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**Advancing the Quality and Equity
of Education for Latino Students:
A White Paper**

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Abstract

This white paper provides an overview of the issues that affect the quality and equity of education in grades K–16 for Latino students in the United States. This paper is organized chronologically to reflect the typical educational timeline for students in the United States, and we focused on several key transition points in the educational timeline: from elementary school to middle school, from middle school to high school, from high school to college, and from a two-year college to a four-year college. Each of these transition points can pose challenges for every student, but in this paper, we focused specifically on the unique challenges that Latino students encounter. It is our hope that this paper will provide an impetus to action and will serve as a guide for future directions for collective research efforts on the critical issues regarding the education of Latino students in the 21st century.

Key words: Latino students; Hispanic students; academic achievement; educational transitions; student demographics

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Executive Summary

Today, the state of education for Latino students in the United States is at a crisis point. The loss of human and social capital that results from the underachievement of Latino students is a significant barrier for our country in meeting the demand for an educated and talented workforce to compete globally in the 21st century. On an individual level, when Latino students are not provided with the same opportunity to receive a world-class education as other students, they are denied the chance to fully realize their potential as students, workers, and citizens. The present conditions of education for Latino students will not improve unless concerted efforts are made to effect change from educators, politicians, policy makers, researchers, and parents. ETS, as the world's leading assessment organization, should play a central role in advancing the quality and equity of education for Latino students in the United States through our work in assessment, research, and outreach. This goal is the very embodiment of our corporate mission to advance quality and equity in education for all people worldwide.

As a step toward meeting this goal, this white paper was commissioned by ETS. It was written to provide an overview of the issues that affect the quality and equity of education in grades K–16 for Latino students in the United States. The paper is organized chronologically to reflect the typical educational timeline for students in the United States. We focused on several key transition points in the educational timeline: from elementary school to middle school, from middle school to high school, from high school to college, and from a two-year college to a four-year college. Each of these transition points can pose challenges for every student, but in this paper, we focused specifically on the unique challenges that Latino students encounter.

To preview the ideas and topics in the white paper, we highlight three key findings on the current status of education for Latino students in America:

- At the elementary grade levels (K–5), educational inequality results from both between-school segregation (a disproportionate representation of one racial/ethnic group in one school or district over another) and within-school segregation through tracking that limits students' access to challenging curriculum. Latino students are disproportionately more likely to attend segregated schools of lower quality and more likely to be tracked into less challenging classes. In addition, there are concerns about the assessments used to classify Latino students for English development and special education. These issues require intensive research and development efforts.

- For Latino students, perhaps the single most significant educational challenge they face is the successful completion of high school. At present, Latino students drop out before completing high school at significantly higher rates than any other racial/ethnic group in the United States. In the states with the largest Latino populations, California and Texas, only 55% and 56%, respectively, of Latino students graduate from high school. Gaps in high school completion rates between Latinos and other groups remain even after controlling for the students' social class background, language proficiency, and immigrant status.
- In higher education, the critical issues are the low numbers of Latino students who enroll, persist, and graduate, often due to the lack of appropriate academic skills upon entry. These issues are strongly related to the large proportion of Latino students who attend community colleges, which tend to have low graduation rates, fewer resources, and low transfer rates to four-year institutions. This large concentration of Latino students in two-year institutions is a subject of intense scrutiny because of the lower completion rates and reduced economic opportunities for students in those schools. A related issue is college readiness and the role of remedial courses as gateways to degree completion.

In conclusion, we should expect no less than the highest quality of education for all of America's students, regardless of race, ethnicity, language background, or national origin. We hope that this white paper will provide an impetus to action and will serve as a guide for future directions for collective research efforts on the critical issues regarding the education of Latino students in the 21st century

Overview

Americans of Hispanic or Latino descent are the largest ethnic minority group in the United States, and it is estimated that Hispanic or Latino Americans currently constitute more than 16% of the U.S. population, or more than 50 million people (U.S. Census Bureau, 2011). Currently, nearly 22% of all pre-K–12 students in U.S. public schools are Latino. It is also estimated that by the year 2025, 25% of all U.S. K–12 students will be of Spanish-speaking origin (U.S. Census Bureau, 2008a). The Latino student population is increasingly native-born, and it is estimated that currently over 90% of Latino students are U.S. citizens (National Women’s Law Center & Mexican American Legal Defense and Educational Fund, 2009). Individuals who are of Hispanic or Latino heritage have lived continuously in what is now the United States mainland since the founding of St. Augustine, Florida, by Spanish explorers in 1565. In the American Southwest, Santa Fe, New Mexico, the oldest capital city in the United States, was founded by New Mexico’s third Spanish governor in 1608. The U.S. Census Bureau defines Hispanic and Latino Americans as individuals with origins from Mexico, Puerto Rico, Cuba, Central or South America, or other Hispanic culture or origin. In the western United States, the preferred term is *Latino*, while *Hispanic* is more commonly used in the eastern United States. For the purposes of this paper, the terms are interchangeable, and throughout the remainder of this paper, we will use the term Latino exclusively to refer to both males and females; where necessary, we will use Latina to refer specifically to females.

Far from being a homogeneous or monolithic group, Latinos in the United States are a highly diverse group of individuals with regard to family culture, country of origin, generational status in the United States, language proficiency in English and Spanish, and socio-economic status. Each of these factors is a significant influence in the educational experiences of Latino students, and an understanding of these factors can serve to inform the development of an ETS research agenda. We will not explore these factors in great detail, but will instead provide a brief description that will highlight the influences of these factors on the education of Latino students.

Latino individuals in the United States trace their national origins to more than 20 countries or geographical entities. A report issued in 2010 by the Pew Hispanic Center found that the five most common places of origin included Mexico (64.3%), Puerto Rico (9.1%), Cuba (3.5%), El Salvador (3.2%), and the Dominican Republic (2.6%). Country of origin impacts the timing and causes of migration to the United States; furthermore, for some individuals, residency

in the United States is transitory or itinerant due to economic, legal, or social constraints. Thus, migration histories and patterns often shape and influence the educational experiences of Latino individuals in America (Burciaga, Huber, & Solorzano, 2010).

Related to national origin is one's generational status in the United States. First-generation Latinos (individuals born outside of the United States), particularly those who are recent immigrants, have educational needs and goals that differ markedly from those of Latinos who have been in the United States for three or more generations. Foreign-born Latino students make up 25% of the school-aged Latino population (Tienda, 2009). Students who have recently arrived in the United States may have had limited formal instruction in their native country and may have limited proficiency in English (American Federation of Teachers, 2004; Gándara, 2004). Further, they may have had limited exposure to standardized testing in school and may be especially unfamiliar with multiple-choice test items (Maspons & Llabre, 1985).

Latinos who are third-generation Americans or later (30% of the Latino school-aged population; Tienda, 2009) generally have more exposure to English and greater proficiency in English than first- or second-generation Latinos. However, even among second- and third-generation Latinos, a large proportion of these individuals has Spanish, not English, as a first language. Rosenbaum and Cortina (2004) have estimated that nearly two-thirds of U.S.-born Latinos are exposed to Spanish at home, which demonstrates the persistence of at least spoken Spanish across the generations.

An individual's level of English proficiency has implications for educational access and attainment (LeCroy & Krysik, 2008). Students in grades K–12 who are not fully proficient in English, commonly known as English language learners (ELLs), make up 43% of the Latino K–12 population and face unique challenges in mastering academic content while simultaneously developing English proficiency. Although English proficiency and number of years of schooling tend to improve across generations of Latino students, grades, test scores, and other indicators of educational achievement often do not (Kao & Tienda, 1995; Portes & Rumbaut, 1990). Paradoxically, Latino immigrants (particularly those from Mexico) often perform better academically than Latino students who were born in the United States. However, it is not immigrant status itself that leads to higher grades; rather, it is a history of prior schooling in their native country as well as English language support that enables immigrant students to achieve academically (Padilla & González, 2001). A strong academic foundation in their native language

can facilitate learning content in English, since these students already possess content knowledge that can transfer across languages (August & Hakuta, 1997). Time of arrival is important, however. The advantage of first-generation students is reversed for students who arrive in the United States with limited English proficiency in high school (Erisman & Looney, 2007). Furthermore, adult students in higher education (18 years of age or older) who are not fully English proficient are more likely to require remedial or English as a second language (ESL) courses and are less likely to obtain a 2-year or a 4-year degree than their native English speaking counterparts (Venezia, Kirst, & Antonio, 2003).

For a small proportion of Latino students, having parents with unstable migrant employment also affects education. In a 2002 survey, 7% of Latino students reported coming from migrant families, with Latino students making up 80% of the migrant student population (American Federation of Teachers, 2004). Latino students whose families are migrant face academic challenges due to frequent transitions to new schools, periods without access to school, moving back and forth from Mexican to U.S. schools, and, for students with limited English proficiency, changing ESL services and identification criteria (Gándara, 2004; Olsen, 2010). As a result of school changes, young Latino students are more likely to have trouble adjusting to new schools, and older Latino students are more likely to drop out of school (Gándara, 2004).

As is the case for other demographic groups, one's family socio-economic status (SES) plays a key role in the educational attainment of Latino students. For students in U.S. schools, lower SES is generally associated with lower performance on a wide variety of educational indicators, such as standardized test scores, high school graduation, time to degree, and degree completion in higher education (Bowen, Chingos, & McPherson, 2009; Sirin, 2005). Because Latino families have a lower median family income than the general U.S. population and lower parental educational levels (American Federation of Teachers, 2004), the possible effects of family SES on the educational achievement and attainment of Latino students is of particular concern. For example, access to higher education is affected by a number of factors, one of which is the availability of financial resources to enable college attendance and to facilitate degree completion. In addition, Latino individuals are more likely to report that family financial obligations limit their ability to obtain a college degree (McDonough, 2004; Roderick, Nagaoka, Coca, & Moeller, 2008).

Family culture derives from and is embedded within the larger culture of a community. Family culture also helps to shape an individual's expectations with regard to educational achievement and attainment (Reese, Balzano, Gallimore, & Goldenberg, 1995). In addition, family culture is a primary determinant of *cultural capital*, a sociological concept that refers to nonfinancial social assets (primarily ones that are educational or intellectual) that can promote social mobility beyond one's economic means (Bourdieu & Passeron, 1973). For Latino students, family culture is a critical influence all along the educational pipeline, including where Latino students apply for college (Carpenter & Ramírez, 2007; Gándara, 2005).

This white paper provides an overview of the issues that affect the quality and equity of education in grades K–16 for Latino students in the United States. The paper is organized chronologically to reflect the typical educational timeline for these students. We focus on several key transition points in the educational timeline: from elementary school to middle school, from middle school to high school, from high school to college, and from a 2-year college to a 4-year college. Each of these transition points poses challenges for every student, but in this paper, we focus on the unique challenges faced by Latino students.

Elementary School (Grades K–5)

Demographics

The number of Latino students in U.S. schools continues to increase rapidly, and they now account for 20% of the school-aged population across all elementary and secondary school grade levels (Reardon & Galindo, 2006). Young Latino children between the ages of 0 and 8 years also represent 20% of the U.S. population in that age group, according to U.S. Census data (Hernandez, Denton, & Macartney, 2007; Pew Hispanic Center, 2010). Most of these young Latino children (79%) live in one of nine states (California, Texas, New York, Florida, Illinois, Arizona, New Jersey, Colorado, and New Mexico) with almost one-third (33%) residing in California and another 20% in Texas. Even in less populous states, a large percentage of the population may be Latino; for example, in Nevada, one-third of the student population is Latino.

According to a demographic study by Fry and Passel (2009), the percentage of first-generation Latino students has remained constant at around 11% since 2007. For Latino adults the rate is higher, with 55% who are foreign born. The percentage of second-generation students (those whose parents were born outside the United States or U.S. territories) has been gradually decreasing, and the percentage of third-generation students (those whose parents were also born

in the United States) has been gradually increasing. Generational status is significant, because third-generation students are less likely to live in poverty and more likely to have parents who are fluent in English and who have completed high school (Fry & Passel, 2009).

Overview of the Latino achievement gap. Latino students already show an achievement gap in reading and mathematics readiness upon entering kindergarten (Galindo & Reardon, 2006). The school readiness of Latino kindergarten children is related to country of origin, generational status, and parents' level of English proficiency. Zill and West (2001) identified four major risk factors that contribute to the achievement gap for Latino kindergarteners: low family income, lack of parental education, single parent household, and lack of exposure to English at home. A variety of research studies have also documented the prevalence of these risk factors for Latino children. Higher percentages of young Latino children than White children within the same age range fall below the poverty level when family income levels are considered against local/regional cost of living expenses for necessities, including child care and health care (39% of Latinos compared to 12% of non-Latino Whites¹; Hernandez et al., 2007). The majority of Latino children (71%) live in households with at least one parent whose English proficiency is limited (Fry & Passel, 2009). Galindo and Reardon (2006) found further evidence of limited English proficiency for many Latino parents in the Early Childhood Longitudinal Study kindergarten cohort (ECLS-K) of 1998–99. They found that Latino students' homes varied in terms of educational resources available (e.g., books, computers), access to high quality daycare, and exposure to reading and print materials with caregivers. Latino students from parents with lower SES and/or English proficiency tended to have fewer of these assets on average. Other research has shown that Latino kindergarten children, unlike children from other minority groups, are less likely to have participated in a high quality preschool program such as Head Start, in places where greater educational resources and school readiness programs are offered (García, Jensen, & Cuéllar, 2006).

The achievement gap that exists at the start of kindergarten seems to narrow in the first 18 months of school but then levels off in subsequent grades (Reardon & Galindo, 2008). The greatest gains were made by students who initially scored very poorly on school readiness measures (although regression to the mean may have impacted these results). These students included first- or second-generation immigrants, students from low SES families, and students with limited English proficiency at the start of school (Reardon & Galindo, 2009). Because this

trend was based on the ECLS-K database, which has limited data on students' experiences following school entry, the available data could not explain why the leveling off occurred. However, Reardon and Galindo speculated that the impressive gains made by Latino students in kindergarten and 1st grade are due to rapid acquisition of English and possibly more effective instruction for ELL students in the early grades.

Results from the National Assessment of Educational Progress (NAEP) document the long-term, persistent achievement gaps between Latino and White students. For 4th grade reading, the average score for Latino students in 2009 was 205, an 8-point increase from 1992. In comparison, the average score for White students in 2009 was 230, a 6-point increase from 1992. In 2009, only 17% of Latino students were classified at or above the proficient level in reading, while 42% of White students were similarly classified. For 4th grade mathematics, the average score for Latino students in 2009 was 227, a 27-point increase from 1992. In comparison, the average score for White students in 2009 was 248, a 28-point increase from 1992. In 2009, only 22% of Latino students were classified at or above the proficient level in mathematics, while 51% of White students were similarly classified. For 4th grade science, the average score for Latino students in 2009 was 131, while the average score for White students was 163. In 2009, only 14% of Latino students were classified at or above the proficient level in science, while 47% of White students were similarly classified.

Family variables: Parental income and education, mobility, and social capital. A number of family background factors appear to contribute to the low academic achievement of Latino students. Many factors, such as being raised in single parent homes, having parents who do not monitor/assist with homework, coming from a low-income family, and frequent school changes due to parents' variable and/or migrant employment, appear to be related to adverse impacts for all children regardless of race or ethnicity (Kirsch, Braun, & Yamamoto, 2007). However, factors related to parent involvement and consistent school experiences are often more common problems among Latino students and therefore have a greater impact on their academic performance as a group.

Social capital is a term used to describe the family resources available to help students navigate through the educational process. Social capital is linked to parents' educational levels, because parents with higher levels of education are better able to understand the ways that schools function and thus can advocate more effectively for their children. It is also linked to

economic resources and English language proficiency within the family structure. Furthermore, parents are better able to support children's school endeavors when their own school experiences were positive. Thus, lower levels of social capital and parental involvement may be the result of discomfort with intervening in U.S. schools due to low educational levels, low socioeconomic status, and negative school experiences in their native country or in the United States (García-Coll & García, 1995; Tinkler, 2002). Social capital and parental involvement thus appear to be mutually reinforcing influences on students' academic experiences.

Barton and Coley (2009) analyzed the U.S. Department of Education's Child Trends DataBank and found that parental involvement increased for all racial/ethnic groups from 1999 to 2003. For Latino students across all grade levels, this increase was from 51% to 61% for attending a school event and from 25% to 28% for school involvement such as serving on a committee (Barton & Coley, 2009). Although these increases represent positive trends in Latino parental involvement, these percentages remain quite low compared to those for parents of White students.

