



# Graduates of Denver Public Schools: College Access and Success

April 2009

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## Acknowledgements

This report was made possible by generous funding from The Piton Foundation and the Denver Scholarship Foundation. The authors express our appreciation to the many individuals who provided guidance throughout this study, particularly Hi Howard of The Piton Foundation and Nate Easley of the Denver Scholarship Foundation. We are grateful for the policy advice and data support provided by Brad Jupp and Scott Springer of Denver Public Schools. Thanks also to Lisa Montagu of The Piton Foundation and Abby Miller of The Pell Institute for their research and analytical support. In addition, we are indebted to the staff of Denver Scholarship Foundation and Piton for their feedback and comments. Finally, we want to credit the administration and leadership of Denver Public Schools for their willingness to provide access to student data and to serve as the first district in Colorado to conduct this type of research.

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# Executive Summary

## Background

Denver Public Schools (DPS), the Denver Scholarship Foundation, The Piton Foundation, and the Pell Institute for the Study of Opportunity in Higher Education undertook a study to learn how DPS graduates perform in college. The report describes who enrolls in college, and who persists and earns a college certificate or degree. In addition, the research examines college entrance rates for DPS graduates who earn credit in one or more accelerated courses or programs during high school. Among those offerings are concurrent (college) enrollment, Advanced Placement (AP) classes, honors courses, and the International Baccalaureate (IB) program.

The study included about 18,000 students who graduated from DPS between 2002 and 2007. For the earliest graduating class (2002), six years of possible college enrollment data are examined. For the most recent class (2007), only one year is examined. Across the six graduating classes in the study, the largest share of DPS graduates was Hispanic (40 percent). In addition, 31 percent of the graduates were white and 23 percent were African American. More than half the graduates (60 percent) were low-income.

## Local and National Data Sources

Student-level data from DPS were linked with National Student Clearinghouse (NSC) college enrollment and completion records to track postsecondary outcomes for DPS graduates. National comparisons were also conducted to understand the magnitude of the college enrollment and completion challenges that DPS graduates face. Because there is no national student sample that mirrors, exactly, the DPS students in this study, a range of comparisons are provided using: 1) The U.S. Census Bureau's Current Population Survey and American Community Survey; 2) The U.S. Department of Education's Beginning Postsecondary Students (BPS) study; and 3) published data from a similar study of graduates of the Chicago Public School district. DPS is the first district in Colorado to conduct this type of research.

## Key Findings

### ***Who enrolls in college? Who persists? Who graduates?***

- Among all DPS graduates from 2002 to 2007, 56 percent enrolled in college. Hispanic enrollment rates were the lowest at 39 percent, compared with 63 percent for African-American DPS graduates and 71 percent for white DPS graduates. For the earliest graduating class (2002), 62 percent entered college within six years.
- Sixty percent of DPS graduates who entered college within 12 months of graduating from high school either completed a degree or certificate or were still enrolled after six years. Overall, 39 percent had earned degrees or certificates, including 52 percent of whites, 30 percent of African Americans and 25 percent of Hispanics.
- The majority of degrees earned were bachelor's degrees; very few DPS graduates obtained associate's degrees.
- Minority and low-income DPS graduates who remained in-state enrolled in community colleges at higher rates, while a higher percentage of whites and non-low-income graduates enrolled in four-year colleges. One-third of all DPS graduates enrolled at Community College of Denver or Metro State College of Denver.

### ***Which DPS graduates participate in accelerated courses and what are their college enrollment rates?***

- Forty-three percent of all DPS graduates enrolled in accelerated programs or courses. Thirty-four percent of Hispanic and 35 percent of African-American graduates participated, compared with 58 percent of white graduates.
- Low-income DPS graduates were also underrepresented in accelerated courses and programs. Only 34 percent took advantage of the offerings, compared with 57 percent of non-low-income graduates.
- Although underrepresented in accelerated programs overall, Hispanic, African-American, and low-income DPS graduates took the greatest advantage of concurrent (college) enrollment programs.
- College enrollment rates of graduates who took accelerated courses were much higher than the enrollment rates of nonparticipants. This outcome was consistent for DPS graduates of all races/ethnicities and income groups. College enrollment rates were highest for graduates who took at least two different types of accelerated programs or courses.

### ***How do DPS graduates' college outcomes compare with national averages or other communities?***

- Overall, DPS graduates have slightly lower college enrollment rates than 18- to 24-year-olds in national data sets; they have enrollment rates similar to 18- to 24-year-olds in communities whose school districts serve a high proportion of Hispanic students. Hispanic DPS graduates enroll in college at lower rates than Hispanics nationally, while white and African-American DPS graduates enroll at higher rates than similar students nationally.
- Immediate college enrollment rates of DPS graduates were slightly lower than those of Chicago Public School graduates, overall and for all races/ethnic groups. In both districts, Hispanic graduates had the lowest college enrollment rate, with higher rates for African Americans, and the highest rates for whites.
- When compared with a national sample, far lower percentages of DPS graduates earn associate's degrees or certificates after three years (6 percent versus 23 percent).

### **Recommendations**

1. Several findings warrant further research, including:

- **Why do DPS graduates appear to enter college at relatively low rates?** Further research is needed to understand why Hispanic and low-income DPS graduates are entering college at lower rates than other graduates, both locally and nationally.
- **Why do DPS college entrants earn fewer degrees and certificates than comparable students nationally?** More detailed examination and more years of longitudinal data would enable a better understanding of the college experiences of DPS graduates. College persistence and degree attainment should also be examined for students who enroll in accelerated courses.
- **In what ways do the costs of higher education and the availability of financial assistance affect the college entrance rates of DPS students, particularly Hispanic and low-income graduates?** Merging school district information on high school graduates with student records data from the Colorado Department of Higher Education may better enable us to study this question. Linking will be

possible once all colleges in Colorado implement the State Assigned Student Identification System (SASIDs), a project that is being initiated this academic year.

2. To extend the study of college participation in Denver and in Colorado,
  - DPS should continue to track graduates into college. Other school districts in Colorado should follow the district's lead.
  - DPS should establish baseline expectations as it introduces postsecondary performance goals for DPS high schools, and these expectations should be aligned with DPS board goals.
3. College access and success reforms to consider, based on the study's findings, include:

#### ***College Access***

- DPS should examine its graduation requirements to ensure that all students have the option of completing at least one accelerated course or program.
- DPS should identify low-income and minority high school students for enrollment in multiple accelerated courses.
- DPS leadership should continue to work with its counselors and the Denver Scholarship Foundation (DSF) to improve college choice and postsecondary outcomes.
- Funders like DSF should maintain an application window in their scholarship programs to serve DPS graduates who enroll in college a year after graduating from high school.

#### ***College Success***

- DPS and local colleges should enhance coordination and establish working relationships among their faculty.
- Local colleges should evaluate programs for improving the college success of low-income and minority students.
- Colleges should take effective student success innovations to scale and seek input outside the higher education community for ideas on how to scale them up efficiently and effectively.

# Chapter 1: Background

## Introduction

This report is an initial examination of postsecondary participation and outcomes among students who graduate from Denver Public Schools (DPS). The report examines the early college experiences of six recent DPS graduating classes (cohorts), describing who enrolls and persists in college, and who graduates from college. In addition, the study examines college entrance rates for DPS graduates who participate in one or more accelerated offerings during high school. These offerings include concurrent (college) enrollment, Advanced Placement (AP) classes, honors (or “X”) classes and the International Baccalaureate (IB) program. To place the Denver findings in a larger context, DPS graduates’ college enrollment, persistence and completion rates are compared with national, regional, and city-level data for similar students.

This report is a first step in understanding and improving postsecondary educational access and success for DPS graduates. It is a joint effort of several organizations. The report was funded by The Piton Foundation and the Denver Scholarship Foundation. Denver Public Schools provided the student records that enabled Piton researchers to link high school graduates with college enrollment records available through the National Student Clearinghouse. In drafting the report, Piton was assisted by staff of the Pell Institute for the Study of Opportunity in Higher Education, which conducts and disseminates research aimed at improving postsecondary access and outcomes for low-income and first-generation students.

## Methodology

To conduct this study, we focused on students who graduated from Denver Public Schools in six academic years: 2001-02 through 2006-07. DPS student records for recent high school graduates were matched with college enrollment data compiled by the National Student Clearinghouse (NSC), an organization that collects student information from colleges and universities across the country. For the earliest graduating class (2001-02), the report includes information on six years of possible

college enrollment. The DPS-NSC student records linking yields one year of postsecondary information for the most recent class (2006-07 high school graduates). Reporting on postsecondary outcomes across these six cohorts, over one to six academic years, allows us to identify trends in college enrollment and completion for DPS graduates.

National and city comparisons provide an additional perspective on DPS graduates’ college performance. National data sets used in this report include: 1) The U.S. Bureau of the Census Current Population Survey (CPS), which provides an annual snapshot of college enrollment and educational attainment rates for the population as a whole and various subgroups; 2) The American Community Survey (ACS) – also conducted by the Census Bureau – which polls a larger number and a wider range of individuals and households and provides county-level educational attainment information; and 3) the U.S. Department of Education’s Beginning Postsecondary Students (BPS) longitudinal study, which tracks college persistence and completion for a national sample of students who enrolled in a postsecondary institution for the first time in 2003-04. At present, no state longitudinal student-level database exists that allows us to track postsecondary outcomes of Colorado high school graduates. Since DPS is the first district in Colorado to conduct this type of research, the Chicago Public Schools, which also links its high school graduates’ transcripts with postsecondary student-level data from the National Student Clearinghouse, is used for comparison as well.

The analyses conducted for this study were solely descriptive. We have not attempted to determine the relationships between various student or institutional characteristics and educational outcomes. Nor have we examined whether enrolling in particular programs or institutions is associated, or linked in any manner, with outcomes. This study simply describes the rates at which students achieve certain outcomes – college entrance, persistence and completion. We are not implying any associations or causal links between student characteristics, the programs in which they enroll and their subsequent academic behavior.



## Data sets used for this study:

### Examining college participation rates of graduates from Denver Public Schools (DPS)

Denver Public Schools provided researchers with a dataset that included student-level secondary records data (such as demographic and transcript information). Students were assigned a cohort (2001-02 through 2006-07) based on the academic year in which they graduated from high school. The number of high school graduates cited for each cohort in this study reflects official reports by Denver Public Schools to the Colorado Department of Education. In addition to providing student records data, DPS requested student-level postsecondary data (i.e., college enrollment and completion records) from the National Student Clearinghouse (NSC) for the same student cohorts. NSC is a nonprofit organization that collects attendance and completion data from nearly 3,200 higher education institutions that participate in the Clearinghouse. Colleges participate in NSC on a voluntary basis, and six colleges in Colorado with 1,000 or more students do not participate in the NSC. These colleges include: Colorado Technical University, Westwood College of Technology Denver North, The Art Institute of Colorado, Parks College, Jones International University, and Denver Automotive and Diesel College. See Appendix A for a discussion of limitations of the NSC database and for a list of Colorado colleges that participate in the NSC program. Both data sets – DPS student records and NSC data on DPS graduates – were provided to researchers using masked student identification numbers.

### Comparing DPS college participation rates nationally

In this study, DPS college entrance rates are compared with national college entrance rates using the U.S. Bureau of the Census, Current Population Survey (CPS). The CPS is a multistage probability sample survey of 60,000 American households conducted each month by the U.S. Census Bureau. Each October, a supplement to the basic CPS gathers more detailed information on education and employment status, demographics

and other characteristics of the civilian non-institutional population, ages 16 and above. Data are collected either in person or by telephone. CPS results are subject to standard sampling errors due to factors such as nonresponse, incorrect information, or processing. For more information, see: U.S. Department of Commerce, *Source and Accuracy Statement for October 2006 Microdata, File on School Enrollment*, July 11, 2007.

The American Community Survey (ACS) is another source used to compare DPS college-going rates nationally. The ACS is a nationwide survey that collects demographic, social, economic, and housing data. An annual sample of approximately three million addresses is surveyed on a continuing basis. The 2005-07 three-year estimates used here are based on data collected between January 2005 and December 2007 and are averaged in order to increase the sample size over that of one-year ACS estimates. ACS three-year estimates are published for selected geographic areas with populations of 20,000 or greater. The ACS includes all residences including institutional and group quarters (civilian and military). The survey is similar to the long form of the decennial census. Data are collected primarily through a mail questionnaire with telephone and in-person follow-ups for those who do not respond. As a result, response error rates are potentially higher than for the CPS. For further information on the sampling and accuracy of the ACS, see: *Accuracy of the 2005-2007 ACS 3-Year Data*, American Community Survey Office, U.S. Census Bureau, December 10, 2008.

The Beginning Postsecondary Students (BPS) longitudinal survey is the data set used for comparing short-term DPS college persistence and attainment rates with rates for similar students nationally. The most recent BPS cohort is a sample of first-time college students who enrolled in 2003-04. The sample was interviewed during that academic year and again in 2006, three years after beginning their postsecondary education. Approximately 19,000 beginning students from 1,360 postsecondary institutions are included in the current BPS cohort. For purposes

of comparison, we limited our analysis to BPS participants who were 19 years of age or younger, graduated from public high schools, and were “dependent” students when they entered college. The BPS is conducted by the National Center for Education Statistics (NCES) of the U.S. Department of Education. The contractor is Research Triangle Institute (RTI), a nonprofit university-affiliated research organization. For more information on the BPS, including sampling methods, see: L. Berkner and S. Choy, *Descriptive Summary of 2003-04 Beginning Postsecondary Students: Three Years Later*, Institute for Education Studies, National Center for Education Statistics, U.S. Department of Education, Washington, DC, July 2008.

### Comparing DPS college participation rates with Chicago Public Schools

In conjunction with Chicago Public Schools, the Consortium on Chicago School Research at the University of Chicago has tracked the college outcomes of Chicago Public Schools graduates. Student records have been linked to college enrollment and completion data available through the National Student Clearinghouse (NSC). Chicago Public Schools was the first major urban school district to use NSC data to report on its graduates' college entrance and degree attainment rates. The Chicago Consortium has reported on the class of 2004, and plans to continue following that class and subsequent classes. Data on college outcomes of graduates from prior years (1998 to 2003) have also been included in Chicago's analyses and reports. For more information on college outcomes for Chicago Public Schools using National Student Clearinghouse data, see: M. Roderick, J. Nagoaka, & E. Allensworth, *From High School to the Future: A first look at Chicago Public School graduates' college enrollment, college preparation, and graduation from four-year colleges*, Consortium on Chicago School Research at the University of Chicago, Chicago, IL, April 2006.

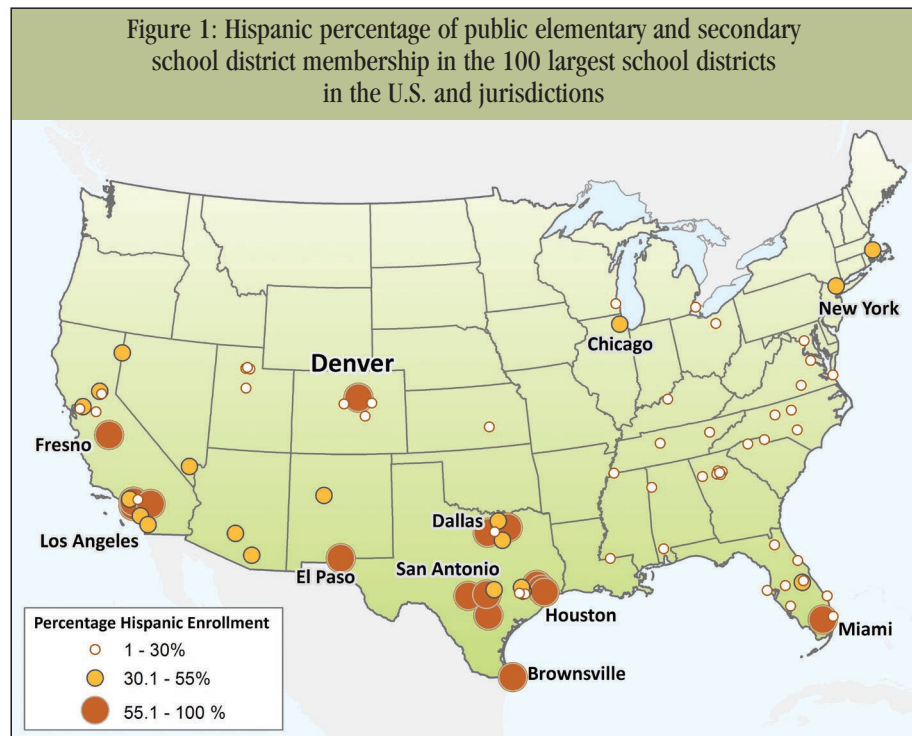
## Denver Public Schools (DPS) and the Denver community

The Denver Public Schools (DPS) serves the residents of the City and County of Denver, Colorado. DPS is a K-12 unified school district with a study body of approximately 75,000 students. Fifty-five percent of the district's students are Hispanic, 18 percent are African American, and 23 percent are white.<sup>1</sup> Sixty-six percent of the district's students are eligible to receive a free or reduced-price lunch (FRL), which means that their families earn incomes at or below 185 percent of the federal poverty rate. In this report, eligibility for FRL is used as an indicator of low-income status.<sup>2</sup>

Among large, urban, public school districts, DPS is both typical and atypical. Denver Public Schools is typical among big city school systems with respect to its largely low-income student population and the educational challenges that poverty entails. For example, in 2007, about half of DPS third graders scored "proficient" or higher on the state's reading exam, but among eighth graders only 38 percent scored "proficient" or higher.<sup>3</sup> Just under half of Denver third graders (46 percent) score "proficient" or higher on the third-grade math exam and 22 percent score "proficient" or higher on the eighth-grade math exam. In contrast, 71 percent of all Colorado students score "proficient" or higher on the third-grade reading test and 63 percent score "proficient" or higher on the eighth-grade test.

The Denver school district is atypical in other important respects, however. First, because of legal restrictions on the geographic size of the district, its catchment area is restricted to the city's urban core.<sup>4</sup> There is little opportunity

for the Denver Public Schools to draw on the resources of wealthier suburban areas or to mix low-income and higher-income students in classrooms and schools. Second, excluding large urban districts in states with large Hispanic populations (Texas, California and Florida), Denver has the largest share of Hispanic students of any large urban school district (Figure 1).<sup>5</sup>



Source: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Public Elementary/Secondary School Universe Survey," 2005-06, Version 1a, and "Local Education Agency Universe Survey," 2005-06, Version 1a.

<sup>1</sup>Race and ethnicity data are presented according to the categories reported by Denver Public Schools.

<sup>2</sup>The free or reduced-price lunch (FRL) program allows for eligible students to participate in the school lunch program at no cost or at a reduced cost. Eligibility for this program is determined by federal guidelines for family income and size. The 2008 U.S. Department of Health and Human Services poverty level for a family of four was \$21,200. Families that live at 185 percent of the federal poverty guideline are eligible for a reduced price lunch. For a household size of four, this translates to an income in 2008 of up to \$39,220 a year. Most DPS students who participate in this program, however, receive a free lunch, which means they live in households earning incomes at or below 135 percent of the federal poverty rate, or an income of \$28,620 (or less) for a family of four in 2008.

<sup>3</sup>All data cited here are based on the 2007 Colorado Student Assessment Program (CSAP) from the Colorado Department of Education.

<sup>4</sup>These restrictions were imposed by the 1974 Poundstone Amendment, which severely limited the district's ability to annex neighboring suburban districts. For a detailed discussion of the challenges faced by DPS in integrating students, see: Chungmei, L., *Denver Public Schools: Resegregation, Hispanic Style*, The Civil Rights Project, Harvard University, 2006.

<sup>5</sup>Garofano, A., and Sable, J., *Characteristics of the 100 Largest Public Elementary and Secondary School Districts in the United States: 2005-06, Statistical Analysis Report*, National Center for Education Statistics, U.S. Department of Education, 2008.



## Chapter 2: College Access and Success – The DPS Story

### Who graduates from Denver Public Schools?

For this study, we examined the student records of Denver Public Schools students who graduated from the district during the 2001-02 through 2006-07 academic years. Combining student records for those six years yielded almost 18,000 graduates. Table 1 displays the number of high school graduates from each DPS cohort. DPS graduates are fairly evenly distributed by cohort year, which enables us to combine all cohorts for many of the analyses in this report.

