THE POTENTIAL ROLE OF THE INTERNATIONAL BACCALAUREATE (IB) DIPLOMA PROGRAMME IN IMPROVING ACADEMIC PREPARATION FOR COLLEGE FOR ALL STUDENTS

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Inadequate academic preparation is a primary barrier to college access and success particularly for students from historically underrepresented groups (Perna, 2005). Although critical to college enrollment, choice, and degree completion, academic preparation and achievement vary based on students' demographic characteristics, with lower levels of academic readiness for students from lower- than higher-income families and Blacks and Hispanics than for Whites (Perna, 2005). Two causes of inadequate academic preparation for college are a lack of rigorous courses in high school and a lack of curricular alignment between K-12 and higher education (Adelman, 1999, 2006; Kirst & Venezia, 2004; Perna, 2005; Venezia, Kirst, & Antonio, 2003).

One approach to increasing the availability of rigorous high school course offerings and aligning K-12 and higher education systems – and thus improving academic preparation for college – is for schools and school districts to offer high school students exposure to college-level courses. Labeled 'secondary-postsecondary learning options,' 'accelerated learning options,' and 'credit-based transition programs,' these programs include International Baccalaureate (IB), Advanced Placement (AP), and dual enrollment (Lerner & Brand, 2006).

Credit-based transition programs appear to be widely available. One survey showed that 87% of public high schools nationwide offered IB, AP, or dual credit courses in 2002-03, with 36% offering IB, AP, or dual credit courses, 50% offering two of these three types of courses, and 2% offering all three (Waits, Setzer, & Lewis, 2005). IB was less frequently offered than

other credit-based transition programs. Of the 16,500 public high schools offering either dual credit, Advanced Placement, or IB in the 2002-2003 academic year, only 390 offered IB (Waits, Setzer, & Lewis, 2005).

International Baccalaureate Diploma Programme: History and Growth

Despite the relatively small number of schools offering IB, the IB Diploma Programme may be a particularly effective mechanism for increasing academic readiness for college. In contrast to AP, honors, and dual-enrollment in which students may take courses "a la carte," IB Diploma Programme students are typically required to take an entire curriculum of rigorous coursework.[1] One review of the IB Diploma curriculum concluded that IB standards were highly aligned with the type of knowledge and skills expected by college faculty and known to promote academic success in entry-level college courses (Conley & Ward, 2009). Consistent with this observation, many colleges and universities recognize the academic rigor required to earn an IB Diploma and award college credits to IB Diploma holders, suggesting that the IB Diploma Programme effectively prepares secondary school students for higher education.

Since IB was first authorized in the United States in 1971, the program has been offered at a growing number of public and private schools and now includes offerings for elementary, middle, and high school years. In 2011, 1,302 IB schools were authorized in the United States: 286 offering the Primary Years Programme, 447 offering the Middle Years Programme, and 753 offering the Diploma Programme (IB Americas, 2011). Over the past decade in the U.S., both the

[1] IB Diploma candidates are expected to enroll full-time in the two-year Diploma Programme and take courses in each of the six subject groups. At least three of these courses must be taken at the higher level, while the other courses may be taken at the standard level. Higher-level courses represent approximately 240 teaching hours and standard level courses represent approximately 150 teaching hours. To earn an IB Diploma, candidates must earn at least 24 points across six subject examinations, which are each graded on a scale from 1 to 7. Also, they must satisfy the three compulsory components of the IB Diploma Programme: Theory of Knowledge, Extended Essay, and Creativity, Action, Service. IB students who do not fulfill all of the requirements for an IB Diploma may earn an IB Certificate instead. Approximately 80% of students are awarded the IB Diploma (IB Americas, 2011).

number of schools offering IB and the number of students participating in IB have increased dramatically. Between 2000 and 2011, the number of schools offering the IB Diploma Programme increased by 209%, from 360 to 753 (personal communication, J. Sanders, August 10, 2011). Nearly all (88%) high schools offering IB in 2010-11 were public rather than private (personal communication, J. Sanders, August 10, 2011). More than 60,000 students registered for exams (i.e., were IB Diploma Programme candidates) in 2010-11, up from 22,234 in 2000 (personal communication, J. Sanders, August 10, 2011).

This growth is expected to continue as a result of the positive reputation of the program (Andrews, 2003; Martinez & Klopott, 2005; Ready & Lee, 2008; Tooley, 2002), as well as concerted efforts to expand program availability. Recent increases in funding have specifically focused on offering IB programs to more demographically diverse students. In 2006, the U.S. Department of Education awarded IB North America (IBNA) a grant to implement the IB curriculum in Title I high schools (i.e., high schools that enroll a high proportion of low-income students) (Siskin, Weinstein, & Sperling, 2010). In fall 2009, the Gates Foundation built on these efforts to expand access to IB to students from low-income families and racial/ethnic minorities with *The International Baccalaureate (IB) Access Project*. This $2.4 million grant is designed to prepare underserved students for future participation and success in the IB Diploma Programme by increasing participation in the Middle Years Programme (MYP) and developing "tools and resources for student assessment in grades 9 and 10 that align with expectations for the Diploma Program in grades 11 and 12" (IB Americas, 2009).

IB may have also become more available to students from low-income families and racial/ethnic minorities as some school districts have come to view IB as a mechanism for creating or maintaining a racially/ethnically and socioeconomically diverse student body. Bland

and Woodworth (2011) found that two of the most diverse and successful IB Diploma Programmes in the nation were established to comply with a court order for desegregation across the district, draw the children of business leaders from outside the district, and/or discourage the flight of top students to charter and magnet schools outside the district.