In general, the research literature provides a strong link between parental involvement and student achievement (Fan & Chen, 2001), although it is not clear if this influence is stronger for racial/ethnic minority students. Jeynes (2003) studied the impact of parental involvement on the academic success of minority student groups and found a larger positive effect for Latino students compared with White students. On the other hand, Desforges (2003) reviewed the literature on parental involvement across racial/ethnic groups and concluded that when studies controlled for differences in parenting style, group differences were minimal.

Parental involvement appears to influence children's approaches to learning and school behavior. Latino students whose parents are more involved in their education seem more motivated to learn and are less likely to exhibit behavioral or discipline problems (Rodríguez-Brown, 2010). Galindo and Fuller (2010) examined the relationship between Latino kindergarten children's social competence and their mathematics understanding using teacher ratings clustered around the students' approach to learning (e.g., persistence, eagerness to learn, etc.), interpersonal relationships, and self-control. Galindo and Fuller found that Latino children with lower social competency ratings had lower mathematical understanding than Latino children with higher social competency, and this relationship held for all five dimensions of social competence. Differences were found when comparing the social competencies of White and

Latino children, but these differences were greater for economically disadvantaged Latino children.

Migratory employment is another influence on academic experiences that impacts Latino students more often than other minority students. Mobility, often as a result of parents' low SES or limited formal education, makes it difficult for students to receive a high quality education consistently. Seeking employment and affordable housing may cause families to relocate several times during a school year, sometimes across states or countries. Children who move frequently seem to be at greater risk academically because frequent school changes cause disruptions in students' exposure to academic content due to differences in curricula and may result in drastic changes in instructional modes and support services (Kerbow, 1996; Paik & Phillips, 2002). Not surprisingly, Wasserman (2001) found that students who moved more frequently (necessitating a change in schools) had lower grades and lower achievement test scores.

For migrant workers entering the United States from Mexico and Central American countries, mobility is prompted by variations in the harvest cycles. Several states (e.g., California, Arizona, and Florida) have developed programs under the national Migrant Education Program to provide resources for children whose parents are migrant workers. These programs attempt to bridge differences across states in terms of curriculum, achievement standards, and graduation requirements in order to support student achievement. The programs serve children from preschool through 12th grade. In the elementary grades, some state programs involve resources such as providing students with personal copies of books from the Reading Is Fundamental (RIF) program and summer study packets. However, no rigorous studies have evaluated the impact of the Migrant Education Programs, and the program offerings described on state websites do not adequately address how the programs help Latino students acquire a quality education over time (Burciaga et al., 2010).

Opportunity to Learn

In response to assessment mandates under the No Child Left Behind federal legislation, guidelines for ensuring instructional opportunities for all students were developed to provide all students with fair and equitable learning experiences. The guidelines include access to quality instruction, curriculum alignment, teacher preparation, and access to a school environment designed to promote optimal student learning for all students (González, 2001, 2002; Schwartz, 1995; Villarreal, 2001). However, research has shown that Latino students are more likely to

attend ethnically and economically segregated schools of lower quality and are more likely to be tracked into less challenging classes than White students. Latino students are also overrepresented in special education classes and, along with students from other minority groups, are underrepresented in gifted and talented programs (Ford, Grantham, & Whiting, 2008). The differences in educational experiences are believed to greatly restrict the access that Latino students, especially ELL students, have to high quality instruction and opportunity to learn the core curriculum.

Segregation and ability grouping in the elementary grades. Educational inequality can be the result of between-school segregation, where there is a disproportionate representation of one racial/ethnic group in one school or district compared to another, or within-school segregation, where tracking limits students' access to challenging curriculum. *Tracking* is one term for ability grouping either at the classroom level, which results in students consistently being placed in low- or high-level classes with students of similar ability, or creating within-class ability groups. Tracking is believed to negatively impact the academic achievement of students placed in the low tracks (Oakes, 1995). Tracking may be especially problematic when a racial/ethnic group is overrepresented in special needs classes and underrepresented in gifted and talented programs. Although educational, political, and legal efforts to achieve educational equity through school and classroom desegregation have been initiated, these efforts have not been always successfully implemented or maintained for Latino students (Stritikus & English, 2010).

Although the United States formally ended racial segregation in public schools in 1954 and forced school integration during the 1950s and 1960s, differences in the SES level and racial/ethnic composition of neighborhoods that feed into local public schools still lead to de facto school segregation. In a related trend, open enrollment policies, a form of school choice within a district, have also resulted in increased segregation in districts that allow the practice. For example, Prins (2007) presented enrollment statistics from 1970 to 2004 to show that in one small California town where parents were allowed to transfer their students to preferred schools regardless of where in the district they lived, the open enrollment policy resulted in a significant decrease in the White student population in the local school due to school transfers, while the Latino population steadily increased. Greater social capital and involvement in the educational system for White parents is believed to influence their greater use of such policies. Laosa (2001)

reported national trends showing that between-school segregation in the United States had been steadily increasing for Latino students since the 1970s and for several years exceeded that of African American students. Specifically, Laosa found that in 1997, 75% of Latino students attended a school that was predominantly minority, compared to 69% of African American students. Furthermore, segregated schools tended to be located in urban areas characterized by a large percentage of socioeconomically disadvantaged students and also tended to be rated as low quality (Laosa, 2001).

Studies have found that tracking in year-round schools occurs either due to an effort to serve migrant populations who need an alternative calendar year or through lack of funding for multiple classes of mandated programs such as bilingual or special education classes (Mitchell & Mitchell, 1999). Students in the year-round track were found to have significantly higher percentages of Latino students and lower achievement test scores.

Teacher quality. The achievement gap for Latino students may be partly explained by the clustering of economically disadvantaged Latino students in urban schools with less qualified teachers (Barth, 2000). Lack of adequate teacher preparation is thought to be a major contributor to the achievement gap for Latino elementary students (Barth, 2000). Based on survey data from 417 college programs providing bachelor's- and master's-level teacher certification across the United States, Menken and Antúnez (2001) found that when coursework in linguistics was required, it was often a survey course that provided inadequate preparation for teaching bilingual students. In-service support has also been found to be inadequate: Escamilla (2006) interviewed 12 bilingual 4th and 5th grade teachers, who reported that none of their teacher training classes was conducted in Spanish and few ongoing professional development opportunities were made available to them as teachers. The teachers also believed they were underprepared to teach writing in both English and Spanish. Escamilla further observed that when the teachers scored English and Spanish writing samples, they attributed most English grammatical and spelling errors to the interference of the children's first language. Escamilla's unfavorable conclusion was that most of their comments were focused on deficits rather than on the more positive aspects of their students' writing, both for ELLs and non-ELLs.

Other research has focused on helping future teachers prepare to instruct Latino ELL students. Bollin (2007) reported a tutoring project that paired 110 preservice teachers with struggling Latino ELL students from Mexico. In this qualitative study, ELL students were

tutored in their homes in order to help the preservice teachers develop a better understanding of the culture. Results of the intervention appeared to be positive based on the preservice teachers' journal entries about the interactions; over 75% showed evidence that the student teachers took multiple perspectives and showed a greater appreciation of Latino culture (Bollin, 2007).

Reading development and disability. Acquisition of vocabulary is critical for early reading development for all students (Duursma et al., 2006). Studies have shown that Latino students who lag behind in English vocabulary learning are more likely to be at risk in reading development. Home language proficiency, particularly in academic language, is an asset to students in learning English. This claim found support in a study by Malabonga, Kenyon, Carlo, August, and Louguit (2008) who found that knowledge of a word in Spanish transferred to an understanding of its English counterpart if the student scored high on a Spanish vocabulary measure.

For ELL students, second language listening comprehension and phonological awareness are also important factors in learning to read in English (Gottardo & Mueller, 2009; Proctor, Carlo, August, & Snow, 2005). Acquisition of second language vocabulary proceeds by necessity at a faster pace than first language vocabulary learning. However, ELL students, particularly Latino students, in preschool and elementary schools often lag behind native English speakers on basic receptive vocabulary tests (Snow & Kim, 2007). This lag in vocabulary development becomes a greater issue for Latino ELL students in upper elementary classes where academic vocabulary specific to each subject area (e.g., mathematics, science, social studies) is added to the basic conversational and literary vocabulary loads. In this case, a test that assesses Latino ELL students' understanding of science and mathematics concepts through language-mediated assessment processes is also potentially a test of English vocabulary and reading comprehension.

Latino English Language Learner (ELL) Students

For Latino ELL students in the elementary grades (K–6), the critical issues identified in the literature include the procedures for identifying and classifying students as English language learners; procedures for accurately placing students into limited English proficiency (LEP) programs; and the under- and overclassification of Latino ELL students into special education programs. Assessment of academic achievement is very much an issue of concern for Latino

ELL students, because achievement tests may not only assess a student's understanding of academic content, but they can also be measures of reading level and vocabulary development.

A factor that can potentially reduce the validity of content assessments as measures of ELL students' content knowledge is the level of English proficiency necessary for understanding the language used in these assessments. Scarcella (2003) proposed a model of academic English that includes the interaction of phonological, lexical, grammatical, sociolinguistic, and discourse components (Francis & Rivera, 2007). Scarcella defined academic English as the form of English that is used in professional books and is characterized by linguistic features associated with academic fields. To succeed academically, students need to develop the specialized language of academic discourse that differs from conversational language (Francis, Rivera, Lesaux, Kieffer & Rivera, 2006). For ELLs, acquiring academic English skills is an important component of second language acquisition. One important aspect of second language acquisition is acquiring vocabulary (Snow & Kim, 2007). Although the rate of vocabulary acquisition for ELLs is greatly improved with effective instruction, studies show that the outcomes for ELLs often lag behind those for native English speakers (August, Carlo, Dressler & Snow, 2005). ELLs who experience slow vocabulary development are less able to comprehend grade-level text and are more likely to perform poorly on assessments of content knowledge (August et al., 2005).

English Language Learner (ELL) identification/classification/reclassification: Assessment issues. One of the primary challenges facing schools serving Latino elementary students is accurately identifying their level of English language proficiency for appropriate placement in schools. The procedure to identify and reclassify ELL students varies by state and sometimes by district within a state. Typically, the process begins with a home language survey, where parents provide details about their child's previous language experiences, followed by a state-mandated English language proficiency (ELP) assessment, such as *ACCESS for ELLs*. Depending on the student's score on the assessment, the student may be placed into a variety of programs offered by a school district, including a sheltered ESL program (which integrates language and content instruction), a pull-out ESL program (removing a student from a mainstream classroom for language instruction) with in-classroom support, or a mainstream classroom. Retesting occurs annually, and when the student scores above a predetermined cut score on the ELP assessment, he/she will be reclassified as a former ELL student and English

proficient. Some states require students to exceed specific cutoff scores on the state content achievement tests as well.

Some states (e.g., California, New Jersey, and Texas) test students' proficiency in Spanish as well as English using Pre-LAS Español to gather more information about the student's current academic development across languages. Using this test, an ELL student may be classified as a "limited Spanish speaker" or a "non-Spanish speaker," even when Spanish is technically his/her first language. Although some researchers have questioned the validity of some components of this test as measures of a child's oral language proficiency, these researchers acknowledge the valuable information such a test could provide for schools (MacSwan, Rolstad, & Glass, 2002).

Home language surveys. Schools use some version of a home language survey to ascertain a child's exposure to English and other languages prior to entering school. The survey is completed by a child's parents and consists of one or more questions about the language(s) spoken in the home. Typical questions include the following:

- What is the primary language spoken in the home?
- Does the child speak any other languages besides English?
- What is the child's first language?

Responses to questions such as these provide an indication that additional assessment information is needed to determine ELL status and placement. Presently, many different versions of a home language survey are used by districts and states across the United States. As a result, decisions regarding ELP assessment are often inconsistent and can vary across district and state jurisdictions. Students who relocate can, and have been, classified differently depending on the questions used in the home language survey by each school and on the basis of other information, such as prior test scores.

Zehr (2010) argued that children can be either under- or overidentified depending on the wording of these questions and the parents' understanding of the school's intent for the survey (Goldenberg & Quach, 2010). Likewise, Bailey and Kelly (2010) identified inconsistencies in the design and implementation of various forms of these surveys across states and districts and recommended that research be conducted to focus on the validity of this screening tool. Better information about the purposes of a home language survey might also increase the accuracy of

information provided by parents. For example, students may be underidentified (i.e., not appropriately screened for language proficiency) if parents have concerns about their residency or immigration status and exaggerate the exposure their child has had to English and their own use of English in the home. On the other hand, other students may be overidentified and subjected to unnecessary testing if they are truly bilingual but the parents note that Spanish is frequently spoken in the home.

Reclassification of English Language Learner (ELL) students. Most Latino ELL students who are first placed in English language services are later reclassified as former ELL students. For example, in California, assessment for possible reclassification begins at Grade 3 and continues annually through high school (Robinson, 2009). Hakuta, Butler, and Witt (2000) studied the English proficiency development of elementary students in California and Canada and found that ELL students achieve oral language proficiency typically by Grade 5 (estimating a developmental time frame of 3 to 5 years), but that developing academic English proficiency could take as long as 7 years. At present, there is no uniform assessment strategy that is used across the United States to determine whether a student is ready to be reclassified. This results in inconsistencies in the population of ELL students across states and confusion for students who move across districts and are repeatedly identified and reclassified for ELL services. González, Brusca-Vega, and Yawkey (1997) reported that a survey of the reclassification criteria in 700 school districts found that teacher judgment was used by 79% of the districts followed by achievement tests given in English (75%). They also found that districts with larger ELL populations were more likely to use a combination of assessment methods than districts with a limited ELL population.

Robinson (2009) considered the effects of reclassification on elementary and secondary level students' achievement and educational opportunities. He noted that the timing of reclassification presents challenges, because reclassifying a student too early may leave him or her without the needed language support, while delaying reclassification prevents students from participating in more academically challenging coursework. Although Robinson did not find that reclassification decisions impacted students' academic performance at the elementary school level, he argued that for ELL students to keep up with native English speakers, they would need to learn new academic vocabulary at the same pace. Robinson also highlighted the importance of identifying instructional strategies that are most successful in moving Latino ELL students

toward reclassification in the elementary grades. However, he cautioned that if reclassification means the removal of all language support services, English language development may be impeded for students who meet reclassification criteria but still differ in proficiency from non-ELL students.

Over- and underclassification into special education. It has been widely documented that minority and ELL students are overrepresented in special education classes (Artiles, Trent, & Palmer, 2004). Overclassification and/or misclassification of bilingual students have also been the focus of several court cases, with decisions that favored the plaintiffs and called for more adequate assessment, placement, and instruction (Artiles & Ortiz, 2002; Baca & Cervantes, 2004).

Ortiz (2002) distinguished between two types of students who fall behind academically: students who have real learning disabilities that impede their development and other students with academic or behavioral difficulties that have a range of other causes, including inadequate instruction. Students in this latter group fail because they do not develop the prerequisite skills to master the current grade level curriculum; this may be due to mobility, lack of consistent attendance, or English language needs that are not being adequately addressed. Language proficiency is particularly problematic for Latino students and creates serious challenges for fair and valid assessment of learning abilities. Irujo (2004) particularly noted the complexity of the problem of accurately identifying and/or diagnosing problems in reading with young ELL students, because it is often difficult to separate the factors contributing to low reading performance (leading to classification of reading disability) from issues related to learning a second language as a young child.

Baca and Cervantes (2004) also pointed to the inadequacy of current assessments to distinguish whether low academic performance is due to language proficiency issues or to special needs. As a result, some Latino students are inappropriately classified into special education programs when the real issue is language proficiency or lack of basic skills. Other Latino students who would benefit from special education programs are not placed in a program because their learning issues are mistakenly connected to language proficiency (Skiba et al., 2008). Ortiz (2002) concluded that the inadequate measures available likely allow too many ELL students with learning disabilities to struggle in mainstream classrooms without appropriate accommodations. The research suggests two important areas of need: first, the need for more

effective assessments especially in the early grades and, second, the need for more adequate teacher preservice training and professional development on how to evaluate and instruct Latino ELL students.

Middle School (Grades 6–8)

Demographics

The U.S. Census Bureau does not break down student enrollment figures for middle schools, as definitions of “middle school” vary across the nation. Most middle schools are composed of some combination of Grades 5 through 8. A rough estimate of the number of Latino students in middle school grades is provided by the Census Bureau’s 2008 Current Population Supplement, which reported that the number of Latino students, ages 10–13, enrolled in school was approximately 3,138,000, or approximately 20% of the total U.S. population for this age range.