Cohort (school year)	Number of Graduates
2001-2002	2,854
2002-2003	2,855
2003-2004	3,326
2004-2005	2,832
2005-2006	2,984
2006-2007	3,145

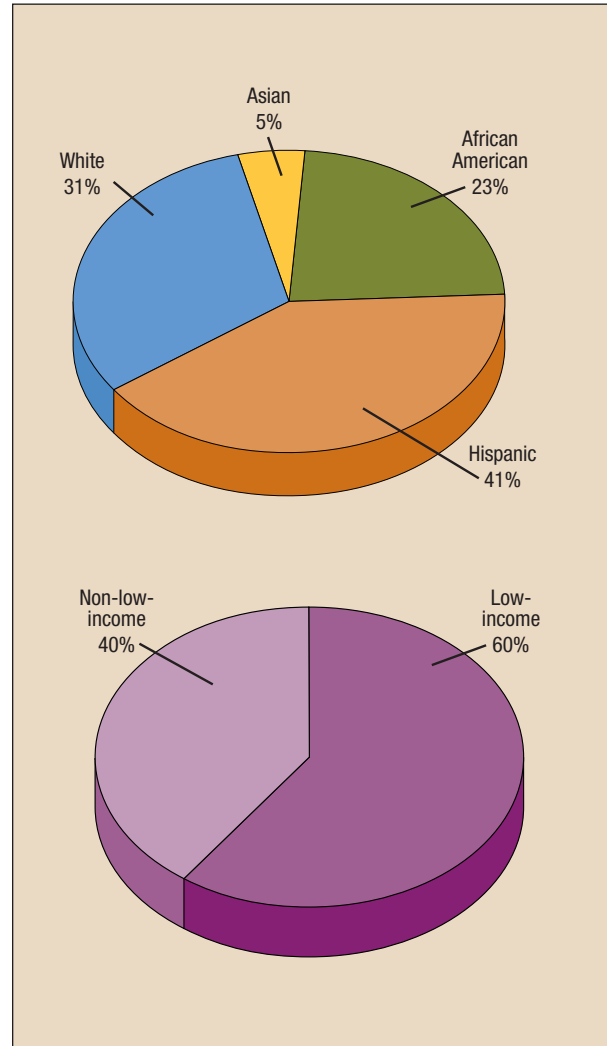
Source: Denver Public Schools' student records.

For all DPS graduates in our six years of data, the largest share was Hispanic students (40 percent), followed by white students (31 percent) and African American students (23 percent). Asians were five percent of graduates and Native Americans were one percent of graduates.<sup>6</sup> Considerably more than half the graduates (60 percent) were eligible to participate in the federal free or reduced-price school lunch program (FRL), an indicator of low-income status. Throughout this report, “low-income” DPS graduates refers to students eligible for FRL during their DPS careers anytime between 1996 and 2006.<sup>7</sup> “Non-low-income” DPS graduates are those who were not eligible to receive a free or reduced lunch during this same period of time. Figures 2 and 3 show the demographic characteristics of DPS high school graduates.

<sup>6</sup>Native American and Asian students are excluded from the remainder of the discussion because their numbers are too small to yield useful results. Their percentages of graduates, however, are reported in Figure 2.

<sup>7</sup>A similar use of the free or reduced-price indicator for low-income status of high school graduates entering college (but going back to the eighth grade) can be found in Western Interstate Commission for Higher Education (WICHE), *Moving the Needle on Access and Success, A Study of State and Institutional Policies and Practices*, Boulder, CO, 2006.

Figures 2 & 3: Demographic characteristics of DPS high school graduates, 2001-02 through 2006-07



### Who enters college?

**College enrollment:** For purposes of this analysis, college enrollment is defined as any enrollment, no matter how brief or how many years elapsed between graduating from high school and enrolling in college, during the period of our study.

**Overall college entrance rate.** Across the six cohorts, between 51 percent and 62 percent of DPS graduates enrolled in college (Table 2). As can be seen in the table, the most recent graduates (i.e., the 2006-07 cohort) have the lowest college enrollment rate and the earliest graduates (i.e., the 2001-02 cohort) have the highest. The main reason for this difference is that some high school graduates delay college enrollment for several years. Our data captured five possible years of delayed enrollments for the earliest graduates, but none for the most recent.

4). Merging all six cohorts, we see that Hispanic DPS graduates enrolled in postsecondary education at lower rates than other racial/ethnic groups. Only 39 percent of Hispanic DPS graduates enrolled in college, compared to 71 percent of white graduates and 63 percent of African-American students.

It is possible that the gap in enrollment for Hispanic DPS graduates closes slightly in the years after high school graduation (Table 3). For example, among the earliest

**Table 2: DPS graduates' college enrollment rates, by cohort**

Cohort	Number of years of potential college enrollment	Graduated from high school	Attended at least one month of college	Percent of DPS graduates enrolled in college for at least one month
Across all six cohorts	–	17,996	10,104	56%
2001-2002	6	2,854	1,777	62%
2002-2003	5	2,855	1,725	60%
2003-2004	4	3,326	1,849	56%
2004-2005	3	2,832	1,568	55%
2005-2006	2	2,984	1,595	53%
2006-2007	1	3,145	1,590	51%

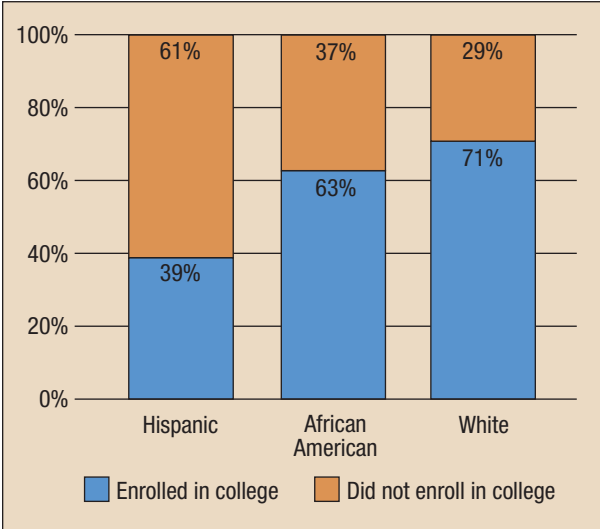
*Sources: Denver Public Schools' and National Student Clearinghouse student records.*

The college enrollment rates shown in Table 2 (overall and for each graduating class) are the percentages of DPS high school graduates for whom a college enrollment record was found in data supplied by the National Student Clearinghouse (NSC). For a number of reasons, it is possible that our data understate the true college enrollment rates for DPS graduates in our study.<sup>8</sup> First, a small percentage of colleges do not participate in the NSC. Second, for those colleges that do participate in NSC, not all do so consistently and fully over multiple years. It is also possible that missing or inaccurate student data (from DPS or NSC) may have resulted in failure to match all graduates.

graduates (the 2001-02 cohort) who have six years of possible college enrollment data, the Hispanic enrollment is 49 percent – compared with 32 percent in the most

**College entrance by race/ethnicity.** There are large differences in the rates at which different racial/ethnic groups who graduated from DPS entered college (Figure

**Figure 4: College enrollment rates for graduates of Denver Public Schools, by race/ethnicity (2001-02 to 2006-07)**



*Sources: Denver Public Schools' and National Student Clearinghouse student records.*

<sup>8</sup>See Appendix A on data limitations. One recent study estimated that using the NSC to match high school graduates with colleges underestimates college enrollment by about three to five percent. (See M. Roderick, J. Nagaoka, E. Allensworth, *From High School to the Future, A first look at Chicago Public School graduates, college enrollment, college preparation, and graduation from four-year colleges*, Consortium on Chicago School Research, University of Chicago, Chicago, IL, 2006, p. 15).

recent cohort (2006-07 graduates). While there is still a large gap between groups six years after high school, it appears that Hispanics may delay college entrance to a greater degree than whites or African-Americans.

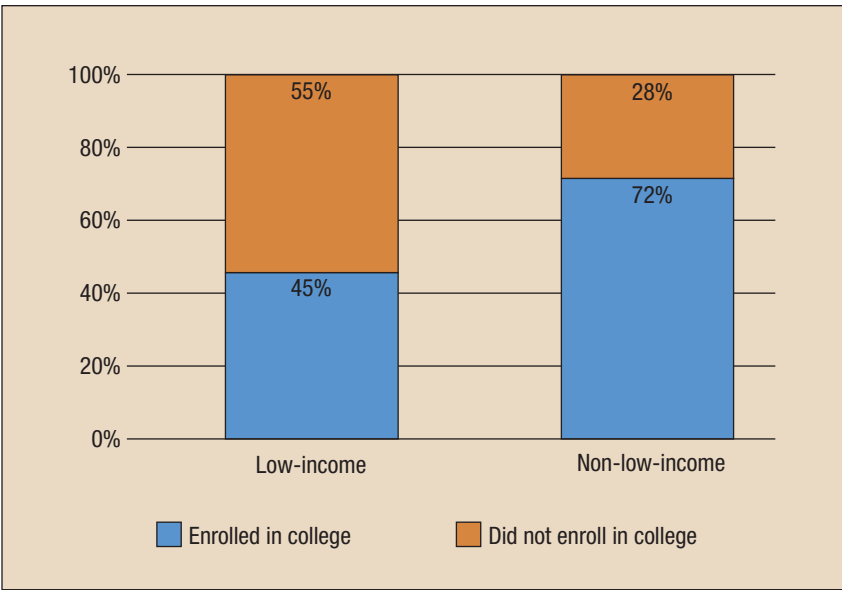
**College enrollment and family income.** Low-income students in our cohorts enrolled in college at much lower rates than their more economically advantaged peers (Figure 5). Less than half (45 percent) of all low-income DPS graduates enrolled in college, whereas nearly three-fourths (72 percent) of non-low-income graduates entered college. It appears, however, that low-income graduates also may enter college later (Table 4). Thus, the overall enrollment rates for low-income DPS graduates may increase over time. The cohort with the earliest graduates in the study (2001-02) had six years of potential college enrollment. Fifty-two percent of low-income DPS graduates from this cohort entered college at some point. In contrast, the college enrollment rate is 39 percent for low-income graduates in the cohort with the most recent graduates (2006-07), which has only one year of potential enrollment. For higher-income graduates, there is much less difference in college entrance rates among the cohorts, suggesting earlier enrollment and less additional enrollment over time.

Table 3: College enrollment rates for graduates of Denver Public Schools, by cohort and race/ethnicity

Cohort	Race/ethnicity	Graduated from high school	Percent enrolled
2001-02	Hispanic	1,091	49%
	African American	626	63%
	White	951	74%
2002-03	Hispanic	1,104	45%
	African American	647	64%
	White	932	74%
2003-04	Hispanic	1,367	39%
	African American	750	60%
	White	1,015	71%
2004-05	Hispanic	1,104	35%
	African American	680	64%
	White	879	73%
2005-06	Hispanic	1,204	34%
	African American	688	64%
	White	918	66%
2006-07	Hispanic	1,355	32%
	African American	723	62%
	White	899	67%

Sources: Denver Public Schools' and National Student Clearinghouse student records.

Figure 5: College enrollment rates for graduates of Denver Public Schools, by income (2001-02 to 2006-07)



Sources: Denver Public Schools' and National Student Clearinghouse student records.

Table 4: College enrollment rates for graduates of Denver Public Schools, by cohort and income

Cohort	Income status	Graduated from high school	Percent enrolled
2001-02	Non-low-income	1,357	73%
	Low-income	1,497	52%
2002-03	Non-low-income	1,218	75%
	Low-income	1,637	50%
2003-04	Non-low-income	1,406	70%
	Low-income	1,920	45%
2004-05	Non-low-income	1,146	71%
	Low-income	1,686	44%
2005-06	Non-low-income	1,074	70%
	Low-income	1,910	44%
2006-07	Non-low-income	1,053	73%
	Low-income	2,092	39%

Sources: Denver Public Schools' and National Student Clearinghouse student records.

### Where do DPS graduates go to college?

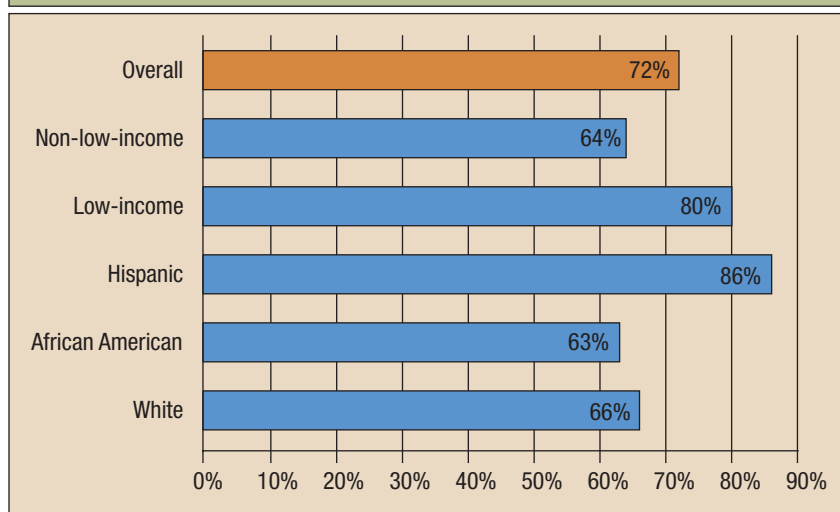
In this section of the report, we examine only those DPS graduates who go to college. We describe their initial choices, with respect to geographic location as well as enrolling in a two-year or four-year college. The discussion of two-year colleges includes less-than-two-year institutions as well.

**In state or out of state?** Most (72 percent) DPS graduates who enrolled in a postsecondary institution remained in Colorado to attend college (Figure 6). Among racial/ethnic groups, Hispanic students were the most likely to remain in state, while African American students were the most likely to travel out of state (although even among this group, only 37 percent attended an out-of-state college). Thirty-six percent of non-low-income DPS graduates attended an out-of-state college, about the same rate as white and African American students. In short, most DPS graduates remained in Colorado for college, especially Hispanic and low-income students.

**Initial college choice: two year or four year?** Most DPS graduates who enrolled in college chose a four-year

college as their first institution. Across the six cohorts, 62 percent of college entrants initially enrolled in a four-year college. As for the specific institutions DPS graduates attended, 82 percent of all in-state enrollments were in

Figure 6: In-state college enrollment rates for 2001-02 through 2006-07 DPS high school graduates who entered college, overall and by race/ethnicity and income



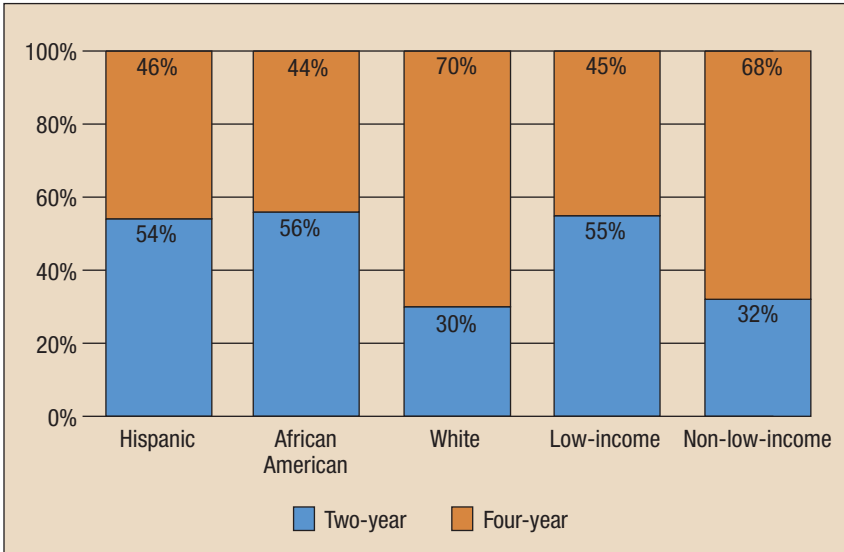
Sources: Denver Public Schools' and National Student Clearinghouse student records.

colleges and universities in the Denver metropolitan area. That area includes the City and County of Denver and eight surrounding counties.<sup>9</sup> Two institutions, Community College of Denver (a two-year community college) and Metropolitan State College of Denver (a four-year public university), accounted for more than half (55 percent) of Denver metro area college enrollments and one-third of all enrollments by DPS graduates who enrolled in college.

<sup>9</sup>According to the Denver Regional Council of Governments, the counties surrounding the City and County of Denver include Boulder, Southwest Weld, Gilpin, Clear Creek, Jefferson, Broomfield, Adams, Arapahoe and Douglas.

Among those in-state college-goers, there were large racial/ethnic and income disparities in two-year and four-year college choice (Figure 7). More than half of DPS Hispanic and African-American graduates who enrolled in college and remained in state enrolled initially in a two-year college. In contrast, 70 percent of white DPS graduates who remained in Colorado enrolled initially in a four-year college. Differences in college choice also occurred between low-income and non-low-income students who remained in state. Fifty-five percent of DPS low-income graduates who attended a Colorado college started at a two-year school. For non-low-income DPS graduates, only 32 percent began college at a two-year institution.

Figure 7: Type of college initially enrolled for DPS graduates who remained in Colorado to attend college (2001-02 to 2006-07), by race/ethnicity and income



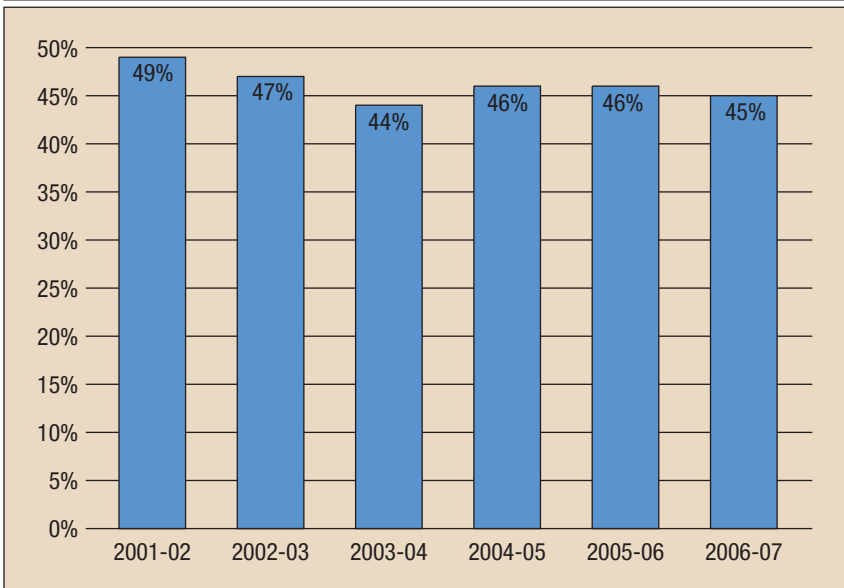
Sources: Denver Public Schools' and National Student Clearinghouse student records.

**How many DPS graduates enroll in college immediately after high school?**

**Immediate college enrollment:** In this section, college entrance is defined as enrollment in college for at least one month during the academic year following high school graduation. An academic year is defined as the months from July of one year through June of the next year, inclusive.

Overall rates for immediate college entrance. Among the individual cohorts, between 44 and 49 percent of DPS graduates entered college within 12 months of graduating from high school (Figure 8). Across the six cohorts, an average of 46 percent entered immediately. In general, the earlier cohorts appear to have entered college within 12 months at slightly higher rates than the more recent cohorts. Starting early is significant in that it is associated with higher rates of degree attainment in national studies.<sup>10</sup>

Figure 8: College enrollment rates for DPS graduates who entered college immediately after high school graduation, by cohort



Sources: Denver Public Schools' and National Student Clearinghouse student records.

<sup>10</sup>For a discussion of factors associated with higher and lower rates of college completion, see J. Engle and V. Tinto, *Moving Beyond Access, College Success for Low-Income, First Generation Students*, Pell Institute, Council for Opportunity in Education, Washington, DC, 2008, p. 8.



**Immediate entrance and race/ethnicity.** Observing early entrance and race/ethnicity across the cohorts, we find that white DPS graduates had the highest rates of immediate college entrance (Table 5). Merging the six cohorts, around 60 percent of white DPS graduates, 50 percent of African-American graduates, and 30 percent of Hispanic graduates enrolled immediately. There appears, however, to be a slight trend toward higher rates of college entrance immediately after high school among more recent African-American DPS graduates (2005-06 and 2006-07 cohorts). In contrast, the two earliest cohorts of DPS Hispanic graduates (2001-02 and 2002-03) appear to have entered immediately at higher rates than Hispanics in the more recent cohorts.