IB Diploma Programmes are one type of program that magnet schools may use to attract a diverse student body. Magnet schools were originally created during the late 1960s and early 1970s as a mechanism for encouraging voluntary racial desegregation (Chen, 2007). Magnet schools typically offer "alternative or otherwise compelling modes of instruction," are designed to encourage enrollment of students from outside a school's zoned neighborhood boundaries, and have diversity as a stated goal (Chen, 2007).

Suggesting the effectiveness of these collective efforts, in 2007 two of every five IB students in the United States were of a non-White race/ethnicity and one of every seven IB students was listed as qualifying for the federal free and reduced lunch program (IBA, 2007). Nonetheless, a similar pattern of growth in another credit-based transition program, the AP program, indicates that simply increasing the number of participating students does not necessarily increase students' academic readiness for college. Over the past decade, the total numbers of AP participants and AP participants scoring a three or higher on an AP examination have increased dramatically, rising from 432,343 in 2001 to 853,314 in 2010 (a 97% increase), and from 277,865 in 2001 to 508,818 in 2010 (an 83% increase), respectively (College Board, 2011). Yet, at the same time, the percentage of students scoring at least a three has declined from 64% in 2001 to 60% in 2010 (College Board, 2011). African Americans also continued to be underrepresented among AP test-takers relative to their representation among high school students (8.6% versus 14.6% in 2010, College Board, 2011). Hispanics represented similar

proportions of AP test-takers (16%) and high school students (16.8%) in 2010, largely because of the high participation of Hispanics taking the Spanish language examination (Jaschik, 2011). These patterns raise questions about access to and participation in AP across racial/ethnic groups, as well as the quality and value of the preparation that AP provides (Casement, 2003).

These data for AP also raise questions about the patterns and implications of growth in IB for the academic preparation of low-income students and racial/ethnic minorities. Improving the availability of IB Diploma Programmes will be meaningful only if these programs are available in the schools that these students attend, if these students enroll in the program, and if the programs are structured to promote academic readiness.

Purpose

While suggesting the promise of IB Diploma Programmes for increasing academic preparation for college for underrepresented students, recent growth in IB programmes raises questions about whether this growth is reaching these groups, whether students from historically underrepresented groups are participating in available IB programs, and whether the academic preparation and supports provided by an IB Diploma Programme vary based on the characteristics of students attending the school. This paper addresses these issues using descriptive analyses of multiple sources of data. The analyses first describe national longitudinal trends in characteristics of schools offering the IB Diploma Programme and the characteristics of students within schools who enroll. These analyses draw on data from the International Baccalaureate database, which includes individual-level data on more than 400,000 IB Diploma Programme students from 1995 through 2009, as well as data from the Common Core of Data from the National Center for Education Statistics. The paper also draws on data collected from a

survey of IB Diploma Programmes in Florida to document variations in the opportunity to participate in available IB Diploma Programmes and the academic offerings and support services of available programs. The paper concludes by identifying conclusions and implications of the results.

Conceptual Framework

While limited, available research studies suggest that IB Diploma Programmes may promote students' college-related outcomes (Bailey & Karp, 2003; Duevel, 1999; Foust et al., 2009; Hertberg-Davis & Callahan, 2008; IB Americas, 2008; International Baccalaureate Global Policy and Research, 2010; Kolb, 1997; Moydell et al., 1991). Yet, students can only realize these benefits if IB is offered at the school they attend. High schools that choose to offer an IB Diploma Programme are likely different from high schools that do not offer such a program. IB courses cannot be taught in a school unless the school implements the entire Diploma Programme (Byrd, 2007). But offering the program requires a school to make an initial and continuing financial investment. Schools must submit a $4,000 non-refundable application fee as well as an annual fee of $9,500 during the pre-approval/application process. IB Americas (IB Americas, 2010) then charges a fee of $10,000 per year for a school to participate in the IB Diploma Programme, as well as a fee of $141 per student and $96 per exam. The availability of funds to support such an investment undoubtedly varies across schools and districts.

In order to reap any benefits of IB, students must also participate in the available program. Students who decide to participate in an IB Diploma Programme likely differ from other students in the same school or district who do not participate in terms of prior student achievement, motivation, and other characteristics. Research suggests that IB programs tend to

enroll high-achieving students from families who are aware of the program and its potential benefits to college readiness and admission (Bailey & Karp, 2003), as well as students from higher-income families and better-educated parents (Chen, Wu, & Tasoff, 2010).

Other research suggests that, at least at some schools, students may be formally and informally "tracked" into or away from the IB programme. In a qualitative study of the implementation of IB in Title I high schools (i.e., schools that enroll a high proportion of low-income students), Siskin and colleagues (2010) found that guidance counselors play a crucial role in bringing students into the IB Diploma Programme and deciding which students participate. In a qualitative study involving approximately 200 teachers, 300 students, 25 building-level administrators/coordinators, and 8 program coordinators at 23 schools, Hertberg-Davis and Callahan (2008) concluded that the curriculum and instruction within AP and IB courses were not perceived to be a good fit for all learners, particularly those from traditionally underserved populations. Another study found that the probability of completing an IB Diploma increased substantially after curricular tracking was eliminated at the middle and high school of one school district (Burris, Wiley, Welner, &Murphy, 2008).

