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Equity, Connection, and Engagement in the School Context to Promote Positive Youth Development

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Connection to school and school engagement are important in promoting positive youth development, but little is known about their relationship to school characteristics, particularly school equity. School equity, the extent to which there is fair treatment for all students, is critical for ensuring the success for all students. Hierarchical linear models conducted on data from 19,833 adolescents at 52 high schools indicated that greater school equity was associated with improved student connection to school and school engagement. Cross-level interactions were observed between equity and the concentration of minority students in the school, as well as for equity and student mobility. Results suggest that improving school equity may be an important contextual target for promoting positive youth development in schools.

There is increasing interest in identifying the conditions and behaviors that promote positive adolescent development (Catalano, Berglund, Ryan, Lonczak, & Hawkins, 2004). This work has been subsumed under the heading of positive youth development and is based on the belief that successful adult development is not the absence of involvement in risk behaviors, but the presence of developmentally appropriate skills (Guerra & Bradshaw, 2008; Lerner & Benson, 2003). A burgeoning body of literature provides evidence that supporting normative development can be a mechanism by which to both promote positive academic outcomes and reduce involvement in negative behaviors (Guerra & Bradshaw, 2008). Therefore, schools are an important context for adolescent development and the promotion of positive youth outcomes (Catalano, Habberty, Oesterle, Fleming, & Hawkins, 2004; Cohen, McCabe, Michelli, & Pickeral, 2009; Eccles et al., 1993; Zullig, Huebner, & Patton, 2011).

Adolescents' connection to teachers and staff and their school engagement are critical elements that are often targeted to improve outcomes for youth (U.S. Department of Education, 2009). For example, research suggests that student connections and school engagement are predictive of decreased dropout and increased graduation rates among adolescents (Hunt et al., 2002; Janosz, Archambault, Morizot, & Pagani, 2008). However, research also shows that there are differences in perceptions of connection to and engagement with their learning environment based on student characteristics, such as racial or ethnic background, socioeconomic status, and gender (Bonny, Britto, Klostermann, Hornung, & Slap, 2000; McNeely, Nonnemaker, & Blum, 2002; Weiss, Carolan, & Baker-Smith, 2010). Given the rapidly increasing diversity of the U.S. population and growing minority population in public schools (Crouch, 2012) and research on disparities in educational outcomes and discipline for minority youth (e.g., Skiba, Michael, Nardo, & Peterson, 2002), additional studies are needed to understand how students of diverse backgrounds perceive their school environment.

The term "equity" can be defined as "social justice or fairness" (Braveman & Gruskin, 2003), which suggests a somewhat moral and ethical responsibility to avoid the unfair treatment of all individuals. In relation to education and the school

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context, equity does not mean treating all students in exactly the same way, but rather treating students fairly by ensuring that each student receives what they need to be successful. The current study examines adolescents' perceptions of their school's equity in relation to their perceptions of engagement and connection to the school. Few studies have investigated how perceptions of equity may be associated with other indicators of positive youth development. This study adds to the increasing research highlighting how students of diverse backgrounds are able to fully participate in the school environment. This work has important implications for promoting effective youth development by strengthening all adolescents' abilities to thrive in their academic environments.

THE IMPORTANCE OF SCHOOL EQUITY

Schools' ability to create a climate where all adolescents regardless of race, ethnicity, gender, and socioeconomic status can succeed is the hallmark of public education (National School Boards Association, 2012). Adolescents' perceptions of their school's equity can have great impact on a variety of positive outcomes. For example, perceptions of a fair classroom can enhance youth's motivation and effort (Rodabaugh & Kravitz, 1994), their academic performance (Marsh & Overall, 1980; Marsh & Roche, 1997; Walsh & Maffei, 1994), and their perceptions of connection with the instructor (Lowman, 1984; Walsh & Maffei, 1994). Despite the potential influence of adolescent perceptions of school equity, little research has explored how these perceptions may vary by race and gender and their relationship to other promotive factors for positive youth development (i.e., school connection and engagement) within schools.