Transition to Middle School

Students experience a number of changes in the school environment during the transition from elementary school to middle school (Alspaugh, 1998). Changing schools represents a specific transition that is a challenging and stressful life event for many students (Hirsch & DuBois, 1992). While the goals and evaluation methods of elementary schools tend to be task oriented, the goals and evaluation in middle school tend to focus on performance (Midgley, Anderman, & Hicks, 1995). Furthermore, the student-teacher relationship changes from elementary to middle school because students tend to have different teachers for different academic subjects during short instructional periods (Feldlaufer, Midgley, & Eccles, 1988). Because the transition from elementary to middle school represents the first of several major educational transitions for most students, how well a student is able to handle the myriad challenges is often a predictor of future success in school. Students who underperform in middle school generally find it extremely difficult to make a successful transition to high school (Cooney & Bottoms, 2002).

It is not surprising that in the transition from elementary to middle school, consistent negative effects have been found for student achievement (Alspaugh & Harting, 1995) as well as for student self-perception and self-esteem (Seidman, Allen, Aber, Mitchell, & Feinman, 1994; Wigfield, Eccles, Mac Iver, Reuman, & Midgley, 1991). Mixing students from multiple

elementary schools in the transition to middle school tends to increase the transition achievement loss. Fortunately, in most cases, student achievement test scores tend to recover to their pretransition levels in the year after the transition (Alspaugh, 2001).

In middle school, academic engagement is higher at schools that implement educational processes and practices associated with communal organizations (e.g., team teaching and interdisciplinary teams; Lee & Smith, 2001). These processes and practices are more easily adapted to smaller schools, which, in turn, tend to have lower drop-out rates, especially among students from low-SES families (Rumberger, 1995).

Non-English Language Learner (ELL) Students and Former ELL Students

Persistent and widening achievement gaps. The achievement gap that separates White and Asian American students from their African American, Latino, and Native American peers is observed as early as preschool and only widens across elementary, middle, and high school (KewalRamani, Gilbertson, Fox, & Provasnik, 2007). In terms of proficiency classification, in 2009, the median percentage of students classified as proficient at their grade level showed a gap of 17% to 23% between Latino and White students (Kober, Chudowsky, & Chudowsky, 2010). Minority (African American and Latino) students in the 8th grade made progress in the 1970s and early 1980s in closing the achievement gap with White students, but the gap widened again beginning in the 1990s. A report by the Center on Education Policy found that, although the gap has begun to narrow again in recent years, at the current rates of improvement, it could take decades before the achievement gap is fully closed (Kober et al., 2010).

The achievement gap also persists for students from low-income families. Low-income and minority students, two highly overlapping populations, disproportionately attend schools that lack strong curricula and well-prepared teachers (Cooney, 1998; Mizell & Irvin, 2000). The effects of SES on academic achievement are observed not only across racial/ethnic groups: Carpenter and Ramírez (2007) found that predictors of achievement, including SES and parental involvement, showed similar relationships to achievement within groups of Black, White, and Hispanic students that they also found between groups.

Results from the NAEP document the persistent achievement gaps between Latino and White students in middle school. For 8th grade reading, the average score for Latino students in 2009 was 249, an 8-point increase from 1992. In comparison, the average score for White students in 2009 was 273, a 6-point increase from 1992. In 2009, only 17% of Latino students

were classified at or above the proficient level in reading, while 41% of White students were similarly classified. For 8th grade mathematics, the average score for Latino students in 2009 was 266, a 20-point increase from 1992. In comparison, the average score for White students in 2009 was 270, a 23-point increase from 1992. In 2009, only 17% of Latino students were classified at or above the proficient level in mathematics, while 44% of White students were similarly classified. For 8th grade science, the average score for Latino students in 2009 was 132, while the average score for White students was 162. In 2009, only 12% of Latino students were classified at or above the proficient level in science, while 42% of White students were similarly classified.

Lack of linguistic and instructional support for former ELL students. Many researchers and educators express concern that students who are exited from ESL and bilingual education classes may still require instructional support that differs from that needed by students who were never classified as ELL students. Abedi (2008) as well as Gándara and Merino (1993) argue that ELL classification forms an arbitrary dichotomization among students who range in their need for linguistic support in the classroom. Analyses of achievement data for students who have left ESL programs yield mixed results. Abella (1992) examined the performance of students who had exited an ESL program in a large school district and found that most of these students performed successfully in regular classroom settings following program exit. In contrast, de Jong (2003) followed the achievement of a limited sample of 4th and 8th grade students who had exited their ESL or bilingual programs and found that more exited ESL and bilingual students fell into the failing category for science and more exited bilingual students also fell into the failing category for mathematics. de Jong concluded that the impact of reclassification into former ELL status on later achievement varied and that some exited ESL/bilingual students required continuing support following program exit.

Nonacademic School Issues

Recognizing the social and academic dimensions of school behavior is necessary for understanding the influences on educational achievement (Rumberger & Larson, 1998). Relationships at school with peers, teachers, and administrators can have a positive or negative impact on academic achievement and persistence. Positive interactions with school staff and encouragement from other nonfamily role models and mentors have been found to increase school engagement and academic success for Latino students (García-Reid, Reid, & Peterson,

2005; Martínez, DeGarmo, & Eddy, 2004; Stanton-Salazar & Spina, 2003). LeCroy and Krysik (2008) found a positive association between feelings of school belongingness or attachment and academic achievement for Latino students. They reported other research, which found a similar relationship between belongingness, expectancy, and value for academic success, persistence, and achievement. Likewise, a study by Faircloth and Hamm (2005) found that, for both Latino and White high school students, sense of school belonging was positively associated with academic success. Importantly, the authors point out that, unlike other risk factors such as SES or minority status, school experiences that support students' sense of belonging can be modified through interventions. A sense of belonging can be increased by positive interactions with school personnel, with attendant increases in social capital, and access to institutional knowledge (Shiu, Kettler, & Johnsen, 2009).

Disengagement in school has been shown to be related to having inadequately prepared teachers, experiencing long-term enrollment in segregated ESL services, and attending schools without sufficient financial resources (Callahan, 2005; Gándara & Rumberger, 2002). Discriminatory experiences and perceived institutional barriers also appear to negatively impact the engagement and persistence of Latino students (Katz, 1999; Martinez et al., 2004). Ethnographic studies show that ESL school practices can lead to marginalization of ELL students, who remain linguistically, academically, and socially isolated (Valdes, 1998). In this context, teachers tend to hold low expectations of their ELL students' abilities to succeed academically (Galván, 2009; Youngs & Youngs, 2001).), and students exhibit disengagement with the school culture and demonstrate patterns of low academic performance (Katz, 1999). Thus, lower track ESL placement may be associated with greater risk of dropping out of school and lower college readiness.

The racial/ethnic composition of a school can have both positive and negative effects on education and sense of belonging. For example, Latino students have more positive feelings about their schools when their ethnic group is well represented than in more segregated schools where they are underrepresented (Goldsmith, 2004). However, racially segregated schools often have reduced financial resources and less qualified teachers. Using the National Education Longitudinal Study 1994 (NELS:94) data set, Perna (2000) found that 49% of Latino students in the sample attended high schools comprised of 60% or more African American and Latino students, compared to 39% of African American students and 9% of White students. Of Latino

students, 47% attended an urban high school compared to 21% of White students. Almost half of Latinos (47%) attend school in urban school districts with high poverty rates, compared to 21% of White students (American Federation of Teachers, 2004; Perna, 2000). These high-poverty urban schools also tend to have less qualified or experienced teachers.

Social competition for school- versus street-oriented allegiances can be especially acute for disadvantaged minority students in poor, racially segregated, urban schools (Ream & Rumberger, 2008). Ream & Rumberger's (2008) study using NELS:88 data found that the presence of school engagement behaviors and school-oriented friendship networks reduced drop-out rates. However, Latino students (especially Mexican American students) appeared to be less engaged in unorganized academic endeavors and formal extracurricular activities than White students. In a study of Mexican American middle and high school students, Dávalos, Chávez, and Guardiola (1999) found that those who participated in extracurricular activities were more than twice as likely to remain enrolled in school.

Academic Planning

Preparation for college is the result of a complex process marked by plans and expectations, curriculum choices, taking admissions tests, and applying for and enrolling in college (Cabrera & Bibo, 2010). Researchers argue that middle school is a critical period for interventions aimed at raising educational aspirations for college—by late high school, it becomes difficult or impossible to accelerate low-achieving students to the necessary levels of college readiness (Cabrera & La Nasa, 2000; Hossler, Schmit, & Vesper, 1999; Shiu et al., 2009). Latino students in particular are more likely to earn a 4-year degree if they plan for it while in middle school, take at least 3 years of high school mathematics, and initially enroll at a 4-year institution instead of a 2-year institution (Cabrera & Bibo, 2010). However, unlike White, African American, and Asian American students who report thinking about college plans in elementary or middle school, significantly more Latino students report not thinking about college plans at all until high school (Tienda, 2009).

Interventions promoting high educational aspirations need to begin by middle school when students start to take “gate-keeping” courses, including algebra, that prepare students for the high school courses needed to qualify them for admission to selective colleges and universities (McDonough, 2004). Recent efforts by ACT and the College Board (Hoff, 2002) to target 8th grade students for early college readiness indicators may be highly effective because

they start so early. Interventions in even earlier grades might be effective as well, as researchers have found that students begin to develop aspirations as early as elementary school and can be positively influenced by effective counselors (McDonough, 2004; Tienda, 2009).

Sharing of information about college cost and financial aid should begin at a similarly early age, as beliefs about the feasibility of attending college influence the actions that students take toward preparing for college (McDonough, 2004). Clear information about costs and sources of financial aid should be provided at multiple stages in the educational pipeline, with increasing complexity of information in high school, for both students and parents (McDonough, 2004). Interventions aimed at cohorts of students are also thought to be highly effective (Gándara, 2005). The importance of peers in developing educational aspirations increases for Latino students whose parents have low educational levels, because such parents' lack of information and social capital to intervene if their children encounter administrative challenges (LeCroy & Krysik, 2008; Shiu et al., 2009).

The U.S. Department of Education's What Works Clearinghouse identified Achievement for Latinos through Academic Success (ALAS), an intervention program for middle school students with learning disabilities and emotional/behavioral disorders who are at risk of dropping out, as having potentially positive effects on staying in and progressing in school (Larson & Rumberger, 1995). The program consists of special classes on problem-solving skills, close monitoring of attendance, regular feedback to parents and students on performance, and counseling (U.S. Department of Education, 2006).

Choice of high school course trajectory. Eighth grade students are often required to set the direction of their high school course taking (and college readiness) by selecting one of several available curricular tracks for high school. General education curricula are often distinguished from college preparatory curricula, which include more advanced mathematics and science coursework, and also distinguished from vocational/technical curricula, which generally do not prepare students for the requirements of college (Berkner & Chávez, 1997; Martinez & Klopott, 2005).

A number of studies indicate that Latino and African American students are encouraged to select less academically intensive curricula and that such tracking creates within-school segregation (Martinez & Klopott, 2005; Mickelson & Everett, 2008). For example, Oakes (1995) found that, in the two school systems she studied, African American and Latino students were

much less likely to be placed into challenging high school courses than White or Asian students with the same test scores. Oakes argued that the instruction provided in lower-track courses, offered fewer learning opportunities, and lead to lower achievement outcomes. This was confirmed by evidence from one school system, which showed that students in lower-track courses made smaller gains in achievement over time than similar students placed in higher-track courses. Furthermore, Oakes concluded that the placement of students into classes by ability did not create sufficiently homogeneous classes to support improved instruction, which is the presumed purpose of tracking. Oakes further concludes that tracking created within-school racial segregation for many school systems.

Specific English Language Learner (ELL) Issues

In middle school and high school, newly arriving Latino ELL students face formidable academic and literacy challenges. In these grades, successful academic engagement requires the mastery of academic language and literacy skills. These students have “double the work” of acquiring content knowledge while developing literacy skills in English (Short & Fitzsimmons, 2007, (p. 1). This challenge is in many ways greater than for ELL students entering school during the early elementary school years, when all students are still acquiring basic literacy. This double challenge puts ELL students at a disadvantage that is evident in the large disparities in achievement between ELL students and non-ELL students in national and state measures of reading and writing (Short & Fitzsimmons, 2007).

The challenge is further exacerbated when entering ELL students have had limited formal education in their home country (Short & Fitzsimmons, 2007). Students with limited formal education lack both literacy skills in their first language (L1) and exposure to content instruction. In contrast, other students with consistent formal schooling in their native countries often have acquired some content area knowledge and have developed L1 literacy skills, which can be used as a foundation for developing second language literacy skills when attending U.S. schools. Short and Fitzsimmons (2007) called for more research concerning ELL students in middle and high school to improve assessment of their native language abilities, English language development, and content knowledge learning, in order to inform appropriate instruction.

Long-term ELL students. A distinct subset of ELL students is quite vulnerable to the failure to transition smoothly from middle school to high school. These students are known as long-term ELL students: students in middle school and high school who have attended U.S.

schools for 7 years or more without being reclassified as being proficient in English (Olsen, 2010). Researchers have had difficulty determining the size of this population nationally, as statistics are not usually disaggregated by length of ELL status. Reports from the New York City public schools indicated that one-third of the ELL students enrolled in grades 6 to 12 were long-term ELLs (New York City Department of Education, 2008; cited in Menken & Kleyn, 2009). Data from 40 districts in California indicated that 59% of ELL students in grades 6 to 12 were long-term ELLs (Olsen, 2010), while in 13 of the 40 districts studied, more than 75% of ELL students were long-term ELL students.

The literature reviewed by Olsen (2010) and Menken and Kleyn (2008, 2009) described a profile of long-term ELL students characterized by the following features:

- Fluency in conversational English and their native language but failure to develop strong oral academic language in either language
- Limited academic language and literacy skills in English and their native language so that they struggle with reading and writing in any language
- A history of inconsistent schooling due to high mobility (frequent moves across schools within/across districts, transnational moves) and/or inconsistent language development programs (across grades within schools and across schools)
- A history of academic failure (poor grades and grade retention) due to poor reading and writing skills
- Different linguistic needs from those of newly arrived immigrants. Recently arrived ELL students need to develop fluency in oral language, while long term ELL students need intensive and targeted instruction in academic language and literacy.
- Limited access to grade-level content due to narrowing of the curriculum and poor understanding of academic language in classroom instruction and textbooks
- Low academic engagement, learned passivity, and high likelihood of dropping out of school

Studies of long-term ELL students do not provide data disaggregated by race/ethnicity. Thus, there are no reports on the proportion of long-term ELL students who are Latino. However, two areas of research shed light on the extent to which this phenomenon affects Latino

students. One is the research on ELL reclassification rates and the other is the literature on academic tracking and minority students. Studies modeling the probability of being reclassified proficient in English as a function of students' race/ethnicity have found that Latino students have lower reclassification rates than other groups after controlling for students' background characteristics. In fact, Latino ELL students are the least likely to be redesignated as English proficient (Parrish et al., 2007).

Furthermore, studies of tracking practices have documented the systematic placement of Latino ELL students in low-track courses, which lack rigorous academic content (Callahan, 2005; Harklau, 1994; Katz, 1999, Olsen, 1995). Based on the belief that acquiring English fluency is a prerequisite for having access to content instruction, ELL students are often placed in programs where English language instruction emphasizes conversational language, with little emphasis on developing academic literacy integrated with the content areas (Callahan, 2005; Katz, 1999; Olsen, 1995). Callahan (2005 p. 444) argued that the placement of ELL students in ESL courses "while they 'catch up' in their English proficiency" creates a vicious circle of underpreparation for ELL students in secondary education. "Denied access to challenging content area instruction, long-term ELL students never gain the academic competencies necessary to move out of low-track ELL classes and into more rigorous instruction" (Callahan, 2005, p. 444).

High School (Grades 9–12)

Demographics

In 2008, the U.S. Census Bureau estimated that Latinos represented about 19% of all students enrolled in American high schools (or about 3.2 million students; U.S. Census Bureau, 2008b). For Latino students, perhaps the single most significant educational challenge they face in their lives is the successful completion of high school. At present, Latino students drop out before completing high school at significantly higher rates than any other racial/ethnic group in the United States. About 41% of Latinos ages 20 and older do not have a regular high school diploma versus 23% of African Americans and 14% of Whites in the same age category (Fry, 2010). In the states with the largest Latino populations, California and Texas, only 55% and 56%, respectively, of Latino students graduate from high school (Greene, 2001). Gaps in high school completion rates between Latinos and other groups remain even after controlling for the

students' social class background, language proficiency, and immigrant status (Secada et al., 1998).

