Exploring what leads high school students to enroll in Hispanic-Serving Institutions: A multilevel analysis

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ABSTRACT

This study examined the student and high school contextual factors associated with high school students' enrollment in Hispanic-Serving Institutions. We drew on a conceptual framework of college choice involving the concepts of multiple capitals, and individual and organizational habitus, to examine the postsecondary trajectories of high school graduates using the Educational Longitudinal Study 2002/06. Using Hierarchical Linear Modeling, we analyzed two separate models. One model predicted enrollment in an HSI within the 2-year sector and one within the 4-year sector. Distinct predictors of HSI versus non-HSI enrollment were found, particularly for the 4-year sector. This study suggests that, in both sectors, high school contexts had a significant effect of channeling students toward HSIs.

Keywords: Hispanic-Serving Institutions, College choice, Hierarchical Linear Modeling, Habitus, Capital

INTRODUCTION

Hispanic-Serving Institutions (HSIs) are most commonly defined as 2- or 4-year, not-for-profit colleges and universities that enroll at least 25 percent Hispanic students (Santiago, 2006). They compose only six percent of American postsecondary institutions, but enroll almost half of Hispanic undergraduates in the U.S. (Mercer & Stedman, 2008). As Hispanics are the largest and fastest-growing racial/ethnic group, HSIs are seeing significant enrollment growth, and the number of HSIs is expected to increase in the coming years (Santiago & Andrade, 2010).

Despite HSIs' growth and receipt of significant and increasing levels of federal funding (Santiago, 2006; White House, 2010), these institutions have not been a sustained object of inquiry in education research. Some research has addressed students' educational experiences and outcomes after they enroll in these institutions (e.g., Crisp, Nora, & Taggart, 2009; Laden, Hagedorn, & Perrakis, 2008; Nelson Laird, Bridges, Morelon-Quainoo, Williams, & Holmes, 2007). Curiously, however, less

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is known about what influences students to enroll in HSIs in the first place. Examining the factors associated with how students come to enroll in a HSI can provide insight about the distinct characteristics of students attending these institutions and their initial concerns in committing to a particular college. Such knowledge can enhance institutional efforts to recruit students and to promote students' integration (Tinto, 1993) and sense of belonging (Hurtado & Carter, 1997) in college.

Most HSIs do not foreground their institutional identities as HSIs (Contreras, Malcom, & Bensimon, 2008). Therefore, high school students who enroll in HSIs may not be aware of or intentionally consider a college's HSI status. Nonetheless, given evidence that students consider distinct qualities when choosing HSIs (Cejda, Casparis, Rhodes, & Seal-Nyman 2008; Santiago, 2007), and research that questions whether HSIs are actually different from other kinds of institutions (Contreras et al., 2008), examining the college choice processes of students who enroll in HSIs merits consideration. Although research addressing HSI college choice has understandably focused on Hispanic students, HSIs can enroll up to 75 percent non-Hispanic students (Santiago, 2006). To better understand HSIs' peer environments and enhance HSIs' recruitment efforts, it is also therefore important to examine what leads students from other racial/ethnic groups to enroll in HSIs.

This study extends research on HSIs to the domain of college choice. Because prior research has not studied a longitudinal sample of students to follow high school students' trajectories toward HSIs, we compared the individual and high school-level factors associated with high school students who enrolled in HSIs and those who did not. Since HSIs are about evenly distributed among the 2-year and 4-year sector, and because factors affecting enrollment in these two sectors differ markedly (Engberg & Wolniak, 2009; Perna, 2006), we included 2-year institutions in our analysis. Using data from the National Center for Education Statistics Educational Longitudinal Study 2002/06 (ELS: 2002), we addressed these questions: (a) Do the demographic and academic backgrounds, college choice preferences and behaviors, and high school contexts differ among high school students who enroll in 2-year or 4-year HSIs, compared with those who do not? and (b) Which of these student- and high school-level characteristics is independently associated with enrollment in a 2-year or a 4-year HSI?

LITERATURE REVIEW

Here, we describe HSIs within the U.S. postsecondary context, address literature on students' experiences and outcomes in HSIs, and discuss research on HSI college choice. Because of

limitations in the latter, we also turn to the more developed research on college choice of Historically Black Colleges and Universities (HBCUs). We conclude by highlighting gaps in the research.

The federal government defines HSIs as not-for-profit higher education institutions that enroll at least 25 percent Latinos; HSIs that receive additional funding under the Title V program for Minority-Serving Institutions also enroll a significant percentage of low-income students (U.S. Department of Education, 2005, 2007). There are over 200 HSIs in the US, and their numbers are growing (Santiago & Andrade, 2010). These institutions are concentrated in 15 states; seven of which are in the West, followed by 4 in the North, and 2 each in the South and Midwest (Santiago, 2006). About half (47%) of HSIs are community colleges, with the remainder divided about equally between 4-year private and public institutions (Mercer & Stedman, 2008). Four-year HSIs may play a critical role in providing Hispanics with college options, particularly when access to selective flagship institutions for Hispanics is limited (Perna, Li, Walsh, & Raible, 2010).

A handful of studies have found that Hispanic college students in HSIs have increased: (a) access to mentoring (Laden, 2001), (b) academic engagement in college (Bridges, Kinzie, Nelson Laird, & Kuh, 2008), (c) transfer rates to 4-year institutions (Laden et al., 2008), and (d) rates of earning science, technology, engineering, or math (STEM) degrees (Crisp et al., 2009; Dowd, Malcom, & Bensimon, 2010; Hixson, 2009). Other research, however, suggests that the experiences of students and college personnel in HSIs do not differ significantly from those of their counterparts in Predominantly White Institutions (PWIs) (Hubbard & Stage, 2009; Nelson Laird et al., 2007). Although it is not clear whether HSIs intentionally promote Hispanic students' success (Contreras et al., 2008), senior administrators at HSIs do express common concerns about students' academic preparation, diversity, enrollment levels, and low graduation rates, as well as limited institutional funding (De Los Santos & De Los Santos, 2003).