There is some research which suggests that minority youth may be more sensitive to schools that exhibit inequities (Booker, 2006). For example, Black college students at predominately White institutions often describe their school climate as isolated and hostile and perceive unfair treatment by school staff and other students (Ancis, Sedlacek, & Mohr, 2000; Gossett, Cuyjet, & Cockriel, 1998; Rankin & Reason, 2005). Yet, White students more often report their school climate as fair and respectful of diversity when compared to students of other races or ethnicities (Ancis et al., 2000; Gossett et al., 1998; Rankin & Reason, 2005). Gregory and Weinstein (2008) found that Black high school youth exhibited more defiance with teachers who they perceived as unfair and untrustworthy in their use of authority. A similar trend can be found for gender and perceptions of equity and fairness. Females are more likely to report fair school environments, whereas males are more likely to report feeling more alienated from the school environment (Brown, Higgins, Pierce, Hong, & Thoma, 2003). Interestingly, these adolescent groups are also overrepresented in office referrals (Dunn, 1968; KewelRamani, Gilbertson, Fox, & Provasnik, 2007; Waitoller, Artiles, & Cheney, 2010). Adolescents who feel their school environment is characterized by unfair treatment may also report lower perceptions of school connection and academic motivation; this, in turn, may impact their ability to thrive in their school environment.

FACTORS PROMOTING POSITIVE YOUTH DEVELOPMENT

There is particular interest in different aspects of the school context in relation to various youth developmental and educational outcomes. In the current study, youths' perceptions of connection to the school and engagement were hypothesized to be associated with student equity; below, we consider evidence supporting the association of these school factors.

Student Connections

An important factor to address to promote positive adolescent development in the school context is student connection to the school (Bradshaw, O'Brennan, & McNeely, 2008). Building on previous research (Centers for Disease Control & Prevention, 2009), we define student connection to school as the belief by students that other students and adults in the school care about them as individuals. Although there remains some controversy surrounding the terminology and measurement of the construct (Barber & Schluterman, 2008; Libbey, 2004; Whitlock, 2006, 2007), several overarching themes have been identified that encapsulate the broad promotive effects of connection, including positive peer relationships, feelings of belongingness, and support from others. The importance of student connection to school is evident; it has been found to protect adolescents from many health risk behaviors, such as smoking, alcohol, and drug use (Catalano, Habberty, et al., 2004; Crooks, Scott, Wolfe, Chiodo, & Killip, 2007; Hawkins, Guo, Hill, Battin-Pearson, & Abbott, 2001; McNeely & Falci, 2004; Payne, Gainey, Triplett, & Danner, 2003; Resnick et al., 1997; Stewart, 2003). For instance,

McNeely and Falci (2004) found that students who felt their teacher cared about them and supported them were less likely to initiate cigarette smoking, drink to get drunk, or use marijuana. In addition, student connection to school is a strong predictor of adolescent academic outcomes, graduation rates, and reduced involvement in violence (Catalano, Habberty, et al., 2004; Crooks et al., 2007; Gottfredson, Kearley, Najaka, & Rocha, 2005; Hunt et al., 2002; Payne et al., 2003; Plank, Bradshaw, & Young, 2009; Welsh, 2003).

Interestingly, there is some evidence to suggest that student connections are influenced by school structural characteristics and individual student factors (Karcher & Sass, 2010; McNeely et al., 2002). School discipline policies have been shown to influence student connections to school, as students in schools which possess harsh discipline policies tend to report low connections to school (McNeely et al., 2002). McNeely et al. (2002) showed that as school size increased and racial integration decreased, reports of school connection also increased, such that students in smaller schools where the majority (80% or more) of the student population was Latino felt more attached to their school. Moreover, social disorganization theory (Shaw & McKay, 1942) suggests that school structural characteristics such as high student turnover (mobility), disciplinary actions, and low attendance rate can influence student connections and behavior problems (Birnbaum et al., 2003; Gregory, Cornell, & Fan, 2011; Plank et al., 2009). Gregory et al. (2011) demonstrated that lack of student connections to teachers and peers was associated with an increase in schoolwide suspension rates. McNeely et al. (2002) also found that females and Black students felt less connected to their schools when compared to males and Latino students. However, other studies have found that females report higher connections to peers, friends, schools, and teachers (Bonny et al., 2000; Karcher & Sass, 2010).