**Table 5: College enrollment rates for DPS graduates who entered college immediately after high school graduation, by race/ethnicity**

Student group	DPS Cohort	Enrolled within 12 months of completing high school
Hispanic	<b>Average</b>	<b>30%</b>
	2001-02	36%
	2002-03	33%
	2003-04	29%
	2004-05	27%
	2005-06	28%
	2006-07	29%
African American	<b>Average</b>	<b>50%</b>
	2001-02	46%
	2002-03	51%
	2003-04	48%
	2004-05	52%
	2005-06	54%
	2006-07	54%
White	<b>Average</b>	<b>60%</b>
	2001-02	60%
	2002-03	60%
	2003-04	60%
	2004-05	64%
	2005-06	58%
	2006-07	60%

Sources: Denver Public Schools' and National Student Clearinghouse student records.

**Immediate entrance and family income.** Non-low-income DPS graduates enter college immediately at much higher rates than low-income graduates. Furthermore, the disparities by family income in early entrance appear to be increasing (Table 6). Merging the six cohorts, 36 percent of low-income DPS graduates entered college immediately after high school, compared with 62 percent of non-low-income graduates. Across the individual cohorts, we see that rates of immediate entrance for low-income graduates have declined slightly. For non-low-income DPS graduates the trend is reversed; the most recent cohorts show the highest rates of early college entrance.

**Table 6: College enrollment rates for DPS graduates who entered college immediately after high school graduation, by income**

Student group	DPS Cohort	Enrolled within 12 months of completing high school
Non-low-income	<b>Average</b>	<b>62%</b>
	2001-02	59%
	2002-03	60%
	2003-04	58%
	2004-05	63%
	2005-06	63%
	2006-07	66%
Low-income	<b>Average</b>	<b>36%</b>
	2001-02	39%
	2002-03	38%
	2003-04	34%
	2004-05	35%
	2005-06	36%
	2006-07	35%

Sources: Denver Public Schools' and National Student Clearinghouse student records.

## Who persists in college? Who attains a degree?

This discussion focuses on DPS graduates who enrolled in college within 12 months of completing high school. **College success** is defined as remaining enrolled from one academic year to the next (i.e., persistence), or earning a degree or certificate (i.e., attainment). Numbers reported in this section are based on students' enrollment history and degree attainment at any postsecondary institution over the period examined in this report. These data therefore capture outcomes for those college students who transfer out of the first institution attended. The terms persistence and attainment are defined as follows.

**Persistence:** Depending on the cohort, students enrolled in college for a maximum of one to six years.

- **Year one:** Enrolled in college for a minimum of one month within 12 months of completing high school.
- **Year two:** Enrolled in college for at least one month between 12 and 24 months after graduating from high school.
- **Year three:** Enrolled in college for a minimum of one month between year two and year three (between 24 and 36 months) after graduating high school.
- **Year four:** Enrolled in college for at least one month between years three and four after completing high school.
- **Year five:** Enrolled in college for one month (minimum) between years four and five after completing high school.
- **Year six:** Enrolled in college (for at least one month) between years five and six after high school graduation.

**Attainment:** The highest degree attained while in college. Those who earned a certificate or degree are shown as having graduated from college and are not included in further persistence rates (to avoid duplicate counting).

This section examines college persistence and attainment for the DPS graduates in our study. To ensure comparability across cohorts that vary with respect to numbers of years of potential college enrollment, and to ensure that our “persistence” measure applies to people with similar initial college-going experience, this section

focuses primarily on those DPS graduates in each cohort who entered college immediately (i.e., within 12 months of completing high school). Most of this analysis also is limited to DPS graduates with sufficient years of possible college enrollment to complete a degree or certificate. After a brief overview of all the cohorts, we focus primarily on the cohorts with four or more years of possible enrollment. We pay particular attention to the earliest graduates (i.e., the 2001-02 cohort) with six years of possible college participation. We look first at graduates overall, and then examine persistence and attainment patterns by race/ethnicity, income, and first college type (two-year or four-year).

### Persistence and attainment, overall

For those DPS graduates who enrolled in college immediately, between 79 and 82 percent (depending on the cohort) either persisted in college to the second year or obtained a degree or certificate by that time (Table 7). Between years two and three, an additional seven to 10 percent of enrolled students left without degrees or certificates. The leaving rate between years three and four was smaller – between five and six percent of those DPS high school graduates who were still enrolled left college. Very little of the early leaving (i.e., between years one and three) was due to attainment. Less than one percent of students obtained degrees or certificates in the first year of college and approximately two percent obtained degrees or certificates by year three. The DPS results reflect national college outcomes for low-income and minority college students. In general, low-income and some minority students take longer to complete degrees.<sup>11</sup> Low-income students may enroll part-time in order to work. In addition, they may leave college and return once or several times, lengthening the time to degree. There is also evidence that they may change institutions or programs at higher rates than other students, which could increase the time to degree.<sup>12</sup>

<sup>11</sup>J. Engle and V. Tinto, *Moving Beyond Access: College Success for Low-Income, First-Generation Students*, The Pell Institute for the Study of Opportunity in Higher Education, Washington, DC 2008. T. Mortenson, “Time to Degree: 1996-2004,” *Postsecondary Educational Opportunity*, No. 189, March 2008.

<sup>12</sup>National Survey of Student Engagement, *Exploring Different Dimensions of Student Engagement: 2005 Annual Survey Results*, 2005.

While two-thirds (or more, depending on the cohort) of the DPS graduates who enter college immediately stay in college to year four, it appears that considerably fewer than half of DPS college-goers obtain college degrees within the “standard” time span (i.e. within four to six years).<sup>13</sup> If we observe degree completion for our earliest three cohorts of college entrants, we find that total degree attainment rates are around 21 percent in year four, 33 percent in year five, and 39 percent in year six. It should be noted, however, that 21 percent of initial enrollees are still enrolled in college without degrees in year six. Furthermore, the rate of degree completion levels only slightly between years five and six. Together, these

observations suggest that there will be additional degree completions for DPS graduates in later years.

Most of the degrees earned by DPS graduates who enter college immediately after high school are bachelor’s degrees (Table 8). Again, observing the earliest graduates in our data set (2001-02 DPS graduates), we find that by 2007-08, or six years later, slightly more than one-third of those who entered college obtained some type of degree or certificate. The most common “highest” degree obtained was a bachelor’s degree. We observed similar results for DPS graduates in the next cohort (2002-03), after five years of post-high school experience.

**Table 7: College persistence and attainment/graduation through six years of possible college enrollment for DPS graduates who enrolled in college immediately after high school, by cohort\***

Cohort	Entered college within 12 months of completing high school	College success	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
2001-02	1,387	Persistence	99%	80%	72%	47%	31%	21%
		Attainment	< 1%	< 1%	2%	21%	33%	39%
		<b>Total</b>	<b>100%</b>	<b>81%</b>	<b>74%</b>	<b>68%</b>	<b>64%</b>	<b>60%</b>
2002-03	1,351	Persistence	99%	81%	69%	46%	28%	
		Attainment	< 1%	1%	3%	21%	33%	
		<b>Total</b>	<b>100%</b>	<b>82%</b>	<b>72%</b>	<b>67%</b>	<b>61%</b>	
2003-04	1,480	Persistence	99%	77%	68%	43%		
		Attainment	< 1%	1%	2%	22%		
		<b>Total</b>	<b>100%</b>	<b>78%</b>	<b>70%</b>	<b>65%</b>		
2004-05	1,312	Persistence	99%	79%	68%			
		Attainment	< 1%	1%	2%			
		<b>Total</b>	<b>100%</b>	<b>80%</b>	<b>70%</b>			
2005-06	1,366	Persistence	99%	78%				
		Attainment	< 1%	1%				
		<b>Total</b>	<b>100%</b>	<b>79%</b>				
2006-07	1,419	Persistence	99%					
		Attainment	1%					
		<b>Total</b>	<b>100%</b>					

Sources: Denver Public Schools’ and National Student Clearinghouse student records. \* Total percentages may not add to 100 due to rounding.

**Table 8: Cumulative degree or certificate attainment rates for DPS graduates who entered college immediately after high school graduation (showing highest type of degree earned, as of 2007-2008), by cohort\***

Cohort	Number of years of potential enrollment	Certificate	Associate’s	Bachelor’s	Master’s	Un-specified degrees <sup>14</sup>	Total
2001-02	6	2%	2%	29%	1%	4%	39%
2002-03	5	1%	3%	24%	<1%	5%	33%
2003-04	4	1%	2%	15%	–	3%	22%
2004-05	3	1%	< 1%	< 1%	–	< 1%	2%
2005-06	2	1%	< 1%	–	–	< 1%	1%
2006-07	1	< 1%	< 1%	–	–	< 1%	< 1%

Sources: Denver Public Schools’ and National Student Clearinghouse student records. \* Total percentages may not add to 100 due to rounding.

<sup>13</sup>The Department of Education measures graduation rates within 150 percent of the program length, i.e. six years for four-year institutions and three years for two-year institutions.

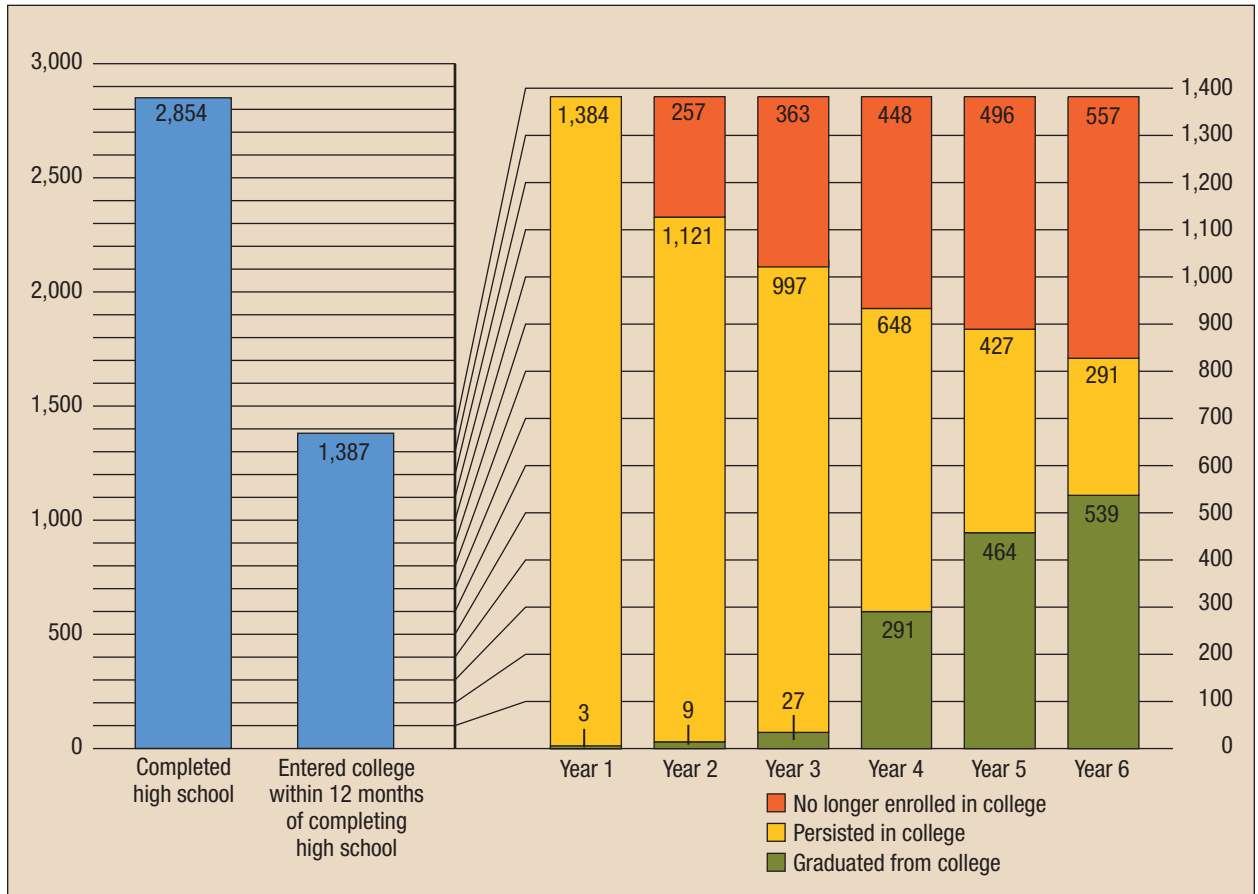
<sup>14</sup>“Unspecified degrees” means that the National Student Clearinghouse record indicates a degree was awarded, including a date, but the nature of the degree is not indicated.

### Persistence and attainment: The cohort with the earliest high school graduates

We have the greatest amount of persistence and attainment information for our earliest high school graduates (the 2001-02 cohort), which has six years of potential college enrollment. Figure 9 summarizes the college outcomes (including enrollment, persistence and attainment/graduation) for this cohort. Through the

sixth year of college, 21 percent persisted and 40 percent were no longer enrolled. Thirty-nine percent earned a degree or certificate. The vast majority of DPS graduates who completed college within six years earned a bachelor's degree (75 percent). Ten percent earned an associate's degree or certificate and an additional four percent obtained a master's degree. Eleven percent earned a degree or certificate of an unspecified nature.

Figure 9: Outcomes (including enrollment, persistence and attainment/graduation) through the sixth year of possible enrollment for 2001-02 DPS graduates who entered college within 12 months of completing high school



Sources: Denver Public Schools' and National Student Clearinghouse student records. |

**Race/ethnicity, persistence and attainment**

**Performance through four years of college**

Looking across the immediate college entrants in the three cohorts with four or more years of potential college enrollment, we see that white DPS graduates have stayed in college or earned degrees by year four at higher rates than African-American or Hispanic DPS graduates (Table 9). In addition, persistence and attainment rates through the fourth year of college are higher for African Americans compared to Hispanic college-goers.

**Table 9: Persistence and attainment/graduation rates through the fourth year of possible college enrollment for 2001-02 through 2003-04 DPS graduates who entered college immediately after high school graduation, by race/ethnicity\***

Cohort	College Success	Hispanic	African American	White
2001-02	Persistence	38%	48%	50%
	Attainment	14%	13%	29%
	<b>Total</b>	<b>52%</b>	<b>61%</b>	<b>80%</b>
2002-03	Persistence	45%	43%	46%
	Attainment	11%	17%	31%
	<b>Total</b>	<b>56%</b>	<b>60%</b>	<b>77%</b>
2003-04	Persistence	41%	39%	42%
	Attainment	11%	15%	30%
	<b>Total</b>	<b>52%</b>	<b>54%</b>	<b>72%</b>

Sources: Denver Public Schools' and National Student Clearinghouse student records.  
 \* Total percentages may not add to 100 due to rounding.

**Performance through six years of college**

African-American and white DPS graduates enter college at substantially higher rates than Hispanic DPS graduates. African-American graduates persist and complete college, however, at rates only slightly higher than those of Hispanic DPS graduates (Figures 10, 11 and 12). White DPS graduates have the highest college persistence and graduation rates.

Graduation rates by the end of the sixth year after entering college show substantial disparities by race/ethnicity (Table 10). For our earliest college entrants (the 2001-02 cohort), white college students have obtained degrees at the highest rate. That is, 52 percent show a degree or certificate, 79 percent of which are bachelor's degrees. Thirty percent of African-American college entrants have completed a degree or certificate, with 64 percent of those completers earning bachelor's degrees. Hispanic college students have a 25 percent degree attainment rate, of which 72 percent are bachelor's degrees. Hispanics and African Americans earned certificates or associate's degrees at roughly the same rate.

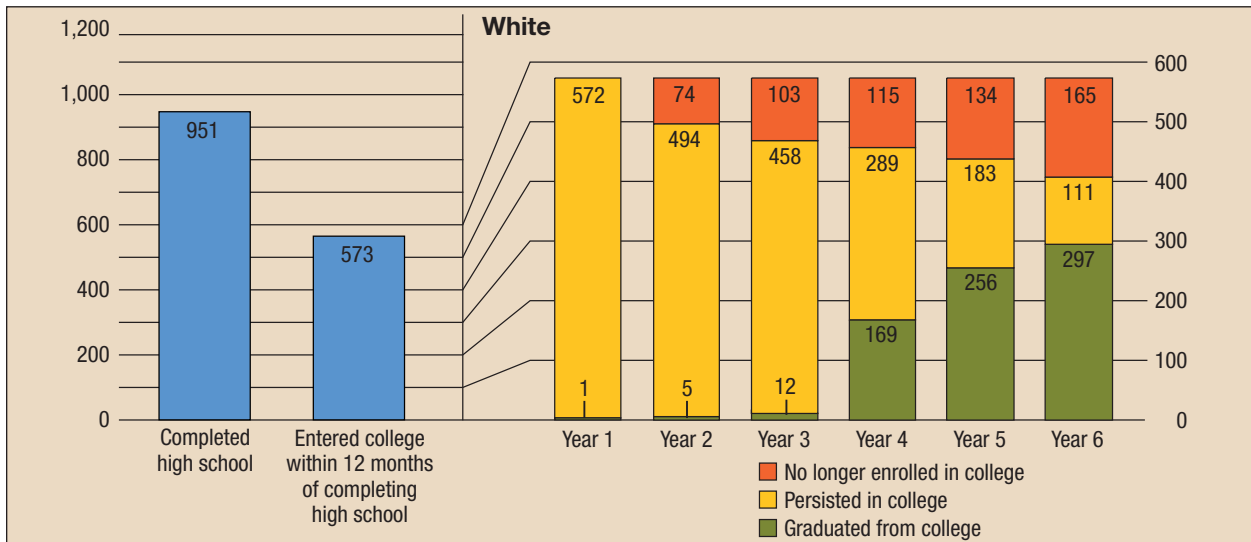
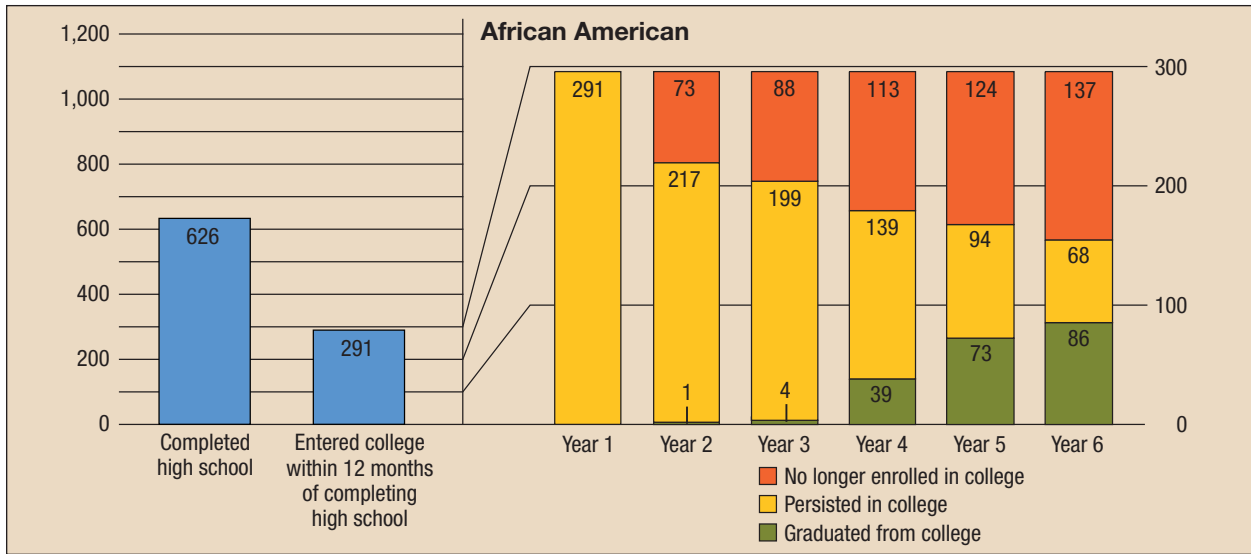
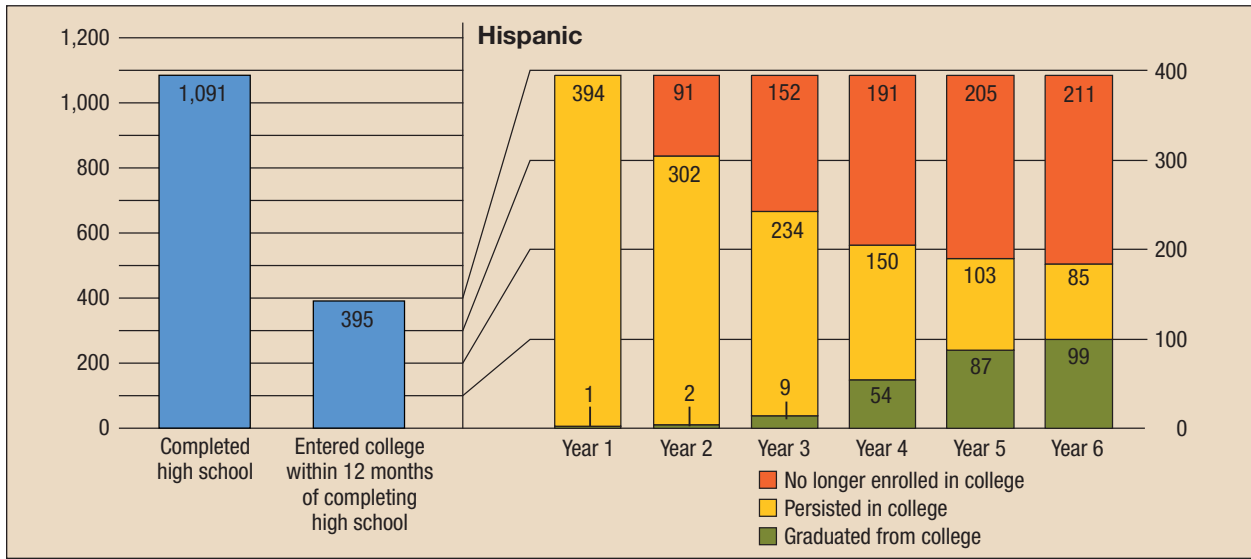
**Table 10: Certificates or degrees earned through six years of possible college enrollment by 2001-02 DPS graduates who entered college within 12 months of completing high school, by race/ethnicity**

Degree Type	Hispanic	African American	White
<b>Overall</b>	<b>99</b>	<b>86</b>	<b>297</b>
Certificate or Associate's	17%	16%	6%
Bachelor's	72%	64%	79%
Master's	2%	2%	5%
Unspecified	9%	17%	10%

Sources: Denver Public Schools' and National Student Clearinghouse student records.