Far less is known about what leads students to enroll in HSIs. There has apparently been one peer-reviewed journal article about this topic, which addressed how agents of social capital influence Hispanic students' choice of 2-year HSIs (Cejda et al., 2008). In this qualitative study, students at three Hispanic-Serving community colleges expressed how families, peers, and community college faculty influenced their college enrollment decisions. Aside from this study, one policy report addressed how Hispanic students choose 4-year HSIs. It found that perceived lower costs, proximity to families of origin, welcoming environments, and family members' support all appealed to Hispanic students (even those qualified to attend elite institutions) in their decisions to attend 4-year HSIs (Santiago, 2007). Another descriptive report revealed that first-year Hispanic college students in 4-year institutions most often named cost, location close to their families of origin, and the potential to get a good job (Hurtado, Saenz, Santos, & Cabrera, 2008). To our knowledge, no quantitative studies have focused exclusively on the choice of HSIs, and with the exception of Cejda and colleagues' (2008) study, the studies described have not employed clear theoretical frameworks.

Because of these limitations, we turned to the more developed literature on HBCU college choice to build this study's theoretical grounding. It is important to remember that the institutional context of HBCUs differs significantly from that of HSIs, as HBCUs have a distinct mission to serve African American students. HSIs to date, however, have not shared a common mission, but only the characteristic of having 25% Hispanic student enrollment (Gasman, 2008).

Research suggests that African American students who choose to enroll in HBCUs have distinct characteristics from other African American students. African American students who enroll in HBCUs tend to consider the institution's status as an HBCU in their college choice (Freeman, 1999; Freeman & Thomas, 2002). In addition to family characteristics such as socioeconomic status, variables found to predict HBCU attendance include: knowing someone who attended an HBCU, the desire to seek one's roots, the wish to be in an environment where one can experience and develop cultural awareness, the college's reputation, and having a religious background (Freeman, 1999; Freeman, 2005; Freeman & Thomas, 2002; McDonough, Antonio, & Trent, 1997). McDonough and colleagues (1997) found that African American students who choose HBCUs enact distinct dispositions and preferences in their college choice.

In addition, Freeman's (2005) research highlighted the high school's important role in influencing African American students to attend HBCUs. School personnel who were graduates of HBCUs might encourage their students to attend HBCUs. The racial/ethnic composition of the school might also influence the decision to attend HBCUs; some African American students at predominantly White high schools, for example, expressed an interest in attending HBCUs to learn more about their cultural background (Freeman, 2005).

Collectively, this research suggests that high school students who choose HSIs have distinct characteristics and come from different high school contexts than their non-HSI counterparts. To explore this possibility, studies are needed that are theoretically grounded, generalizable to broader populations, and longitudinal. It is also important to address high school contextual factors and employ multivariate approaches to control for different effects over time. Moreover, to better understand characteristics of students at HSIs, it is important to examine what leads Hispanic *and* non-Hispanic students to enroll in HSIs, since non-Hispanic students can compose up to 75% of an HSI's student body (Santiago, 2006).

CONCEPTUAL FRAMEWORK
Two conceptual frameworks guide this study's assumptions regarding predictors of HSI enrollment: multiple capitals and habitus. These concepts derive from the work of sociologist Pierre Bourdieu and other scholars who have extended his work to the study of college access (e.g., McDonough, 1997; Perna, 2006; Stanton-Salazar, 2001).

Multiple forms of capital
First, a framework of *multiple forms of capital* (Bourdieu, 1986), including financial, academic, cultural, and social capital, recognizes the role of access to various resources in affecting postsecondary attainment. *Academic capital* involves academic

skills, and *financial capital* involves the monetary resources required to pursue college. Given limitations in the power of frameworks of financial and academic capital to account for different status groups' variations in educational attainment, Bourdieu (1986) argued that additional forms of capital, including cultural and social capital, must be considered to explain such differences. *Cultural capital* includes information necessary to navigate the educational system that privileged families pass on to their offspring that is not necessarily taught in schools and thus may act to include or exclude particular groups from educational advancement (Bourdieu, 1977a; Bourdieu & Passeron, 1977; McDonough, 1997). *Social capital* involves the power of social networks to facilitate access to higher education (Bourdieu, 1986; Stanton-Salazar, 1997, 2001). Research has documented that a high school student's access to cultural capital and social capital affects whether and where students enroll in college (e.g., McDonough, 1997; Gonzalez, Stoner, & Jovel, 2003; Perna, 2006). These effects may be even stronger for underrepresented racial/ethnic and socioeconomic groups in higher education (Freeman, 2005; O'Connor, Hammack, & Scott, 2010; Perna, 2000; Walpole, 2007).

Habitus

To further explain how individuals negotiate their educational trajectories, Bourdieu also developed the concept of *habitus* -- an internalized set of perceptions and expectations about one's life opportunities (Bourdieu, 1977a; Bourdieu & Passeron, 1977). In addition to transmitting financial, cultural, or social capital; family members expose the student to beliefs or experiences that shape a student's sense of educational possibilities (Bourdieu & Passeron, 1977). Thus, the family is a primary influence on the development of habitus.

High school environments also influence a student's habitus through providing a student with access to academic, cultural, and social capital; and through socializing him or her toward certain views about college possibilities (McDonough, 1997). Thus, in its role as a transmitter of non-familial capital, a school has an *organizational habitus* (McDonough, 1997). Organizational habitus involves a high school's capacity to academically prepare and to frame students' perceptions and knowledge about various college options. High school contexts indeed have a powerful effect on sector and selectivity of college choice (e.g., Engberg & Wolniak, 2009; McDonough, 1997; Perna & Titus, 2005), suggesting that organizational habitus is an appropriate framework to examine the high school's influence on college choice.

Factors in the organizational habitus include geographical conditions and proximity to various college options, access to cultural capital through resources such as college counseling, access to social capital through relationships with teachers or peers, and access to a college-preparatory curriculum (Freeman, 2005; McDonough, 1997; Oakes, Mendoza, & Silver, 2006). Components of organizational habitus have also been termed as comprising a high school's "college culture" (Jarsky et al., 2009; McClafferty et al., 2002; Oakes et al., 2006), or the extent to which a high school cultivates an environment that encourages students to pursue college. Under the multiple capitals and habitus frameworks, college choice does not solely mean individual agency or "choice," but is circumscribed by the kind of schools students attend, their families' capacity to support the

pursuit of higher education, and students' evolving beliefs about what educational opportunities are possible, desirable, and available (McDonough, 1997; Perna, 2006).