School Engagement

Another important indicator of a positive school environment to promote youth development is school engagement. School engagement is widely recognized as a multidimensional construct that generally measures students' involvement, commitment, and attention in school (Singh, Granville, & Dika, 2002). Three types of engagement (i.e., behavioral, emotional, and cognitive) are commonly examined when measuring student perceptions of engagement (Fredricks, Blumenfeld, & Paris, 2004). Behavioral engagement includes participation in academic and nonacademic activities, while emotional engagement incorporates students' beliefs about the school and teachers (Fredricks et al., 2004). Finally, cognitive engagement draws on students' investment or motivation to learning (Fredricks et al., 2004; Jimerson, 2003). Despite some debate in the conceptualization of school engagement, consensus is that student engagement is an integral component of student academic success (Goodenow, 1993; Klem & Connell, 2004; Lee & Smith, 1995; Willingham, Pollack, & Lewis, 2002). In addition, research has consistently demonstrated a relationship between school engagement and adolescent involvement in risk behaviors (Archambault, Janosz, Fallu, & Pagani, 2009; Christenson, Sinclair, Lehr, & Hurley, 2000; Doll & Hess, 2001; Finn, 1989; Janosz, LeBlanc, Boulerice, & Tremblay, 1997). For example, a survey of Canadian high school students showed that a three-dimensional measure of school engagement predicted student dropout (Archambault et al., 2009; Janosz et al., 2008).

Other school-level factors and individual factors may also play a role (Beets et al., 2008; Domitrovich et al., 2008) in understanding student engagement. For example, Weiss et al. (2010) found that moderately sized high schools (~ 600 students) provide the greatest engagement advantage to students when compared to small (~400) and large (~1000) high schools. In addition, in schools characterized as having high student mobility, all students are at increased risk of dropping out of school, which has been attributed to lower levels of school involvement or engagement (South, Haynie, & Bose, 2007). At the student level, preliminary evidence suggests that race and gender may influence perceptions of engagement. In a measurement study of school engagement (Wang, Willett, & Eccles, 2011), African American students have reported higher scores of emotional engagement, but lower scores of behavioral engagement when compared to Caucasian students. Similarly, girls reported higher behavioral and emotional engagement than boys (Wang et al., 2011).

CURRENT STUDY

Ensuring that all adolescents perceive a positive school environment (i.e., connected, engaged, and fair treatment by their teachers and schools) will help optimize the conditions to foster positive youth behavioral and academic outcomes (U.S. Department of Education, 2010). Toward this end,

the current study examined adolescents' perceptions of school equity in relation to their perceptions of connection and engagement within their school. Specifically, the following research questions were addressed: (1) "What is the relationship between adolescents' perceptions of school equity and their perceptions of connection with the school?"; (2) "What is the relationship between adolescents' perceptions of school equity and engagement?"; (3) "What is the interaction between school characteristics and adolescents' perceptions of school equity with school connection and engagement?" To address these questions, we drew upon a large sample of adolescents attending 52 high schools. Building on previous research by Booker (2006), we hypothesized that adolescents who perceive their school climate to be fair and equitable will also report a stronger connection to the school and be more engaged. It was also hypothesized that the relationship between perceptions of school equity with school connection and engagement would be stronger for minority and male students. Furthermore, based on social disorganization theory (Shaw & McKay, 1942) and previous research that links school-level characteristics (i.e., mobility and suspension rate) to student connections and engagement (Birnbaum et al., 2003; Plank et al., 2009; South et al., 2007), we hypothesized that high rates of mobility and suspensions would be associated with lower perceived connections and engagement among students.