Figures 10, 11 & 12: Outcomes (including enrollment, persistence and attainment/graduation) through the sixth year of possible enrollment for 2001-02 DPS graduates who entered college within 12 months of completing high school, by race and ethnicity



Sources: Denver Public Schools' and National Student Clearinghouse student records. 1

## Income, persistence and attainment

### Performance through four years of college

Low-income DPS graduates persisted in college and earned degrees at lower rates than their non-low-income peers (Table 11). Across the three cohorts with four years of potential college enrollment, we see substantial differences in persistence and attainment by income. Of those DPS graduates who enrolled in college immediately, non-low-income college entrants were about 40 percent more likely to remain in college and/or earn a degree. The most striking differences are in degree completion. At the end of four years, degree completions by non-low-income DPS graduates who entered college immediately were roughly double the rates of their low-income peers.

**Table 11: Persistence and attainment rates through the fourth year of possible college enrollment for 2001-02 through 2003-04 DPS graduates who entered college immediately after high school graduation, by income\***

Cohort	College Success	Low-Income	Non-low-Income
2001-02	Persistence	43%	49%
	Attainment	13%	25%
	<b>Total</b>	<b>56%</b>	<b>76%</b>
2002-03	Persistence	43%	48%
	Attainment	12%	29%
	<b>Total</b>	<b>55%</b>	<b>77%</b>
2003-04	Persistence	39%	46%
	Attainment	12%	29%
	<b>Total</b>	<b>52%</b>	<b>75%</b>

Sources: Denver Public Schools' and National Student Clearinghouse student records.  
\* Total percentages may not add to 100 due to rounding.

### Performance through six years of college

For the cohort with the earliest graduates (2001-02), low-income graduates entered college at substantially lower rates than their non-low-income peers. Among students who entered college immediately, persistence and completion rates were far higher for those who were non-low-income (Figures 13 and 14).

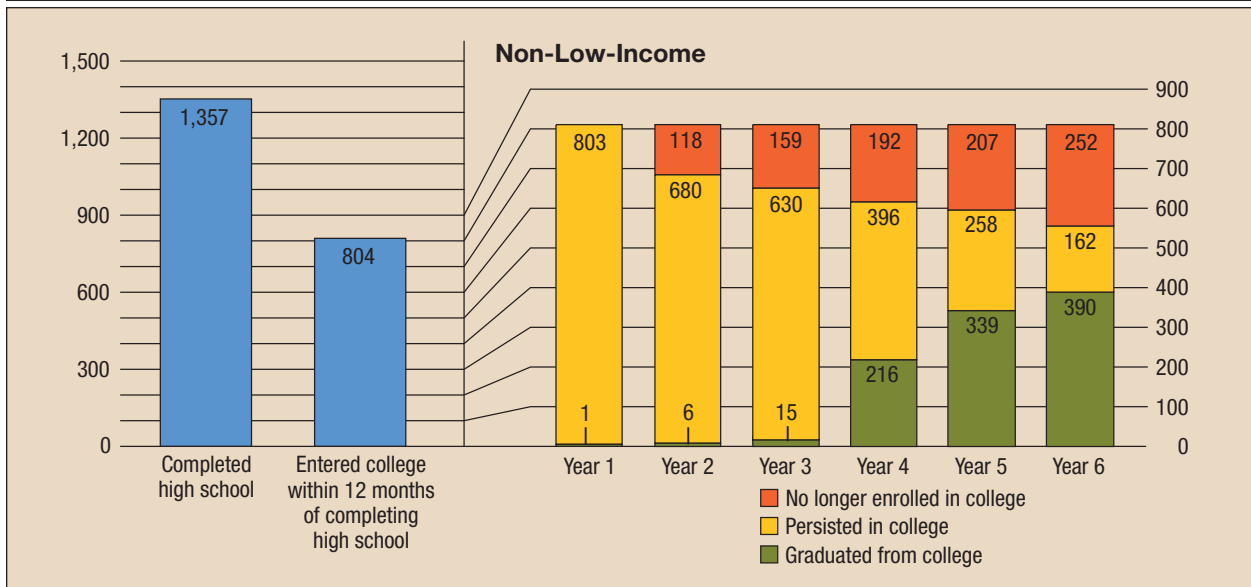
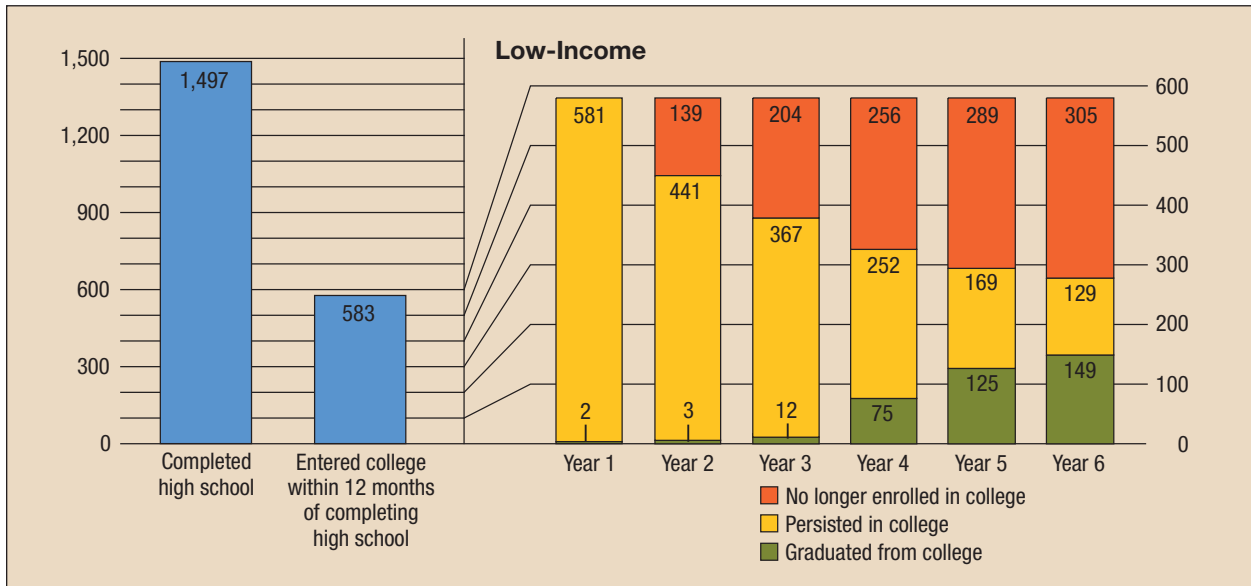
College enrollment appears to do little to reduce income inequities in attainment. It is possible, however, that low-income college-goers are taking longer to obtain bachelor's degrees. There is some evidence they may continue to obtain degrees beyond year six. Few low-income DPS graduates left college between years five and six, suggesting that almost all low-income graduates who have not earned degrees by year five persisted into year six. And while most students who completed college earned bachelor's degrees, low-income completers earned certificates or associates at higher rates than non-low-income completers (Table 12). Sixteen percent of low-income completers earned certificates or associate's degrees through year six, compared with eight percent of non-low-income completers.

**Table 12: Certificates or degrees earned through six years of possible college enrollment by 2001-02 DPS graduates who entered college within 12 months of completing high school, by income**

Degree Type	Low-Income	Non-Low-Income
<b>Overall</b>	<b>149</b>	<b>390</b>
Certificate or Associate's	16%	8%
Bachelor's	74%	76%
Master's	2%	4%
Unspecified	8%	12%

Sources: Denver Public Schools' and National Student Clearinghouse student records.

Figures 13 & 14: Outcomes (including enrollment, persistence and attainment/graduation) through the sixth year of possible enrollment for 2001-02 DPS graduates who entered college within 12 months of completing high school, by income



Sources: Denver Public Schools' and National Student Clearinghouse student records.

**College type, persistence and attainment**

**Performance through four years of college**

A much higher percentage of students who began postsecondary education at a four-year institution persisted in college and earned degrees or certificates than those who began at a two-year institution (Table 13). In observing persistence at the four-year point, we see that the combined persistence and attainment rates for immediate entrants who began at four-year colleges are almost double those of students who began at two-year institutions. Observing attainment rates alone, we see that students who started at four-year institutions were five to six times more likely to complete a degree or certificate.

**Table 13: Persistence and attainment rates through the fourth year of possible college enrollment for 2001-02 through 2003-04 DPS graduates who entered college immediately after high school graduation, by type of college initially entered \***

Cohort	College Success	2-year	4-year
2001-02	Persistence	38%	51%
	Attainment	4%	26%
	<b>Total</b>	<b>41%</b>	<b>77%</b>
2002-03	Persistence	35%	52%
	Attainment	4%	26%
	<b>Total</b>	<b>39%</b>	<b>78%</b>
2003-04	Persistence	33%	49%
	Attainment	5%	27%
	<b>Total</b>	<b>38%</b>	<b>76 %</b>

Sources: Denver Public Schools' and National Student Clearinghouse student records.  
 \* Total percentages may not add to 100 due to rounding.

**Performance through six years of college**

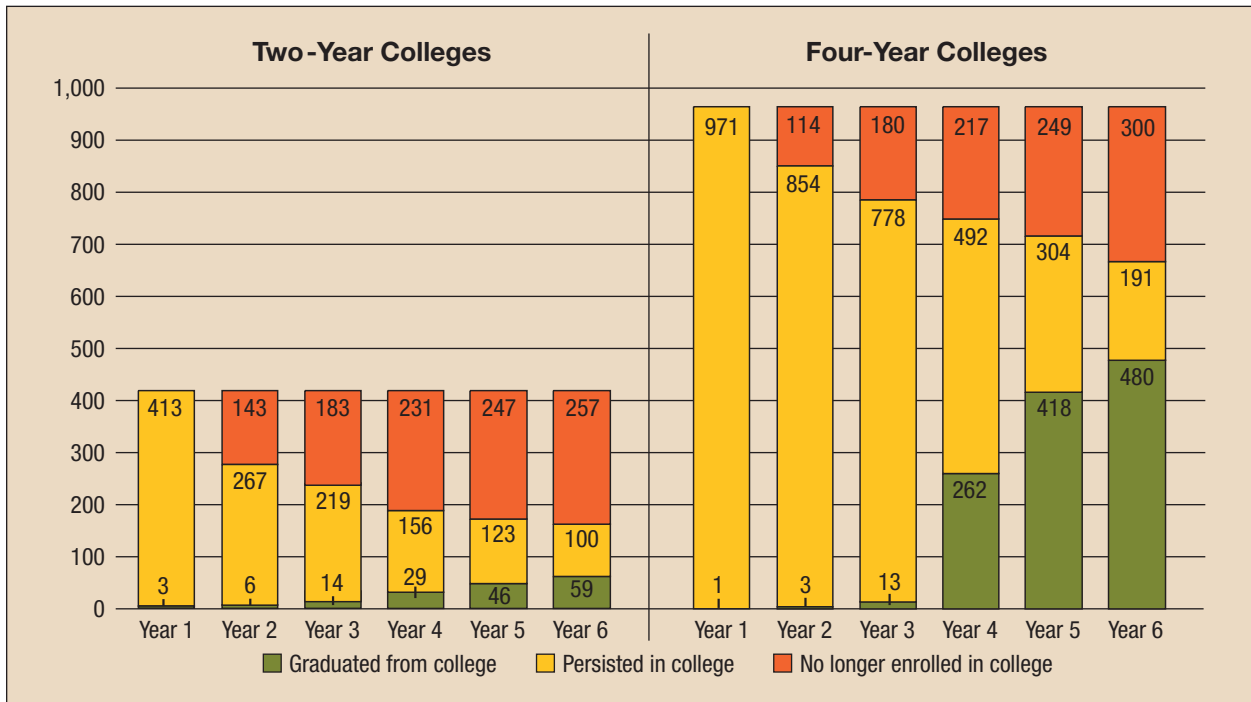
For the immediate college entrants in the cohort with the earliest graduates (2001-02), those initially attending a two-year college show a large decline in college participation from year one to year two compared to those who initially enroll in a four-year institution (Figures 15 and 16). This difference in college participation between years one and two is greater than the year one to year two decline in college participation for Hispanic and African-American DPS graduates compared to white DPS graduates. It is also greater than the year one to year two decline for low-income students compared to non-low-income students. By year six, only 14 percent of the students who initially enrolled in a two-year institution had completed a degree or certificate, compared with 49 percent of those who started at four-year institutions. Furthermore, 62 percent of those who started at a two-year institution had left college without completing a degree or certificate, compared with 31 percent among those who initially enrolled in a four-year institution. Roughly one quarter of initial two-year college entrants obtained a bachelor's degree within six years, compared to 81 percent of initial four-year college entrants (Table 14).

**Table 14: Certificates or degrees earned through six years of possible college enrollment by 2001-02 DPS graduates who entered college within 12 months of completing high school, by type of college initially enrolled**

Degree Type	Two-Year Colleges	Four-Year Colleges
<b>Overall</b>	<b>59</b>	<b>480</b>
Certificate or Associate's	56%	4%
Bachelor's	24%	81%
Master's	0%	4%
Unspecified	20%	10%

Sources: Denver Public Schools' and National Student Clearinghouse student records.

Figures 15 & 16: Outcomes (including enrollment, persistence and attainment/graduation) through the sixth year of possible enrollment for 2001-02 DPS graduates who entered college within 12 months of completing high school, by type of college initially enrolled



Sources: Denver Public Schools' and National Student Clearinghouse student records.



## Chapter 3: Accelerated DPS Programs and College Enrollment

### Description of DPS accelerated offerings

In an effort to boost college enrollment and improve academic performance, DPS offers a variety of accelerated programs and courses. This section of the report describes who enrolls in these programs. In addition, the section examines whether DPS graduates who participate in accelerated courses enroll in college at higher rates than those who do not participate. Because the numbers of DPS graduates in many of these programs is small, we have aggregated the data from all six graduating classes (cohorts) to conduct this analysis. Four types of programs or courses are included in our analysis.

#### 1. Concurrent Enrollment:

##### a. Postsecondary Enrollment Options

**(PSEO).** This program offers 11th and 12th grade students the opportunity to attend college while in high school (concurrent enrollment) and receive both high school and college credit for courses completed. Students take a maximum of two college courses per semester. Courses are taught on a college campus.

**b. Fast Tracks.** This program is similar to PSEO, except that it is limited to seniors who have completed all high school graduation requirements.

**c. CU Succeed.** This program is similar to Fast Tracks, except that courses are taught at the high school by high school faculty certified by the University of Colorado (CU) or by CU faculty members. Broad participation in this program is recent, so participation numbers for DPS graduates during the period studied are low.

**2. Advanced Placement (AP)** – College-level courses taught at high schools by high school instructors. Students who pass national AP exams in conjunction with these courses are eligible to receive college credit and advanced college standing in the subjects tested.

**3. Honors Classes** – These courses offered by high schools are available to higher-achieving students, typically students with at least a “B” average. Most honors (or “X”) classes are academic but some are elective courses.

**4. International Baccalaureate (IB)** – A two-year program of six courses, an extended essay and a community-action component for students 16 to 19 years of age, leading to a high school diploma honored by universities internationally. Many IB program graduates receive some college credit for their course work.

We recognize that enrolling in accelerated programs or courses is itself likely to be associated with higher than average prior academic performance or greater than average interest in postsecondary education. We are not suggesting that enrollment in these programs or courses “causes,” or is associated with, college enrollment. We simply report on the percentage of students who enroll in these offerings and subsequently enroll in college. In the future, it may be possible to conduct an analysis to examine in greater detail the relationship between participation in these programs and college entrance. In addition, if participation in these programs increases, future studies could examine college persistence and attainment rates of high school graduates who participate compared to similar nonparticipants.

### Who enrolls in accelerated offerings?

Across the six cohorts, 43 percent of DPS graduates earned at least one high school credit in an accelerated program or course.<sup>15</sup> White and non-low-income DPS graduates participated in accelerated offerings at higher rates than low-income and minority graduates (Figure 17). Overall, 58 percent of white graduates and 57 percent of non-low-income graduates enrolled in an accelerated offering. In contrast, only slightly more than a third of minority graduates (34 percent of Hispanics and

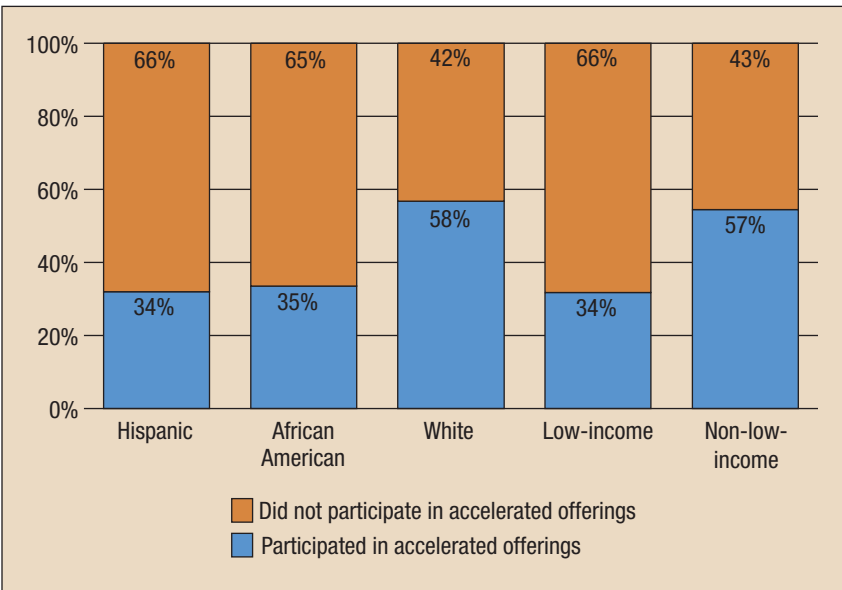
<sup>15</sup> It is important to bear in mind that we are observing enrollment patterns only for high school graduates. It is possible that total enrollment in these programs would look somewhat different with respect to the mix of participants by race/ethnicity, income levels, or gender.