Toward a model of HSI college choice

Individual level

Here, we integrate this literature to build a model to explore influences on students' choices of HSIs. First, demographic characteristics of gender and race/ethnicity should be taken into account as control variables, as men, particularly men of color, are underrepresented in higher education (e.g., Buchmann, 2009). Second, familial capital (Conchas, 2006) has been found to influence college access. A family's socioeconomic status has a strong effect on whether students attend 2- or 4-year institutions; students from lower socioeconomic backgrounds tend to attend 2-year or less selective institutions (e.g., Walpole, 2007). Since HSIs cost less than other institutional types, and HSIs that serve large proportions of low-income students receive extra federal funding (U.S. Department of Education, 2005, 2007), coming from a lower socioeconomic status background is likely related to enrolling in an HSI.

Third, cultural capital includes linguistic communication abilities (Bourdieu, 1977b; Bourdieu, 1986). Non-native English speakers could have less access to cultural capital, as speaking English fluently represents a linguistically privileged form of communication (Kanno & Varghese, 2010). Language skills could inhibit students' and their families' access to information about selective schools (Engberg & Wolniak, 2009; Perna & Titus, 2005). Fourth, immigrant students and their families may have difficulties establishing relationships with school personnel and developing other social capital that could support their navigation of the K-12 and postsecondary education systems (Suarez-Orozco, Pimentel, & Martin, 2009; Suarez-Orozco & Suarez-Orozco, 2001). Yet, first-generation immigrants have been found to have relatively high K-12 achievement outcomes (Kao & Tienda, 1995; Portes & Rumbaut, 2001). This has been attributed to an increased sense of optimism among immigrants for their educational prospects (Kao & Tienda, 1995), to supportive community and familial social networks (Zhou, 1997), and to comparatively limited exposure to negative stereotypical attitudes about historically marginalized American racial/ethnic groups (Portes & Rumbaut, 2001). It is possible then, that first-generation immigrants are more likely to attend selective colleges and less likely to attend HSIs.

Fifth, development of academic capital, or academic skills and knowledge, centrally affects where students attend college (Perna, 2006). HSI administrators share deep concerns about their students' academic preparation (De Los Santos & De Los Santos, 2003). Math preparation has been found to be an important predictor of college enrollment (Adelman, 2006; Perna & Titus, 2005). Given concerns among HSI personnel, it is probable that students who enroll in HSIs enter with lower math performance.

An individual habitus affects college choice, through the range of preferences that the student expresses and set of institutions a student considers. Some research has found that a college's affordability, proximity to home, and comfort with the racial/ethnic composition appeal to Hispanics who choose HSIs,

even those who could qualify to attend more selective institutions (Hurtado et al., 2008; Santiago, 2007). Thus, students who value these issues and place less emphasis on a college's reputation may be more likely to enroll in HSIs.

Another indicator related to individual habitus is how many college applications students send out (McDonough, 1997). Students who consider a wider range of postsecondary options tend to have internalized a greater sense of educational possibilities, from interacting with family members and/or school personnel who influence the options they consider. Students who send out more applications tend to consider more selective schools (McDonough, 1997). If HSIs tend to be more local and less selective options, HSI students may apply to fewer colleges.

High school level
High school organizational habitus factors, including a school's geographical context and the extent to which it has a college-going culture, affect where students enroll in college (e.g., Engberg & Wolniak, 2009; McDonough, 1997; Oakes et al., 2006). The local availability of higher education options circumscribes students' college choices (Perna, 2006). HSIs are concentrated in urban and Southwestern areas (Santiago, 2006), and tend to enroll more local students (Laden, 2001). Thus, it is likely that high school students in urban or Western areas would be more likely to enroll in HSIs.

High school type influences where students enroll in college. Compared with their private school counterparts, public high school students are less likely to enroll in 4-year colleges (Engberg & Wolniak, 2009). Public high schools tend to be less well-resourced and therefore less able to offer students access to various forms of non-familial capital that build a college-going culture and facilitate college enrollment, such as guidance counselors who can provide information and assistance with college applications (McDonough, 1997, 2005).

Socioeconomic and racial/ethnic segregation of schools and neighborhoods has been increasing (Orfield, 2009). This trend has perpetuated unequal distribution of financial resources among schools, as high schools with lower socioeconomic or higher minority populations tend to receive fewer resources (Frankenberg, 2010; Orfield, 2009; Willms, 2010). The socioeconomic context of a school has consequences for students' access to capital and for college enrollment outcomes. High schools with more free and reduced price lunch students are less likely to send students on to 4-year institutions (Engberg & Wolniak, 2009). However, an increased proportion of minority students in a high school appears to have a positive association with collective levels of educational aspirations among students in a high school (Bellessa Frost, 2007).

Teachers are among the most important influences on college going. They spend the most time with students; set expectations for student achievement (part of a college-going culture); and facilitate access to multiple forms of capital (McClafferty et al., 2002; Stanton-Salazar, 2001). Students in schools with higher student to teacher ratios have less access to teachers, and fewer opportunities to develop academic capital (Frankenberg, 2006; Orfield, 2009).

A high school's enrollment size also affects students' access to academic, cultural, and social capital and the extent to which there might be a college-going culture. Larger high school enrollments are linked with lower educational outcomes (Leithwood & Jantzi, 2009). Students at smaller high schools tend to apply to more colleges, which could reflect the increased access they have to guidance counselors and cultural capital to support the application process (McDonough, 1997; Schneider, Wyse, & Keesler, 2007).

A college-going culture is also reflected in the influence of teacher and peer networks and behaviors. As with HBCU enrollment (Freeman, 2005; McDonough et al., 1997), teachers and peers' racial/ethnic background could influence HSI enrollment. Teachers who are HSI graduates may guide students toward HSIs; similarly, peers familiar with HSIs could raise awareness about HSIs. Thus, an increased presence of Hispanic and minority teachers and peers in a high school could positively affect HSI enrollment. In terms of peer behavior that reflects a college culture, schools having a higher proportion of graduates that pursue 4-year college educations are more likely to see subsequent graduates pursue the same path (Engberg & Wolniak, 2009). It is possible that these schools are more likely to send students to selective colleges, and thus less likely to send them to HSIs.

Research questions
Based on this research, we addressed the following questions: (1) How do the demographic background, familial and academic capital, and individual habitus characteristics of students who enroll in 2-year or 4-year HSIs compare with those of students who do not enroll in 2-year or 4-year HSIs?, and (2) How do the demographic background, familial and academic capital, individual habitus, and high school organizational habitus characteristics associated with high school students' enrollment in 2-year or 4-year HSIs compare with factors related to high school students' enrollment in 2-year or 4-year non-HSIs?