The benefits of IB also likely depend on the ways that IB is actually implemented within a school. Some research suggests that what constitutes "IB" and the extent to which IB may promote academic readiness for college may vary across high schools. Based on an examination of the content, rigor, and clarity of IB courses in English, history, science, and math, Byrd (2007) noted that IB has several mechanisms that are designed to guarantee consistency across programs in course quality, including the training that IB requires prior to the initiation of an IB Diploma Programme at a school, the internal and external administration of standard formative and summative assessments, the supervision of instructors, and the use of detailed teacher guides for

each course. Nonetheless, researchers working for IB note the implementation challenges that may arise from the configuration of urban schools and district school choice policies, particularly with regard to programmatic efforts to promote continuity from 7th through 12th grade through the Middle Years Programme and into the Diploma Programme (Siskin & Weinstein, 2008). In the midpoint evaluation of *The IB Access Project*, Corcoran and Gerry (2011) found variation in teachers' willingness to implement new curricular and assessment tools to improve students' preparation for IB Diploma Programmes. In their case-study analysis of two diverse and successful IB Diploma Programmes, Brand and Woolworth (2011) found that varying admissions processes led to different levels of student preparation and thus required different mechanisms to support student success.

Suggesting a potential source of variation across schools in the academic preparation provided by IB Diploma Programmes, the National Research Council noted that the International Baccalaureate Organization failed to articulate the principles of learning on which IB is based (Gollub, Bertenthal, Labov, & Curtis, 2002). The National Research Council also noted that:

> systematic information is lacking about the AP and IB programs as they are actually implemented in U.S. high schools, including the instructional strategies used in individual classrooms, the structure of the syllabi in different schools, the quantity and quality of the facilities available, the preparation of teachers who teach the courses, and the ways in which students are prepared prior to advanced study. (Gollub et al., 2002, p. 155)

The report concluded by encouraging research examining the implementation and effectiveness of IB programmes (Gollub et al., 2002).

Research Design

To improve understanding of the extent to which IB Diploma Programmes may provide a mechanism to improve academic readiness for college for students who are historically underrepresented in and underprepared for higher education, this study leverages national data from the population of students taking IB exams and from the schools they attend, along with survey data from IB Program Directors in the state of Florida. The analyses of these data are guided by the following four research questions:

1. What are the trends in the demographic characteristics of schools nationwide that offer IB Diploma Programmes?
2. What are the trends in the demographic characteristics of students who participate in IB Diploma Programmes nationwide?
3. Does the opportunity to participate in IB Diploma Programmes at public high schools in the state of Florida vary based on the demographic characteristics of students attending the school?
4. How do the academic offerings and supports provided by IB Diploma Programmes in public high schools in the state of Florida vary based on the demographic characteristics of students attending the school?

To address the first and second research questions, we draw on data from two sources. The first is the International Baccalaureate database, which includes individual-level data on more than 400,000 IB Diploma Programme students from 1995 through 2009. The second data source is the Common Core of Data (CCD) from the National Center for Education Statistics, which includes annual school-level characteristics and demographics for all public schools

nationwide. Data are linked across the two databases for each year using school names and addresses.

The IB database includes data on student gender from 1995 to 2009, but data on student race and free/reduced lunch eligibility were collected only from 2006 onward. Although this limits our ability to track changes in the demographic characteristics of students participating in IB for more than a few years, the available data do allow an examination of the recent period during which federal grant funds were directed toward increasing availability of IB in low-income schools. The CCD data include school locale (i.e., urban, suburban, rural) for 1995 to 2009, racial demographics (e.g., percent African American, Hispanic, etc.), and percent free/reduced lunch (FRL) eligibility for 1995 to 2008, as well as Title I eligibility and magnet school status for 1999 to 2009.

Analyses for the first two research questions do not require inferential statistics. Even if *p*-values were calculated, the tremendous sample sizes would yield significance for even tiny shifts in characteristics. To enhance interpretability, results are presented graphically showing longitudinal trends in the form of stacked bar charts and box plots.

To address the third and fourth questions, the research team designed a survey to explore in more depth the characteristics of IB Diploma Programmes in Florida. We selected Florida for several reasons. First, nearly half the public schools offering IB in 2002-03 were located in the Southeast, making the Southeast the region with the highest concentration of IB schools (Andrews, 2003; Waits et al., 2005). In 2009, only 2.8% of public high schools nationwide offered IB courses in the four core subject areas: English/language arts, mathematics, science, and social studies. The share of public high schools offering IB courses in the four core subject areas was substantially higher than the national average in Florida (7.4%), as well as Maryland

(7.6%), Virginia (8.4%), and South Carolina (9.9%, Lee & Rawls, 2010). In terms of actual number of schools offering IB, Florida ranks substantially higher than other southeastern states (IB Americas, 2011). According to the IB website, IB Diploma Programmes are offered in 72 high schools in Florida, 51 high schools in Texas, 35 high schools in Virginia, and even fewer high schools in other southeastern states. Thus, Florida appears to be on the forefront of expanding access to IB Diploma Programmes, making it an ideal site to investigate the extent to which IB serves a mechanism to improve the academic preparation of students who are historically underprepared for higher education.

The survey included both fixed-response and open-ended questions and focused on issues related to program admissions, administration, and instruction. After receiving feedback in December 2009 and October 2010 from a focus group of IB Diploma Programme coordinators (n=7) from outside of Florida, the research team administered the survey to all IB Diploma Programme coordinators in Florida (n=69) in November 2010 via an online platform. In an effort to boost response rates, IB Americas sent an email encouraging coordinators to participate. Coordinators received $25 gift cards to Amazon.com for their participation. Throughout the winter, the research team emailed monthly reminders to partial and non-respondents. The research team also called partial and non-respondents in February to confirm receipt of the survey, inquire about the likelihood of completing the survey, and offer to conduct a phone interview instead. The survey was closed in March 2011. Two questionnaires were only partially completed, with responses for only the first few questions, and thus discarded. The final overall response rate was 75% (n=52). The public school response rate was 75% (n=45) and the private school response rate was 78% (n=7). Because the majority of IB Diploma

Programmes nationwide and in Florida are offered at public rather than private high schools (IB Americas, 2011), we limited these analyses to the 45 respondents from public high schools.