TABLE 1
Student and School Demographic Characteristics

Student Characteristics (N = 19,833 Students)	N (%)
Gender	
Male	9868 (49.7)
Female	9965 (50.2)
Race or ethnicity	
American Indian or Alaskan Native	318 (1.6)
Asian or Pacific Islander	1002 (5.1)
Black or African American	6156 (31.0)
White or Caucasian	10146 (51.2)
Hispanic	940 (4.7)
Other	1271 (6.4)
Age[a]	15.98 (1.37)
School Characteristics (N = 52 Schools)	*M (SD)*
Student mobility	19.4 (10.6)
Free and reduced meals	36.6 (15.7)
% Minority	45.9 (26.9)
% Suspension	28.9 (15.9)
School enrollment	1325.3 (449.8)
Generalized variance index	.45 (.17)

Note. [a]Age represents mean with standard deviation in parentheses.

METHOD

Participants

Data came from 52 Maryland high schools in 10 counties participating in a statewide project focused on measuring and improving the school environment, called the Maryland Safe and Supportive Schools Initiative (MDS^3). Data were collected on 19,833 adolescents via a web-based survey administered in spring 2011. An average of 20.5 classrooms per school participated in the data collection. Youth and school demographic characteristics are presented in Table 1.

Procedure

Schools' participation in the MDS^3 project was voluntary. Districts were approached in an order of perceived need determined by the Maryland State Department of Education. Upon expressing interest in the MDS^3, district-specific principal meetings were conducted to obtain school-level commitment to the project. The anonymous, online survey was administered using a passive consent process and youth assent process, and all participation was voluntary. Letters were sent home to parents providing information about the survey and the larger initiative. The survey was administered online in language arts classrooms to approximately seven classrooms of 9th-grade students and six classrooms for all other grade levels of students (10th-, 11th-, and 12th-grade students). School staff administered the survey following a written protocol. The nonidentifiable data were obtained and approved by the institutional review board for analysis.

Measures

The MDS^3 Student Survey was developed by the Johns Hopkins Center for the Prevention of Youth Violence in collaboration with project partners. Researchers from the center undertook a comprehensive review of the literature focusing on several domains of the school environment emphasized by the U.S. Department of Education (U.S. Department of Education, 2009). Additionally, focus groups were held with students, district personnel, and school administrators to understand the operationalization of school contextual factors for each of the different stakeholders. For this article, we will

focus on understanding the relationship between three specific aspects of the school environment: school equity, student connection, and engagement. Student-level demographic variables used for these analyses include self-reported age, gender, and race on the survey. Students self-selected their racial or ethnic identification as White or Caucasian, Black or African American, Asian Pacific Islander, Hispanic or Latino, Native American or American Indian, or other. Due to a small population of Native American or American Indian youth, this racial or ethnic category was collapsed into the "Other" category for analytic reasons. Dummy coded variables were used for race in the models.

School equity. Four items adapted from the School Development School Climate Survey (Haynes, Emmons, & Ben-Avie, 2001) were used to assess schools' equity. Three items assessed students' perception of fair treatment by race, gender, and socioeconomic status (e.g., all students are treated the same regardless of whether their parents are rich or poor). One item assessed cultural representativeness of educational materials (e.g., school provides instructional materials that reflect my culture, ethnicity, and identity). Responses were given on a 4-point scale from 1 (*strongly disagree*) to 4 (*strongly agree*). The CFA for this indicated adequate fit (CFI = .99, TLI = .99, RMSEA = .03, SRMR = .008), and items were then averaged such that higher scores indicate a more equitable culture (α = .83).

Student connections. Ten items assessed a student's connection with the school environment, derived from the Baltimore City Safety Survey (Plank et al., 2009), the California Healthy Kids Survey (Hanson & Kim, 2007; also see Resnick et al., 1997), and the School Development School Climate Survey (Haynes et al., 2001). Five items focused on relationships with teachers (e.g., my teachers care about me), two items assessed feelings of belonging (e.g., I feel like I am a part of this school), and three items focused on peer relationships (e.g., students help one another). Responses were provided on a 4-point scale from 1 (*strongly disagree*) to 4 (*strongly agree*). Items were scored and then averaged such that higher scores indicate more connectedness (α = .88). The CFA for this scale demonstrated acceptable fit (CFI = .97, TLI = .96, RMSEA = .06, SRMR = .04).