METHOD
We employed Hierarchical Linear Modeling (HLM) to measure the independent effect of high school level variables on student outcomes and to account for the reality that students are nested in high schools (Raudenbush & Bryk, 2002). This study's dependent variable was enrollment in a 2- or 4-year HSI. Prior research literature, the conceptual framework, and the completeness of the data guided the model development and choice of independent variables.

Data source
This study drew on nationally representative data following individual students' trajectories from high school to college. The National Center for Education Statistics (NCES) Education Longitudinal Study 2002/06 (ELS: 2002/06) tracked about 15,400 students from 750 high schools across the U.S. at three times: sophomore year (base year 2002), senior year (first follow-up 2004), and two years after expected high school graduation date (second follow-up 2006). Following NCES guidelines, sample sizes discussed here have been rounded to the nearest ten.

For each data collection round, NCES collected a variety of student and school-level measures related to demographic

Table 1: Variables used in analysis

	Min	Max	2-year Mean	2-year SD	4-year Mean	4-year SD	Description (ELS:2002 Variable)
Student level							
Attended a HSI as the first postsecondary inst.	0	1	0.12	0.32	0.04	0.19	Dependent variable: (see methods)
Demographics							
Female	0	1	0.53	0.50	0.54	0.50	BYSEX=2 (Male=0, Female=1)
Hispanic	0	1	0.17	0.38	0.08	0.27	BYS15=1
Familial and academic capital							
Native language is English	0	1	0.82	0.39	0.88	0.32	BYSTLANG=1
First-generation immigrant	0	1	0.10	0.30	0.07	0.26	BYP23=3
Second-generation immigrant	0	1	0.25	0.44	0.21	0.41	BYP17=3 OR BYP20=3
Socioeconomic status (SES)	-0.99	1.87	-0.09	0.67	0.40	0.70	F1SES1R
Math score	21.62	78.85	47.68	8.54	56.30	8.53	F1TXMSTD
Individual habitus							
Low expenses of inst. important to student	0	1	0.87	0.34	0.78	0.41	F1S52A= 2 OR 3 (somewhat or very important)
Living close to home is important to student	0	1	0.67	0.47	0.26	0.44	F1S52F= 2 OR 3 (somewhat or very important)
Academic reputation of postsec inst. important	0	1	0.87	0.33	0.95	0.21	F1S52K= 2 OR 3 (somewhat or very important)
Racial/ethnic composition of inst. important	0	1	0.48	0.50	0.45	0.50	F1S52N= 2 OR 3 (somewhat or very important)
Number of postsec inst. applied to	0	18	1.87	1.42	3.28	2.30	F2NAPPLY
n			2500		4400		
High School level (organizational habitus)							
Geographical background							
Urban	0	1	0.30	0.46	0.32	0.47	BYURBAN=1
Suburban	0	1	0.51	0.50	0.49	0.50	BYURBAN=2
Region Midwest	0	1	0.28	0.45	0.28	0.45	BYREGION=2
Region South	0	1	0.36	0.48	0.38	0.49	BYREGION=3
Region West	0	1	0.22	0.41	0.20	0.40	BYREGION=4
College-going culture							
Public	0	1	0.78	0.42	0.75	0.43	BYSCTRL=1
% Free and reduced price lunch students	0	100	28.03	25.13	26.97	25.04	F1A22A
Student-teacher ratio	4.65	54.17	16.87	4.40	16.72	4.36	CP04STRO
Enrollment (in hundreds)	0.25	45.77	12.48	8.61	12.29	8.33	CP04STEN/100
% Hispanic Teachers	0	95	4.41	10.20	4.41	10.56	F1A32A
% Minority students	0	100	30.18	30.88	28.67	30.76	CP04PMIN
% 2003 graduates who went to 2yr inst. (0-5)	0	5	2.38	0.93	2.29	0.98	F1A19B
% 2003 graduates who went to 4yr inst. (0-5)	0	5	3.46	1.19	3.56	1.16	F1A19A
n			530		570		

Note: % 2003 graduates who went to 2yr inst or 4yr institutions are both coded on a 0-5 scale, where *0 = None, 1 = 1-10%, 2 = 11-24%, 3 = 25-49%, 4 = 50-74%, 5 = 75-100%*

background characteristics, college preparation, and school environment (Ingles, Pratt, Wilson, Burns, Currivan, Rogers, & Hubbard-Bednasz, 2007). About 73% of high school students in the full ELS: 2002/06 sample had enrolled in a postsecondary institution during the designated time period, while the remainder did not. We used the U. S. Department of Education Integrated Postsecondary Data System (IPEDS) to identify HSIs, defined as those not-for-profit institutions having an enrollment of 25% or greater Hispanic students in 2003-2004 (U.S. Department of Education, 2007). Then we merged these data into the ELS: 2002/06 dataset to link students with the outcome of whether they enrolled in an HSI. Students in the ELS: 2002/06 dataset attended 2,470 different postsecondary institutions between 2004 and 2006, and 14% of these institutions were HSIs.

Of the approximately 15,400 students in the ELS: 2002/06 dataset, about 11,800 attended at least one postsecondary institution, with 4,880 attending 2-year institutions and 6,920 attending 4-year institutions. However, because of the requirement that all data be complete at both the student and school level for the 2-level HLM (Raudenbush & Bryk, 2002), and to decrease the amount of missingness in the data (Strayhorn, 2009), we analyzed a subsample of the full ELS: 2002/06 dataset. The total sample size for the 2-year model was n=2,500 students nested within 530 high schools, and it was n=4,400 students nested within 570 high schools for the 4-year model. Comparisons on each variable in the subsample and full sample revealed no substantive differences between the two samples, justifying our decision to analyze the subsample. Because ELS: 2002/06 is a complex probabilistic clustered sample, with different numbers of students sampled within each of the high schools, both models were weighted to adjust for the design effects inherent in ELS: 2002/06 (Ingles et al., 2007).