We used descriptive statistical analyses to analyze the closed-ended responses. Cross-tabulations to explore the extent to which historically underserved students have access to IB and whether program offerings differ based on the demographic characteristics of the students enrolled at a school. To avoid overstating relationships in the survey data, chi-square tests and independent samples t-tests assess the statistical significance of observed differences in responses based on two demographic characteristics of the schools' student body: family income and race/ethnicity. Schools that serve predominantly low-income students are defined as those where the share of students eligible for Free or Reduced Price Lunch exceeds the sample median of 51%. Majority-minority schools are those where more than 50% of students are non-White. Differences in program characteristics based on Title I eligibility and whether the program operates in a magnet school are also examined, since these indicators are directly tied to the family income and race/ethnicity distributions of the schools, respectively. Three members of the research team worked independently and then together to develop codes to analyze responses to the open-ended questions. Analyses of the open-ended questions are included as relevant to provide a more nuanced understanding of the research questions.

Findings

The following sections first describe trends in the demographic characteristics of schools that offer IB Diploma Programmes nationwide and trends in the demographic characteristics of students participating in these IB Diploma Programmes. Then the paper describes variations in the opportunity to participate in IB Diploma Programmes at public high schools in Florida, and

variations in the academic offerings and supports of these programs, based on selected demographic characteristics of the schools.

Trends in the Characteristics of Participating Schools

Between 1995 and 2009 the total number of high schools in the United States offering IB Diploma Programmes increased dramatically from 165 in 1995 to 682 in 2009 (and 744 in 2011, personal communication, J. Sanders, November 15, 2011). Over this period, the composition of schools offering IB programs shifted with regard to school location, Title I eligibility, and magnet status. Figure 1 shows that, between 1995 and 2009, the proportion of IB Diploma schools nationwide located in rural areas increased substantially (from 5% up to 17%), while the proportion in urban areas decreased from 50% to 45% and the proportion in suburban areas decreased from 45% to 38%.

From 1999 through 2003, there was a steady, but small, annual increase in the proportion of IB Diploma Programmes offered at Title I eligible schools (from 3% to 16% over this period), with additional increases of 3 to 4 percentage points in 2005 and 2007 (see Figure 2). In both 2008 and 2009, much larger increases in the proportion of Title I eligible schools occurred with shifts of 6 percentage points in 2008 and then 10 percentage points in 2009 to reach a high of 40% of IB schools eligible for Title I funding in 2009. These recent increases reflect the addition of new IB Diploma Programmes in schools that were Title I eligible and the establishment of Title I eligibility at some existing IB Diploma schools.

Figure 3 shows that the share of IB Diploma Programmes offered in magnet high schools also increased over this period, although annual growth rates were generally small and sporadic. The share of IB schools that operated as magnets increased from 5% in 1999 to 19% in 2009.

Figures 4 and 5 show trends between 1995 and 2008 in the distributions of the proportions of African American and Hispanic students attending schools with IB Diploma Programmes. Boxplots are used to reflect changes in the number of schools with especially high concentrations of minority students. Figure 4 suggests little change over this period in the distribution of African Americans attending schools with IB Diploma Programmes. Throughout this period, the mean percentage of African American students at schools offering IB fluctuated between 28% and 32%. In contrast, Figure 5 shows clear lengthening of the distribution of Hispanic students attending schools with IB Diploma Programmes. This shift in the distribution is evident in the increased height of the boxes over time, the lengthening of the top whisker, and the increased number of outliers in the upper part of those boxes for recent years. From 1995 to 2008, the average percentage of Hispanic students attending schools with an IB Diploma Programme increased from 8% to 15%. These changes may reflect changes in the composition of schools offering IB Diploma Programmes as well as growth in the representation of Hispanics attending high schools nationwide over this period.

Figure 6 shows an even more remarkable lengthening of the distribution of free/reduced lunch eligible students attending schools with IB Diploma Programmes. From 1995 to 2008, the average percentage of students eligible for free/reduced lunch attending schools with an IB Diploma Programme increased from 12% to 25%.

Trends in the Characteristics of Participating Students

The second research question uses data from the IB program database to assess trends in the characteristics of students who participate in IB Diploma Programmes in the United States.

Of particular interest are changes in the composition of IB Diploma students by gender, race/ethnicity, and free/reduced lunch eligibility.

Between 1995 and 2009, the total number of students participating in the IB Diploma Programme at high schools in the United States increased by 477%, from 9,034 in 1995 to 52,154 in 2009. Figure 7 shows that over this period, the composition of students did not change by gender. In 2009, 58% of IB Diploma students were female.

Over this period the proportion of non-white students participating in IB Diploma Programmes increased from 39% to 2006 to 43% in 2009. Figure 8 shows that nearly all of this increase is attributable to increased representation of Hispanic students in IB Diploma Programmes, up from 8% in 2006 to 12% in 2009. Figure 9 shows that the proportion of free/reduced lunch eligible students participating in IB Diploma Programmes increased only slightly in recent years, from 13% in 2006 to 17% in 2009, despite the concurrent increase in the availability of IB Diploma Programmes at schools with high percentages of these students (Figure 6).