35 percent of African Americans) participated in accelerated offerings. Thirty-four percent of low-income graduates participated. White and non low-income graduates were also far more likely than minority or low-income graduates to enroll in more than one accelerated offering. Nonetheless, as will be discussed below, certain accelerated offerings attract substantial shares of low-income and minority students.

**Do participants enroll in one or a combination of accelerated options?**

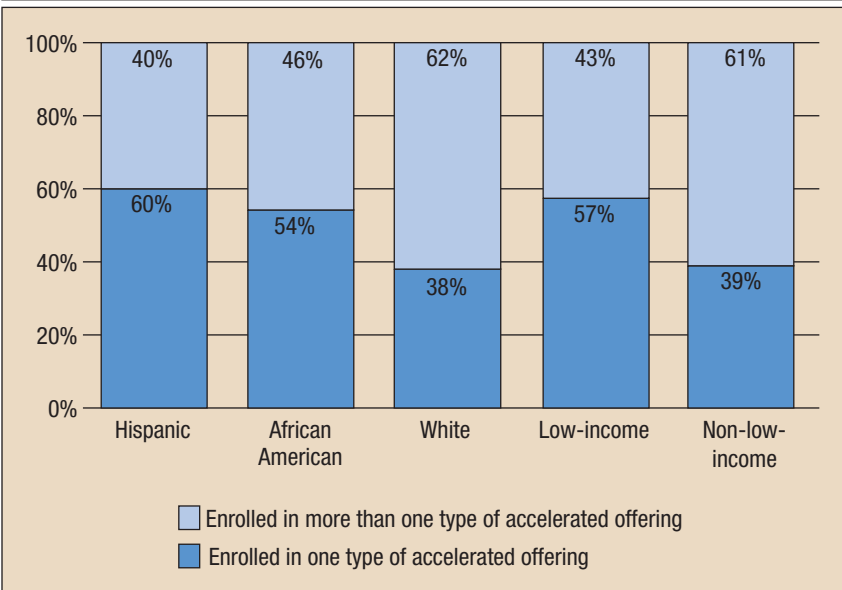
Approximately 48 percent of DPS graduates who participated in any accelerated offerings enrolled in only one type of program (i.e., AP only, IB only, honors courses only or concurrent enrollment only). More than half of those graduates who participated in accelerated offerings (52 percent) earned credits in a combination of AP, IB, honors courses and/or concurrent enrollment. White graduates enrolled in more than one accelerated program or course at a much higher rate than minority DPS graduates (Figure 18). Of those who participated in any accelerated courses or programs, 62 percent of whites enrolled in more than one option (compared to 46 percent of African Americans and 40 percent of Hispanics). Nearly the same difference in enrollment can be seen by income. Low-income students who participated in any accelerated courses or programs enrolled in more than one option at a rate of 43 percent, compared to 61 percent for non-low-income graduates.

Figure 17: Enrollment in accelerated offerings, DPS graduates, by race/ethnicity and income (2001-02 to 2006-07)



Sources: Denver Public Schools' student records.

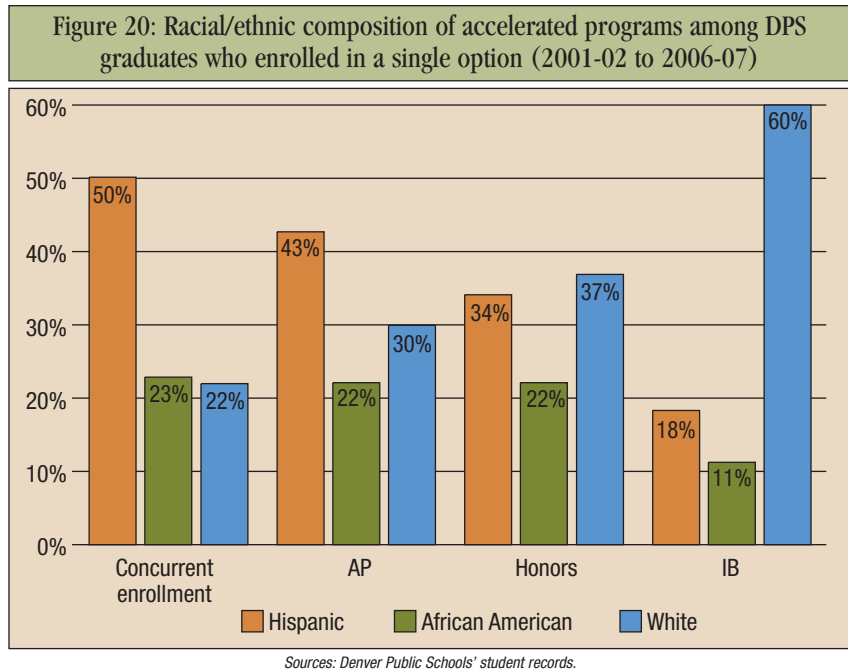
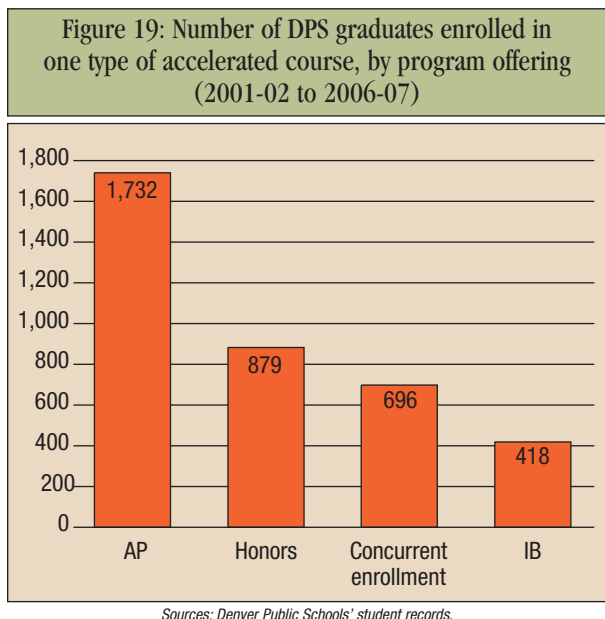
Figure 18: Enrollment in one, or more than one, accelerated program or course among DPS graduates who enrolled in any accelerated offerings, by race/ethnicity and income (2001-02 to 2006-07)



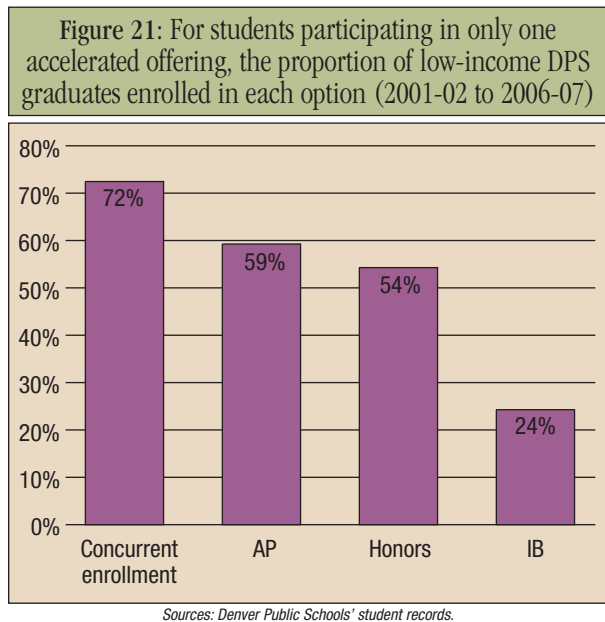
Sources: Denver Public Schools' student records.

**Program preferences among those who enrolled in a single accelerated option**

For those DPS graduates who took a single option, AP had the largest enrollment while IB and concurrent enrollment had the smallest numbers of participants (Figure 19). As illustrated in Figure 20, white graduates who enrolled in only one option were the most likely racial/ethnic group to enroll in honors courses (37 percent of enrollees) and the IB program (60 percent of enrollees). For those who took AP only, Hispanic graduates were the highest share (43 percent of enrollees).<sup>16</sup> Among graduates who enrolled in only one option, however, concurrent enrollment – although relatively small – attracted the most substantial shares of Hispanic and low-income participants. Hispanic graduates who enrolled in only one option were 50 percent of the enrollees in concurrent enrollment (Figure 20). Low-income graduates taking only one option were also substantially represented in concurrent enrollment, where they constituted 72 percent of enrollees (Figure 21). While little research has been conducted on participation rates of high school students in concurrent enrollment, a



recent Florida study also found that concurrent enrollment programs served a large percentage of low-income and minority high school graduates.<sup>17</sup>



<sup>16</sup>Hispanics were 43 percent of enrollees in AP only, but because they are substantially underrepresented among students enrolling in more than one accelerated option, their overall AP participation rate is low in comparison to that of white graduates or graduates as a whole. The same holds true for low-income graduates; they are 59 percent of enrollees in AP alone, but are underrepresented among students enrolling in more than one accelerated option, so their overall AP participation rate is low in relation to that of non low-income graduates.

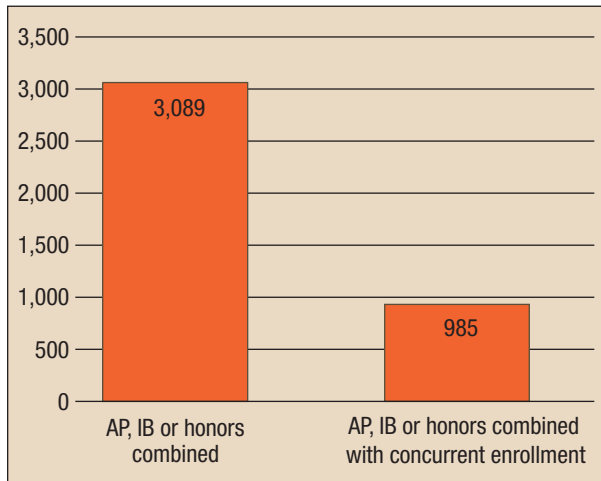
<sup>17</sup>Western Interstate Commission for Higher Education (WICHE), *Moving the Needle on Access and Success, A Study of State and Institutional Policies and Practices*, Boulder, CO 2006.

**Program preferences among those who enrolled in more than one accelerated offering**

We already observed that among DPS graduates who took only one type of accelerated program, a larger percentage of Hispanic and low-income DPS graduates enrolled in concurrent enrollment compared to other subgroups. We also wanted to know if low-income and minority students who enrolled in more than one option were also more

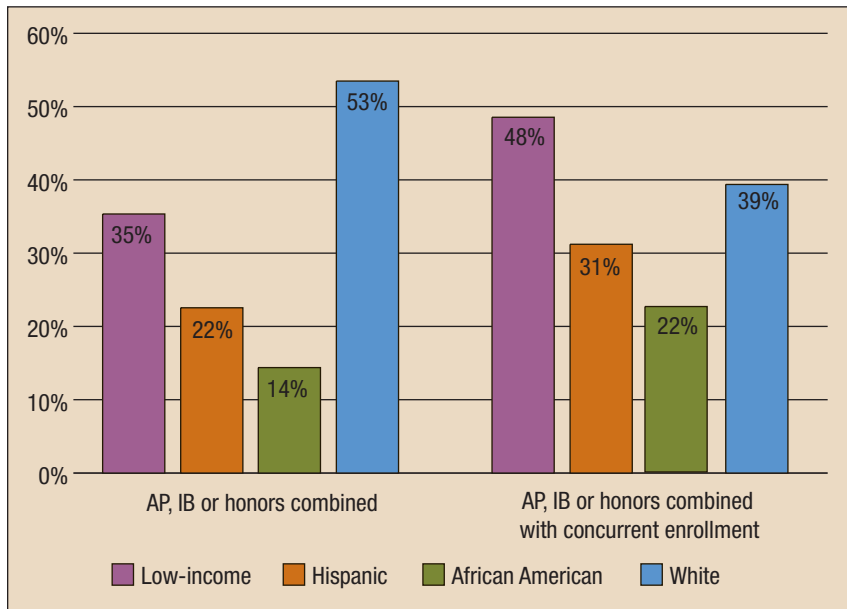
likely to enroll in concurrent enrollment in conjunction with other accelerated offerings (including AP, IB and/or honors courses). We found that, overall, the largest number of graduates who enrolled in more than one option took a combination of AP, IB or honors courses (Figure 22). Over half of the graduates who enrolled in that combination were white and nearly two thirds were non-low-income (Figure 23). Small numbers of graduates participated in a combination of concurrent enrollment and other accelerated courses, but slightly more than half of the graduates who enrolled in that combination (concurrent enrollment and AP, IB or honors program) were minority and nearly half were low-income. In short, although they may be underrepresented in accelerated programs overall, concurrent enrollment figures prominently among accelerated program options for minority and low-income DPS graduates.

**Figure 22: Number of DPS graduates enrolled in different mixes of accelerated offerings, by program offering (2001-02 to 2006-07)**



Sources: Denver Public Schools' student records.

**Figure 23: Racial/ethnic and income composition of accelerated programs for DPS graduates enrolled in different mixes of programs and courses (2001-02 to 2006-07)**



Sources: Denver Public Schools' student records.

# What are the college enrollment rates for DPS graduates who participate in accelerated offerings?

**College enrollment:** In this section of the report, a DPS graduate is said to have enrolled in college if there is any college enrollment record found for that student in data supplied by the National Student Clearinghouse (NSC). These numbers therefore capture any enrollment, no matter how brief or how much time elapsed between graduating from high school and entering college. Because not all colleges are included in NSC, it is likely that the college enrollment rates cited in this section underestimate actual rates. In addition, the numbers would probably increase slightly if more years of data were available for the cohorts in this study with the earliest graduates.

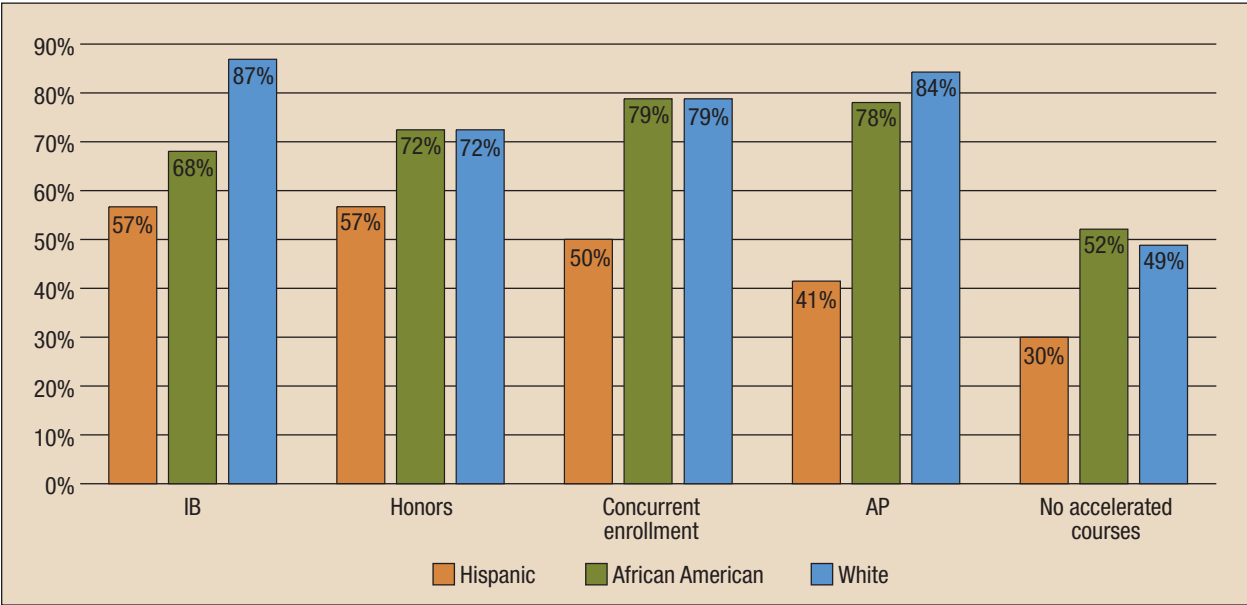
For DPS graduates who participated in any accelerated program, the college entrance rate was 76 percent. That rate increased to 85 percent for graduates who participated in more than one accelerated program.<sup>18</sup> Of those graduates who did not earn any credits in accelerated programs or courses, only 41 percent enrolled in college.

<sup>18</sup>Students who select only one option may vary in systematic ways from those who select multiple options.

## What are the college enrollment rates of graduates who enroll in a single option?

Of the 48 percent of enrollees who selected only one type of accelerated program or course, there were also higher rates of college enrollment among all racial/ethnic groups compared with non participants (Figure 24). For Hispanics who enrolled in only one option, college entrance rates were highest among those who took IB or honors courses. These programs, however, served a much smaller proportion of Hispanic graduates than concurrent enrollment or AP alone. Half of the Hispanic graduates who participated in concurrent enrollment alone enrolled in college, compared with 41 percent of Hispanic graduates who enrolled in AP only and 30 percent of Hispanic graduates who did not participate in any accelerated courses. African-American graduates, who also participated in concurrent enrollment at relatively high rates, showed a college entrance rate of 79 percent, compared to 52 percent among African-American graduates who did not enroll in accelerated courses. The Florida study previously cited also suggests that low-income and minority graduates who participate in concurrent enrollment enter college at higher rates than low-income and minority students who do not

Figure 24: College enrollment rates for DPS graduates who enrolled in only one type of accelerated program, by race and ethnicity (2001-02 through 2006-07)



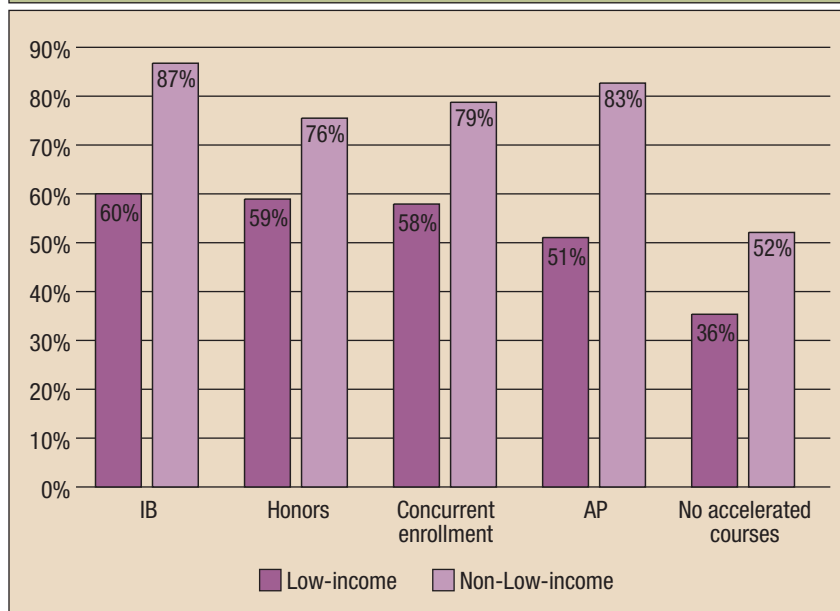
Sources: Denver Public Schools' and National Student Clearinghouse student records.

participate.<sup>19</sup> Finally, college entrance rates for African Americans who enrolled in AP only were similar to those of African Americans who participated in concurrent enrollment only (78 percent and 79 percent, respectively).

College enrollment rates were also greater for low-income graduates who participated in any single accelerated option compared to low-income graduates who did not participate in accelerated courses (Figure 25). Once again, however, the concurrent enrollment program attracted the highest percentage of low-income students among all the programs studied in this section.

Low-income graduates who participated in concurrent enrollment had a 58 percent college enrollment rate, well above the 36 percent college entrance rate of low-income DPS graduates who did not participate in accelerated courses. Low-income graduates who enrolled in concurrent enrollment only also had a higher college enrollment rate than low-income graduates who enrolled in AP only (51 percent).

Figure 25: College enrollment rates for DPS graduates who enrolled in only one type of accelerated program, by income (2001-02 through 2006-07)



Sources: Denver Public Schools' and National Student Clearinghouse student records.