Student-level variables

Each variable's descriptive information and its coding are presented in Table 1. Student-level variables included the demographic characteristics gender and race/ethnicity. Following the prior discussion of literature used to develop the model, measures of familial and academic capital were also included in the model. These measures included the student's *native language, first-* and *second-generation immigrant status* was considered, and family *socioeconomic status (SES)*, and *math score* on an ELS standardized test. Individual habitus measures included the extent to which the following were important in students' college choice: *low expenses of the institution, living close to home academic reputation of postsecondary institution*, and *racial/ethnic composition of the institution*. The *number of postsecondary institutions the student applied to* was also included to measure individual habitus.

High school-level variables

To address organizational habitus, variables reflecting high school location, structure, availability of resources to students, and teacher and student networks were included in the model. The high school's geographical background was indicated by its *urbanicity* and *region*. Other variables had implications for a college-going culture, including whether the school was in the *private or public sector*, as well as the *percentage of free and reduced price lunch students*, *student to teacher ratio*, *enrollment size, percentage of Hispanic teachers*, *percentage*

minority students, and the *percentage of graduates from the high school*.

Analysis

Hierarchical Generalized Linear Modeling (HGLM) was used to examine student and high school contextual effects. HGLM is appropriate because it can address the direct effects of student and school-level variables on a dichotomous yes/no outcome within a two-level logistic regression framework (Raudenbush & Bryk, 2002). It also accounts for the nested nature of the students within high schools (Hox, 2002; Raudenbush & Bryk, 2002). Moreover, it has the capacity to estimate the direct effects of both student and high school level factors on the outcome (Raudenbush & Bryk, 2002).

The 2-year and 4-year models were run separately, and each estimated the associated effects of both student-level and the high school-level variables on a students' likelihood of HSI enrollment. Following the recommendations for 2-level HLM with dichotomous outcomes (Raudenbush & Bryk, 2002; Raudenbush, Bryk, Cheong, Congdon, & duToit, 2007), the model was analyzed using a Bernoulli distribution for nonlinear 2-level logistic models. All continuous variables in the model, except for number of post-secondary institutions applied to, were grand mean centered to aid in interpretation of the parameters in the final models (Hox, 2002; Raudenbush & Bryk, 2002).

We used a two-level hierarchical logistic random intercept model to test the differences across schools and students in the outcome. Slopes at level two were fixed so that parameter estimates represent the associated average effect across schools on students' likelihood of HSI enrollment, controlling for individual level factors. First, we examined an unconditional "empty" model, which included no predictors. Because logit estimates are inherently difficult to interpret, we converted them to odds ratios (Singer & Willett, 2003).

DESCRIPTIVE RESULTS
Table 2 presents independent t-tests comparing HSI and non-HSI students who attended 2-year institutions and 4-year institutions. Both sets of students were more likely to: (a) be Hispanic, (b) be a non-native English speaker, (c) be a first- or second-generation immigrant, (d) come from a lower SES background, (d) have lower mathematics achievement, and (e) rank living close to home as important in their college choice. Students in 2-year HSIs were also more likely to rank low expenses as important in their college choice.

MULTIVARIATE RESULTS
The tau00 unconditional statistics in the unconditional "empty" model results (Table 3) suggest that the 4-year model explained more (49.0%) of the variance between high schools in HSI enrollment than the 2-year model (31.3%). The two-level HLM results, including estimates (in logits and corresponding odds ratios), robust standard errors, and p-values for each parameter at the individual and high school levels, are presented for students who either enrolled in a 2-year HSI (Table 3, left) or a 4-year HSI (Table 3, right). Next, we discuss these results separately, by sector.

Table 2: Independent comparison t-tests comparing the responses of students who enrolled in a 2-year HSI or non-HSI and a 4-year HSI or non-HSI.

| | 2-year | | | | | 4-year | | | | |
| | Enrolled in HSI | | Non-HSI | | | Enrolled in HSI | | Non-HSI | | |
	Mean	*(SD)*	*Mean*	*(SD)*	*p-value*	*Mean*	*(SD)*	*Mean*	*(SD)*	*p-value*
Student level										
Attended a HSI as the first post-secondary inst.	1.00	--	0.00	--	--	1.00	--	0.00	--	--
Demographics										
Female	0.52	0.50	0.54	0.50	0.640	0.57	0.50	0.54	0.50	0.393
Hispanic	0.53	0.50	0.12	0.33	<0.001	0.45	0.50	0.06	0.25	<0.001
Familial and academic capital										
Native language is English	0.51	0.50	0.86	0.35	<0.001	0.60	0.49	0.89	0.31	<0.001
First-generation immigrant	0.24	0.43	0.08	0.28	<0.001	0.19	0.39	0.07	0.26	<0.001
Second-generation immigrant	0.61	0.49	0.21	0.41	<0.001	0.58	0.50	0.20	0.40	<0.001
Socioeconomic status (SES)	-0.05	0.59	0.05	0.56	0.009	0.14	0.62	0.47	0.62	<0.001
Math score	46.47	8.99	47.84	8.47	0.015	51.91	8.60	56.46	8.50	<0.001
Individual habitus										
Low expenses of inst. important to student	0.90	0.30	0.86	0.35	0.042	0.83	0.38	0.78	0.42	0.112
Living close to home is important to student	0.76	0.43	0.66	0.48	<0.001	0.55	0.50	0.25	0.43	<0.001
Academic reputation of post-sec inst. important	0.89	0.32	0.87	0.33	0.380	0.94	0.23	0.95	0.21	0.540
Racial/ethnic composition of inst. important	0.52	0.50	0.48	0.50	0.281	0.50	0.50	0.45	0.50	0.219
Number of postsec inst. applied to	1.93	1.35	1.86	1.43	0.416	3.17	2.42	3.28	2.30	0.558
n	2500					4400				

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Table 3: Comparison of two 2-level HLM models, one for students who enrolled in a 2-year HSI or 2-year non-HSI, and a separate model for students who enrolled in a 4-year HSI or 4-year non-HSI.