Opportunity to Participate in IB Diploma Programmes Offered at Florida Public High Schools

Drawing on survey responses from IB Diploma Programme coordinators at 45 Florida public high schools, this section begins by describing the demographic characteristics of public high schools in Florida that offer IB Diploma Programmes and then considers the extent to which available programs' admissions and enrollment policies vary based on these demographic characteristics.

Characteristics of Public High Schools in Florida Offering IB Diploma Programmes

IB Diploma Programmes in Florida public high schools are available to an economically diverse set of students. Mirroring the pattern nationwide (Figure 2), Table 1 shows that 40% of the responding IB Diploma Programmes in Florida are in Title I schools. The share of students qualifying for free or reduced price lunch ranges from 11% to 84%, and averages 50%. A higher share of IB Diploma Programmes in Florida than of IB Diploma Programmes nationwide are offered in magnet schools or as magnet programs (38%, Table 1; 19% Figure 3).

The Florida public high schools that offer IB Diploma Programmes also enroll a racially/ethnically diverse group of students. More than half (55%) of students, on average, attending Florida public high schools with IB Diploma Programmes are racial/ethnic minorities (i.e., African Americans, Hispanics, Asians, and American Indians) (Table 1). This percentage is comparable to the representation of non-White students attending public high schools in Florida in 2009-10 (52%) (Florida Department of Education, 2011). The percentage of racial/ethnic minorities at Florida schools with IB Diploma Programmes ranges from a low of 19% to high of 99%. About one-fifth of all respondents (22%), and a significantly higher share respondents from majority-minority schools (38%), indicated that their IB Diploma Programme is used to improve the racial balance of the school (Table 2).

The responding IB Diploma Progammes have operated from as little as one year to a maximum of 28 years (M = 12.33, Table 1). IB Diploma Programmes that operate in magnet schools are older, on average, than programs in non-magnet schools (17.06 versus 9.46 years, Table 3), while programs that operate in low-income schools are younger, on average, than programs that operate in other schools (9.46 years versus 15.62 years). The age of programs does not differ based on a school's Title I status or whether schools are majority-minority.

Opportunity to Gain Access to IB Diploma Programmes in Florida

The opportunity to participate in an available IB program varies across the responding high schools. The capacity of IB Diploma Programmes to serve students varies, given the range in the numbers of applicants and admitted students and the likelihood of gaining admission. The number of applicants per year ranges from 25 to 600, and averages 188.4. The number of applicants admitted per year also varies, ranging from 15 to 300 and averaging 118. Programs accept between 25% and 100% of applicants annually, with an average acceptance rate of 73%. Table 3 shows that the number of students applying to IB Diploma Programmes at Florida public high schools differs by neither Title I status nor whether the school is majority-minority. However, programs in magnet schools garner more applicants than programs in non-magnets (252 versus 152), and lower-income schools have fewer applicants than schools with higher family income levels (155 versus 237). Notwithstanding these differences, programs accept students at similar rates irrespective of Title I, magnet, income or minority status (Table 3).

The responding Florida IB Diploma Programmes use varying criteria to admit students. Table 4 shows that nearly all require students to have a parent's signature (39 of 42) and a minimum GPA (35 of 42). About half require prior advanced/honors coursework (24 of 41) or minimum standardized test scores (26 of 42). About a third require a writing sample (16 of 40) or letters of recommendation (12 of 36); 5 of 38 require interviews. Table 4 reveals few statistically significant and no substantially significant differences in required or recommended admissions criteria based on the demographic characteristics of the school.

Of the programs requiring or recommending a minimum grade point average for admission into the IB program, the average minimum GPA is 2.93 (Table 3). This threshold

does not vary based on whether the school is at Title 1 or magnet school, or majority low-income or majority-minority. Table 5 shows that the degree of enforcement of minimum GPA and standardized test score requirements varies, with only 26% of responding programs enforcing the requirements "without exception" and nearly 50% reporting only "somewhat strictly" or "not strictly" enforcing these requirements. The degree of enforcement does not appear to vary based on school demographics (Table 5).

Some respondents wrote in responses that shed further light on forces that may promote or restrict opportunity to participate in an available IB program. A small number of coordinators (n = 3) commented on the holistic and inclusive nature of their admission process noting, for example, that "no one factor would exclude a student. We are looking for reasons to accept, rather than reasons to exclude." A few respondents mentioned the prestigious nature of their programs, with one coordinator stating that the IB Diploma Programme students are the "crème de la crème" of the school. Many coordinators explained that students who did not enroll in the program likely did not want to work hard. Other respondents noted that they select students using a lottery, probationary admission, and teacher/advocate input. IB Diploma coordinators reported making exceptions not only for students with low GPAs and/or test scores but also for at least some students who lack some academic course requirements, students who have been homeschooled, students who have transferred from another IB school, English language learners, recent immigrants, and international students. A noteworthy share of coordinators (n=7) indicated that their districts manage selection and admission with minimal involvement from the IB Diploma Programme or school staff.

Nearly all (91%) responding programs require students to maintain a minimum GPA to remain enrolled in the program, with an average minimum of 2.70. Although these requirements

are comparable for low-income, majority-minority and magnet schools, Title I schools require a lower minimum GPA ($M = 2.56$) than non-Title I schools ($M = 2.78$) ($p < 0.01$) (Table 3). Besides the additional requirement of maintaining a sound disciplinary and attendance record (58%), nearly half of responding programs (n=18) indicated that students must meet other requirements to remain in IB. A few respondents (n=4) cited specific components of the IB Diploma Programme (e.g., Creativity, Action, and Service; internal assessments; etc.) that students must complete in order to maintain their IB status. Other respondents (n=4) noted that students must adhere to the program or school's honor code. Three programs commented that they currently have no policy pertaining to students remaining in the program but that they "make it difficult to drop IB because we feel strongly that IB is good for everyone." Along the same lines, another respondent wrote, "If students seem to be struggling in the area of academics or discipline, attempts are made to remediate."