The drop-out problem is particularly pronounced for foreign-born Latino adults, since 52% of these individuals did not complete high school in their native country. With the exception of adults who came to the United States before 1970, a majority of immigrant Latino adults in 2008 were high school dropouts (Fry, 2010). Mexican immigrants constitute 54% of all Latino immigrants (and are the largest immigrant group to the United States), and they experience nearly twice the drop-out rate (61%) of other Latino subgroups (President's Advisory Commission on Educational Excellence for Hispanic Americans, 2003). In comparison, among U.S.-born Latino adults, approximately 25% did not finish high school. More importantly, the American Federation of Teachers (2004) reports that Latinos tend to drop out of high school earlier than other students: 50% of Latino dropouts stopped attending school by 10th grade, compared to 29% of White dropouts and 24% of African American dropouts.

The characteristics of the high schools that students attend may have a substantial impact on students' academic performance. High schools in seven states (California, Texas, Florida, New York, Arizona, Illinois, and New Jersey) educate nearly 80% of Latino students in the United States, which is a greater degree of geographical concentration than is true for other racial/ethnic student groups. Latino students are disproportionately more likely than students of other racial/ethnic groups to attend public high schools that are large, have a high student-to-teacher ratio, and have a high percentage of students from relatively poor families (Fry, 2005). Latinos are more likely to attend the largest public high schools in the United States: The majority of Latino students (56%) attend a school that is in the top 10% of high schools by size (at least 1,838 students). About 37% of Latino students are educated at a school where the student-to-teacher ratio is greater than 22 to 1. This figure compares with only 14% of African American students and 13% of White students in similar circumstances. Almost one in four Latino students attends a high school with the highest concentrations of students (45% or more) eligible for free or reduced lunches. Latino students are more likely to attend high schools that have the dual characteristics of extreme size and poverty. High schools that have higher student-to-teacher ratios place large number of students at risk for academic underachievement, since the detrimental impacts of this factor are magnified in schools with higher concentrations of students from low SES families.

Transition to High School

Much of the research on school transitions has focused on the transition into middle school from elementary school, so the process of transitioning into high school has not been as well studied. Research on the transition into high school has reported negative effects on grades (Barone, Aguirre-Deandreis, & Trickett, 1991), attendance (Barone et al., 1991), and extra-curricular participation (Blyth, Simmons, & Carlton-Ford, 1983). In addition, there have been a few studies conducted that highlight the difficulties faced by Latino students as they enter high school.

As students transition into high school, they often experience a school environment that is larger, less personal, more competitive, and more grade-oriented than what they experienced in middle school (Mizelle & Irvin, 2000). The transition programs from middle school to high school that school administrators viewed as best at helping students succeed were those that used a number of different articulation activities (Mac Iver, 1990). These programs included activities that (a) provided students and parents with information about the new school, (b) provided students with social support during the transition, and (c) brought middle and high school personnel together to better understand each school's curriculum and academic requirements (Mizelle & Irvin, 2000).

Increased challenges of ninth grade curriculum. In the transition to high school, the ninth grade is a particularly critical period for students who are at risk of academic failure. The severe academic difficulties experienced by ninth grade students are well-documented in many large urban districts with predominantly minority student populations, including Baltimore (Legters, Balfanz, Jordan, & McPartland, 2002), Chicago (Roderick & Camburn, 1996, 1999), and Philadelphia (Neild & Balfanz, 2006b). A study by Neild, Stoner-Eby, and Furstenberg (2008) of a 10% sample of Philadelphia public school students entering high school in 1996 found that 60% of students who dropped out within 6 years had not been promoted after their first year in high school. In fact, close to 12% of ninth grade students fail to be promoted each year nationally (Abrams & Haney, 2004). Neild et al. concluded that ninth grade course failure and attendance have a substantial impact on the likelihood of dropping out of high school, and suggested that a key period for focusing drop-out prevention should be before the transition to high school occurs. Benner & Graham (2007) reported that the transition to high school was

more stressful for African American and Latino students in schools when there were significantly fewer same-ethnicity peers.

The high rates of course failure in large urban high schools is due to the mismatch between students' academic and social skills and the organizational demands and practices of the schools they attend. The majority of ninth grade students at nonselective urban high schools enter with academic skills several years below grade level (Neild & Balfanz, 2006a). Their secondary-certified teachers are ill-prepared (and lack the inclination) to teach basic literacy and numeracy (Balfanz, McPartland, & Shaw, 2002). In addition, the turbulence that often characterizes the beginning of the school year in large urban high schools increases the likelihood that ninth grade students will fail courses (Weiss, 2001). Alspaugh (2001) reported that ninth grade students placed in relatively small cohort groups for long spans of time tend to experience more desirable educational outcomes.

Work/school balance, family obligations. The only national study of young caregivers in the United States was conducted in 2005 by the National Alliance for Caregiving (NAC) and the United Hospital Fund (UHF; NAC & UHF, 2005). It is estimated that at least 1.3 million children are involved in a variety of caregiving responsibilities for their siblings, parents, and grandparents. Minority students were more likely to be young caregivers compared to White students, and those children who live in single parent and/or lower income households had the greatest burdens of responsibility. In a study by Diaz, Siskowski, & Connors (2007) that included over 2,500 Latino students in grades 6 to 12, approximately 55% reported participating in caregiving activities, and about two-thirds of these students reported that these activities hindered their school performance. More specifically, the negative academic and psychological effects of caregiving appeared to be greater for boys than for girls, and contrary to common misconception, the Latino students who were caregivers were more likely to be boys, Spanish speaking, and in middle school.

Dropping Out

Dropping out of high school can be viewed as the culmination of a process of becoming disengaged from school (Finn, 1989; Newmann, Wehlage, & Lamborn, 1992; Wehlage, Rutter, Smith, Lesko, & Fernandez, 1989). Predictors of dropping out extend as far back as early elementary school, including family stress, students' initial engagement with school, and students' reading level (Alexander, Entwisle, & Horsey, 1997). The National Center for

Education Statistics reported in 1992 that Mexican American students are the ethnic group most likely to drop out of high school. Kaufman & Bradby (1992) identified five factors that substantially increased the risk of dropping out of high school for students of all racial/ethnic groups: (a) coming from a single parent household, (b) having an older sibling who dropped out, (c) changing schools more often than in the normal progression, (d) having below average grades, and (e) repeating a grade.

Although a larger percentage of Latino students graduated from high school in 2000 than in 1970, low high school completion rates for Hispanic students continue to be a significant barrier to their educational progress (Barton, 2009). As stated earlier, about 41% of Latinos ages 20 and older do not have a regular high school diploma versus 23% of African Americans and 14% of Whites in the same age category (Fry, 2010). Graduation rates vary by country of origin as well. For example, just 36% of students from El Salvador graduate from high school. For Mexican students, the largest population of Latino students in the United States, the graduation rate is 47% for men and 44% for women. The highest achieving Latino groups are Puerto Rican and Cuban students, whose graduation rates are 62% to 65% (Huber, Huidor, Malagón, Sánchez, & Solórzano, 2006)². Note that estimates of high school graduation rates can vary due to difficulties in identifying the total population of youths (Barton, 2009).

Research on Latino students' decisions to drop out of high school point to student, family, and school factors as key influences in the decision-making process (Bell, Rowan-Kenyon & Perna, 2009). Research on the achievement gap between Latino and White students has focused primarily on several salient student characteristics: English proficiency, nativity, academic achievement, parental levels of education, and family income. But student and family characteristics alone do not entirely explain the achievement gap: Examining the context of learning, specifically the characteristics of the high schools that Latino students attend, is also essential (Fry, 2005).

National statistics on drop-out rates by race/ethnicity are not disaggregated by students' English proficiency level. However, Kanno and Cromley (2010) found that in the NELS:88 data, language minority students with self-reported LEP (19.2%) were more than twice as likely to drop out of high school as language minority students who were proficient in English (9.1%) and about three times as likely to drop out of high school as monolingual English speakers (6.6%).

For first-generation Latino students, parents with greater social and cultural capital have a stronger effect on reducing the chances of dropping out than for later generation students (Carpenter & Ramírez, 2007). As LeCroy and Krysik (2008) noted, drop-out rates are actually lower for students born outside of the United States than for those born in the United States. However, Erisman and Looney (2007) identified an important exception—students who immigrate to the United States as children exhibit higher persistence and attainment than native-born students, but this effect is reversed for students who arrived as teenagers or older. In the case of late immigration, disrupted formal education and limited English proficiency are critical risk factors for high school drop-out and low college attainment rates.

The timing of immigration has been shown to have an important impact on high school persistence and college enrollment. Using NCES datasets, Erisman and Looney (2007) found that only 22% of immigrants, ages 18 to 24, who immigrated during high school (ages 13 to 19) were enrolled in college. In contrast, 37% of those who immigrated before age 13 were enrolled in college. Latino immigrants had considerably lower persistence and college enrollment rates compared to immigrants from Asia, Africa, and Europe. One explanation offered by Erisman and Looney for this high drop-out rate is that students who immigrate during high school with little formal education and low English proficiency may not believe that they will ever catch up to other students and be able to attain a high school diploma. Latino young adults immigrating to the United States may also be motivated by potential employment opportunities and thus forgo formal education (Gándara, 2005).

Student characteristics associated with a higher likelihood of dropping out include poor academic achievement, lower school engagement or alienation from school culture and activities, greater number of hours working, grade retention, and exclusion from school for disciplinary problems (López, 2009; Rodríguez, 2010). Students who are at risk of early dropout from school may be especially susceptible to peer influences (Giordano, Cernkovich, & Pugh, 1986).

For Latinas (Latino females), pregnancy and parenting responsibilities are factors responsible for nearly half of the girls who drop out of high school (National Women's Law Center & Mexican American Legal Defense and Educational Fund, 2009). These factors are particularly crucial, given that Latinas presently have the highest teen pregnancy and birth rates of any racial/ethnic group. Despite their high educational aspirations, Latinas drop out of high school at high rates, although at lower rates than is currently true for Latinos (National Women's

Law Center & Mexican American Legal Defense and Educational Fund, 2009). Other predictors of dropping out of high school for Latino students include having siblings who have dropped out, spending less time on homework, not taking Algebra 1 (a marker for taking college prep courses), and living in a single-parent home. Parental involvement in education is also critical, as students who do not receive guidance about schooling from their parents have higher drop-out rates. In addition, the presence of high-stakes testing and high school exit exams appears to have some impact on the drop-out rates of Latino students (Carpenter & Ramírez, 2007). Carpenter and Ramírez (2007) also reported, “Teachers are an important source of social capital, which can reduce the probability of dropping out by as much as half” (p. 36). Smaller schools with primarily academic courses and positive student-teacher relationships have lower drop-out rates.

High School Exit Exams

High school exit exams are a requirement for graduation in many states. In the 2009–10 school year, 28 states required students to pass an exit exam to receive a diploma (Dietz, 2010). These 28 states enrolled 74% of all students in public high schools and 83% of all high school students of color in the United States, as well as 84% of all ELL students in high school. Exit exams are widely used in the southern and southwestern states and thus affect large numbers of minority and low-income students. Adam (2005) examined test results from 20 states that required an exit exam. Although the percentages varied greatly from state to state, Latino and ELL students invariably scored below White students on the first testing. These exams (often administered beginning in the 10th grade) are intended to better prepare high school graduates for college or the work force; however, one unintended consequence may be to encourage students to drop out. Some students who may have been awarded a high school diploma prior to the introduction of high school exit exams may not be able to meet the more stringent requirements.

Holme, Richards, Jimerson, and Cohen’s (2010) review found that exit exams may not have the positive effect on achievement they were expected to have, since adopting a rigorous exit exam was not associated with increased achievement. This was also true for low-achieving students, the very students targeted by increasing the rigor of the exams. Holme et al. also investigated the issue of whether exit exams increased the drop-out rates among at-risk students. An analysis of exit exams used in California indicated that the introduction of the California High School Exit Exam (CAHSEE), a more rigorous exit exam than was previously used, did not

affect the high school completion rate of White students in the bottom quartile of academic achievement and led to a decline of 14.6% for low-achieving Latino students, 19.0% for low-achieving African American students, and 17.3% for low-achieving Asian students compared to previous cohorts (Reardon, Atteberry, Arshan, & Kurlaender, 2009).

Other research has found that the negative relationship between use of an exit exam and high school completion rates was strongest in states with higher poverty and larger populations of Latino students. Holme et al. (2010) concluded, “More difficult exit tests are associated with increased drop-out rates, delays in graduation, and increased rates of GED attainment. These studies also suggest that the most difficult exams have a particularly adverse impact on outcomes for non-Whites and students residing in both high-poverty states and districts” (p. 502). Another negative consequence of exit exams is possible changes in the behavior of organizations in order to improve reported drop-out rates. It has been reported that some schools in Texas responded to the new exit exam by encouraging students to drop out or by intentionally retaining students and then skipping a grade in order to bypass the 10th grade exit exam (Holme et al., 2010).

GED Completion

Latino students who drop out of high school are less likely to complete the General Educational Development (GED) program, which provides an alternative pathway for completing secondary education and fulfills a prerequisite requirement for college, vocational training, and the military (Fry, 2010). The relatively low level of GED credentialing among Latino high school dropouts is particularly noteworthy when coupled with their significantly higher drop-out rate. Based on data from the U.S. Census Bureau, Fry reported that only 9% of Latino high school dropouts obtained the GED, compared with 29% of White high school dropouts. Fry also reported that full-time Latino workers with a GED actually had slightly higher annual earnings than Latinos with a regular high school diploma, a surprising finding since GED recipients typically have two fewer years of formal schooling than high school graduates (Fry, 2010).

Fry (2010) also reported that the longer foreign-born Latinos have been in the United States, the more likely they are to obtain the GED, a finding he interpreted as an indication that a period of learning is necessary regarding educational opportunities, including the GED, for newly arrived immigrants. Fry also found that GED attainment increased with age. However, these census data are for adults of all ages and it is uncertain what percentage of the Latino

respondents attended high school in the United States. Finally, Fry found that GED attainment varied somewhat by country of origin, specifically that GED rates were slightly higher for Mexican, Puerto Rican, and Dominican adults (4% to 6% compared with 2% to 3% for other countries of origin).

Choosing High School Program of Study

Swail, Cabrera, and Lee (2005) found that Latino students appeared to take less academically intensive coursework compared to White students: 32% of White students take some advanced mathematics courses beyond Algebra 2, compared to only 20% of Latino students. Gándara (2005) found that the schools that many Latino students attend (with many minority and/or low-income students) were less likely to offer rigorous coursework, including advanced placement classes. In the NELS:94 data set, Perna (2000) found that only about one-third of Latino students participated in the academic curriculum in high school compared to 46% of White students. Gándara (2004) reviewed research from California showing that Latinos were less likely to take courses required for 4-year college admission (21.2%) compared to African American (24.7%), White (40.2%), and Asian (57.9%) students. Arbona and Nora (2007) found that students who completed a college-prep curriculum in high school were 46% more likely to go to a 4-year college than students on a career/technical track.

Posselt, Jaquette, Bastedo, & Bielby (2010) pointed out that because of increasingly competitive admissions at the most selective colleges in the United States, promoting the academic readiness of Latino students may not be sufficient to qualify them for prestigious universities. Rather, attending to informal criteria used in holistic admissions decisions (particularly leadership experiences) may be critical. Gándara (2004) also touts the benefits of extracurricular activities, including lower drop-out rates, better relationships with teachers, and higher educational trajectories/aspirations. However, Gándara (2004) also reported that Latino students are less likely to become involved in these types of activities.

Melguizo's study of students nominated for the Gates Millennium Scholarship program found that leadership predicted college degree attainment among highly qualified students. Furthermore, Horn, Chen, and Adelman's (2008) analyses found that attending a 4-year institution (over a 2-year school) was associated with leadership experience, though neither study could draw causal links between leadership experience and college attainment. Carpenter and Ramírez (2007) examined the NELS:88 data and found that extracurricular activities, including

sports and fine arts, were related to reduced dropout, though participation in academic and vocational clubs did not show this association.

College Readiness

High drop-out rates, the lack of challenging academic coursework, and low levels of college readiness are three of the major obstacles for Latino high school students in their transition to college. National college admissions test scores for 2010 showed that the ACT average composite score for Latino students was 18.6, compared with 22.3 for White students (out of a maximum of 36; American College Testing, 2010). For the SAT®, the Latino student population is divided into three groups: Mexican Americans, Puerto Ricans, and other Latinos. On the critical reading section in 2010, the three Latino subgroups scored, on average, 74 points lower than White students; for mathematics, the averages for the Latino subgroups were 69 to 84 points lower than for White students; and for writing, the averages for the Latino subgroups were 68 to 73 points lower than for White students (see Table 1; College Board, 2010).