School engagement. School engagement was assessed with seven items adapted from Baltimore City Safety Survey (Plank et al., 2009), the California Healthy Kids Survey (Hanson & Kim, 2007), and the School Development School Climate Survey (Haynes et al., 2001). Two items focused on emotional engagement (e.g., I enjoy learning in this school), two items asked students about cognitive engagement (e.g., my teachers encourage me to work hard in my classes), and three items assessed behavioral engagement (e.g., at school, I do interesting activities). Responses were given on a 4-point scale from 1 (*strongly disagree*) to 4 (*strongly agree*). Items were then averaged such that higher scores indicate more school engagement (α = .80). The CFA for this scale demonstrated acceptable fit (CFI = .98, TLI = .97, RMSEA = .05, SRMR = .024).

School-level demographic data. A series of school-level demographic variables were obtained from the Maryland State Department of Education for inclusion in the models as school-level covariates. Those variables were the *percent of minority students* attending the school, the percentage of students who received an out of school *suspension*, the percentage of students who moved into the school plus the percentage of students who moved out of the school (*mobility*), and the total number of students enrolled in the school (*enrollment*), as an indicator of school size. We used the generalized variance index to determine whether the actual racial or ethnic diversity within the student population was associated with perceptions of equity (*diversity*). The generalized variance index calculates the probability that any two students randomly selected from a setting will be of different ethnicities (Budesca & Budesca, 2012). It was calculated by subtracting the sum of the variances of ethnic class membership from 1. The index can have values ranging from 0 to 1 with a higher value indicating a higher degree of diversity. For example, a school with a 60% White population, a 30% African American population, and a 10% Latino population would have an index value of .54.

Analyses

Three-level hierarchical linear models were conducted in the HLM 7.0 software (Raudenbush & Bryk, 2002) to examine the association of individuals' perception of school equity with student connection and engagement while accounting for the nested nature of the data where students were nested in classrooms, nested in schools. Variables included at Level 1 were age, gender, race, and

school equity. All variables at Level 1 were tested for randomly varying slopes (Raudenbush & Bryk, 2002) and grand-mean-centered (Enders & Tofighi, 2007). At Level 2, we accounted for any classroom clustering effects. At Level 3, we included enrollment, percent minority, diversity, suspension, and mobility. All Level 3 variables were grand-mean-centered. We also tested cross-level effects between school equity at Level 1 and select school-level variables (i.e., percent minority, suspension, mobility, and diversity) at Level 3.

Missing Data

Descriptive analysis found very little missing data (<5% of included variables). Our analyses assume that data are missing at random (MAR), which is based on the assumption that the reason for missingness is not related to the missing value itself, or is deemed random after controlling for the variables that are observed (Arbuckle & Wothke, 1999). While there were limited missing data in the sample (<5%), analyses did show that males, minorities, and older students were more likely to have missing scale scores for equity, connectedness, and academic engagement. These demographic variables were included as controls in the analyses. The HLM software adjusts parameter estimates for attrition using full-information maximum-likelihood (FIML) estimation, a widely recognized and appropriate means of handling missing data (Schafer & Graham, 2002) under the assumption that data are MAR (Raudenbush & Bryk, 2002).

RESULTS

Descriptive Analyses by Grade, Gender, and Race

There were significant differences on reports of student connection ($F(9,18979) = 37.64$, $p < .001$), engagement ($F(9,19535) = 66.94$, $p < .001$), and school equity by age ($F(1,18017) = 21.02$, $p < .001$). With regard to age, there was a curvilinear association for student connection, engagement, and school equity whereby the middle ages (i.e., 14–18) had higher levels. Males had higher ratings of student connection than females, $t(18987) = -3.06$, $p < .01$; there were no gender differences on reports of engagement and school equity. White youth reported higher levels of student connection, engagement, and school equity as compared to minority youth, $t(18986) = 9.48$, $p < .001$, $t(19535) = 4.27$, $p < .001$, $t(18018) = 9.13$, $p < .001$, respectively.