Academic Offerings and Supports in IB Diploma Programmes At Public High Schools in the State of Florida

Understanding whether IB Diploma Programmes may promote academic preparation for college, especially for historically underrepresented groups of students, also requires attention to whether the academic offerings and supports vary across schools. All (100%) of the responding IB Diploma Programmes are located in public high schools that also offer AP courses (Table 6). Most respondents also noted that their school's IB Diploma Programme is "very distinct" (58%) or "somewhat distinct" (22%) from its AP courses (Table 7). At the same time, most respondents (87%) also reported that their programs were very or somewhat similar to other IB Diploma Programmes in the state (Table 8). Virtually all responding programs offer Theory of

Knowledge for credit (98%) and require students to take IB assessments (98%). Nearly all (98%) of responding programs also have a pre-IB program (Table 6) for 9th and 10th graders.

Despite these similarities, IB Diploma Programmes vary in other academic offerings and supports. Although 89% of all responding programs require students to enroll in the full Diploma Programme (i.e., do not permit students to take individual IB courses), this percentage is lower at low-income schools (77%) (Table 6). Only 27% of responding programs offer higher-level courses in every subject area[2] (Table 6); differences in the offering of these courses based on school demographics are not statistically significant. Nearly all (89%) responding programs offer history, but fewer than 10 responding programs offer economics (n=8), social and cultural anthropology (n=6), business and management (n=3), geography (n=3), philosophy (n=3), and world religions (n=0). More than half of responding programs offer visual arts (n=30), music (n=28), and theatre (n=24), whereas only 5 programs offer film.

Responding programs indicate that, on average, IB Diploma Programmes offer students more experienced teachers and teachers who use more innovative pedagogical practices. Nearly two-thirds (63%) of respondents believe that IB teachers have somewhat more (51%) or much more (12%) teaching experience than non-IB teachers in their schools. The majority (81%) of responding programs reported that their IB teachers have somewhat more or much more interest in learning new pedagogical strategies (Table 9).

Other characteristics of teachers may influence the academic offerings of available at individual IB programs. While about half (22 out of 43) of respondents estimated that IB teachers in their programs discuss how to help students learn at least once or twice per week, 13 reported that these discussions occur less than once a month (Table 10). Moreover, these conversations appear to be more frequent in magnet schools than other schools (Table 10).

[2] See the prior footnote for a definition of higher-level courses.

Conversations related to developing new curricula and improving the IB program occur frequently in smaller numbers of schools regardless of school demographics.

Responding programs also vary in the availability of other supports that may further promote academic readiness for college for IB Diploma students. Three of every five (57%) programs have a school counselor dedicated to IB students (Table 11), but the presence of a counselor specifically for IB students is less common at Title I schools (39%). About half of responding programs reported offering other academic supports specifically for IB students including hosting a college representative (49%) and offering college visits (42%). Only 9% of respondents reported offering alumni panels to help students prepare for college (Table 11). The availability of these other support services does not vary based on the demographic characteristics of the school.

Raising additional questions about actual program implementation, respondents also report the need for various types of improvements (Table 12). Most report the need for greater understanding of the IB Diploma Programmes from district administrators (70%) and/or school administrators (56%), although respondents from majority-minority and magnet schools were somewhat less likely to report needing more understanding from school administrators. Nearly all (91%) respondents identified the need for more funding. Slightly more than half would like to see greater buy-in from teachers (55%) and more involvement from parents (57%). Respondents from magnet schools were somewhat less likely to report needing greater teacher buy-in (33%). Nearly half (42%) of all respondents, and somewhat more than half (55%) of respondents from low-income schools and Title I schools, would like to see changes in Theory of Knowledge and other curricular requirements.

Conclusions and Implications

Recent efforts to expand the availability of the International Baccalaureate (IB) Diploma Programme offer promise for improving students' academic readiness for college (Bailey & Karp, 2003; Duevel, 1999; Foust et al., 2009; Hertberg-Davis & Callahan, 2008; IBA, 2008; International Baccalaureate Global Policy and Research, 2010; Kolb, 1997; Moydell et al., 1991), particularly among groups that historically average lower levels of academic preparation and achievement. Yet the benefits will only occur if schools offer IB and if students from historically underprepared groups participate in available programs, and likely depend on the academic offerings and supports that are included. Variations in the availability of IB Diploma Programmes, the opportunity to participate, and the characteristics of the program offered all influence the extent to which the program can improve academic readiness for college, especially for students from groups that are historically underprepared.

This study uses descriptive analyses of national and Florida data to describe the availability, growth, and characteristics of IB Diploma Programmes and participating students. The findings suggest that more work is required to ensure that IB Diploma Programmes are reaching populations that may benefit most: students who historically have had less access to the rigorous academic coursework that is required to enter and succeed in college. More work is also required to promote more uniform and complete implementation of IB Diploma Programmes across schools.