Table 1

Mean Scores by Section by Ethnicity

SAT	Critical reading	Mathematics	Writing
Test-takers who described themselves as	Mean	Mean	Mean
Mexican or Mexican American	454	467	448
Puerto Rican	454	452	443
Other Hispanic, Latino, or Latin American	454	462	447
White	528	536	516

Results of other college readiness assessments show consistent patterns of underperformance for Latinos. The Early Assessment Program (EAP) of the California State University (CSU) system assesses the readiness of 11th grade students to engage in college-level work in English and mathematics. Table 2 shows the percentages of students who participated in the EAP program in 2010 who were ready for college by race/ethnicity and English language proficiency group. In both English and mathematics, low percentages of Latino students were rated as ready for college (10% and 6%, respectively).

Results from the NAEP also document the persistent achievement gaps between Latino and White students in high school. For 12th grade reading, the average score for Latino students in 2009 was 274, a 5-point decrease from 1992. In comparison, the average score for White

students in 2009 was 296, a 1-point decrease from 1992. In 2009, only 22% of Latino students were classified at or above the proficient level in reading, while 46% of White students were similarly classified. For 12th grade mathematics, the average score for Latino students in 2009 was 138, a 5-point increase from 2005. In comparison, the average score for White students in 2009 was 161, a 4-point increase from 2005. In 2009, only 11% of Latino students were classified at or above the proficient level in mathematics, while 33% of White students were similarly classified. For 12th grade science, the average score for Latino students in 2009 was 134, while the average score for White students was 159. In 2009, only 8% of Latino students were classified at or above the proficient level in science, while 27% of White students were similarly classified. For 2009, NAEP results showed a higher percentage of Latino students were classified as at or above the proficient level for reading in 12th grade than in 4th grade (22% versus 17%), but a smaller percentage of Latino students were classified as at or above the proficient level in 12th grade mathematics (11% versus 22%) and science (8% versus 14%) than in the 4th grade in these subjects.

Table 2
Percentages of College-Ready Students in the 2010 Early Assessment Program (EAP) by Ethnicity/English Language Learner (ELL) Status

	N	EAP: English		EAP: Mathematics		
		Ready for college	Not ready for college	Ready for college	Conditionally ready	Not ready for college
All students	380,837	21	79	15	42	43
White	114,450	32	67	17	48	34
Hispanic/Latino	174,126	10	89	6	36	58
African American	25,131	10	88	4	32	64
Asian	39,157	38	62	35	46	20
Native American	2,271	17	82	11	40	49
Fluent English or English only	334,724	23	76	15	44	41
Initially FEP	34,983	29	71	22	44	34
Reclassified FEP	249,501	16	84	12	42	46
English learner	45,690	1	98	7	19	74

Note. FEP = fully English proficient. Source: California State University (2010).

For Latino students who obtain a high school diploma, the disconnect between high school graduation requirements and college entrance requirements often leaves these graduates

unprepared for enrollment in selective colleges. Most importantly, Latino students are much less likely to take advanced mathematics and science courses required for college success.

Differences in course-taking in science and mathematics are large—45% of Latino high school students enroll in college-prep courses such as Algebra 2 and chemistry, compared to 62% of White students, and of all AP[®] examinees, Latinos account for only 10% as compared to 66% for White students (American Federation of Teachers, 2004). A number of researchers see the low proportion of Latino students taking college-prep mathematics and science courses as an important area for intervention (American Federation of Teachers, 2004; McDonough, 2004; Perna, 2000; Posselt et al., 2010; Swail et al., 2005). Arbona and Nora (2007) found that for Latino students, some of the most important predictors of attending a 4-year college included academic preparation in terms of grade point average (GPA) and test scores and completing a rigorous academic track in high school.

Personal, parental, and peer influences on educational goals. The acculturation model (Rudmin, 2003) for academic success posits that the more “Americanized” an adolescent becomes, the lower his or her expectations and motivation to succeed. Studies have found that greater acculturation is related to poorer academic success among Latino adolescents (Buriel, Calzada, & Vásquez, 1982; Valverde, 1987). Thus, first- and second-generation students are seen as being more highly motivated academically than those who are third-generation or later. However, note that because acculturation is a multidimensional construct, research on the effects of acculturation is mixed. For example, Kao & Tienda (1995) found that greater and more rapid acculturation to the norms of school environments may promote greater success in school. A study by LeCroy & Krysik (2008) found that students who associated with proacademic peers and had more supportive parental relationships had higher GPAs and reported greater school attachment. These findings are consistent with previous research on minority students that showed that academic achievement and other school-related factors are most strongly influenced by peer networks and family relationships.

Kirst and Venezia (2004) found that few minority students and their families fully understand the requirements of college admissions and financial aid. A study by Roderick et al. (2008) of students in the Chicago public schools found that the most important predictor of whether students took steps toward college enrollment was whether teachers reported that their high school had a strong college-going climate. The college plans and behaviors of Latino

students in the Chicago public schools were particularly shaped by teachers' and counselors' expectations. This suggests that Latinos may rely more on teachers and counselors for guidance and information than is true for other students. In addition, students who completed the Free Application for Federal Student Aid (FAFSA) and had been accepted into a 4-year college were over 50% more likely to enroll. Unfortunately, Latino students who aspired to a 4-year degree were the least likely to have completed the FAFSA.

Horn et al. (2008) found that parental involvement was related to the probability of enrollment in college among students at greater risk of dropping out. In particular, students who had parents who talked frequently to them about school were more likely to attend a 4-year college. Similarly, parental expectation for student degree attainment was strongly correlated with any post-secondary attainment. Gándara (2004) found that Latino parents have high aspirations for their children's education but also have realistic expectations based on the constraints of their situation. Many parents in Gándara's study believed that financial considerations and social status would impact the educational opportunity of their children.

Like Horn et al. (2008), Arbona and Nora (2007) found that personal degree aspirations and intention to enroll immediately in college after high school were associated with a 15% and 22% greater probability, respectively, for Latino students enrolling in a 4-year college. However, in contrast to Horn et al.'s findings, Arbona and Nora found that after controlling for several predictors of college attendance (including academic achievement and high school curriculum), parental education and expectations for student attainment were not significant predictors of college attendance (although parental expectations may still be a significant factor through indirect pathways). Horn et al. concluded that parental aspirations and discussions of school have little effect on attending 4-year versus 2-year institutions, but this may mask the existence of two groups of parents—one group that promotes 2-year attendance and another group that prefers 4-year institutions.

A number of researchers, including Horn et al. (2008), have found that having information about financial aid, preparing for college admissions tests, engaging in college outreach programs, and participating in extra-curricular activities are all associated with increased enrollment in a 4-year institution. However, it is difficult to determine causality among these variables and eventual enrollment in a 4-year college. Existing research is correlational, and therefore intention to enroll in a 4-year college may in fact be causal for all of these factors.

That is, planning to enroll may cause differences in course taking, test preparation, etc., and not the reverse. Future research should seek to disentangle these effects.

Peers are considered a major influence on adolescents' motivation in school, with a student's social group identification guiding in-school behavior. Peers may be even more important in guiding or discouraging students toward academic success for students whose family background is educationally disadvantaged. Horn et al. (2008) found that among students at greater risk of dropping out, students who have friends with 4-year college plans were four to six times more likely to go to a 4-year college themselves. Arbona and Nora (2007) likewise found that students had a 28% greater probability of going to a 4-year college when they reported that all or most of their peers were planning to attend a 4-year institution. Gándara (2004) also found that having motivated peers can contribute to the resiliency of high-achieving Latino students and may provide access to the knowledge needed to navigate challenges such as the college application process. Peers can unfortunately also have a negative impact, particularly in urban settings where risky behaviors including drug/alcohol use, gang membership, and the "culture of underachievement" tend to have a cluster effect among high school students (Gándara, 2004).

Because of cultural stereotypes and a lack of role models, Latina students are frequently steered into career and technical programs that prepare them for traditional female occupations (National Women's Law Center & Mexican American Legal Defense and Educational Fund, 2009). In the NELS:94 data set, Perna (2000) found that Latino and White students had similar educational expectations in ninth grade: 32% expected to finish college compared to 36% of White students. Parents' expectations were somewhat lower: 30% of Latino mothers compared to 40% of White mothers expected their child to complete a bachelor's degree. Latino parents also had lower involvement (discussing school-related issues with students) than White and African American parents.

Knowledge about college admissions and financial aid. College enrollment rates are lower for students whose parents have not attended college and for low-income families. One source of these differences is knowledge about college and financial aid (Bell et al., 2009). Research has found that the more information and guidance a student has, the greater the student's likelihood for enrolling in college (Perna, 2004). Studies also show a general lack of knowledge about college, particularly regarding financial aid, and that this is especially true for

minority students and parents (Grotsky & Jones, 2004; Jarsky, McDonough & Núñez, 2009; Tomas Rivera Policy Institute and the Sallie Mae Fund, 2004). Several factors have been identified that are associated with lower levels of college knowledge among Latino students and families: lower parental education and income, first-generation immigrant status, lack of access and exposure to college representatives and parent involvement programs, limited access to technology, and possible language barriers (Auerbach, 2004; Tórréz, 2004). Students and parents tend to overestimate the costs associated with college and underestimate the sources and amount of financial aid available (De La Rosa & Tierney, 2006). Immerwahr (2003) found that many Latino students have very little guidance from adults and peers regarding knowledge about college. However, students who participated in early intervention programs such as Upward Bound and AVID consistently knew more about college and financial aid than their peers (Bell et al., 2009).

One example of a successful intervention strategy is a partnership between the Central Washington State University GEAR UP program and a local school district that led to the development of a 6-week course that focused on increasing the college knowledge of Latino students and families (Downs et al., 2008). Some parents served as outreach coordinators, and the course content was delivered primarily in Spanish followed by an English translation. Parent volunteers indicated that the participants would likely learn more and be more comfortable through discussion and activities rather than through lectures. In addition, a significant amount of time in each class was devoted to Internet-based research, as many families lacked home Internet access. All of the participants (45 students and 24 families) indicated that the students in their family were more likely to attend college as a result of completing the program.

As described in the section on middle school, interventions to promote high achievement and college admissions and financial aid education need to begin by ninth grade or earlier. Differences in knowledge about college and financial aid are substantial for Latino students and parents. A survey conducted by the Tomas Rivera Policy Institute and Sallie Mae Fund (2004) found clear evidence that Latino parents and college-aged young adults were less knowledgeable about sources of college financial aid. Venezia et al. (2003) also found that low SES students tended to know less about minimum admissions requirements of local colleges and overestimated the cost of attendance, particularly for local community colleges and less selective colleges. The complexities of the college admissions process and financial aid applications are

serious barriers to enrollment. Racial/ethnic minority families and students have been found to have difficulty with completing the FAFSA³ and in finding information and proper guidance in college applications (Bowen et al., 2009; Zárate & Pachón, 2006). One additional concern identified by Bowen et al. as well as Roderick et al. (2008) was that ethnic/racial minority students often do not appreciate the importance of applying to more than one “match” school when applying to more selective institutions. When these students apply to only one selective school and are denied admission, they often resort to local nonselective institutions instead.

Cultural capital related to knowledge about the college admissions process and strategies is a critical knowledge gap for Latino students and their parents. Fry (2004) found that Latino immigrant parents had less college knowledge than native-born Latino parents, although paradoxically there are no disparities between their children in the pursuit of postsecondary education. Bowen et al. (2009) concluded that promoting applications to “match” schools (usually much more selective than the schools that Latino students tend to apply to) is one of the most likely means of improving educational attainment and economic parity for Latino students, even more so than for African American students.

Roderick et al. (2008) found that attending less selective colleges was often the result of a lack of information and planning among racial/ethnic minority students in the Chicago public school system. They cited previous research that found that low-income, first-generation college-goers were particularly likely to encounter problems in negotiating the tasks required to matriculate in a 4-year college (applying for admissions and financial aid, gaining acceptance, and matriculating) and in finding the right college for themselves. In this study, only 60% of Latino high school graduates who aspired to obtain a 4-year degree planned to attend a 4-year college the following fall, a much lower percentage than for African American or White students. In their interviews in April and May of the students’ senior year, they found that many of the students had not yet applied to colleges and had missed the April deadline to file the FAFSA.

Fry (2004) found that only 61% of Latino 12th grade students took college admissions tests and applied to 4-year institutions, while 73% of similarly situated White students did the same. Walpole et al. (2005) found that the Latino and African American students they interviewed in poor urban high schools had little knowledge of the role of admissions tests in college admissions and strategies for taking the test, as well as unrealistic beliefs about how

much they could improve their test scores by retaking the exams. Walpole et al. concluded that knowledge about college admissions tests is an important form of cultural capital that students in poor urban high schools lack and are unable to attain by asking other uninformed students and even school officials.

One issue identified by McDonough (2004) is that many schools fail to identify an administrator responsible for promoting college attendance and disseminating admissions advice. Although school counselors are obvious candidates, they are often underprepared for their role as college counselors and overburdened by the many other demands on their time and the large student-to-counselor ratio found at schools that serve large numbers of poor and minority students (490:1 is the national average, and 1,056:1 is the average for schools serving poor and minority students; McDonough, 2004). Yet counselors could play an important role in providing information to parents and students about college admissions and financial aid, involving parents in motivating their children for college, promoting college preparation activities, and advising students in their college applications (McDonough, 2004). Personal outreach is especially important for Latino students: The survey conducted by the Tomas Rivera Policy Institute and Sallie Mae Fund (2004) found that when asked about how they would prefer to get information about college applications and financial aid, most Latino parents and young adults preferred in-person meetings and workshops to using the Internet or printed materials. They also preferred having the information available in Spanish.

Effective programs to promote college attendance. An important challenge in preparing Latino students for higher education is students' and parents' lack of knowledge about the college preparation process, including what courses are needed in preparation for specific career goals, and inadequate financial understanding/planning (Adelman, 1999; Horn et al., 2008). Several early intervention programs have been developed to increase the college attendance rates of Latino students, including Upward Bound, SCORE (Success in a Rich CORE Curriculum for Everyone), Project GRAD (Graduation Really Achieves Dreams), and the Puentes program. These programs, and others such as AVID and GEAR UP, provide information and support to at-risk students and their parents throughout high school so that they better understand the course requirements and financial assistance alternatives that are available.

The SCORE program targets the development of study skills and motivation of high-risk students through school and parent partnerships to provide tutoring, after-school programs, and

guidance activities. Individual guidance is provided for students by peers, parents, and school staff to support career planning, self-esteem development, academic advisement, and monitoring of academic progress and personal development. The program reports that high schools that participated in SCORE increased student participation in college-preparatory courses, increased college enrollment, decreased remedial course-taking, and increased high school graduation rates. In a review of evaluation data for SCORE, Fashola and Slavin (1998) concluded that the program is likely effective in reducing high school drop-out rates and increasing college enrollment.

Project GRAD is a K–12 school-based program that promotes college attendance for low-income students by targeting six key elements: academic preparation and high expectations, summer academic and college access programs, college access and career expectations, student and parent constituency influences, affordability, and college persistence through the first year of college (Project GRAD, 2008; Snipes, Holton, Doolittle, & Szejnberg, 2006). Evaluations at a number of participating high schools have found that the program increases the number of students who completed a core academic curriculum in high school (Snipes et al., 2006). Other evaluations have found some evidence that the program also increases college attendance and completion (Fashola & Slavin, 1998; Opuni, 1999; Project GRAD, 2008).

Upward Bound is a federally funded program whose purpose is to increase the college completion rate of students who are low-income, first-generation college students, limited English proficient, or who have other risk factors for not attending college (Seftor, Mamun, & Schirm, 2009). The program targets these students in high school to provide college-preparatory instruction in mathematics, laboratory sciences, composition, literature, and foreign languages through tutoring, counseling, cultural enrichment, work-study programs, summer programs, and other services. Some evaluations of the program indicate that it has positive effects on aspirations and enrollment, especially for Latino students (Myers & Schirm, 1997). However, Seftor et al. (2009) found that Upward Bound's positive effects on college enrollment and completion were limited to students with low initial college expectations who were not on track regarding college readiness (inadequate mathematics courses or low GPA). For other students who were considered to be at risk, but who had high aspirations and were on track regarding college readiness, the program had no discernible effect. Fashola and Slavin (1998) similarly concluded that the effects of the program were greatest for Latino students with low educational

aspirations. They found that the program increased Latino students' academic coursework by two credits each year.