(Where relevant, reference groups are listed in parentheses)	2-year HSI			4-year HSI		
	Estimate	SE	Odds Ratio	Estimate	SE	Odds Ratio
Student Level						
Demographics						
Female (male)	-0.252~	0.150	0.777	-0.182	0.256	
Hispanic (non-Hispanic)	0.526*	0.262	1.692	0.929*	0.362	2.532
Familial or academic capital						
Native language is English (not English)	-0.080	0.327		-0.238	0.317	
First-generation immigrant (third-generation)	0.345	0.456		-0.690*	0.345	0.501
Second-generation immigrant (third-generation)	0.178	0.364		0.038	0.327	
Socioeconomic status (SES) [a]	0.100	0.211		-0.208	0.170	
Standardized Mathematics score [a]	0.013	0.015		-0.029*	0.013	0.971
Individual habitus						
Low expenses of inst. important to student	0.679	0.415		-0.031	0.275	
Living close to home is important to student	0.371	0.328		0.833*	0.342	2.300
Academic reputation of post-sec inst. important	0.413	0.263		0.029	0.496	
Racial/ethnic composition of inst. important	-0.507*	0.223	0.602	-0.264	0.221	
Number of post-sec inst. applied to	0.099	0.062		-0.030	0.060	
High School Level (organizational habitus)						
Geographical background						
Urban (rural)	0.889	0.661		-0.689	0.512	
Suburban (rural)	-0.215	0.657		-0.980~	0.508	0.375
Region Midwest (Northeast)	-1.120*	0.555	0.326	-1.631**	0.602	0.196
Region South (Northeast)	-0.856	0.640		0.225	0.386	
Region West (Northeast)	0.075	0.577		1.416*	0.584	4.120
College-going culture						
Public (private)	1.537*	0.672	4.652	-2.122***	0.536	0.120
% Free and reduced price lunch students [a]	-0.028***	0.008	0.972	-0.016	0.011	
Student-teacher ratio [a]	0.073~	0.040	1.076	0.021	0.049	
Enrollment (in hundreds) [a]	0.018	0.022		0.081***	0.024	1.085
% Hispanic Teachers [a]	0.083***	0.012	1.087	0.055***	0.011	1.057
% Minority students [a]	0.029***	0.006	1.029	0.027***	0.007	1.028
% 2003 graduates who went to 2yr inst. [a][b]	-0.058	0.170		0.179	0.173	
% 2003 graduates who went to 4yr inst. [a][b]	0.194~	0.111	1.214	-0.033	0.150	
Intercept	-5.536***	0.901		-2.532**	0.963	
Number of Individuals at Level 1	2500			4400		
Number of High Schools at Level 2	530			570		
Tau00 Conditional (unconditional)	3.294			1.635		
	(4.795)			(3.208)		
Percent of variance explained at High School Level	31.303			49.034		

~ p ≤ 0.10; *p ≤ 0.05; **p ≤ 0.01; ***p ≤ 0.001

*These models are intercept-only models with robust standard errors. Slopes at level 2 are fixed.

[a] indicates variable was grand-mean centered
[b] % 2003 graduates who went to 2yr inst or 4yr institutions are both coded on a 0-5 scale, where *0 = None, 1 = 1-10%, 2 = 11-24%, 3 = 25-49%, 4 = 50-74%, 5 = 75-100%*

2-year model results

As expected, Hispanics were significantly more likely than members of other racial/ethnic groups to enroll in a 2-year HSI than a non-HSI. In another significant effect, students who reported that the racial/ethnic composition of the college was important to them in choosing a college were 1.662 times (1/0.602) less likely to enroll in a 2-year HSI. Females were 1.287 times (1/0.777) less likely than males to attend 2-year HSIs, a marginally significant effect.

At the high school level, public high school students were four times more likely than other students to attend a 2-year HSI, while graduating from a Midwestern high school was negatively related to 2-year HSI enrollment. Students from schools with higher proportions of free and reduced price lunch students were less likely to enroll in a 2-year HSI. Students from high schools with higher percentages of Hispanic teachers as well as higher proportions of minority students were more likely to enroll in a 2-year HSI. There were two slightly less significant effects of note; students from high schools with higher proportions of graduates who had pursued 4-year postsecondary educations were more likely to enroll in 2-year HSIs. Attending a high school with a higher student to teacher ratio was also positively related to 2-year HSI enrollment.

4-year model results

Aside from being Hispanic, three other student level variables were significantly associated with 4-year HSI enrollment. First, having higher standardized mathematics test scores was negatively related to 4-year HSI enrollment. Second, students who reported that living close to home was somewhat or very important to them in choosing a particular postsecondary institution were 2.3 times more likely to attend an HSI, holding all of the other variables in the model constant. Third, first-generation immigrant students were about half as likely as other students to enroll in a 4-year HSI.

At the high school level, students who attended a public high school were much less (8.333) likely to attend an HSI, all other factors being equal. Students from Western high schools were just over four times more likely to enroll in a 4-year HSI than a 4-year non-HSI, while students attending Midwestern high schools were 5.102 times less likely to do so. Graduating from a high school with a larger enrollment was positively associated with 4-year HSI enrollment. Coming from a high school with a higher percentage of Hispanic teachers was positively related to 4-year HSI enrollment. Coming from a high school with larger proportion of minority students had a separate and positive relationship with 4-year HSI enrollment.

DISCUSSION

This study extends past research on college choice by taking high school, as well as individual, factors into account to examine factors associated with high school students' choice of HSIs. These results suggest that accounting for high school context greatly enhances the understanding of students' pathways toward 2-year or 4-year HSIs. Findings also suggest that less is understood about what predicts college choice in the 2-year sector, compared with the 4-year sector (Perna, 2006). The following sections detail the influence of multiple capitals, and individual and organizational habitus on the choice of 2-year and 4-year HSIs.

Multiple capitals, individual habitus, and 2-year HSIs

Students who enroll in 2-year HSIs out of high school apparently have less access to financial, academic, cultural, and social capital than students who do not enroll in HSIs. Accordingly, students in 2-year HSIs show an individual habitus for choosing colleges that are more focused on financial concerns and staying close to home. Once high school factors are controlled for, however, the independent effects of these various forms of capital are diminished.

There are no differences in the proportion of women and men enrolled in 2-year HSIs, but, counter to research emphasizing male lack of representation in higher education (Buchmann, 2009), our multivariate research suggests that being female actually becomes a negative predictor of 2-year HSI enrollment when the model's other factors are held constant. While not expected, this finding is congruent with other research on traditional and non-traditionally aged college students indicating that males are more likely than females to be enrolled in 2-year HSIs (Núñez et al., 2011). Two-year HSIs may be providing men with increased postsecondary educational access, and gendered experiences in Minority-Serving Institutions merit further attention (Lundy-Wagner & Gasman, 2011).