The findings in this study suggest that, although the IB Diploma Programme has increased its national representation in rural schools and in schools that serve greater proportions of Hispanic and economically disadvantaged students, the characteristics of students participating in IB Diploma Programmes are much less diverse. In the last four years, there have

been only small increases in the proportions of Hispanic and economically disadvantaged students who actually enroll in an IB Diploma Programme. For example, on average 25% of students at schools with an IB Diploma Programme were eligible for free/reduced lunch in 2008, but only 17% of the students participating in IB Diploma Programmes in that year were free/reduced lunch eligible. The different patterns of change in student characteristics at the school and student levels may be attributable to increases in IB Diploma Programmes offered in magnet schools, which often seek to achieve diversity by recruiting non-minority students into schools serving predominately minority students. Whatever the reason, it is clear that, although the IB Diploma Programme is being offered in more diverse schools, it is experiencing less success enrolling minority and economically disadvantaged students into the program. These findings raise questions about the extent to which the expansion of IB Diploma Programmes is effectively improving academic preparation for college among groups of students who are historically underprepared.

Data from the survey of administrators of IB programs in Florida shed additional light on the processes that determine which students participate in the program and the nature of the academic preparation for college that is actually provided. These data are not without limitation, as they reflect perceptions and self-reports of respondents. The data also describe only variations among programs in Florida. Variations within programs in this one state likely understate the variations that exist among programs in multiple states, given variations in state policies pertaining to IB and other accelerated learning options (Western Interstate Higher Education Commission, 2006).

Data from the survey of program administrators in Florida illustrate variations in the opportunity to participate in available IB Diploma Programmes. On average, about 73% of

students who apply to participate in Florida IB Diploma Programmes are accepted. Although most IB programs in Florida consider prior coursework and grade point averages in admissions decisions, programs vary in the extent to which they strictly enforce their admissions requirements and consider other criteria in these decisions. These variations suggest that the tracking of students into and away from IB found in prior research (e.g., Burris et al., 2008; Hertberg-Davis & Callahan, 2008; Siskin et al., 2008) could be continuing to occur at the programs in this study. Additional research is required to better understand how, when, and why exceptions to admissions policies are made, and how selective enforcement of these policies influences the participation of students from historically underrepresented groups.

Despite the clear importance of academic preparation to college-related outcomes (Perna, 2005), other findings raise questions about the uniformity of the academic preparation that is provided by available IB Diploma Programmes. For example, although most programs require students to take the full IB Diploma curriculum, this requirement is somewhat less common at schools where at least half of the students are low-income. IB Diploma Programmes also differ in terms of the availability of different higher-level courses. While nearly all programs report a need for more funding, programs differ in the extent to which they need other types of support. Nearly half (42%) of responding programs report the need for changes to Theory of Knowledge – a foundational component of the IB curriculum – and other aspects of the curriculum, raising questions about the consistently of the curriculum that is actually delivered across programs and the resulting nature of academic preparation that different programs provide.

IB Diploma Programmes also differ in the availability of services to support college-going for IB students. About half (57%) of all programs have a counselor dedicated to IB students. But consistent with other research showing that college-related counseling is less

available at schools with predominantly low-income populations (McDonough, 1997, 2005; Perna et al., 2008), a smaller share of Title I schools have a counselor dedicated to IB students (39%). The absence of a dedicated counselor at many IB schools, especially schools serving high shares of low-income students, raises questions about the extent to which all IB Diploma Programme students are able to receive the information and support required to maximize the benefits of their program participation in college-related processes.

These variations across Florida IB Diploma Programmes raise questions about the fidelity of program implementation and have important implications for practice. The occurrence of these variations despite efforts by IB Americas to "systematize" the operation of IB Diploma Programmes (Byrd, 2007) suggests the need for continued vigilance to implementation challenges.

The descriptive analyses of the multiple sources of data examined in this study also have important implications for researchers seeking to identify the effects of IB and other similar types of programs on students' college-related outcomes. Variations in the characteristics of schools offering IB suggest selection effects at the school level, while variations in the characteristics of students participating in IB suggest self-selection at the student level. Variations in the academic offerings and supports across Florida IB Diploma Programmes indicate that "IB" at one school is not necessarily the same "IB" at another school, raising questions about what analyses of the effects of "IB" actually describe. Future efforts to determine the effects of participating in IB on students' college-related outcomes must take these differences into account in order to develop an accurate assessment of the program, including the benefits of the program for improving academic preparation for groups of students that are historically underprepared.