The Puentes Program engages Latino high school students in rigorous community-based college preparation in order to develop the necessary skills and desire to attend college (Gándara & Contreras, 2009). The program consists of these three components: college counseling; personal mentoring; and a 2-year, college-prep English course that emphasizes Latino literature, critical thinking, and writing instruction. Students are nominated for the program on the basis of strong academic performance and strong motivation or the potential to develop one or both of these attributes. The results have shown significantly higher college attendance and greater interest in intellectual activity among participants compared to control groups (Gándara, 2004). The Puentes program seems to show the most value added for high-achieving students in terms of actually going to college (Bowen et al., 2009).

Required coursework. Many Latino students do not appear to appreciate the importance of preparing for college in high school and apparently do not recognize that there is a mismatch between the minimum requirements for graduation and the preparation required for college (Venezia et al., 2003). This is because GPA is critical for admission into college, but also because the skills being developed are the foundation for basic college courses. Poor academic preparation through less rigorous coursework in high school is associated both with attending less selective colleges and with low attainment rates in college (Arbona & Nora, 2007; Venezia et al., 2003). Roderick et al. (2008) reported that a large number of Chicago public school graduates (75% at 2-year and 60% at 4-year institutions) reported that given what they knew after a few years in college, they would have taken their coursework in high school more seriously. The lack of preparation despite high school graduation is especially problematic for minority students. Venezia et al. reported national data showing that 47% of Latino and 53% of African American students graduate but are marginally qualified or unqualified to attend a 4-year institution.

Based on the strong connection between academic rigor in high school and the importance of high school grades, especially in college prep courses, in the college admissions process, Bowen et al. (2009) concluded that programs should emphasize to high school students that GPA is “tremendously” important, and that maintaining passing grades is not enough. “High school students need to acquire both substantive knowledge and the coping skills that will enable

them not just to begin college work but to finish degree programs successfully” (Bowen et al., 2009, p. 111). Adelman (1999) also found that academic rigor in high school was critical to long-term outcomes and in fact was more predictive of college success than the most powerful family SES variables (see also Gándara, 2004). Similarly, Young & Fisler (2000) found that the academic rigor of high school courses was better correlated with SAT scores than parental education or family income.

Higher Education

In higher education, as with high school, the critical issues are the low numbers of Latino students who enroll, persist, and graduate. Part of this issue is related to the large proportion of Latino students who attend community colleges, which tend to have low graduation rates, fewer resources, and low transfer rates to 4-year institutions. Among the many influences on persistence and attainment are the selectivity of the institution, college readiness at the end of high school, delayed entry to higher education, part-time attendance, and what Bean and Metzner (1985, p. 502) refer to as “environmental variables” including financial aid support, working off-campus, and caretaking responsibilities (see also Crisp & Nora, 2010). The role of remedial coursework, which is often needed by Latino students, and issues related to placement in remedial courses form another critical topic in higher education with a wealth of conflicting research findings.

Demographics

Latino students who successfully complete a high school diploma go on to attend college at lower rates than White students (Posselt et al., 2010; Santiago & Brown, 2004). The growth in college enrollment in the last generation has been significant, but insufficient to close the enrollment gaps between Latino and White students. From 1972 to 2004, the number of Latino high school graduates who enrolled immediately in any postsecondary institution rose from 48% to 68%, while for White students the number rose from 58% to 82% (Posselt et al., 2010; Santiago & Brown, 2004).

Once they enroll in higher education, Latino students are less likely than White students to obtain a degree (American Federation of Teachers, 2004). In fact, the attainment gap for bachelor’s degrees for students who enroll is actually larger than the gap for high school diplomas because 47% of White but only 23% of Latino students (who enroll in some form of

higher education) attain bachelor's degrees by age 26 (Fry, 2004). Including the 8% of Latino students who complete an associate's degree, and 4% who complete some type of certificate, this figure leaves almost two-thirds of Latino students who enroll in a postsecondary institution without any type of degree or certificate 8 years later (compared to 40% of White students; Swail et al., 2005). The result is a Latino adult population age 25 and older with lower educational attainment than nearly all other groups—just 10% to 13% have earned bachelor's degrees, compared to 28% of other adults (Crisp & Nora, 2010; U.S. Census Bureau, 2008b).

Country of origin appears to influence attainment rates within the Latino population. Latino students from Mexico, the Dominican Republic, and especially El Salvador have lower attainment rates of high school diplomas and bachelor's degrees than Latino students of Puerto Rican or Cuban backgrounds (Huber et al., 2006).

English as second language (ESL) students in higher education. In higher education, three primary groups of students may require ESL support: students who were primarily schooled in the United States but speak other languages in their homes and communities (sometimes called generation 1.5), students who completed part of their K–12 schooling in U.S. schools learning English and may still be considered ELLs at graduation, and international students who immigrate to the United States for higher education (ICAS ESL Task Force, 2006). National Postsecondary Student Aid Study (NPSAS) data (NCES, 2008) provided demographic information on ESL students who began their postsecondary education in 2008. Of the students who indicated English was not their primary language, 46% were Latino, 26% were Asian or Asian American, 17% were White, and 8% were African American. International students with foreign student visas made up a small proportion (1.4%) of the total undergraduate population in 2008 and also a small proportion (8%) of undergraduates who indicated that English was not their primary language. Citizens (67%) and resident aliens (25%) comprised the vast majority of ESL students in the undergraduate population. Of those international students who indicated English was not their primary language, Asian students comprised the largest group at 48%, whereas Latino students comprised 16%. In contrast, Latino students made up the largest proportion of ESL students who were resident aliens (37%) or citizens (52%). Therefore, despite the perception that international students from all over the world are the predominant group of ESL students in higher education (ICAS ESL Task Force, 2006), the majority of students for

whom English is not their best language are Latino students who have U.S. citizenship or residency status and likely spent all or part of their K–12 education in U.S. schools.

Concentration of Latino students in community colleges. The distribution of Latino students throughout U.S. postsecondary institutions varies from that for other racial/ethnic groups of students. Statistics indicate that in the last decade, 58% to 66% of Latino students attending college were enrolled in 2-year colleges (Arbona & Nora, 2007; Goldrick-Rab, 2010, Crisp & Nora, 2010; Zalaquett, 2006). In contrast, only 36% to 42% of White students were enrolled in similar institutions (Arbona & Nora, 2007; Crisp & Nora, 2010). Even Latino students who enroll in 4-year institutions are much more likely to enroll initially in less selective institutions compared to White students: 12% of White students enroll in open-door institutions compared to 16% of Latino students; 52% in less selective institutions compared to 60% of Latino students, and 26% in selective institutions compared to 14% of Latino students (Fry, 2004). The one exception is at highly selective colleges and universities, which 8% of both Hispanic and White students attend.

Posselt et al. (2010) constructed a longitudinal national database from the National Longitudinal Study (NLS), the High School and Beyond (HSB) study, the NELS (National Education Longitudinal Study), and the Education Longitudinal Study (ELS) to examine the college enrollment patterns of a nationally representative student sample from the 1970s to the 2000s. Posselt et al. found a decreasing gap in college enrollment by ethnicity when selectivity was not considered. However, these gains were primarily due to minority students increasing their enrollment in community colleges and noncompetitive 4-year institutions. For Latino students, community college enrollment increased by about 10% and noncompetitive enrollment increased by 6% from 1972 to 2004. The percentages of Latino students enrolling in competitive, very competitive, and the most competitive institutions increased by less than 2% for each category. To the extent that Latino students have increased their enrollment in the most selective institutions, this finding appears to be an effect of increasing class size at those schools rather than a gain relative to students of other racial/ethnic groups. That is, in the same time frame, White students also increased their enrollment in the most selective colleges and universities by 2% and Asian students by 5%.

A number of scholars expressed concern about the large numbers of Latino students enrolling in less selective institutions (e.g., Bowen et al., 2009; Fry, 2004). The selectivity of

colleges and universities is strongly associated with degree attainment rates (Arbona & Nora, 2007; Fry, 2004), although it is difficult to make causal arguments that less selective colleges (who attract different types of students) *cause* lower graduation rates (Cohen & Brawer, 2008). Melguizo (2010) reviewed studies that used quasi-experimental methods to control for selection bias and found that in those studies there is a small positive effect of school selectiveness on degree attainment when selection effects are controlled, increasing the probability of graduating from 4% to 18%.

Researchers who believe that selectivity directly affects graduation rates argue that Latino students, who already have lower degree attainment rates in general, compound that effect by attending less selective schools and especially community colleges where there is not a culture of transferring to 4-year institutions (Bensimon, Dowd, Bordoloi, Trapp, & Alford, 2008; Fry, 2004). Although most Latino students enrolling in a community college (85%) express the intention of receiving a bachelor's degree, only around 25% of Latino students who initially enroll in community colleges eventually receive a bachelor's degree (Crisp & Nora, 2010). Other estimates are even lower: In an analysis of the Beginning Postsecondary Students Longitudinal Study (BPS:96/01) data, Hoachlander, Sikora, Horn, and Carroll (2003) found that while 22% of White students initially enrolled in a 2-year institution completed their bachelor's degree by the end of the study, just 13% of Latino students completed that degree. Overall, just 36% of Latino and 53% of White students completed any type of degree or certificate after enrolling in a 2-year college (Hoachlander et al., 2003). Fry suggested that efforts to increase the bachelor's degree attainment rate for Latino students should focus on channeling the Latino students already being adequately prepared in high school into more selective higher education institutions.

Citing the low transfer and degree rate, Arbona and Nora (2007) argued that 2-year colleges have not fulfilled their role as a conduit into 4-year universities, especially for minority students, whose bachelor's degree attainment is exceptionally low. One particular concern outlined by Gándara (2005) is a need for greater accountability for Hispanic-serving institutions (HSIs), many of which tend to be 2-year or nonselective 4-year institutions of lesser academic quality. Wassmer, Moore, and Shulock (2004) found confirming evidence, in that institutions serving greater proportions of Latino and African American students, after controlling for academic preparation, tended to have lower transfer rates to 4-year institutions.

Cohen and Brawer (2008) concluded that the benefit or harm of community colleges should be judged against the alternatives students would pursue—that is, they are a benefit if students would otherwise not attend college and harmful if students would otherwise seek out opportunities at more selective colleges. In fact, Cohen and Brawer found that, for a variety of reasons, a majority of Latino young adults see 2-year institutions as the only choice available to them for higher education. The authors conclude that the best evidence of the benefit of community colleges is the number of students who successfully transfer from 2- to 4-year colleges, when they lacked the credentials for admission to a 4-year institution at the time that they graduated from high school. More research is needed to clarify the positive and negative causal impacts that community colleges have on bachelor's degree attainment.

Choosing 2-Year Versus 4-Year Institutions

The large concentration of Latinos in 2-year institutions is a subject of intense scrutiny because of the lower attainment rate and reduced economic opportunities for students in those schools. Researchers argue that both poor academic preparation and college preferences prevent Latino students from enrolling in greater numbers at more selective institutions (American Federation of Teachers, 2004; McDonough, 2004; Perna, 2000; Posselt et al., 2010; Swail et al., 2005). Posselt et al. (2010) confirmed that academic preparation is critical in attending more selective colleges. In absolute numbers, Posselt et al. found that African American and Latino students were much less likely than White and Asian students to attend competitive colleges. However, after controlling for demographic factors, degree expectations, and academic preparation, the differences disappeared—Latino students were just as likely to attend very competitive colleges and more likely to attend the most competitive colleges compared to White students with similar backgrounds and credentials. Posselt et al. concluded that differences in academic preparation partially account for lower enrollment in selective universities for African American and Latino high school graduates compared to White and Asian American graduates.

Academic preparation alone does not account for differences in the selectivity of institutions for Latino students. In fact, Fry (2004) observed that many Latino students are graduating from high school with the preparation needed to succeed in a 4-year college, but are not choosing to enroll in the most selective institutions for which they are qualified. The decision to attend a less selective institution than a student's credentials warrant has been termed

undermatching by Bowen et al. (2009) and is presumed to account for many of the Latino students enrolling in nonselective community colleges.

Bowen et al. (2009) looked at background variables that influenced undermatching in a large sample of college-bound students in North Carolina. Bowen et al. first identified “presumptive eligibility” (p. 101)—students whose SAT scores and GPA were similar to those for the typical students enrolled in a given college or university—for selective and more selective institutions in the state. Undermatched students were those who enrolled in a less selective institution than those for which they appeared qualified on the basis of admissions criteria. Bowen et al. found that undermatching was more common for students with lower family income—in the North Carolina data, 59% of students from all racial/ethnic groups in the bottom quartile of income were undermatched compared to 27% of top quartile students. There were similar findings for parental education—64% of students whose parents completed no college were undermatched, while 31% of students whose parents completed graduate degrees were undermatched (Bowen et al., 2009). Undermatching appeared to have its roots at the application stage, because only 36% of those who were undermatched had even applied to more selective institutions. Another 28% were accepted at selective colleges but did not enroll there, possibly dissuaded by high college costs. Only 8% of the undermatched students were denied acceptance after applying to either the University of North Carolina–Chapel Hill or North Carolina State University (Bowen et al., 2009).

The applicability of these findings to Latino students is supported by other research. Fry (2004) concluded that the low proportions of Latino students taking the SAT or ACT was primarily due to their intention to apply only to schools that did not require college admissions tests (typically open-door and nonselective institutions). Other research indicated that for students with borderline credentials (good but not exceptional students), Latino students were more likely to be undermatched and not seek out the most selective institutions for which their academic credentials would qualify them (Roderick et al., 2008).

Social influences and lack of cultural capital also appear to influence undermatching. The social influences on Latino students include the conflicting expectations placed on these students. For example, Wassmer et al. (2004) found that although Latino parents have high aspirations for their children, they also encourage their children to remain close to the family and community. A desire to stay close to home and contribute financially to the family limits the

opportunities of Latino students who do not live close to more selective colleges. A majority of Latino and White students enrolled in community colleges in Nora and Rendón's (1990) study cited price, proximity to home, and employment opportunities close to home as reasons they chose to attend a 2-year school. Gándara (2005) also found that choice of less selective colleges was related to low SES background through a preference for less expensive schools and a lack of knowledge about the differential long-term benefits of attending more selective colleges and universities among families with low parental education. Affordability and access to financial aid for low-income students was posited by Gándara and Contreras (2009) as one of the critical impediments to a college education for the rapidly growing Latino population.

One caveat to the undermatching research is that these studies neglect the possible influence of differences in noncognitive attributes and other variables not measured by admissions criteria on the success of students who initially enroll in 4- versus 2-year programs. Controlling for selection bias and college readiness provides limited utility in disentangling college selectivity and the students who choose to enroll in less selective colleges (Cohen & Brawer, 2008). The undermatching studies essentially assume that the students are not making rational decisions in choosing to attend less selective institutions. This assumption should be empirically tested.

Predictive validity of admissions tests. SAT scores are widely used in conjunction with high school GPA (HSGPA) for college admission decisions. Across a range of studies at 4-year institutions reviewed by Young and Kobrin (2001), multiple correlations of HSGPA and SAT with freshman GPA were moderate to strong for Latino students ($R = .38$ to $.55$) and for White students ($R = .40$ to $.56$). Despite similar predictive validities, this combination of predictors (HSGPA plus SAT) showed mostly small to moderate overprediction of freshman GPA for Latino students ranging from $-.02$ to $-.31$ GPA points (on a 0.0 to 4.0 scale; Young & Kobrin, 2001). That is, Latino students tend to perform less well academically in college than would be predicted from their preadmission grades and test scores. An analysis of more recent SAT data (Patterson, Mattern, & Kobrin, 2009) found similar results: The multiple correlation of SAT and HSGPA with freshman GPA was $.41$ for Latino students and $.46$ for White students. There was also moderate overprediction of GPA of $-.11$ points compared to $-.16$ for Black students and $+.03$ underprediction for White students. Overall, these results indicate that in most cases, Latino students achieve lower GPAs than their admissions credentials would predict. It should be noted,

however, that other factors obviously affect college success beyond grades and test scores. These factors warrant additional research.

Two-Year Institutions

Remedial coursework in community colleges. Increases in college enrollment across racial/ethnic groups have not been met with increases in the rigor of high school coursework, leading to a large enrollment in remedial coursework, especially at community colleges (Venezia et al., 2003; Wirt et al., 2004). Remedial courses are intended for students lacking the skills in reading, writing, mathematics, or English necessary to perform college-level work required by the institution. These courses, when well designed for the students they serve, can also provide critical support in developing noncognitive skills, including time management and other study skills, which are associated with college success (Boylan, Saxon, White, & Erwin, 1994). These courses typically are not credit-bearing nor do they count toward a degree (Wirt et al., 2004). The need for remediation is greater at community colleges, where 61% of students take at least one remedial course and 25% take two or more (Goldrick-Rab, 2010).