Only one individual habitus characteristic, ranking the racial/ethnic composition as important in choosing a college, becomes negatively and significantly related to the choice of a 2-year HSI, when other student- and high-school factors are taken into account. It is possible that high school students perceive HSIs as racially/ethnically diverse. Therefore, they could be less likely to view racial/ethnic composition as a concern in their college choice.

High school organizational habitus and 2-year HSIs

Several high school factors significantly predict enrollment in 2-year HSIs, holding other variables constant. This suggests that high school organizational habitus may be just as, if not more, influential than the student's individual habitus in affecting 2-year HSI enrollment. Geographical context and the availability of local higher education options affect choice of a 2-year HSI. Attending a Midwestern high school is negatively related to enrollment in a 2-year HSI, as HSIs tend to be concentrated in other areas of the country (Santiago, 2006).

This study suggests that 2-year HSI students come from high school contexts with an organizational habitus offering less access to academic capital. Public high schools and those with a higher student to teacher ratio are more likely to send students on to 2-year HSIs. Compared with private high schools, public high schools tend to have higher student to teacher and student to counselor ratios, and are less likely to offer access to a curriculum that is "constrained" to college preparatory classes (Lee, Croninger, & Smith, 1997). These conditions could inhibit capabilities of school personnel to guide students toward college.

On the other hand, high schools that channel students toward 2-year HSIs also appear to have some resources that could promote a college-going culture. Students in 2-year HSIs may have had more access to various forms of capital at their high schools, in the sense that their high schools have comparatively

increased socioeconomic status (McDonough, 1997; Orfield, 2009; Wilms, 2010). Moreover, high schools that send students to 2-year HSIs also have higher proportions of graduates enrolled in 4-year (but not 2-year) colleges, suggesting a college culture that promotes 4-year college enrollment. HSIs tend to be located in states, like California and Texas, that have more 2-year colleges and clearly articulated 4-year transfer agreements, particularly in the wake of bans on affirmative action (O'Connor et al., 2010). These state policy conditions could influence high school students who enroll in 2-year HSIs to have an individual habitus more oriented toward transferring to 4-year institutions. This speculation is congruent with other research indicating that students in Hispanic-Serving community colleges report wanting to transfer to a 4-year institution at higher rates (Núñez et al., 2011). Regional and state policies that affect the appeal, availability, or accessibility of 2-year and 4-year college options can affect the organizational habitus of a school, as Perna and her colleagues (2008) found in their study of guidance counselors' sensemaking of postsecondary options for their students.

Organizational habitus as conditioned by teacher and peer networks also appears to strongly influence 2-year HSI enrollment. High school students who enroll in 2-year HSIs come from high schools with higher proportions of Hispanic teachers and minority students, which indicates a possible organizational habitus that is more oriented toward HSIs. As with African American teachers and HBCUs (Freeman, 2005), an increased presence of Hispanic teachers (who may be HSI alumni) and of minority students could raise students' awareness about HSIs.

Multiple capitals, individual habitus, and 4-year HSIs
As in the 2-year sector, high school students who enroll in 4-year HSIs appear to have less access to multiple capitals than their non-HSI counterparts. They are more likely than others to have individual habiti that are oriented toward staying near their high school homes in their college choice. However, once high school contextual factors are controlled for, fewer individual characteristics significantly distinguish between the two groups. Aside from an increased likelihood of being Hispanic, students in 4-year HSIs are less likely to be first-generation immigrants, more likely to have lower high school math performance, and more likely to rank living near home as important in their college choice.

First-generation immigrant students tend to have higher academic achievement (Kao & Tienda, 1995; Portes & Rumbaut, 2001) and therefore might be more eligible to attend more selective institutions. They may also be drawn to the prestige, or symbolic capital (Bourdieu & Passeron, 1977), that a more selective institution might offer in a new country. If they have had less exposure to a negative context of reception in the US (Portes & Rumbaut, 2001), they could be less concerned about racial/ethnic diversity in their institutions. Thus, they could be less likely to enroll in less selective HSIs.

Four-year HSI students have less academic capital in terms of math skills. This suggests that 4-year HSIs are serving student bodies that are less prepared in mathematics. Since high school math preparation is one of the most important predictors of college completion (Adelman, 2006), students who enroll in 4-

year HSIs already begin college at a relative academic disadvantage for completing college.

Students who enroll in 4-year HSIs appear to have a habitus that is strongly oriented toward staying geographically close to their families of origin while pursuing a college education. This finding is congruent with other research (Cejda & Casparis, 2002; Hurtado et al., 2008; Santiago, 2007). Furthermore, by controlling for a range of individual and high school factors, this study provides even stronger and more generalizable evidence indicating a distinct habitus for 4-year HSI students in terms of staying close to home. This individual habitus could emphasize dual concerns of maximizing access to family support and to limiting the cost of college (Hurtado et al., 2008; Santiago, 2007).

High school organizational habitus and 4-year HSIs
Regional availability of HSIs affects a high school's organizational habitus. Students from Western high schools are more likely and students from Midwestern high schools are less likely to enroll in 4-year HSIs. Reflecting the concentration of 4-year HSIs in urban areas (Santiago, 2006), suburban students are less likely to enroll in 4-year HSIs. An unexpected finding that private high school attendance is positively related to 4-year HSI enrollment may reflect that several 4-year HSIs are Catholic institutions, and therefore, private Catholic high schools could channel their students to these 4-year Catholic HSIs. We encourage future research in this domain.

High schools sending students to 4-year HSIs could have an organizational habitus less characterized by a college-going culture. Our findings indicate that students enrolling in 4-year HSIs come from schools having less access to resources like guidance counselors, teachers, or workshops to guide them in college preparation and application processes (Engberg & Wolniak, 2009; Schneider et al., 2007). Therefore, 4-year HSI students could need more support from college personnel in handling the college transition.

This study suggests that social capital, through access to networks of Hispanic teachers and minority peers, affects enrollment in 2-year and 4-year HSIs. These teacher and peer effects do not cancel one another out, which highlights these agents' distinct roles in affecting college choice. Similar to how African American teachers influence high school students to attend HBCUs (Freeman, 2005), Hispanic teachers and minority students could shape an organizational habitus that raises consideration of HSIs as viable postsecondary options (Bellessa Frost, 2007).