### What are the college enrollment rates of graduates who enroll in more than one accelerated option?

DPS graduates among all racial and ethnic groups who participate in more than one accelerated option have college entrance rates well above the college entrance rates for graduates who did not participate. The greatest differences between overall college entrance rates and college entrance rates when more than one accelerated program is taken occur for African Americans and Hispanics. As can be seen in Figure 26, graduates who participated in a mix of AP, IB and honors courses had college entrance rates far higher than rates for graduates who did not participate in accelerated offerings. Rates for minorities were particularly impressive. As previously noted, however, both African Americans and Hispanics are underrepresented among the students who enroll in that particular mix of accelerated offerings. There are combinations of accelerated offerings that include concurrent enrollment in which minority and low-income students participate at higher rates and that also show high college entrance rates. Although the absolute enrollment rates are low, the mix of concurrent

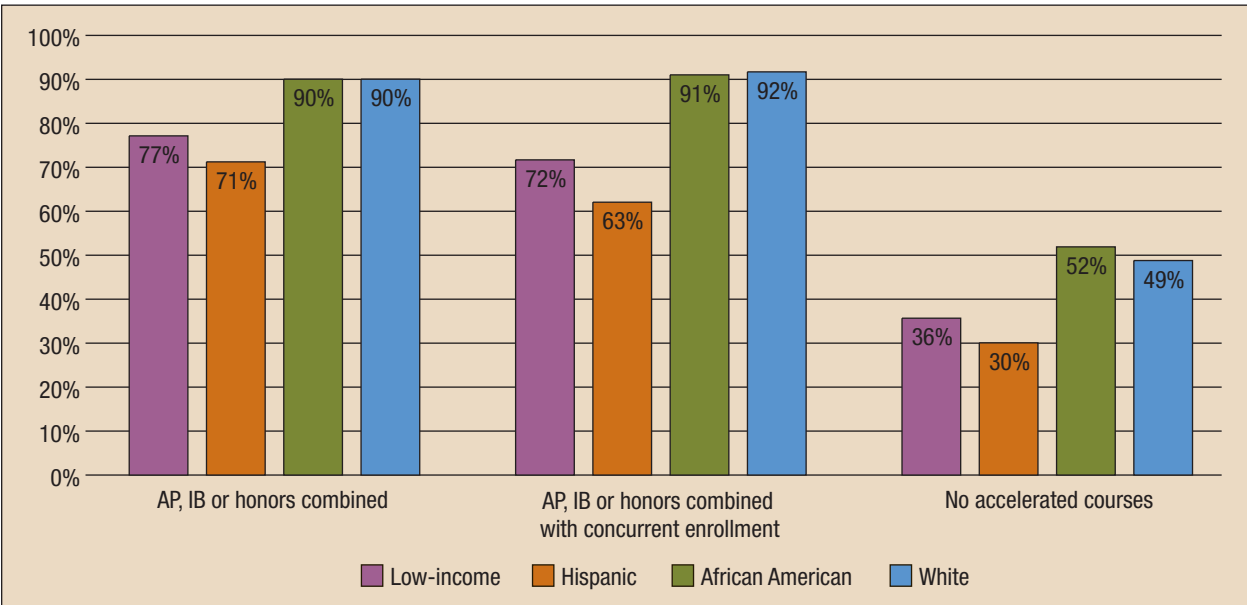
<sup>19</sup>Western Interstate Commission for Higher Education (WICHE), *Moving the Needle on Access and Success, A Study of State and Institutional Policies and Practices*, Boulder, CO 2006. In addition, enrollment rates in four-year state colleges and graduation rates in two-year colleges were higher among participants of concurrent enrollment. More data are needed to confirm whether college success results for low-income and minority graduates who take concurrent enrollment can be replicated among all DPS graduates.



enrollment with IB, honors courses or AP has substantial representation from minority and low income graduates. Minorities who enroll in this mix show high college enrollment rates compared to non participants. They also show higher college entrance rates than those who

participated in concurrent enrollment only or AP only (accelerated programs where minority and low-income graduates were also substantially represented).

Figure 26: College enrollment rates for DPS graduates who enrolled in different mixes of accelerated options, by race/ethnicity and income (2001-02 through 2006-07)



Sources: Denver Public Schools' and National Student Clearinghouse student records.

## Chapter 4: DPS Graduates in Comparative Perspective

This study is an initial examination of the college enrollment, persistence and attainment rates of DPS graduates. While the findings raise issues of college access and success that DPS and the Denver community face, the magnitude of these challenges is better understood by comparing DPS graduates with similar students elsewhere. Denver Public Schools is one of only a few major school systems to link high school graduates with postsecondary data from the National Student Clearinghouse and describe college outcomes.<sup>20</sup> At this point, there is no national student sample that mirrors, exactly, the DPS students in this study. We therefore present a range of comparisons, national, regional and city, using several well known data sources that can help place our findings in context. Appendix B discusses these comparisons further, describing how each source does or does not reflect the DPS experience.

### College access

To examine the extent to which college enrollment rates by DPS graduates reflect national and regional enrollment rates, we turn to two widely-used data sources – the Current Population Survey (CPS) and the American Community Survey (ACS). Both the CPS and the ACS are conducted by the U.S. Census Bureau and both provide snapshots of college attainment for 18- to 24-year-old high school graduates. The CPS allows us to examine college participation by race/ethnicity, while the ACS allows us to examine participation in large counties with populations similar to Denver. In addition, we also compare DPS results with published findings of a similar (but not identical) study of college participation among graduates of Chicago Public Schools.

### College Participation among youth, 18 to 24 years of age: national and regional comparison

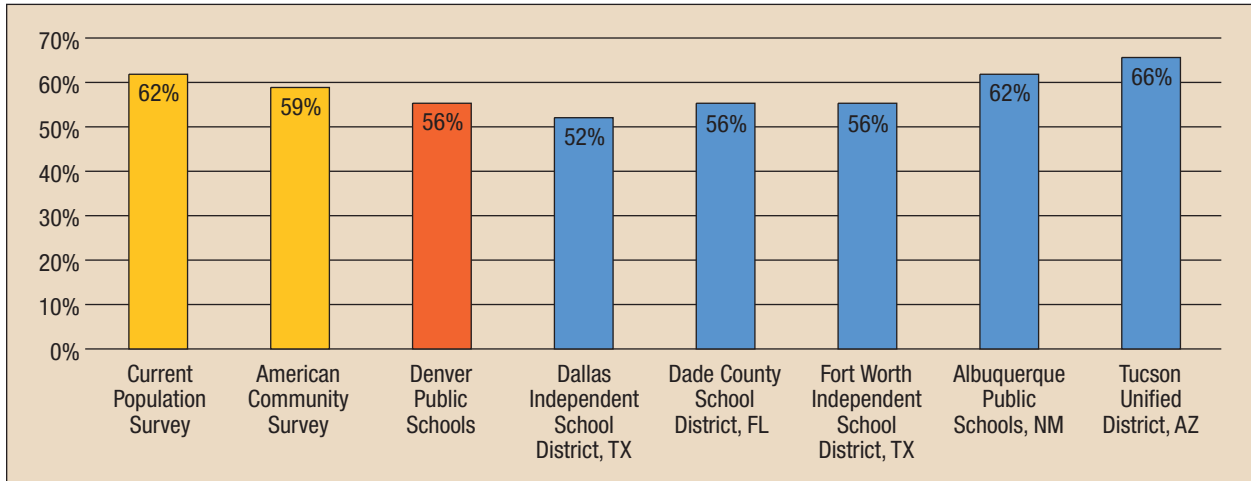
Overall, DPS college enrollment rates are slightly lower than the national averages as shown in both the CPS and the ACS data (Figure 27).<sup>21</sup> For 18- to 24-year-old high school graduates, the 2007 CPS indicates that 62 percent have attained “some college” or more. In comparison, the average college enrollment rate among the DPS cohorts (who were roughly the same ages, 18 to 24, in 2007) was 56 percent. We also observed national educational attainment rates for 18- to 24-year-old high school graduates using the ACS. The ACS allows us to compare DPS graduates with 18- to 24-year-olds in counties with school districts similar in size and racial/ethnic composition to Denver.<sup>22</sup> In general, DPS graduates have similar college enrollment rates to those reported by the ACS for all 18- to 24-year-olds in comparable counties. Across all the counties examined, three (Dallas, Dade County and Forth Worth) show “some college” attainment rates for residents 18 to 24 years of age that are similar to, or slightly below, the college enrollment rate for DPS graduates. “Some college” attainment rates for the other communities, however, are slightly higher than the enrollment rate for DPS graduates. Of course, county-wide college participation rates for 18- to 24-year-olds reflect

<sup>20</sup> Graduating classes from Chicago Public Schools and Boston Public Schools have been linked to postsecondary student records data using the National Student Clearinghouse. For more information on college outcomes for Chicago Public Schools see M. Roderick, J. Nagoaka, & E. Allensworth, *From High School to the Future: A first look at Chicago Public School graduates' college enrollment, college preparation, and graduation from four-year colleges*, Consortium on Chicago School Research at the University of Chicago, Chicago, IL, April 2006. For information on Boston Public Schools, see A. Sum et. al, *Getting to the Finish Line: College Enrollment and Graduation, A Seven Year Longitudinal Study of the Boston Public Schools Class of 2000*, Center for Labor Market Studies, Northeastern University and Boston Private Industry Council, Boston, MA, November 2008.

<sup>21</sup> College enrollment rates reported for the Current Population Survey are slightly higher than the rates reflected in the American Community Survey data. The ACS, however, includes persons in institutional settings including the military, while the CPS does not. This difference may help account for this small disparity.

<sup>22</sup> The communities included in the regional analysis were selected because: 1) Their school systems are among the largest 40 in the U.S. (DPS ranks 30th); 2) Their school systems are among the 20 with the largest share of all students who are Hispanic (DPS is 14th); and 3) Their school district boundary represents a large share of that county (a few, like Denver, have school district boundaries that follow the county boundary).

Figure 27: “Some college” or greater attainment rates among 18- to 24-year-old high school graduates, Current Population Survey national results, American Community Survey national and county results, and college enrollment rates for graduates of Denver Public Schools (2001-02 to 2006-07)



Sources: DPS: Denver Public Schools' and National Student Clearinghouse student records, 2001-02 through 2006-07; National: U. S. Census Bureau Current Population Survey, 2007; American Community Survey 2005-07 (three-year estimates averaged), Table B150001: 18 to 24 years.

the experience of persons who may have graduated from schools or systems other than the large public school system in that county.<sup>23</sup>

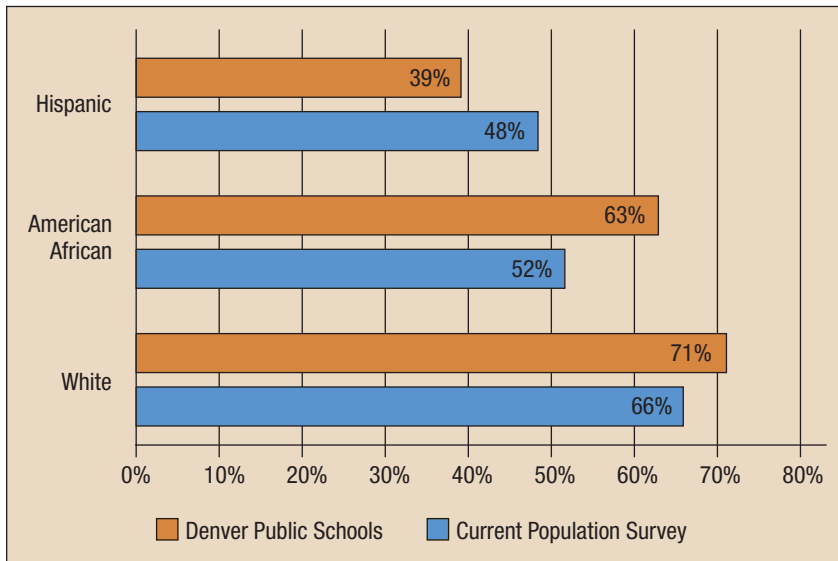
<sup>23</sup>This difference between those who graduate from a district and those who reside in a county may also explain why college enrollment rates for DPS graduates (in our cohort data) differ from the data for 18- to 24-year-olds reported by ACS for Denver County (the county “some college” attainment rate was 60 percent).

### National comparison by race and ethnicity

The CPS (but not the ACS) also allows us to compare DPS college entrance rates to national “some college” attainment rates for large racial and ethnic groups (Figure 28). We find that both nationally and among DPS graduates, whites enroll in college at the highest rates and Hispanics at the lowest rates. White and African-

American DPS graduates have college enrollment rates that exceed the national “some college” attainment averages (among 18- to 24-year-olds). Hispanic DPS graduates, however, have enrollment rates below national averages for all Hispanics.

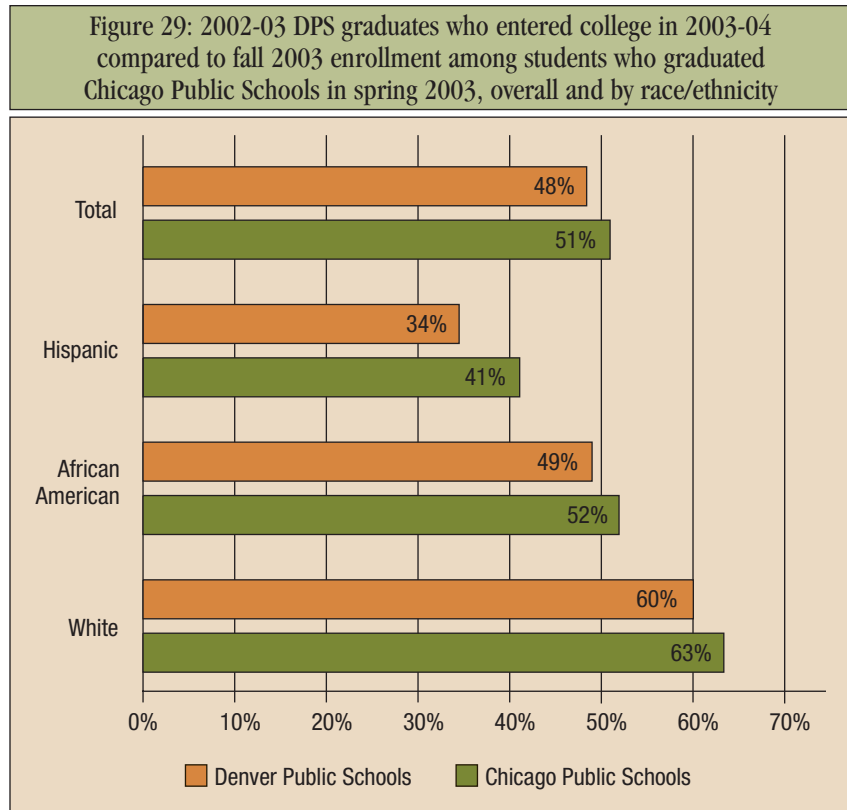
Figure 28: College enrollment rates among 18- to 24-year-old high school graduates by race/ethnicity, Current Population Survey National Results and Denver Public Schools



Sources: Denver Public Schools' and National Student Clearinghouse student records, 2001-02 through 2006-07; National: U. S. Census Bureau, Current Population Survey, October 2007.

### City comparisons among high school graduates: DPS and Chicago Public Schools

Chicago was the first large school district in the country to examine college enrollment patterns for high school graduates using student-level data from the National Student Clearinghouse. As such, its findings provide an additional point of comparison for our findings.<sup>24</sup> Overall, graduates of Chicago Public Schools show slightly higher immediate college entrance rates compared to those of DPS graduates (Figure 29). Both districts show similar differences among groups – white graduates enroll in college immediately after high school graduation at higher rates than their African-American and Hispanic peers, and African Americans enter at higher rates than Hispanic graduates.



Sources: Denver Public Schools' and National Student Clearinghouse student records, 2003-04 cohort; M. Roderick, J. Nagoaka, & E. Allensworth, *From High School to the Future: A first look at Chicago Public School graduates' college enrollment, college preparation, and graduation from four-year colleges*, Consortium on Chicago School Research at the University of Chicago, Chicago, IL, April 2006 (p. 14).

### College success

We can also compare the performance of one cohort of DPS high school graduates who enrolled in college with national information on college persistence and attainment. Unlike the case for comparisons of college entrance, there is a data set that allows us to describe national college persistence rates for students who are more like DPS graduates, though the match is not perfect. National longitudinal data from the Beginning Postsecondary Students (BPS) study provide persistence information through the third year of college for all students who entered college for the first time in 2003-04. These data examine students' enrollment history and degree attainment at any college over a three-year period. Consistent with the methodology used to determine persistence and attainment rates for DPS graduates in this study, students in the BPS national sample are tracked to all the colleges where they enroll, not just the first college.<sup>25</sup>

To compare DPS college entrants with these national data, we selected the 2002-03 DPS graduates who entered

college in 2003-04 (within 12 months of completing high school). We then compared the enrollment and persistence rates for this DPS cohort through the third year of college with students 19 years of age or younger among college entrants nationally who:

- Enrolled in college for the first time in 2003-04;
- Graduated from an urban, suburban or rural public high school; and,
- Were classified as “dependent” students upon entering college.

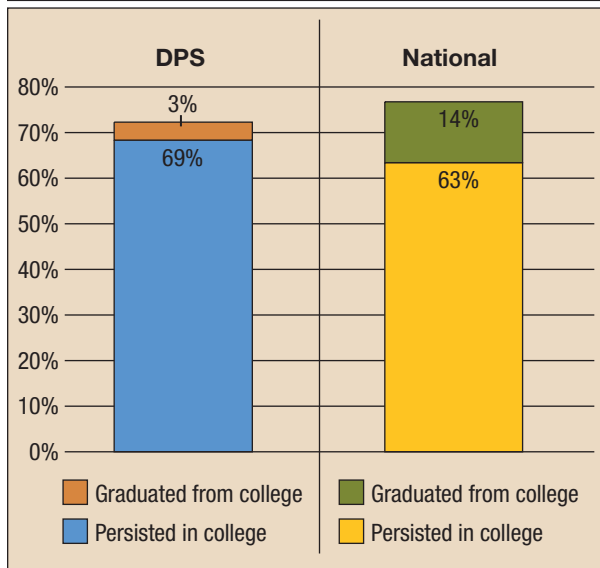
<sup>24</sup>The Chicago study excluded special education students and graduates of alternative high schools. Further, data on enrollment rates of Chicago Public Schools are available for students who entered college in the fall after graduating from high school, while the DPS data reflect the percentage of graduates who entered college within one year of graduating from high school. The Chicago study estimated that enrollment for the first year of college was approximately 58 percent of the previous year's graduates, or about 16 percent higher than fall enrollment.

<sup>25</sup>This method (persistence and attainment anywhere) has been used in other studies. For an example, see Berkner, L., et. al. *Persistence and Attainment of 2003-2004 Beginning Postsecondary Students: After Three Years*. U.S. Department of Education Institute for Education Studies, National Center for Education Statistics, 2007.

### Comparing college persistence and attainment rates using data from the Beginning Postsecondary Students study

After three years of college, DPS graduates' college persistence rates are higher than national rates. Their college graduation (or attainment) rates, however, are lower (Figure 30).<sup>26</sup> Overall, 69 percent of DPS college entrants are still enrolled and an additional three percent have earned degrees or certificates. Nationally, 63 percent are still enrolled, but an additional 14 percent have earned degrees or certificates. In general, then, combined third-year persistence and attainment for DPS graduates who enter college immediately after high school is slightly lower than the combined rate for college entrants nationally.

Figure 30: Persistence and attainment/graduation after three years among students who entered college in 2003-04: National 2003-04 public school graduate "dependent" college entrants 19 or below, compared with 2002-03 DPS high school graduates who entered college in 2003-04.

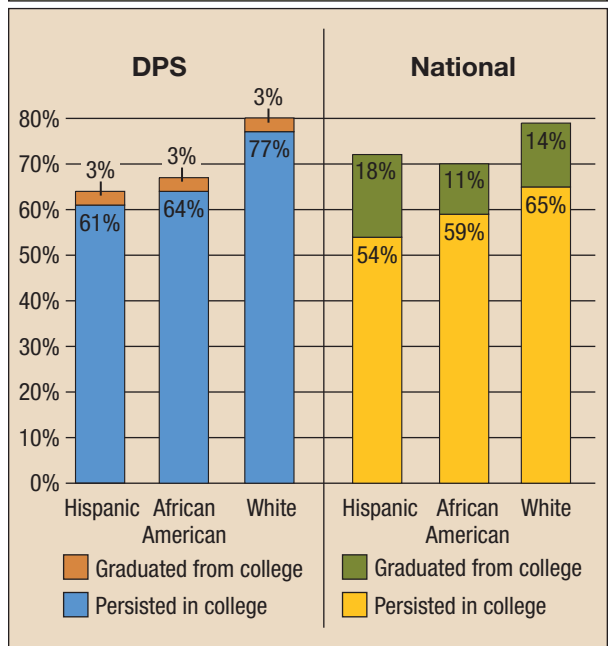


Sources: Denver Public Schools' and National Student Clearinghouse student records, and Beginning Postsecondary Students (BPS) 2004/06 longitudinal survey.