The degree completion rates of students taking one or more remedial courses are quite low, beginning with low completion rates of the remedial programs themselves. Based on the National Study of Community College Remediation, a 10-year longitudinal study conducted from 1990-2000, McCabe (2000) found that 43% of students enrolled in remedial courses in 1990 successfully completed their remedial program, but of the students who were considered seriously deficient (defined as deficient in reading, writing, and mathematics, and needing a low-level remedial course in at least one area) only 20% successfully completed remedial education. Degree completion rates were also low: McCabe found that after 10 years, only 14.0% of students who completed remedial programs went on to earn associate's degrees, 16.2% earned bachelor's degrees, 36.8% earned occupational degrees or certificates, and 3.7% earned graduate degrees. However, it is unclear whether these low completion rates are additional outcomes of poor academic preparation or in part a direct effect of the remedial programs themselves. Based on the wide range of retention rates across remedial/developmental coursework programs at different institutions, Boylan, Bonham, and Tafari (2005) concluded that institutional effects, including program services, attitudes, and policies, may have as much to do with retention as do student characteristics. Therefore some remedial programs may discourage college completion, while other programs may be effective in promoting persistence.

Quantitative studies of remedial and developmental coursework have yielded mixed results. Kulik, Kulik, and Schwalb (1983) conducted a meta-analysis including half a dozen studies on remedial and development classes. Kulik et al. found that these courses had a small effect on GPA (Cohen's $d = .05$) and persistence ($d = .13$). Burley (1994) updated this analysis and found somewhat larger effect sizes ($d = .20$), indicating that, compared to control groups not enrolled in such courses, students in remedial classes had somewhat better rates of persistence in college.

Poor academic preparation that requires remedial coursework can cost students time and money and can potentially derail students' motivation for college. Venezia et al. (2003) reported statistics from one community college, where nearly half of the entering students were placed in the lowest remedial mathematics course—a trajectory that requires a student to take (and pay for) as many as nine remedial courses before the student can begin taking credit-bearing courses in mathematics.

Access to credit-bearing coursework is a particular concern for Latino students, who are more likely than other groups of students to enroll in remedial coursework in community colleges (Goldrick-Rab, 2010; Venezia et al., 2003). Passing gatekeeper courses—including mathematics and writing courses that provide access to higher level coursework—is particularly important for making academic progress. The need for remediation for these students is strongly tied to their increased likelihood of taking vocational rather than college-prep courses in high school, decreased likelihood of taking mathematics and science coursework in high school, and a high probability of attending resource-poor K–12 schools (Goldrick-Rab, 2010).

The need for remediation among Latino students may also be associated with the large number of Latino students who are the first in their family to attend college. Analyses of NCES data found that first-generation college students were much more likely to take remedial coursework in college (55%) than students whose parents held a bachelor's or advanced degree (27%; Chen & Carroll, 2005). Mathematics appeared especially problematic: 40% of first-generation college students required remedial courses in mathematics, compared to 16% of students whose parents held at least a bachelor's degree. For reading, just 13% of first-generation and 6% of other students required remediation (Chen & Carroll, 2005).

Identification of ESL students and placement in remedial courses. Courses for ESL students are widely offered. Nationally, 47% of postsecondary institutions offer ESL courses. In

some areas, namely states with large Latino populations such as California, ESL courses are more widely offered, especially in community colleges, where 98% offer some kind of ESL services (ICAS ESL Task Force, 2006). The ICAS ESL Task Force (2006) found that in California the range of ESL courses offered varied by type of school: California community colleges offered one to six levels of ESL writing as well as reading, listening, speaking, and grammar courses; University of California (UC) institutions and CSU institutions reported offering one to five levels of writing courses only. A large number of respondents to the survey indicated a need for more variety in ESL courses offered or more sections of current ESL courses to support the needs of their current students.

In contrast to other areas of remediation, ESL courses can be credit-bearing. Among CSU and UC institutions, most schools report that all ESL courses are credit-bearing, but 10% of CSU institutions and 29% of UC institutions report that none of their ESL courses are credit-bearing. Most community colleges offer credit for ESL courses; however, these courses do not necessarily count toward a degree (ICAS ESL Task Force, 2006). Thus, in a significant proportion of institutions, remedial ESL courses create a similar barrier to graduation as do other remedial courses.

Identifying students who need remediation in ESL skills is a serious concern for colleges and universities. Institutions vary in the methods they use for identification. For example, most community colleges in California rely on self-identification to determine which students are assessed for placement into ESL remediation courses or, if ESL-specific courses are not offered, to mainstream remedial writing courses (ICAS ESL Task Force, 2006). Other schools in the California system base identification on the results of the writing and English placement tests given to the total student population, where examinee responses are flagged for errors consistent with characteristics of non-native speakers (ICAS ESL Task Force, 2006).

Institutions vary in the type of assessments they use for ESL placement. The Consultation Council Task Force on Assessment (CCTFA; 2007) surveyed community colleges in California and found that the top three ESL placement tests were the Combined English Language Skills Assessment (CELSA), Compass ESL Placement Test (ACT), and ACCUPLACER[®] ESL (College Board). Small numbers of schools use locally developed assessments or self-identification for placement decisions. Almost one-third of the schools use a writing sample instead of or in addition to other tests. Both CCTFA and the ICAS ESL Task Force (2006)

concluded that the tests available do not offer sufficient accuracy or diagnostic feedback to make appropriate ESL remediation decisions.

Barriers to degree attainment for Latino students in community college. Latino students are more likely to have multiple risk factors for not completing college (Fry, 2004; Nora, 2003). These factors include being the first in the family to attend college, attending on a part-time basis, delaying college entrance after high school, having family obligations, especially as a single parent, coming from a low-SES background, having financial aid needs, and what Bean and Metzner (1985) termed *environmental pull factors* (Arbona & Nora, 2007; Fry, 2004). These factors are explored in greater detail in the sections that follow.

Pre-college dispositions continue to play an important role as well. Arbona and Nora (2007) found that 10th grade degree aspirations and a rigorous academic curriculum in high school were important predictors of bachelor's degree attainment for Latino students who initially enrolled in community colleges. Additionally, Nora (2003, p. 56) argued that precollege "psychosocial experiences," including anticipatory fears, unrealistic expectations, and alienation, also negatively impacted persistence.

First-generation college students. Being a first-generation college student is an important risk factor for dropping out, and 49% of Latino students were first-generation college attendees, as compared to 33% of all students in 2003–04 (Santiago & Cunningham, 2005). Being the first in the family to go to college can impact both choice of school selectivity and persistence. First-generation students and their parents are less likely to know about college financing options and procedures, including applying for college and completing the FAFSA (Goldrick-Rab, 2010). They also tend to prefer not to take out loans to finance education (McDonough, 2004; Tomas Rivera Policy Institute and the Sallie Mae Fund, 2004). Both of these factors influence the perceived affordability of college and the students' likelihood of attending more selective (and costly) institutions.

Given their limited knowledge of the higher education system, first-generation college students are more likely to struggle with the multiple pathways available to them (types of schools, majors, courses). Limited social capital leads to a process where students rely on information from a limited number of friends and family members and follow paths forged by those sources into specific institutions. This often leads first-generation Latino college students

to attend local and nonselective institutions even when the students are well qualified for more selective colleges (Goldrick-Rab, 2010).

Part-time and delayed entry. Attending school part-time is associated with low persistence and is more prevalent among Latino students than other student groups (Arbona & Nora, 2007). Part-time attendance is more common at community colleges, where less than a third of students attend full-time (Goldrick-Rab, 2010). In 2003–04, Latino students were more likely to attend part-time than undergraduates in general (51% vs. 45%; Santiago & Cunningham, 2005). The NELS data from the 1990s showed a similar trend: 52% of Latino students attended college part-time compared to 37% of White students (Swail et al., 2005).

Latino students were also more likely to delay entry to higher education: 23% of Latino students versus 19% of all students delayed their enrollment in college by eight months or more (Swail et al., 2005). From other data, Nora (2003) estimated that only 35% of Latino high school graduates enrolled in college within 2 years. Nora cites academic preparation and blocked access to challenging (and college-prep) curriculum in high school, especially advanced mathematics, as barriers to immediate enrollment in college. Other research indicates that lack of knowledge about the college enrollment process and poor academic planning also causes delayed enrollment, because students complete the enrollment process after high school graduation instead of during their senior year (Roderick et al., 2008). Both delayed entry and part-time attendance are associated with low persistence (Adelman, 1999; Fry, 2004), though the effects may be indirect and attributable to family obligations and/or difficulties enrolling in and financing college.

Work and family obligations. Family obligations appear to play a strong role in Latino students' decisions to enroll in a community college, to attend part-time, or to drop out of college (Goldrick-Rab, 2010). When asked what the primary reasons were that people do not enroll in college or leave college, similar proportions of Latino, African American, and White students reported the cost of tuition (77%) and need to earn money (77%) as primary reasons that they do not complete degrees. However, Latino students were twice as likely as White students to report that staying close to home was an important reason for not enrolling in college (33%; Fry, 2004). Childcare responsibilities, especially for single parents, are another important risk factor. For Latino students in community colleges, the NPSAS 2008 data (NCES, 2008) indicated that

Latino students were more likely than White students to be single parents (17% vs. 14%) and less likely to be married, with children (13% vs. 17%) or without (5% vs. 8%).

A range of evidence confirms that family obligations appear to affect Latina women more than Latino men. Nora, Cabrera, Hagedorn, and Pascarella (1996) found that minority (African American and Hispanic) women, but not men, with care-taking responsibilities were 83% more likely to withdraw from college than students without these responsibilities. Chacón, Cohen, and Stover (1986) also found that gender roles affected persistence through the influence of time devoted to household duties. In their analyses of Chicano (Mexican American) college students, being female doubled the time spent on domestic chores, which reduced the time available for school work and ultimately resulted in lower levels of persistence. This result was also supported by qualitative findings: In interviews with 10 Chicana women who were college graduates, Vera (1998) found that the women felt they had to reject culturally prescribed gender roles that restricted them from participating in nonfamilial roles and develop a new sense of self in order to pursue a college degree.

Socioeconomic status and financial aid. Latino students enrolled in college typically have much lower family income than the average student: 25% of dependent Latino students had family incomes below \$40,000, compared to 16% of all students. At the other extreme, just 8% of Latino students (compared to 16% for all students) had family incomes above \$80,000 (Santiago & Cunningham, 2005). Students from the lowest SES bracket are more likely to have disruptions in college attendance and frequent transfers, including transferring downward from a 4-year to a 2-year institution. These types of disruptions are strongly related to lower completion rates (Goldrick-Rab, 2010).

For low-SES and minority students, college affordability is an important influence on the decision to not enroll or persist in college. Latino students appear to select colleges with lower tuition and fees: 41% paid tuition and fees that were less than \$1,000 compared to 30% of all students. Possibly as a function of their greater financial need but low institutional costs, Latinos applied for financial aid at high levels (80%) but were less likely to receive aid (63%) and received smaller amounts of aid than other groups of minority students (Santiago & Cunningham, 2005).

Financial aid, especially need-based aid such as Pell Grants, appears to promote persistence, particularly if it is provided early in the college experience (Goldrick-Rab, 2010).

Alarming, this positive influence has decreased in recent years due to the trend of more merit-based than need-based aid and an increase in the use of loans over grants and scholarships (Goldrick-Rab, 2010).

Environmental pulls. Nora (2003), drawing from Bean and Metzner (1985), defined environmental pull factors as influences in the lives of students outside of the campus experience that either encourage or discourage commitment to a particular institution, persistence, and/or degree completion (see also Nora, 1987). Negative pull factors include care-taking responsibilities mentioned earlier, but also working off-campus. In fact, Nora et al. (1996) found that African American and Latino students working off-campus were 36% more likely to drop out of college than those who did not work. In contrast, working on-campus was found to be a positive attractor to the institution through the feeling of affinity to campus and the opportunities to have positive interactions with other students and faculty. Nora (2003) argued that financial aid awards were a positive pull factor, increasing loyalty to the institution and decreasing the need for off-campus employment. Another negative environmental pull identified by Nora (2003) was commuting to campus, which tends to decrease the time that students spend on campus and discourages social interactions with other students.

Racial climate on campus. Despite beliefs that racial/ethnic conflicts have become virtually nonexistent on college campuses, Hurtado (1992) found that 25% of college students reported racial conflict on their campus in the late 1980s. Perceptions of racial conflict were more common among the African American and Latino students in the sample. Hurtado also found that one-third of students were critical of institutional commitment to diversity, believing that administrators did not do enough to increase the diversity of campus and to promote positive race relations. For Latino students in the sample, perceptions of institutional commitment to diversity and a student-centered administration were associated with lower perceptions of racial tension on campus. A follow-up review of related research by Harper and Hurtado (2007) noted that the research since 1992 continues to find that ethnic/racial minority students reported greater racial tension when they attend a predominantly White institution. Students' campus experiences of racial tension and discrimination can directly impact persistence (Hurtado, 1992). At predominantly White institutions, researchers have found that ethnic/racial minority students report feelings of isolation, stereotyping, and faculty discrimination or insensitivity in the

classroom that impact their sense of belonging at the institution and likely their persistence to obtain a degree (Harper & Hurtado, 2007).

In contrast, positive experiences with faculty and other students can work to build community and institutional affinity. Harper and Hurtado (2007) reviewed an extensive research literature and found that institutions that actively promote diversity and provide educationally relevant activities that promote interactions between students from different racial/ethnic backgrounds improve the campus experience for minority students and promote interpersonal and cognitive development for students from all racial/ethnic backgrounds.

Other positive influences can counteract perceptions of discrimination. These influences include strong parental support, positive academic outcomes, and a student's sense that they are developing academically and benefitting from coursework (regardless of actual outcomes; Nora, 2003). "Validating experiences" in the classroom and through mentoring can also increase persistence (Nora, 2003, p. 60). Thus, personal resiliency, social support, and positive experiences can work together to promote degree completion for racial/ethnic minority students.

Transferring to 4-year institutions. For students who initially enroll in 2-year institutions, the intent to transfer to 4-year institutions is not a sufficient foundation to make those intentions a reality. As mentioned earlier, a vast majority of Latino students enrolling in community college intend to transfer (75% to 87%; Arbona & Nora, 2007; Crisp & Nora, 2010), but few actually do (Bauer & Bauer, 1994; Nora, 2004; Rendón & Nora, 1989). Bensimon et al. (2008) termed this phenomenon the *transfer gap* among community college students. Bensimon et al. found that large numbers of students enrolled in California's community colleges never completed the requirements for transfer to a 4-year UC or CSU institution. Despite the well-articulated higher education system in California, out of 27,422 first-year students in their sample, just 520 (or less than 2%) completed the requirements to transfer to either a CSU or UC school in 3 years. Bensimon et al. did not identify any significant racial/ethnic differences in transfer rates, as Latino students transferred to UC schools in similar numbers as White and Asian American students.

In a similar study, Hagedorn and Lester (2006) analyzed data from the Transfer and Retention of Urban Community College Students Project from a 2-year college in Los Angeles—a longitudinal survey of 5,000 urban 2-year college students who intended to transfer to a 4-year institution from one of the college's nine campuses. Hagedorn and Lester discovered

that only 8.9% of the Latino 2-year college students transferred after six semesters. One barrier identified was the low number of students (23.7%) who passed the English composition module.

Alexander, García, González, Grimes, and O'Brien (2007) used ethnographic methods to identify eight barriers for 2-year to 4-year transfer success for Latino students: lack of familiarity with and knowledge of higher education, inadequate preparation for college leading to extensive remediation, limited or no English language competence, limited academic degree or transfer program participation, limited financial resources, social and cultural distance on campus, and students' attitudes toward higher education. Other barriers to transfer identified in the literature included the need for clearly articulated systems to guide community college students' course taking in preparation for transfer and a lack of a "transfer culture" (p. 22, Bensimon et al., 2008) at many community colleges (Alexander et al., 2007; Arbona & Nora, 2007; Bensimon et al., 2008; Suarez, 2003). Interestingly, many of the issues identified related to transfer parallel the barriers to college admissions—particularly knowledge of the transfer process and requirements, concerns about cost, distance from home, and a lack of knowledge about selective campuses and their benefits (Alexander et al., 2007; Bensimon et al., 2008).

Academic and noncognitive factors also appear to influence transfer. Based on interviews with students, administrators, and counselors, Suarez (2003) found that personal drive, academic preparation, and academic and career goals are believed to influence transfer to 4-year institutions. Mentoring and role models were also suggested as influences.

