-decr	stable-high	high-decr	low-decr	dropout	total	low-decr	stable-high	high-decr	mid-decr	dropout	total
Low-high	%	32%	2%	20%	33%	13%	100%	45%	0%	4%	15%	35%	100%
	N	198	4	106	132	41	481	61	0	4	17	42	124
	%	41%	1%	22%	27%	9%	100%	49%	0%	3%	14%	34%	100%
High-low	N	166	15	116	114	27	438	74	2	8	20	64	168
	%	38%	3%	26%	26%	6%	100%	44%	1%	5%	12%	38%	100%
	N	256	30	214	114	32	646	52	1	6	27	30	116
High-high	%	40%	5%	33%	18%	5%	100%	45%	1%	5%	23%	26%	100%
	χ^2		7.1	11.6	23.1***	20.3***			-- ^a	-- ^a	7.7	0.6	
Teacher Exp.	N	272	17	141	250	95	775	119	1	12	40	86	258
	%	35%	2%	18%	32%	12%	100%	46%	0%	5%	16%	33%	100%
	N	205	14	166	121	36	542	55	1	5	25	38	124
Low-high	%	38%	3%	31%	22%	7%	100%	44%	1%	4%	20%	31%	100%
	N	217	9	145	172	49	592	91	1	9	19	74	194
	%	37%	2%	24%	29%	8%	100%	47%	1%	5%	10%	38%	100%
High-high	N	197	22	155	93	28	495	50	0	5	25	40	120
	%	40%	4%	31%	19%	6%	100%	42%	0%	4%	21%	33%	100%
School SES	χ^2		17.8***	23.1***	66.4***	37.5***			-- ^a	-- ^a	20.6***	3.8	
	N	330	38	299	121	35	823	52	1	9	40	26	128
	%	40%	5%	36%	15%	4%	100%	41%	1%	7%	31%	20%	100%
Low-low	N	82	7	52	82	25	248	45	1	5	13	32	96
	%	33%	3%	21%	33%	10%	100%	47%	1%	5%	14%	33%	100%
	N	123	2	65	77	24	291	54	0	3	12	42	111
High-low	%	42%	1%	22%	26%	8%	100%	49%	0%	3%	11%	38%	100%
	N	357	15	191	356	124	1043	170	1	14	44	141	370
	%	34%	1%	18%	34%	12%	100%	46%	0%	4%	12%	38%	100%

Note. Decr = Decreasing, Exp. = Experience. Chi-square tests compared the likelihood of shifting to a different attendance class in high school relative to remaining in the same attendance class at varying types of changing school contexts across the high school transition. Due to the number of tests conducted, we identified significant findings based on a Bonferroni family-wise $p < .001$ (Shaffer, 1995).

^a Chi-square tests were not reported due to limited group size.

 $p < .001$.

Note. Decr = Decreasing, Exp. = Experience. Chi-square tests compared the likelihood of shifting to a different attendance class in high school relative to remaining in the same attendance class at varying types of changing school contexts across the high school transition. Due to the number of tests conducted, we identified significant findings based on a Bonferroni family-wise $p < .001$ (Shaffer, 1995).

^a Chi-square tests were not reported due to limited group size.

 $p < .001$.