Compared with national data, slightly higher persistence without degrees but lower degree/certificate completion is also the case for DPS college entrants from all racial/ethnic groups (Figure 31).<sup>27</sup> However, the combined persistence and completion rate for DPS white college entrants is similar to the national rate for white college entrants, while the combined rate for DPS African-American college entrants is slightly lower than

national rate for African Americans. Nationally, combined persistence and completion rates for Hispanics are considerably higher than the combined rates for DPS Hispanic college entrants.

Figure 31: Persistence and attainment/graduation after three years by race/ethnicity among students who entered college in 2003-04: National 2003-04 college entrants who were public school graduates and "dependent" college entrants ages 18 to 19 or below, compared with 2002-03 DPS high school graduates who entered college in 2003-04



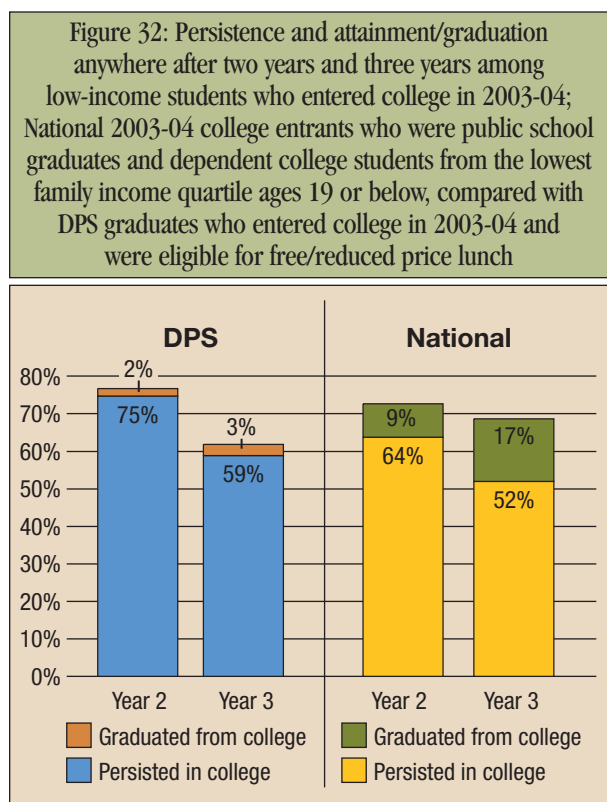
Sources: Denver Public Schools' and National Student Clearinghouse student records, and Beginning Postsecondary Students (BPS) 2004/06 longitudinal survey.

We also compared college persistence and completion for students by income, focusing on students from lower-income families (Figure 32). We compared DPS low-income college entrants with college entrants in the bottom income quartile in the BPS. The bottom income quartile in the BPS reflects a family income below \$32,000 in 2004, or approximately 165 percent of the poverty level

<sup>26</sup>The BPS race/ethnicity categories include "other" and "more than one race," categories not included in the DPS data set. BPS also includes the "Hispanic" category commonly used in the education field. The BPS "Hispanic" category is reported for this section since it is the most comparable to the "Hispanic" category reported by Denver Public Schools. This may exclude Hispanic students that selected "more than one race."

<sup>27</sup>The BPS race/ethnicity categories include "other" and "more than one race," categories not included in the DPS data set. BPS also has the "Hispanic" category commonly used in the education field. The BPS "Hispanic" category is reported for this section since it is the most comparable to the "Hispanic" category reported by Denver Public Schools.

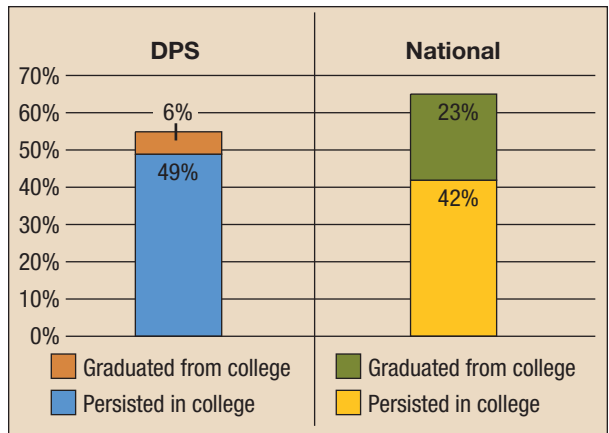
for a family of four in that year.<sup>28</sup> In the DPS data, low-income students were those who were eligible for a free or reduced-price lunch (185 percent of the poverty level), although the vast majority were eligible for free lunches (i.e., had family incomes at or below 135 percent of the poverty level). Persistence rates for DPS low-income graduates appear somewhat higher than the national average for students in the bottom income quartile in year two (Figure 19). However, by year three, combined persistence and attainment rates for DPS low-income college entrants are substantially lower than the combined rate for the bottom income quartile in the BPS.<sup>29</sup>



Finally, we examined college persistence and attainment rates of DPS college-goers who initially entered two-year institutions and compared these rates to national results for similar students who entered two-year institutions (Figure 33). We focused on two-year colleges because we only had national data through the third year of college. We reasoned that the three-year time period would be sufficient to complete certificates and some portion of associate's degrees at two-year colleges, but too short for most students to complete bachelor's degrees at four-year

colleges. We also realized that many students, especially those who are low-income and minority, may take longer than three years to complete two-year degrees.

**Figure 33: Persistence and attainment/graduation anywhere after three years among students who entered a two-year college in 2003-04; National 2003-04 college entrants who were public school graduates and "dependent" college entrants ages 19 or below, compared with 2002-03 DPS high school graduates who entered a public or private college in 2003-04**



Comparisons, which include both public and private institutions for both the DPS graduates and the national sample, show that DPS graduates who enroll initially in a two-year institution have persistence rates slightly above national averages for college entrants, but earn degrees at lower rates in the first three years of college. Their combined persistence and attainment rates after three years are substantially lower than rates for two-year college entrants nationally.<sup>30</sup>

<sup>28</sup>Beginning Postsecondary Students (BPS) data here reflect the bottom income quartile for families with dependent children in college. The bottom income quartile in BPS reflects families with incomes below \$32,000 in 2004. In 2004, the poverty rate for a family of four was approximately \$19,307. That means that almost all DPS college-goers who had been eligible for a free or reduced-price lunch (FRL) would be in the lowest BPS income quartile, assuming that their families were composed of four or more individuals and that family incomes did not increase substantially from the period in which their children were FRL eligible.

<sup>29</sup>Among the BPS quartile of national students immediately below average income (i.e., quartile above the lowest quartile, income range \$32,000-\$59,999), second-year college enrollment is 68 percent with an additional seven percent degrees/certificates and third-year enrollment is 57 percent with an additional 17 percent degrees/certificates.

<sup>30</sup>Both the BPS data and this study include students who initially entered less-than-two-year as well as two-year institutions.



## Chapter 5: Improving College Access and Success

The results of this study highlight the need to improve college access and success for DPS graduates. This section briefly outlines key issues in increasing both college access and degree completion, especially for low-income and minority students.

### Increasing college access

There is widespread agreement among practitioners and researchers about the factors that affect college access. Commonly cited items associated with lower rates of college going include poorer academic preparation, low educational aspirations, lack of family or community role models for college attendance, less knowledge about applying for college, and lack of resources to pay for college.<sup>31</sup> As a result, much of the effort to increase college enrollment rates has focused on providing students and their parents with information about colleges, applications and costs, ensuring adequate academic preparation, raising educational standards, and making college more affordable. While all students need help in deciding to go to college and choosing colleges, considerably more attention has focused on students with lower college enrollment rates – especially low-income and minority students – and students whose parents did not go to college.<sup>32</sup>

**College access program strategies.** There are a large number of national, state and local programs for middle and high school students aimed at increasing college enrollment rates. Many of these efforts target low-income, minority and potential first-generation college-goers. Some of the best-known programs with Denver projects include:

- **GEAR UP:** This is a federally-supported program designed to increase the number of low-income students who are prepared to enter and succeed in postsecondary education. GEAR UP provides six-year grants to states and local partnerships. These grants support motivation, academic assistance and college exploration at middle and high schools that serve high concentrations of low-income students. GEAR UP grantees serve an entire cohort of students beginning

no later than the seventh grade and follow the cohort through high school. GEAR UP also provides college scholarships to low-income students. In DPS, GEAR UP projects are currently in operation at Abraham Lincoln, George Washington, Montbello and North high schools.

- **TRiO UPWARD BOUND and UPWARD BOUND MATH-SCIENCE:** These federally supported programs boost college awareness and preparation for low-income middle and high school students and students whose parents did not complete college. Funding includes intensive residential summer sessions on college campuses and school-year instruction, tutoring, mentoring, and other academic support for college-prep courses, counseling, college search and application assistance. In DPS, Upward Bound projects are in operation at Abraham Lincoln, East, North, South and West high schools.
- **TRiO TALENT SEARCH:** This federally-supported program is similar to, but less intensive than, Upward Bound and serves larger numbers of low-income and first-generation students. It also provides bi-weekly or monthly counseling, tutoring, mentoring and workshops primarily during the school year and is geared to middle and high school students. Students learn about college admissions, explore careers, make financial plans, learn about financial aid, and visit colleges. There are Talent Search projects at North and West high schools in Denver.
- **AVID (Advancement Via Individual Determination):** In Denver, AVID is organized as a 9th through 12th grade school-wide effort. It targets students in the academic “middle” and combines enrollment in challenging academic courses with elective courses that: 1) motivate students for college; 2) teach study skills and critical

<sup>31</sup> See, for example, Engle, J., Bermeo, A., and O'Brien, C. *Straight from the source: What works for first-generation college students*, Pell Institute, Council for Opportunity in Education, Washington, DC, 2007.

<sup>32</sup> There is considerable evidence that low-income and minority students lack comparable access to college information and help in applying to college. See, for example, “Steps Toward Attending a Four-Year Institution,” Table 22, *Access to Postsecondary Education for the 1992 High School Graduates*, National Center for Education Statistics, U.S. Department of Education, Washington, DC, 1998.

thinking; and 3) provide academic support such as tutoring. AVID is supported by the school district and other sources. DPS has AVID programs at all the traditional high schools.

There also are locally-based programs aimed at encouraging college access for DPS graduates. They include:

- **Goodwill Industries:** This program is aimed primarily at 10th through 12th grade students in career and technical education classes (although others are recruited as well). The program offers career education and assists with internships and jobs. It also provides a college preparatory curriculum and links students with professionals and community members through mentoring and networking in a program called Urban Connections. In DPS, there are projects at Abraham Lincoln, East, George Washington, Montbello, North, South and West high schools.
- **Denver Kids, Inc.:** This is a mentoring program for students in grades 9 through 12 who are referred by teachers or staff. The program helps students in higher-risk environments or who face personal challenges to complete high school and become productive citizens. There are projects within DPS at George Washington, Montbello, North, South, and Thomas Jefferson high schools.
- **University of Denver Volunteers in Partnership (DU VIP):** The VIP mission is to partner with students, parents, faculty and staff from Denver West High School, Abraham Lincoln High School, Pinnacle Charter School, the Denver Center for International Studies, and Denver School of Science and Technology to promote students' self-esteem, encourage students to complete high school and continue their education or training, and bridge the transitions between middle school, high school, postsecondary education or training and careers. High school components include a five-day residential experience at the university for rising juniors, help with college and financial aid applications, and an interview workshop.
- **Jobs for America's Graduates:** This is a school-to-career program that helps students in grades 9 through 12 stay in school through work-based learning

experiences. The work experience can lead to jobs or postsecondary education. There are projects at George Washington, Montbello and West high schools.

In addition, a variety of need-based federal, state and private programs offer financial assistance for college going in the form of scholarships, grants and loans. Federal programs include the Pell Grant program, Campus-Based Aid (Supplemental Educational Opportunity Grants, Work Study, Perkins Loans), and various other loan programs, some of which are subsidized for low-income students and families.

In Denver, the federal financial aid programs are supplemented by the Denver Scholarship Foundation (DSF). DSF offers need-based scholarships to qualifying graduates of Denver Public Schools. The scholarship can be used at 39 Colorado postsecondary institutions, including technical and community colleges, state colleges and universities, as well as private institutions. The scholarship, which can be as much as \$5,000 a year, is renewable for up to five years depending on the type of college or postsecondary institution a student attends. In addition to its scholarship effort, the DSF aims to be a catalyst, bringing together Denver Public Schools, Colorado postsecondary institutions and other college access providers to create conditions that empower Denver students to achieve success.

**Effects of college access strategies.** Evidence about the efficacy of the various programmatic efforts has been limited but encouraging. The TRiO programs identified in this section (Upward Bound and Talent Search) have received the greatest scrutiny. Rigorous federal evaluations of these programs have generally concluded that they increase both overall college enrollment rates and four-year college enrollment rates when program participants are compared with similar non participants.<sup>33</sup>

With respect to financial aid, there is large literature documenting the positive relationship between award of various forms of aid – grants, loans, scholarships – and

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<sup>33</sup>See, J. Constantine, N.S. Seftor, E.S. Martin, T. Silva and D. Myers, *A Study of the Effect of the Talent Search Program on Secondary and Postsecondary Outcomes in Florida, Indiana and Texas, Final Report from Phase II of the National Evaluation*, U.S. Department of Education, Washington, DC, 2006. M. Cahalan, "Do the Conclusions Change? Correcting for Sampling and Non-Sampling Error in the Random Assignment National Evaluation of Upward Bound," presentation at the Council for Opportunity in Education Annual Meeting, Washington, DC, 2008.

college entrance and persistence. However, the literature also suggests that there are considerable differences in the willingness of various groups to acquire debt in order to attend college. Asians and Hispanics are considerably less willing than whites or African Americans to participate in college loan programs.<sup>34</sup> These findings have particular implications for communities like Denver, where the Hispanic population is large and its college enrollment and persistence rates are relatively low.

## Increasing college persistence and degree attainment

### **Student characteristics that affect college success.**

Because almost half the students who begin college do not complete a degree or certificate, there has been considerable attention paid to the conditions that affect persistence and school-leaving in postsecondary education. Studies using national student data have identified individual factors associated with higher rates of school leaving, including delaying college entrance, entering college with a GED rather than a traditional diploma, attending college part-time, working at rates higher than half-time, having dependent children, or being a single parent. Clearly, these risk factors can be interrelated. Furthermore, low-income and minority students are more likely than other college entrants to face these risks. While secondary schools can encourage students to stay in school, graduate and enter college as soon as possible, there is less that colleges or universities can do to alter these characteristics. Rather, their challenge is to find ways to help students succeed in spite of factors that put them at a disadvantage.

### **Institutional conditions that affect college success.**

Institutional conditions play a critical role in retention. Probably the best-known effort to explain how institutional conditions affect persistence is Tinto's theory of school leaving.<sup>35</sup> Tinto observes that most college-leavers are not failing academically, so there must be other explanations for why some students stay in college and others leave. According to Tinto, students are more likely to remain in college if they are able to establish a strong academic and social relationship with the institution, which he calls integration. Students who stay are more likely to feel that they fit in academically and socially (with other students and faculty, the campus

environment, etc.). Furthermore, it is critical that integration take place early; students must become comfortable academically, get to know others, and participate in activities during the first term or year in order to remain at the institution.

For low-income and minority students whose rates of retention are lower than those of other entrants, bringing about integration is often more difficult. Not only are these students more likely to have one or more personal risk factors, but they are more likely to enroll in institutions where academic and social integration are more difficult to achieve. Low-income and minority students are more likely to enroll in community colleges, where there are fewer extracurricular activities or opportunities to meet other students or faculty outside of the classroom. They also are more likely than more advantaged students to attend commuter four-year institutions or live off campus at institutions with residential facilities, with fewer opportunities for integration. In addition, they often come from different communities culturally or economically, and share little common experience with other students.

**College success program strategies.** There are programs at many college campuses aimed specifically at boosting college persistence and attainment rates for low-income students. Most of these programs focus on social and academic support, especially in the first year or two of college. One of the best known is Student Support Services, another of the federal TRiO programs. There are also federal, state and institutional educational opportunity programs for low-income or minority students or for at-risk students who also share other interests, such as majors or programs.

Developmental education is another strategy aimed at boosting college success for students who enroll without the academic preparation necessary to complete college-level work. It is estimated that over half of the DPS graduates who enter Colorado's college system need at

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<sup>34</sup>See, for example, A. Cunningham and D. Santiago, *Student Aversion to Borrowing: Who Borrows and Who Doesn't*, Institute for Higher Education Policy, Washington, D.C., 2008 and ECMC Foundation, *Cultural Barriers to Incurring Debt: An Exploration of Borrowing and Impact on Access to Postsecondary Education*, Caliber Associates, 2003.

<sup>35</sup>V. Tinto, *Leaving College: Rethinking the Causes and Cures of Student Attrition* (2nd Edition), University of Chicago Press, Chicago IL, 1993.

least one developmental (i.e., remedial) course.<sup>36</sup> While research has not identified a single most effective approach to developmental instruction, one recent study showed that effective developmental mathematics programs include intensive hours of instruction and labs, use a variety of different teaching methods, accelerate learning, link developmental math to other courses through learning communities, provide students with academic support services, and make use of instructional technology.<sup>37</sup> The Community College of Denver has implemented this type of intensive developmental education instruction (called FastStart in Denver) with notable success.<sup>38</sup>

There is increasing interest in providing financial incentives that reward college persistence. Some states have adopted scholarship programs that offer reduced tuition to students who start college shortly after high school, attend full time, remain in school without a break or maintain a prescribed grade point average. Many of these programs are not need-based; any student can take advantage of them.<sup>39</sup> The jury is still out on whether these programs do, in fact, increase persistence for students who would otherwise leave college.<sup>40</sup> A few states and some private organizations offer a guarantee of financial aid to all low-income students who complete high school. There is evidence from one state program to suggest this approach is successful in increasing both access and persistence.<sup>41</sup> Quite recently, a rigorous evaluation of a community college incentive program that provided a substantial reward to low-income single parents for remaining enrolled at least part time and maintaining a “C” average showed that the program did, in fact, increase retention significantly.<sup>42</sup>

**Effective college success programs.** Tinto’s theory about institutional conditions needed to enhance integration and retention is well supported in the literature. Many studies have focused on the institutional policies and practices associated with higher rates of retention for low-income and first-generation college students. Several recent reports have highlighted such critical elements as high levels of full-time faculty, smaller class sizes, rewards for undergraduate teaching, structured freshman year offerings, continuous monitoring of student progress, learning communities, group study, explicit institutional retention policies, and a rich campus life.<sup>43</sup>

Studies of support service programs suggest that the most effective strategies focus on the academic challenges that

low-income students face.<sup>44</sup> Academic support is a central feature of these programs and plays an important role in students’ first encounters with the institution. Sometimes these programs offer academic courses prior to freshman year (“summer bridge”) so that students acquire academic skills and campus knowledge that put them in a stronger position in the fall of freshman year. In addition, the program staff shapes the students’ initial academic program, directing them to courses and instructors where they are likely to experience initial success, and continually monitor their progress. Where possible, students are directed to learning communities, which are linked courses that provide intellectual cohesion and offer students the opportunity to meet others and work together. Many programs provide or ensure that students receive academic support for tough freshman classes or gatekeeper courses that must be passed early on in order for later success. Academic support may include tutoring, supplemental instruction, group study, or other options. Support programs also may offer students a home on campus – a critical element along with group learning and study in achieving social integration, especially in institutions where students rarely interact outside of class.

<sup>36</sup>See: Colorado Commission on Higher Education, *2007 Legislative Report on Remedial Education*, January 18, 2008.

<sup>37</sup>R. Epper, E. DeLott Baker, *Technology Solutions for Developmental Math: An Overview of Current and Emerging Practices*, 2008.

<sup>38</sup>D. Bragg, *Draft Report for Breaking Through*, funded by the Charles Stewart Mott Foundation, as a partnership of National Council on Workforce Education and Jobs for the Future, 2009.