To increase the number of students transferring, Bensimon et al. (2008) suggested that community colleges need more counselors familiar with the transfer process to help students. They also suggested that community colleges needed to foster expectations of transfer among students. As with high school, where having friends with college plans promotes college attendance, having friends in community college with transfer plans increases the likelihood of transfer. Promoting coursework that prepares students for transfer is also suggested. Huber et al. (2006) went so far as to call for a default community college curriculum that includes courses that have been designated as required for transfer to selective 4-year institutions. For the selective colleges, Bensimon et al. (2008) called for more outreach to community colleges to increase awareness of those institutions by students. This was prompted by their observation that information fairs for potential transfer students were primarily attended by regional nonselective colleges and less often by more distant selective institutions.

For the few students who do make the transition to 4-year institutions, the outcomes are surprisingly good. Students who successfully transfer from a 2-year to a 4-year institution have higher rates of degree attainment than students who initially enroll in 4-year institutions (Hoachlander et al., 2003). Indeed, among students who successfully transfer, research suggests that the precollege characteristics of transfer students and students who went straight to a 4-year college were similar: a rigorous academic curriculum in high school, high academic achievement, expectation of completing a bachelor's degree, and parental support for educational aspirations (Arbona & Nora, 2007).

Four-Year Institutions

Influences on enrollment in 4-year institutions. Perna (2000) used an econometric model to explore the influence of long- and short-term perceptions of costs and benefits as well as social and cultural capital on enrolling in a 4-year college.⁴ By Perna's definition, social capital consists of the information-sharing channels and networks available to an individual as well as the social norms for behavior and values. Cultural capital comes from parent-derived factors that determine class status, where the dominant class possesses the most valued kinds of cultural capital. Social and cultural capital affect students' aspirations, level of motivation, and the perceived and actual payoff for their efforts (Perna, 2000). In addition to the amount of social and cultural capital, individuals vary in their ability to translate this capital into advantages based on their social class, gender, and ethnicity.

In a logistic regression analysis controlling for cost, benefits, and financial resources, Perna (2000) found that Latino students were less likely than White students to enroll in a 4-year college. After controlling for academic ability, Latino students were more likely to enroll than White students. When cultural and social capital were included in the model, Latino students were as likely to enroll in a 4-year college as White students. Perna concluded that the lower 4-year college enrollment rates for Latino high school graduates is partially due to lower levels of academic ability/preparation and lower student educational expectations. The inclusion of cultural and social capital (school characteristics, parental SES, educational expectations, and assistance with college applications) and academic preparation eliminated disparities in 4-year enrollment. However, the variables included in the model accounted for less variability in 4-year enrollment for Latino students than for other students, indicating that there might be additional variables that affected their decision-making not measured in the dataset.

Perna's (2000) analyses indicated that Latino students might also consider the long-term payoffs as uncertain and lower their value in the decision-making process regarding higher education. In fact, Perna found that the expected (not the actual) benefits of college were lowest for Latino students (\$9,711 per year for completing a bachelor's degree versus a high school diploma) compared to White (\$11,117) and particularly African American adults (\$13,779). Most evidence indicates that the financial benefit of college for Latino students is similar to or greater than the benefits for White students (College Board, 2010). In fact, the college earnings premium for Latina women is especially great: Latina women with bachelor's degrees earn 74% more (a premium of \$17,500 per year) than Latina high school graduates compared to 57% more (\$15,000 per year) for White women. Even attending college without attaining a degree was associated with a 29% greater salary (\$6,700 per year) for Latina women, compared to 7% (\$1,800) for White women. The college earnings premium for Latino men was similar to that for White women.

Competition at the most selective institutions. A widely held notion is that the most selective colleges and universities (defined as those with low application acceptance rates) provide a differential benefit to future career opportunities for the students who enroll (Posselt et al., 2010). Access to these universities is seen as an additional barrier to social parity for minority communities in the United States. Indeed, Posselt et al. (2010) found evidence that stratification in higher education appears to be shifting from college/no college to levels of selectivity within higher education. They suggest that parents with no higher education may be more likely to see any level of college as sufficiently elite, while parents with more education (and especially higher SES) are increasingly eager to send their students to the most selective institutions.

Overall, Posselt et al. (2010) found that academic preparation has increased across all racial/ethnic groups between the 1970s and 2000s in terms of high school GPA, mathematics and science course-taking, extracurricular activities, and percentage of students taking ACT/SAT tests. However, gains by White and Asian American students have met or exceeded the gains of African American and Latino students, thus maintaining the gaps in academic preparedness. They also noted a widening selectivity gap between the most and least selective colleges, where the most selective colleges attracted increasingly more academically able cohorts of first-year students over time.

When considering directions for future interventions to increase enrollment in the most selective colleges, Posselt et al. (2010) concluded that efforts to increase academic preparation will be insufficient, as students who apply to the most selective institutions now have nearly indistinguishable academic qualifications (e.g., very similar GPAs and standardized test scores). Interventions should instead focus on increasing important nonacademic criteria used in holistic admissions assessment, including the development of leadership skills and participation in extracurricular activities. This seems especially appropriate given that Melguizo (2010) and Horn et al. (2008) found that leadership skills played a positive role in persistence.

Interventions to promote degree attainment. The low bachelor's degree attainment rate among Latino students who initially enroll in college (less than 25%) suggests that great strides are needed in order to support the national effort to increase the number of college graduates in the United States (Fry, 2004; Obama, 2010). Gándara (2005) noted that many college access programs targeted for Latino students are not designed for high achievers, and the support they offer may not be appropriate for Latino students who would be eligible to attend more selective institutions. Their goal is to “place students in college – any college” (Gándara, 2005, p. 4), which does not promote long-term achievement or lead to high-level careers. On the other end of the intervention spectrum, programs that are targeted toward high-achieving students rarely provide the social, linguistic, and immigration-related support required by many Latino students (Gándara, 2005). Barton (2003) concurred that interventions aimed at high-achieving Latino students and promoting careers in science, technology, engineering, and mathematics (STEM) fields are critical to promoting national and individual economic success.

Barriers to bachelor's degree completion. Many of the barriers to persistence for Latino students in 2-year institutions apply to 4-year institutions as well. In fact, some risk factors are more pronounced for Latino students in 4-year colleges. For instance, Latino students (49%) are much more likely to live with their parents and commute to campus while attending a 4-year institution as compared to White students (19%; Fry, 2004)—a distinction not found in community colleges. Also, Latino students in 4-year colleges are more likely to be single parents—10% of Latino students versus 7% of all students and 4% of White students (NCES, 2008).

Researchers emphasize that even high-achieving Latino students benefit from targeted support from the educational system. Gándara (2005) outlined the particular challenges that

high-achieving Latino students face, which included coming from low SES families and having parents with limited education.⁵ Gándara argued that this lack of social and cultural capital puts Latino students at greater risk of derailing their education if something goes wrong (e.g., family, financial, or academic issues), a risk that many middle-class and White students may not face.

Although overall Latino students have more risk factors associated with school dropout and low achievement, the most successful Latino students tend to have some of the same advantages as middle-class White students. In the ECLS and NELS databases, high-achieving Latino students had higher SES indicators, including higher parental education, higher median income, higher proportions of intact families, and higher probability of living in a nonurban area compared to other Latinos, though not compared to White students (Gándara, 2005). However, Gándara also noted that the variability of these factors for Latino students was greater than that for White students, indicating greater variation in the SES advantage of high-achieving Latino students. Thus, although many high-achieving Latino students are relatively advantaged, many of these students face serious risks for lower educational outcomes and, as Gándara argues, face greater risk of external factors altering their educational trajectory.

Personal traits related to persistence in college. Personal, noncognitive traits appear to be critical in determining enrollment and persistence in 4-year institutions. A meta-analysis conducted by Robbins et al. (2004) found that academic goals, academic self-efficiency, and academic skills (e.g., time management and study skills) were all related to retention. Academic self-efficacy and achievement motivation were also related to college GPA. Robbins et al. found that academic skills and goals added appreciably to the prediction of retention beyond traditional predictors including SES, high school GPA, and SAT/ACT scores. Academic self-efficacy also added appreciably to the prediction of GPA. Boylan (1994) outlined a number of other noncognitive variables that have been associated with academic success for minority students: capacity to deal with racism, ability to establish long-term goals and short-term objectives, successful leadership experience, and understanding of expectations and requirements of the college experience. Boylan also notes that availability and support of mentors is critical to the success of minority students.

Other research offers further evidence of the role of noncognitive traits in persistence. One intriguing study is Melguizo's (2010) analysis of students nominated for a Gates Millennium Scholarship. Students nominated for the program had several risk factors associated with

dropping out of college, including low family SES and racial/ethnic minority background. These students were nominated on the basis of strong academic skills and noncognitive indicators, including leadership skills, positive self-concept, ability to negotiate the system, and strong long-range goals. Melguizo found that these students (both nominees and award recipients) had a much higher rate of degree attainment (89%) than is commonly observed for students with similar backgrounds (the sample includes Latino, African American, and Asian American students) and attended more selective institutions at vastly higher rates than other Latino and African American students (35% attending most selective institutions, only 14% attending nonselective institutions). Melguizo found that regardless of whether the nominated students received the scholarship, the strong academic and noncognitive strengths of these students were associated with better outcomes than other ethnic/racial minority students. This study suggests that interventions might help other high-achieving Latino students succeed in college by supporting the development of leadership skills, positive self-concept, ability to negotiate the system, and strong long-range goals.

Similarly, Bowen et al. (2009) described the Posse Program, which uses a rigorous selection process to identify minority students who are given precollegiate training as a group, full-tuition scholarships to partner colleges, and structured mentoring prior to attending college as a supportive cohort. Graduation rates for participants were remarkably high—85% to 95% at selective private colleges—but this may be due as much to the strengths of the students when selected and the financial support as to the social support and interventions provided after selection. The selection process emphasized both academic achievement and noncognitive attributes including leadership skills and ambition to succeed.

It is unclear whether the Gates Millennium Scholars or Posse Program interventions have any impact on persistence beyond the effect of identifying students who are already highly motivated and academically prepared. If not, interventions might have a greater impact on graduation rates by helping other students develop the beneficial noncognitive skills that these nominees possess rather than by expanding these costly intervention programs.

Other converging evidence suggests that resilience, long-term goals, and self-efficacy are critical to long-term success for Latino students. Hernandez (2002) conducted in-depth interviews with 10 Latino college students (seniors or recent alumni) at a predominately White institution. Hernandez identified four major factors that facilitated success: academic and social

adjustment, family support and encouragement, involvement opportunities, and ethnic and cultural identity. He concluded that successful Latino students showed greater resiliency than less successful students, maintained a positive attitude, and had an internal drive to succeed at any cost.

Related to resilience is a construct called *grit*, defined by Duckworth, Peterson, Matthews, and Kelly (2007) as perseverance and passion for long-term goals. Duckworth et al. (2007) found that this personality trait was negatively associated with intelligence (although this may be more true in highly selected samples but not in the general population) and incrementally predicted success in college attainment and GPA in a variety of subject populations. Grit was found to be strongly associated with conscientiousness, but still provided incremental prediction beyond that personality trait. Similarly, Nora (2003) found resilience to be a key attribute of Latino students who succeed in college.

Self-efficacy is also related to college persistence. In a sample of Chicano/a students from Arizona State University and the University of California-Irvine, Gloria (1993) found that one of the most influential variables in explaining persistence was personal educational self-efficacy. Gloria's (1993) measure of educational self-efficacy included confidence to complete degree requirements plus course and social self-efficacy measures. Similarly, Torres and Solberg (2001) found that self-efficacy was strongly associated with persistence intentions and social integration in a sample of Latino students enrolled in 2- and 4-year institutions. Their study used the College Self Efficacy Inventory, an instrument specifically designed by Solberg to understand Latino student adjustment.

Persistence in STEM majors. A particular focus of some researchers is promoting Latino engagement in STEM careers. In their *Education Pays* trend report, the College Board (2010) reported that in 1995–96, Latino students were as likely as White students to enroll in STEM majors, but had much lower completion rates: Only 16% of Latino students completed a bachelor's degree in a STEM field compared to 30% of White students. Ma (2009) found similar results in the NELS:88 data, where Latino and African American students were overrepresented in STEM fields for first college major, but underrepresented in final major. Some researchers conclude from this data that interventions should focus on increasing interest in STEM careers among minority students. However, Bowen et al. (2009) suggested that college readiness and other background variables account for differences in STEM majors at graduation. Using the

State Systems Database and Flagships Database, Bowen et al. controlled for SES, HSGPA, SAT/ACT scores, and type of institution and found that although gender differences persist, with more men than women of all races/ethnicities enrolling in STEM fields, no differences were apparent in STEM major at graduation between racial/ethnic minority groups once the effects of academic preparation were controlled. Bowen et al. concluded that interest in STEM fields across racial/ethnic groups, at least for males, is not at issue, and that improvements in STEM degree attainments will depend on improving academic preparation for STEM fields in high school.

In a longitudinal study of persistence in science education and careers, Grandy (1998) found that mathematics/science coursework in high school and support from teachers and administrators for minority students in college were important predictors for science ambition, science course grades, and science career outcome. In order to support Latino students' enrollment in science majors, Barton (2003) called for more research on teaching quality to promote high achievement of minority students, career guidance in high school, and persistence in college. Like Grandy, Barton also identified mathematics in high school as a critical barrier to entry in high-level STEM careers. Barton referred to NAEP test results, which showed that among 12th graders just 20% of White students and only 4% of Latino students scored at the proficient level or above for NAEP mathematics. Barton concluded that increasing achievement in mathematics is critical, because students who score below proficient in high school are not strong candidates for science and mathematics majors in college. Indeed, Ma (2009) posits that difficulty in science and mathematics courses in college may persuade minority students that they do not have the foundational skills or ability to do well in those majors despite their initial interest in and motivation for STEM majors.

Preparation for graduate school. Given the low attainment rates of Latino students in high school and college, it is no surprise that the number of Latinos holding advanced degrees is quite small. Just 4% of Latino adults hold a master's, doctoral, or professional degree, compared to approximately 8% of White women and 11% of White men (Huber et al., 2006). However, these low numbers belie a substantial attainment rate from the small population of Latino students who acquire a college degree: Although Latino students attain college degrees at lower rates than other students, those who do achieve a bachelor's degree go on to graduate school in similar proportions to White students (Huber et al., 2006). Furthermore, the proportion of Latino

students going on to graduate school is about the same as the proportion of Latino students graduating from college: 7.5% of college graduates are Latino and 6% of graduate students are Latino (Wendler et al., 2010). Graduate degree attainment rates vary by country of origin: At the low end, 2% of Mexican and Salvadoran adults hold a graduate degree (25% to 33% of those who have graduated with a 4-year degree), while at the high end, 9% to 10% of Cuban adults have graduate degrees (almost 50% of those who have graduated with a 4-year degree; Huber et al., 2006).

Aspirations for advanced degrees begin diverging across racial/ethnic groups in high school, as only 30% of Latino students in one study reported aspirations for graduate degrees, compared to 41% of White and 50% of Asian students (Wendler et al., 2010). As with high school and college, mentors and role models have positive effects on graduate school attendance. Gándara (1995) interviewed Chicano/a adults and found that Chicana students especially attributed their graduate school attendance and persistence to mentoring from minority faculty members or program directors during their undergraduate and graduate careers.

Conclusion

In this white paper, we provide an overview of the key issues that affect the quality and equity of education in grades K–16 for Latino students in the United States. By necessity, we summarize many fields of research on these issues and interested readers are encouraged to explore in greater depth, through the references cited, the topics of greatest interest to them. In addition, we encourage other researchers to explore many of these topics in more detail through additional research studies, policy reports, and white papers. In conclusion, we should expect no less than the highest quality of education for all of America's students, regardless of race, ethnicity, language background, or national origin. We hope that this white paper will provide an impetus to action and will serve as a guide for future directions for collective research efforts on the critical issues regarding the education of Latino students in the 21st century.

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Notes

- ¹ Note that Latinos can be of any race. For reasons of simplicity, this paper uses the term *White* to refer to non-Latino White people.
- ² Barton's analysis of high school graduation rates emphasize that the choice of denominator for the percentages is critical. Given that Huber et al. estimated the overall Latino graduation rate at 54% for women and 51% for men, their denominator may be too large and all country of origin estimates are too low, but the relative differences by country of origin are likely accurate.
- ³ The FAFSA is required by colleges for almost all need-based aid.
- ⁴ Perna did not consider the decision to enroll in two-year institutions. Only students who enrolled in four-year institutions or did not enroll at all were analyzed.
- ⁵ More than 25% of the high-achieving Latino students in Gándara's (2005) data had at least one parent who did not graduate from high school. For White students, this number was less than 5%.