Multilevel Analyses

Student connections. The multilevel analyses indicated that higher levels of school equity were associated with increased levels of student connection. The percent of minority students in the school was also significantly associated with student connection, such that schools with higher percentages of minority adolescents had lower reports of student connection. Next, we examined for possible cross-level interactions between school equity and the school-level characteristics of percent minority, diversity, suspension, and mobility (see Table 2). Cross-level interactions between school equity and percent minority and between school equity and mobility were significant. Student connection is highest among adolescents with high values of equity in low minority schools. Similarly, the interaction between school equity and mobility was significant, indicating that the ratings of student connection were highest among adolescents with high perceptions of equity in schools with low mobility. Ratings of student connection were lowest among adolescents with poor perceptions of equity in high-mobility schools.

School engagement. Results of the 3-level HLM indicated that perception of school equity was significantly associated with engagement (see Table 2). Higher levels of school equity were associated with increased levels of engagement. The percentage of students suspended was also significantly associated with engagement, such that students in schools with higher suspension rates had lower reports of engagement.

Next, we examined for possible cross-level interactions between school equity and the school-level characteristics of percent minority, diversity, suspension, and mobility. The cross-level interactions between school equity and percent minority and between school equity and mobility were significant (see Table 2). School engagement was highest among adolescents with more favorable perceptions of equity in low minority schools. Similar to the percent minority findings, school engagement was highest among adolescents who have high perceptions of school equity when there are low levels of suspensions. Finally, the interaction between school equity and mobility was also significant (see Table 2), indicating that engagement

TABLE 2
HLM Results for 3-Level Model Examining the Association Between School Equity, Student Connection, and Academic Motivation

	Student Connections			*School Engagement*		
	Coefficient[a]	*SE*	*t*-ratio	*Coefficient*	*SE*	*t*-ratio
Student-level variables						
Age	−.001	.004	−.26	−.033***	.005	−6.17
Male	.036***	.007	4.82	.007	.009	.81
Other	−.041**	.015	−2.76	−.060***	.013	−4.58
Hispanic	.039*	.016	2.38	.025	.020	1.21
Asian	.109***	.017	6.30	.072**	.023	3.15
Black	−.003	.011	−.26	.019	.014	1.32
Equity	.469***	.008	57.50	.375***	.010	37.88
School-level variables						
Enrollment	−.0000	.0000	−2.06	.0000	.0000	−1.23
Minority	−.0011	.0004	−2.64	−.0001	.0005	.29
Suspension	−.0011	.0006	−1.76	−.0012	.0008	−1.51
Mobility	−.0005	.0016	−.32	−.0008	.0016	−.53
Diversity	.672	.0697	.96	.0329	.0753	.44
Post hoc cross-level interactions						
Equity × Minority	−.0009***	.0003	−3.42	−.0012***	.0003	−4.24
Equity × Suspension	−.0009	.0004	−1.98	−.0012*	.0005	−2.35
Equity × Mobility	−.0018**	.0007	−2.71	−.0020*	.0009	−2.32
Proportion of between-school variance explained			46%			61%
AIC			23839.9			27067.4
BIC			23807.8			27035.4

Note. [a]Standardized coefficients are presented from the model that did not include the post hoc interactions. Unadjusted intraclass correlation coefficient (ICC) for student connection = .06; academic motivation = .06. AIC = Akaike information criterion; BIC = Bayesian information criterion.
N = 19,833.
*p < .05; **p < .01; ***p < .001.

is highest among adolescents in low-mobility schools who perceive high school equity.