<sup>39</sup>Most, but not all, of these state scholarship programs are “merit based” in that they limit scholarships to students who meet certain high school GPA or ACT/SAT performance requirements.

<sup>40</sup>M. Binder and P. Ganderton, “The New Mexico State Scholarship: Does It Help Minority and Low-Income Students?” or C. Cornwell and D. Mustard, “Georgia’s HOPE Scholarship and Minority and Low-Income Students,” in D. Heller and P. Marin, *State Merit Scholarship Programs and Racial Inequality*, The Civil Rights Project, UCLA, 2004.

<sup>41</sup>E. St. John, “The Impact of Financial Aid Guarantees on Enrollment and Persistence,” D. Heller and P. Marin, *State Merit Scholarship Programs and Racial Inequality*, The Civil Rights Project, UCLA, 2004.

<sup>42</sup>Richburg-Hayes, T. Brock, A. LeBlanc, C. Paxson, C. Rouse, and L. Barrow, *Rewarding Persistence, Effects of a Performance-Based Scholarship for Low-Income Parents*, Oakland CA and New York, 2009.

<sup>43</sup>Muraskin, L. and J. Lee, *Raising the Graduation Rates of Low-Income College Students*, Pell Institute, Council for Opportunity in Education, Washington, DC, 2004; Engle, J. and C. O’Brien, *Demography is Not Destiny*, Pell Institute, Council for Opportunity in Education, Washington, DC, 2007; Carey, K. *Choosing to Improve*, Education Trust, Washington, DC, 2005; and Carey, K., *One Step From the Finish Line*, Education Trust, Washington, DC, 2005.

<sup>44</sup>For discussion of effective strategies, see J. Engle and V. Tinto, *Moving Beyond Access: College Success for Low-Income, First-Generation College Students*, The Pell Institute, Washington, DC, 2008; L. Muraskin, *Best Practices in Student Support Services*, U.S. Department of Education, Washington, DC, 1997; T. Bailey and M. Alfonso, *Paths to Persistence: An Analysis of Research on Program Effectiveness at Community Colleges*, Teachers College, Columbia University, NY, 2005; B. Chaney, L. Muraskin, M. Cahalan and R. Rak, *National Study of Student Support Services, Third Year Longitudinal Study Results and Program Implementation Study Update*, U.S. Department of Education, Washington, DC, 1997.



## Chapter 6 – Summary and Recommendations

In this study we have seen that overall rates of college entrance among DPS graduates are lower than national averages. We also found, however, that DPS graduates' college entrance rates are similar to those reported in some counties with large school districts that serve a high proportion of Hispanic students. White and African-American DPS graduates enter college at rates slightly above national averages for those groups. Among DPS graduates, low-income students enter, persist and complete college at lower rates than non-low-income students. Hispanic and African-American DPS graduates have lower college entrance and completion rates than white DPS graduates. The study of college enrollment of Chicago Public Schools' graduates reported similar differences in enrollment rates for Hispanic and African-American graduates. Furthermore, while college entrance rates for African-American DPS graduates may slightly exceed national rates of college entrance for African Americans, those rates remain substantially lower than both national and DPS college entrance rates for whites. Meanwhile, Hispanic and African-American DPS graduates persist and earn degrees or certificates at much lower rates than white DPS college-goers within four to six years after entering college. DPS graduates who enroll in two-year colleges immediately after high school persist or graduate through the third year of college at considerably lower rates than the national average.

DPS graduates who participate in accelerated courses show much higher college enrollment rates than those who do not participate. Minority and low-income graduates who participate in a combination of concurrent enrollment with AP, IB, or honors courses show particularly high college enrollment rates. Concurrent enrollment programs look promising in helping to improve college access, as they serve a higher share of low-income and minority students than other accelerated offerings. Still, these results are preliminary because the number of participants that enrolled in concurrent enrollment at the time of this study was small.

In light of these findings on college entrance, persistence and completion, this chapter offers recommendations for understanding and improving DPS students' access to,

and success in, college. The recommendations are divided into three groups: further research, extending the use of postsecondary data in Colorado, and education reforms to implement based on the study's findings.

### **1. Findings that Warrant Further Attention Through Research**

#### **■ Why do DPS graduates appear to enter college at relatively low rates?**

Further research is needed to understand why a substantial share of DPS graduates is not entering college within six years of completing high school. It is especially important to examine the factors that may affect Hispanic graduates' college entrance rates. Among issues to consider: Is the population of Hispanic DPS graduates relatively new to Colorado? To what extent have Hispanic graduates of DPS entered the district relatively late in their school careers, and thus were not able to plan sufficiently for college? If graduates are undocumented, are they faced with prohibitively high college costs, particularly given their inability to achieve in-state residency and pay in-state tuition? Furthermore, if you are the first in your family to complete high school, it may seem like a huge stretch, financial and otherwise, to consider college. To what extent are Hispanic DPS graduates also the low-income graduates, so that constraints on college-going multiply? Understanding the reasons for low college entrance rates can lead to reforms that can increase those rates.

#### **■ Why do DPS college entrants earn fewer degrees and certificates than comparable students nationally?**

In looking at relatively short-term college participation (up to three years) for DPS graduates, we see that those who enter two-year college immediately after high school show combined persistence and completion rates considerably lower than national averages. There are a number of possible reasons, including a greater need for developmental courses among DPS college-goers, more part-time enrollment than is the case for comparable students, more social or economic responsibilities (family,

children, work) than students who have similar economic backgrounds, less access to academic or social support in college leading to poorer performance, or less systematic course-taking toward a degree. We do know that relatively few DPS graduates who go to college attend residential colleges or travel out of state, both of which are associated with higher rates of degree completion in national studies. Several recent studies have shown that college students, particularly minority and low-income students, continue to earn degrees well into their thirties. More detailed study and more years of longitudinal data would enable a better understanding of the college experiences of DPS graduates. Longer term, it may also be possible to examine college persistence and attainment for students who enrolled in accelerated courses during high school.

- **In what ways do the costs of higher education and the availability of financial assistance affect college entrance rates of DPS students, particularly Hispanic and low-income graduates?**

As we have seen, at least 60 percent of DPS graduates qualified for free or reduced-price lunch and a disproportionately smaller share of those graduates enrolled in college. The NSC data used in this study do not provide information on either the financial need these students face, or the financial assistance they receive. On the other hand, these types of data are available from the Colorado Department of Higher Education (CDHE). Linking school district information on high school graduates with CDHE student records data would allow us to examine how financial need and unmet need affect college entrance and continuation.<sup>45</sup> Longer term, linking Colorado student records data with the federal financial aid data system could enable us to better understand financial need and track students to colleges out of state as well.

## **2. Extending and Using the Study of College Participation in Denver and in Colorado**

- ***DPS should continue to track graduates into college and other districts in Colorado should follow the district's lead.*** Ultimately, studying the college performance of Colorado high school graduates requires a statewide effort to establish consistency in collecting, analyzing and reporting data across all

Colorado school districts and in measuring student participation in higher education.

- ***The report findings can help the DPS establish baseline information for introducing post-secondary performance expectations for DPS high schools.*** These expectations should align with DPS board goals. DPS principals, counselors and teachers will need additional tools and research on effective practices to meet and exceed these expectations.

## **3. Educational Reforms to Consider Based on Study Findings**

### **College Access**

- ***DPS should examine its graduation requirements to ensure that all students have the option of completing at least one course offered as an accelerated learning option.*** While this reform requires an increase in the number of AP classes offered in the district, it also requires a large expansion of concurrent enrollment programs. In addition, philanthropic organizations, state governments and individual institutions should collaborate to ensure that DPS high school students have access to these accelerated options.
- ***Identify minority and low-income high school students for enrollment in multiple accelerated high school offerings, particularly concurrent enrollment programs.*** This change could help close the gap in college enrollment, persistence, and attainment for minority and low-income DPS graduates. DPS must develop support systems for minority and low-income students to ensure that they participate, and earn credits, in multiple accelerated courses.

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<sup>45</sup>CDHE was willing to participate in this research. However, no seamless unique identifier between the K-12 and higher education systems in Colorado existed at the time of this study. The student identification number assigned by the Colorado Department of Education to each student who attends an elementary or secondary public school in the state (known as a SASID) will be implemented in the four Colorado state colleges in 2008-09 (the current academic year). These schools include Metropolitan State College of Denver, Western State College, Fort Lewis College and Mesa State College. As of 2009-10, all eight state colleges will have a SASID assigned to each of its students. Research on the association between financial assistance for DPS graduates and college outcomes will therefore soon be possible for all DPS graduates attending four-year colleges.



■ ***DPS leadership should continue to work with its counselors and the Denver Scholarship Foundation (DSF) to improve postsecondary outcomes.*** First, students need help in making good college choices, selecting institutions that reflect their interests and where they are likely to be successful. In addition, DPS counselors and DSF staff can inform DPS high school students about transfer and articulation agreements among postsecondary institutions. This information could facilitate students' understanding about which college courses are required to eventually complete a four-year degree.

■ ***Funders like DSF should maintain an application window in their scholarship programs.*** As we have seen, some DPS graduates who enroll in college delay entrance following high school graduation – particularly Hispanic and low-income graduates. Providing a longer application period would ensure that more students benefit from scholarships and programmatic offerings.

## College Success

■ ***Enhance coordination between DPS high schools and metro area higher education institutions.*** New legislation has been introduced in Colorado (called the Colorado Achievement Plan for Kids – CAP4K) to align curricula and skill development of Colorado students from preschool through college. CAP4K has initiated discussions between colleges and high schools throughout Colorado. These conversations serve to help high schools develop descriptions of skills and competencies that colleges seek in their first-year students. Such relationship-building efforts should continue at the local level (between DPS and metro-area colleges) to ensure that CAP4K policies are implemented successfully.

■ ***Higher education institutions should adopt productivity tools to evaluate programs aimed at improving college success.*** These tools are critical in identifying, expanding and institutionalizing student success innovations, particularly for low-income and minority students. An example of such a tool is the Incremental Cost-Benefit Analysis recently completed by the Colorado Community College System through a Ford Foundation Bridges to Opportunity grant.

■ ***Take student success innovations to scale.***

A number of initiatives and programs are underway in higher education institutions nationally, and in Colorado, to improve student retention and graduation rates.<sup>46</sup> Few of these innovations, however, are currently offered at the scale necessary to improve college attainment rates – particularly in two-year colleges.

■ ***Postsecondary institutions should seek input outside the higher education community for ideas on how to bring college success programs to scale.*** For example, the business community may provide insights on ways to get around the many logistical barriers that stand in the way of scaling up innovative programs.

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<sup>46</sup>Several national and local strategies for improving college persistence and attainment are discussed in Chapter five of this report.

## Appendix A: National Student Clearinghouse

### Limitations

This study is a first effort to track DPS high school graduates into college. As such, there are several important limitations that must be noted. First, the National Student Clearinghouse (NSC) postsecondary data have limitations. According to a Chicago research group that undertook a similar matching effort, postsecondary institutions that enroll roughly nine percent of college students do not participate in the NSC.<sup>47</sup> Within Colorado, we established that six institutions do not provide data to NSC. These colleges include: Colorado Technical University, Westwood College of Technology Denver North, The Art Institute of Colorado, Parks College, Jones International University, and Denver Automotive and Diesel College. In addition, previous studies have demonstrated that not all institutions that participate in NSC provide full information on all enrollees.<sup>48</sup> We identified cases in which the NSC data showed that a particular student completed a program or graduated on a particular date, but the record lacks information on the nature or level of the degree or certificate received.

We are particularly concerned about the completeness of NSC data for two-year colleges (and less-than-two-year institutions). The Chicago study noted above did not include in its analysis students who enrolled in two-year colleges. A similar study conducted with graduates of Boston Public Schools, however, included two-year colleges. Consistent with our study, researchers found data missing on the type of college degree/certificate received by college graduates for many of their high school graduates.<sup>49</sup> The findings from the Boston study suggest a moderately upward biased estimate of the true number of graduates obtaining bachelor's degrees from four-year colleges (rather than associate's degrees). Further, estimates of the number of associate's degree recipients from two-year colleges for Boston high school graduates were considered "optimistic." Given the large share of DPS graduates in this study who are low-income and minority, the rates at which DPS graduates receive certificates and two-year degrees appear low in relation to the rates reported for bachelor's degrees. We think this

may indicate incomplete records for two-year degrees and certificates. It is also possible that more complete NSC student data for four-year-college-enrollees make it appear that degrees/certificates earned at two-year institutions are a smaller share of all degrees than is truly the case.

### Colorado colleges that participate in NSC

This study included 17,996 students that graduated from DPS between 2001-02 and 2006-07. A NSC record was located for 10,104 (56%) of these students. Nearly three-quarters (72%) of DPS graduates that entered college initially enrolled in a Colorado college. Table 15 provides a listing of the number of DPS graduates who initially enrolled in each of these Colorado postsecondary institutions.

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<sup>47</sup>Roderick, M., J. Nagaoka, and E. Allensworth, *From High School to the Future: A first look at Chicago Public School graduates' college enrollment, college preparation, and graduating from four-year colleges*, Consortium on Chicago School Research at the University of Chicago, Chicago, IL, April 2006.

<sup>48</sup>After the Consortium on Chicago School Research published graduation rates for Chicago Public Schools graduates at higher education institutions in Illinois that were based on NSC data, several of those institutions questioned the results. Further investigation resulted in a finding that some institutions had submitted incomplete graduation data to NSC. The resulting resubmissions resulted in considerably higher graduation rates for Chicago Public School graduates at several institutions (and overall). Update to *From High School to the Future*, October 2006.

<sup>49</sup>A. Sum, et. al, *Getting to the Finish Line: College Enrollment and Graduation, A Seven Year Longitudinal Study of the Boston Public Schools Class of 2000*, Center for Labor Market Studies, Northeastern University and Boston Private Industry Council, Boston, MA, November 2008.

Table 15: Number of students who graduated from DPS between 2001-02 and 2006-07 who initially enrolled in a Colorado college between 2002-03 and 2007-08, by name of each college

<b>Name of Colorado college</b>	<b>Initially enrolled</b>
ADAMS STATE COLLEGE	58
ADAMS STATE COLLEGE-EXTENDED	5
AIMS COMMUNITY COLLEGE	14
ARAPAHOE COMMUNITY COLLEGE	309
ARGOSY UNIVERSITY DENVER FALLS ASSOCIATE PROGRAM	1
COLORADO CHRISTIAN UNIVERSITY	23
COLORADO MOUNTAIN COLLEGE	16
COLORADO NORTHWESTERN COMMUNITY COLLEGE	10
COLORADO SCHOOL OF MINES	100
COLORADO STATE UNIVERSITY	402
COLORADO STATE UNIVERSITY - PUEBLO	31
COLORADO TECHNICAL UNIVERSITY	8
COMMUNITY COLLEGE OF AURORA	324
COMMUNITY COLLEGE OF DENVER	2,015
COMMUNITY COLLEGE OF DENVER - TECH ED	42
DEVRY UNIVERSITY - DENVER	28
FORT LEWIS COLLEGE	69
FRONT RANGE COMMUNITY COLLEGE	53
ITT TECHNICAL INSTITUTE	35
LAMAR COMMUNITY COLLEGE	14
MESA STATE COLLEGE	42
METROPOLITAN STATE COLLEGE	1,233
NAROPA UNIVERSITY	3
NORTHEASTERN JUNIOR COLLEGE	74
OTERO JUNIOR COLLEGE	20
PIKES PEAK COMMUNITY COLLEGE	29
PUEBLO COMMUNITY COLLEGE	14
RED ROCKS COMMUNITY COLLEGE	180
REGIS UNIVERSITY-SEMESTERS	69
ROCKY MOUNTAIN COLLEGE OF ART & DESIGN	24
THE BRYMAN SCHOOL	27
TRINIDAD STATE JUNIOR COLLEGE	60
CU - BOULDER	592
CU - COLORADO SPRINGS	19
CU - DENVER	348
CU - DENVER HEALTH SCIENCES	434
UNIVERSITY OF DENVER - CO	195
UNIVERSITY OF N. COLORADO	300
WESTERN STATE COLLEGE	34
<b>Total</b>	<b>7,254</b>

Sources: Denver Public Schools' and National Student Clearinghouse student records.

## Appendix B: Summary of Data Sets

Data Source	Description of Data Source	Data and Population Comparisons/Limitations		Data Comparison	
<b>Denver Public Schools (DPS)/National Student Clearinghouse</b>	The data used for DPS includes student-level secondary data linked with student-level post-secondary data provided by the National Student Clearinghouse (NSC).	See Appendix A for an explanation of the NSC data set and its limitations.		N/A	
<b>Chicago Public Schools/ National Student Clearinghouse</b>	The data used for Chicago Public Schools included student-level records data for all high school graduates linked with student-level postsecondary data provided by the National Student Clearinghouse (NSC). Our comparison is based on published results of the analysis in M. Roderick, J. Nagoaka, & E. Allensworth, <i>From High School to the Future: A first look at Chicago Public School graduates' college enrollment, college preparation, and graduation from four-year colleges</i> , Consortium on Chicago School Research at the University of Chicago, Chicago, IL, April 2006.	<b>Denver Public Schools</b> <ul style="list-style-type: none"> <li>■ 75,000 students</li> <li>■ 55% Hispanic</li> <li>■ 18% African American</li> <li>■ 23% White</li> <li>■ 65% qualify for free or reduced lunch</li> </ul>	<b>Chicago Public Schools</b> <ul style="list-style-type: none"> <li>■ 408,600 students</li> <li>■ 39% Hispanic</li> <li>■ 47% African American</li> <li>■ 8% White</li> <li>■ 85% qualify for free or reduced lunch</li> </ul>	<b>Denver Public Schools</b> <ul style="list-style-type: none"> <li>■ Graduated from high school in 2002-03, enrolled in college July 2003 through June 2004</li> <li>■ Included all students who graduated from DPS in 2002-03</li> </ul>	<b>Chicago Public Schools</b> <ul style="list-style-type: none"> <li>■ Graduated from high school in Spring 2003 and enrolled in college in Fall 2003.</li> <li>■ Excluded special education graduates and graduates of alternative schools</li> </ul>
<b>Current Population Survey (CPS)</b>	This nationwide sample survey is used as a source for annual estimates of poverty and other socioeconomic and demographic characteristics, including school enrollment and income. The sample excludes institutionalized persons and on-base military personnel.	This is a national data set based on self reports and includes responses for rural, suburban, and urban 18- to 24-year-olds. The exclusion of institutionalized and on-based military personnel could overestimate the college enrollment rate for the 18- to 24-year-old population.		2007 CPS educational attainment for 18- to 24-year-old respondents is compared with NSC college enrollment data for DPS graduates 2001-02 to 2006-07.	
<b>American Community Survey (ACS)</b>	This nationwide sample survey of the population collects information such as age, race, income, and other social/demographic data. The sample includes institutionalized and military personnel.	National data and county-level self-report data. The national respondents include rural, suburban, and urban 18- to 24-year-olds; the county-level data includes primarily urban and suburban 18- to 24-year-olds. Due to mobility, there are limitations in comparing school district graduates with a population that may include 18- to 24-year-olds that did not attend high school in this same geographic area.		Compared ASC 18- to 24-year-old educational attainment in 2005, 2006 and 2007 (averaged together) with students from the DPS data set who graduated between 2001-02 and 2006-07.	
<b>Beginning Postsecondary Students (BPS) longitudinal survey</b>	A national longitudinal survey of a sample of students who entered college in 2003-04. Students were surveyed during the 2003-04 academic year. The same students were surveyed again during the 2004-05 and 2005-06 academic years, two years and three years after beginning their postsecondary education.	Student outcomes are limited to persistence and attainment through three years of college. While it is possible to identify the BPS sample members who graduated from public high schools, we cannot identify and describe separately those sample members who graduated from public high schools in urban communities. College entrants from rural, suburban and urban public high schools are therefore included in the analysis.		<b>Denver Public Schools</b> <ul style="list-style-type: none"> <li>■ Graduated from high school in 2002-03, enrolled in college July 2003 through June 2004</li> <li>■ Tracked students to all colleges where they enroll, not just where they first enrolled</li> </ul>	<b>BPS Sample</b> <ul style="list-style-type: none"> <li>■ Dependent students, ages 19 and younger, who graduated from a public high school and entered college for the first time in 2003-04.</li> <li>■ Tracked students to all colleges where they enroll, not just where they first enrolled.</li> </ul>