As noted earlier, regional location, state policy conditions, and the availability of local higher education options can affect a high school's organizational habitus and an individual's habitus toward making sense of college options (Perna, 2006; Perna et al., 2008). High school students who live near HSIs may be more familiar with and more likely to consider HSIs in their college choice process (Butler, 2010). If students who attend 4-year HSIs tend to wish to stay close to home for college, and students who attend 2- or 4-year HSIs tend to come from certain geographic regions with relatively high concentrations of Hispanics, understanding the local geographic context of higher

education options appears particularly important in understanding choice of HSIs.

Limitations
As always, this study had various limitations. First, this research only addressed recent high school students' pathways into HSIs, rather than those of older students, whose choices also merit attention. Second, this study's institutional comparison group was constructed as any institution that was not an HSI, rather than limiting the set of comparison institutions to Predominantly White Institutions (PWIs), as in other studies (e.g., Bridges et al., 2008; Hubbard & Stage, 2009; Nelson Laird et al., 2007). Our purpose for doing this was twofold: to mirror how HSIs primarily are distinguished from other institutions (by enrollment level) and to understand the behavior of the entire college-going sample. This conservative approach to constructing a comparison group could have led to an underestimation of the models' effects.

Third, limited types of variables and missing data precluded us from including other variables in the model reflecting our theoretical frameworks. As other observers have noted, NCES data sets sometimes contain limited proxies for such constructs (Perna, 2007). Finally, disaggregating analyses of college choice by racial/ethnic group could yield insights about how members of different racial/ethnic groups decide to enroll in HSIs.

CONCLUSION
This study highlights how a high school's organizational habitus contributes to the decision to enroll in an HSI. High school context could influence choice of HSIs more strongly than for other institutions, since HSIs tend to serve more local students (Laden, 2001). In addition to enhancing Hispanics' college access (Perna et al., 2010), 4-year HSIs appear to be providing additional access to students interested in staying near their home communities, and 2-year HSIs appear to be serving male students, who are underrepresented in other sectors of higher education (Buchmann, 2009; Laden et al., 2008; Núñez et al., 2011).

Students in 4-year HSIs evidently have an individual habitus oriented toward being closer to home. Current models of student persistence tend to focus on students who reside at colleges rather than live at home (Wolf-Wendel, Ward, & Kinzie, 2009). Examining local or non-residential 2- or 4-year college students' experiences more closely could strengthen college student retention theories and inform policy and practice to enhance students' sense of belonging in college. Such research could also inform HSIs' recruitment and retention efforts.

Some HSIs stand out for awarding especially high numbers of STEM bachelor's degrees to Hispanics (Dowd et al., 2010; Hixson, 2009). Our study reveals that, holding other factors constant, 4-year HSIs enroll students with lower high school math preparation. This strengthens the evidence that high-performing HSIs successfully cultivate "talent development" (Astin, 1985; Hurtado, 2006) among students with varied academic preparation.

Since HSI students have less access to various forms of capital, and since HSIs tend to receive less funding than other institutional types, these HSIs are doing "more with less," and merit more state and federal resources for promoting STEM degree attainment, through avenues such as the federal College Cost Reduction and Access Act--Hispanic-Serving Institutions (Malcom et al., 2010, p. 12). Given current policy concerns with diminishing science degree attainment, particularly among students of color (National Academy of Sciences, 2010), more research is also needed about what HSIs are doing that promotes STEM degree attainment among students with varied academic preparation levels (Dowd et al., 2010; Gasman, 2009). Such research would benefit both HSIs and non-HSIs in developing STEM efforts.

Despite doing "more with less," public HSIs may be disadvantaged in state funding formulas, in cases where funding is tied to metrics such student persistence. This study demonstrates that students who begin at HSIs are already at a disadvantage for not completing college. Tying state funding to metrics such as student persistence does not take into account the role that lower student "inputs" (Astin, 1985) play in HSIs' lower persistence rates. Attributing HSIs' lower persistence rates solely to institutional responsibility overlooks the individual characteristics of students that HSIs serve, as well as the conditions of the high schools that appear to channel students toward these institutions. HSIs provide college access not only to Hispanic students (Perna et al., 2010), but to many students who have less capital to attend college. Providing public HSIs with less institutional funding on the basis of metrics such as persistence hinders HSIs' capacities to be responsive to their student body, because lower institutional funding is independently connected with lower persistence rates (Bound, Lovenheim, & Turner, 2010). Rather than encouraging HSIs to perform better, such accountability policies could actually perpetuate a downward cycle for public HSIs to support students' degree completion. In light of other evidence that HSIs are doing a better job with fewer resources with the students that they do enroll, state policies should not only avoid penalizing HSIs for outcomes such as persistence rates, but address the contributions that public HSIs make in terms of offering college access and increasing degree completion in understaffed fields such as STEM. Of course, this would require shifting from a political emphasis on "resources and reputation" that stresses the quality of the incoming student body to "talent development" that stresses the capacity of institutions to cultivate student academic growth (Astin, 1985).

P-20 partnerships constitute one critical component of building a college culture that bridges the organizational habiti of local K-12 and higher education institutions, sometimes with the support of state, federal, and other non-governmental stakeholders (Jarsky et al., 2009; McClafferty et al., 2002; Núñez & Oliva, 2009). Connecting HSIs with K-12 personnel could serve many purposes. Since recruiting students is particularly important to HSIs (De Los Santos & De Los Santos, 2003), targeting high schools with certain organizational habiti and individuals with certain habiti could yield benefits. HSI personnel could network with teachers in selected local high schools, particularly those with high proportions of Hispanic teachers or minority students, to identify students who might be a good fit for the institution. Given peers' influence on HSI college choice, local high school graduates in HSIs could discuss their college experiences with local students and families.

P-20 efforts that address academic development, exposure to college campuses, and college and financial aid application assistance can also build HSI students' college preparation. Federally funded examples of such initiatives include the GEAR UP and the TRIO Upward Bound programs (Núñez & Oliva, 2009). In addition, under the non-profit Early College High School Initiative (2011), several HSIs oversee Early College High Schools that afford students of varying academic levels the opportunity to take college preparatory curricula and receive college credit for advanced high school coursework. Outreach programs such as Math, Engineering, and Science Achievement (MESA, 2011) can also enhance students' academic preparation for STEM courses and careers. These experiences help students to bridge their K-12 and college experiences. Particularly for students with less access to familial or school college-going capital, such initiatives could enhance college transition and completion rates.

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