DISCUSSION

The current study sought to investigate the association between adolescent perceptions of school equity and two important factors linked to positive youth development. Overall, findings suggest that improving adolescents' perceptions of school equity is a key process that schools should address to promote student connection and engagement. In support of our first hypothesis, using three-level modeling, we examined the association between school equity and student connections and found that over and above the influence of individual and school structural characteristics, school equity was associated with adolescents' connection to the school. A similar pattern of findings emerged for engagement; consistent with our second hypothesis, adolescents who perceived their school to be equitable were also more likely to feel engaged. However, school contextual characteristics were also related to the climate outcomes. Specifically, there were main effects of percent minority on student connection, such that higher percent minority was associated with lower student connections.

It is possible that these two school-level variables serve as proxies for other indicators of other school challenges (Bradshaw, Sawyer, & O'Brennan, 2009). For example, Mitchell, Bradshaw, and Leaf (2010) found that students' report of school engagement was influenced by school-level characteristics, such as student mobility and principal turnover. Support for this hypothesis comes from the apparent lack of any significant associations between diversity and student engagement and connection. In interpreting these findings, it is also important to note that many project schools that exhibited low diversity included a predominately minority student population. However, other studies have demonstrated a relationship between classroom-level diversity and student perceptions of safety and school satisfaction (Juvonen, Nishina, & Graham, 2006), suggesting that more research needs to be carried out to explore the differing experiences of minority students in diverse and nondiverse schools.

Consistent with our third hypothesis focused on exploring the cross-level interaction of school characteristics, there were also some significant interactions involving percent minority and the school suspension rate. For example, in schools where the student population was predominately White, higher levels of equity were associated with better school connections. Thus, it appears that in less ethnically diverse schools, where the majority of students may have similar demographics (i.e., same race and socioeconomic status), greater equity is associated with a better school environment. A similar interaction occurred for (high) suspension rates with school equity, which predicted better engagement. This suggests that adolescents' report of engagement can be enhanced by their perceptions of school equity, despite high rates of problem student behavior. Given the connection between school engagement and decreased involvement in youth risk behaviors (Archambault et al., 2009; Christenson et al., 2000; Doll & Hess, 2001; Finn, 1989; Janosz et al., 1997), this finding is particularly encouraging. Despite attending a school characterized by a high suspension rate, adolescents may be positively impacted if they perceive that the school environment is fair to all students.

With regard to individual-level demographic characteristics, being male was associated with better student connections. This is consistent with McNeely et al. (2002), who found that females and Black students reported lower student connections than males and Latino students. However, there were no effects of gender on school engagement. In support of our hypothesis, race was associated with student perceptions of school equity in the multilevel models. In comparison with White students, Hispanic and Asian students reported higher student connections to school, while Native American or American Indian students reported significantly lower connections to school. Similar results were found for the engagement models. Native American or American Indian students reported lower engagement, while Asian students reported higher engagement when compared to White students. No significant associations were found for Black students. These racial differences are consistent with extant literature which shows that differences in perceptions of the school environment by race and ethnic groups (Ancis et al., 2000; Johnson et al., 2007). It is possible that perceptions of school equity by youth from various racial or ethnic backgrounds may influence their beliefs about student connections and engagement. Moreover, males and females reported similar perceptions of school equity. This is somewhat contrary to previous research, which suggests that males often feel isolated and alienated in a school environment (Brown et al., 2003).

Finally, age was a significant predictor of school engagement. It is possible that as youth progress through high school and begin to plan for graduation and entry into the workforce or postsecondary education, they become more academically motivated (Steinberg et al., 2009). However, it could also be a self-selection process, whereby the less academically motivated youth have already dropped out of school by junior or senior year, as the compulsory education age in the state at the time of the data collection was 16.

It is important to note that the effect sizes were generally larger for the more proximal student-level characteristics than for the school-level characteristics. This is often the case in multilevel school research (Birnbaum et al., 2003; Bradshaw et al., 2009; Koth, Bradshaw, & Leaf, 2008). While these characteristics are conceptually and theoretically associated with our student outcomes, it is not uncommon for them to have smaller effect sizes than the more robust student-level characteristics. It is quite possible that these school-level characteristics play a more important role as effect modifiers, rather than direct effects, as we see within the results of the current study.

LIMITATIONS

Some study limitations should be taken into consideration. The scale used to measure school equity included separate questions related to race, gender, and socioeconomic status. While face validity and adequate internal consistency suggest that this is a reliable and valid scale, it was not possible to determine whether one or more of these questions was driving the association between school equity with student connections and engagement. When measuring equity, it is important to assess students' feelings or perceptions that they are being treated the same as other students. However, in reality, teachers may need to provide additional help to some students in order for them to succeed. We also acknowledged this as limitation of this indicator of equity. Future analyses also should compare various types of perceived equity (e.g., gender, ethnicity), which may account for a different pattern of findings. Although previous studies have validated online self-report measures of sensitive topics with youth (Wang et al., 2005), there are

inherent limitations of self-report data, which would be improved through multimethod assessment (parent, peer, or teacher ratings); however, this was not feasible given the design of the current study. Although the study sample was rather large with multiple classrooms and students within the 52 schools selected for participation, the participating schools all volunteered to enroll in the project. Therefore, the schools are not necessarily a representative sample of all high schools in the state of Maryland; however, they do comprise a large percentage of schools within the participating 10 districts (i.e., 29%–100% of schools in each district), of which there are just 24 school districts in the state. The current study focused on Maryland public high schools; therefore, additional research is needed in elementary and middle schools in order to determine the generalizability of these findings. As noted above, some of the coefficients for the cross-level interactions were modest in size and thus should be interpreted with caution. The cross-sectional nature of this study design does not allow for any causal inferences to be made based on the findings. Finally, we used the GVI to measure the diversity in the school. It is quite possible that there are differences between perceptions of equity for African American students in predominantly White schools versus African American students in predominantly African American schools. The GVI does not get at this distinction. Future research will explore various subgroup effects within different school ethnic contexts (for example, see Nishina, Bellmore, Witkow, & Nylund-Gibson, 2010).

CONCLUSIONS AND IMPLICATIONS

Research suggests that the school environment is an important setting for fostering positive youth development. Consistently, studies find that adolescents' perceptions of engagement and connection to their school influence their behavior and performance (Hair, Park, Ling, & Moore, 2009; Libbey, 2004; Mun, Windle, & Schainker, 2008; Sullivan, Childs, & O'Connell, 2010; Windle, Mun, & Windle, 2005). The current study provided a unique opportunity to better understand processes associated with positive adolescent development in schools. Although less frequently examined in the positive youth development literature, student perceptions of school equity proved to be an important factor to consider in understanding adolescents' connection to school and engagement. Future studies are needed to understand how the potential influence of more proximal influences, such as at the classroom level (e.g., number of minority students, classroom management style), may also affect adolescents' perceptions of equity. For example, teachers with more experience or with experience working in diverse settings may be more likely to create an environment of equity and fairness in their classrooms. In addition, individual-level factors, such as gender, age, and race or ethnicity, may act as contextual modifiers of the association between equity and other promotive adolescent factors within the school environment.

Consistent with these findings, previous research suggests that minority status is important individual factor that can alter how adolescents perceive the school (Ancis et al., 2000; Booker, 2006; Gossett et al., 1998; Rankin & Reason, 2005). This is especially important as we begin to consider the shifting ethnic circumstances youth experience in schools. The diversification of schools will not only impact school composition (Crouch, 2012), but may also alter how adolescents interact with each other and perceive their status or role in their learning environment. Furthermore, modeling equity and fairness for students in high school may have important implications for adolescents' current and future relationships; this may be especially important as they prepare for the transition into the workforce or postsecondary education. Adolescents who experience an equitable environment in school may be better equipped to operate in our emerging world where individual differences should be valued and respected.

Taken together, the findings from this study suggest that by improving adolescents' perceptions of school equity, we may be able to strengthen their connections to the school and engagement, which in turn should optimize student success. While school reform often calls for changes to the structural characteristics and school-level factors (i.e., class size, student-to-teacher ratio) to improve learning and adolescent outcomes, these results suggest that providing a school environment where adolescents feel like all students are treated the same may aid in promoting key factors that have a positive impact on adolescent development.

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