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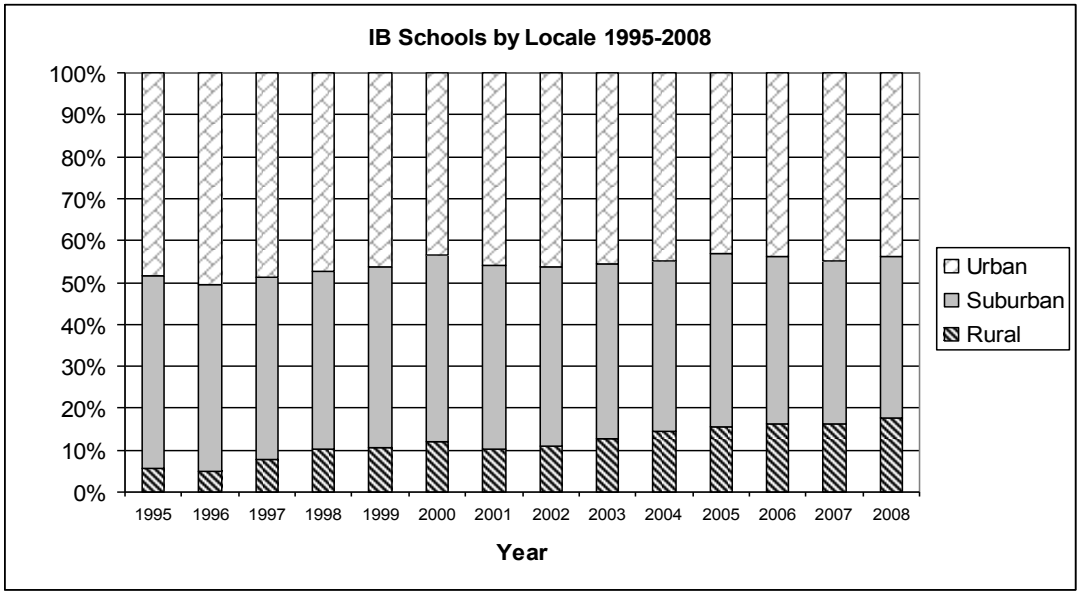
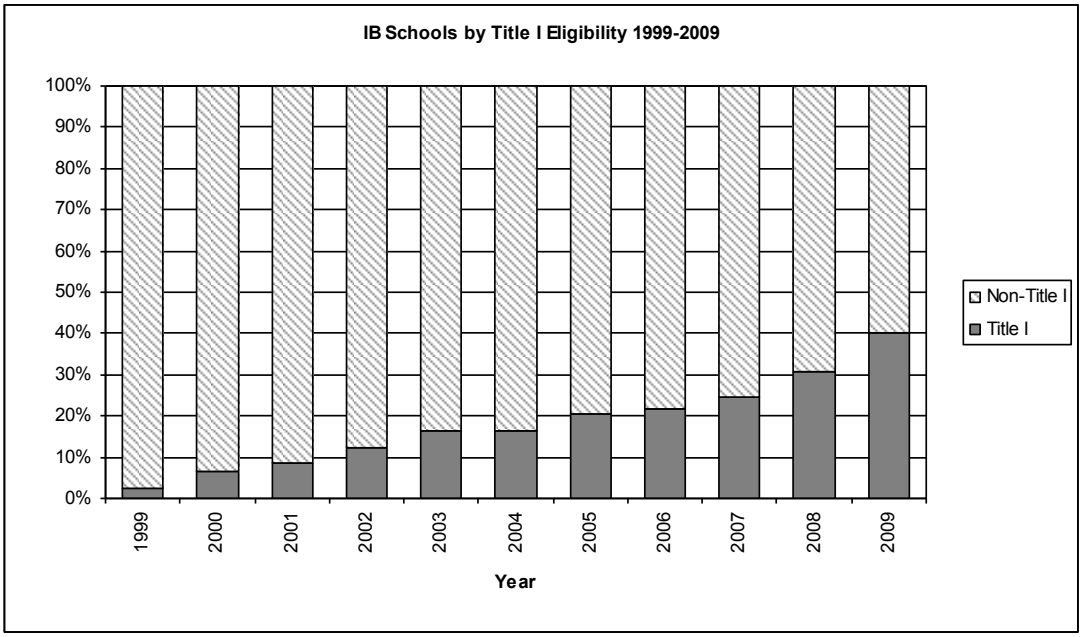
Figure 1. Trends in the distribution of high schools offering IB Diploma Programmes by urbanicity: 1996-2008



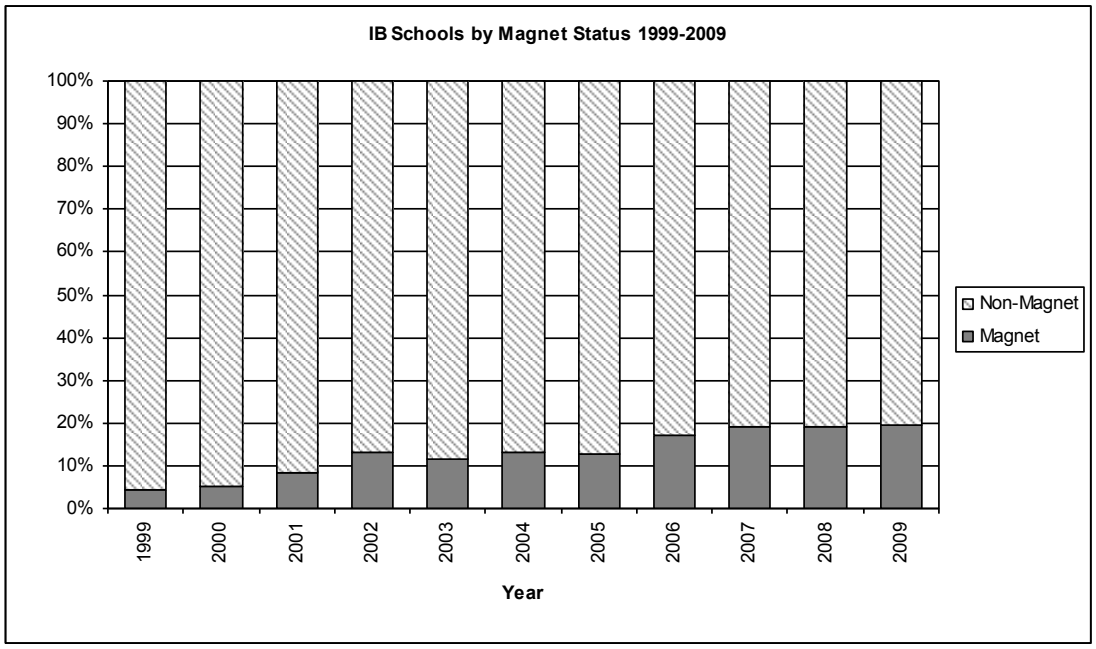
Source: Analyses of data from International Baccalaureate Americas and Common Core of Data

Figure 2. Trends in the distribution of high schools offering IB Diploma Programmes by Title I eligibility: 1999-2009



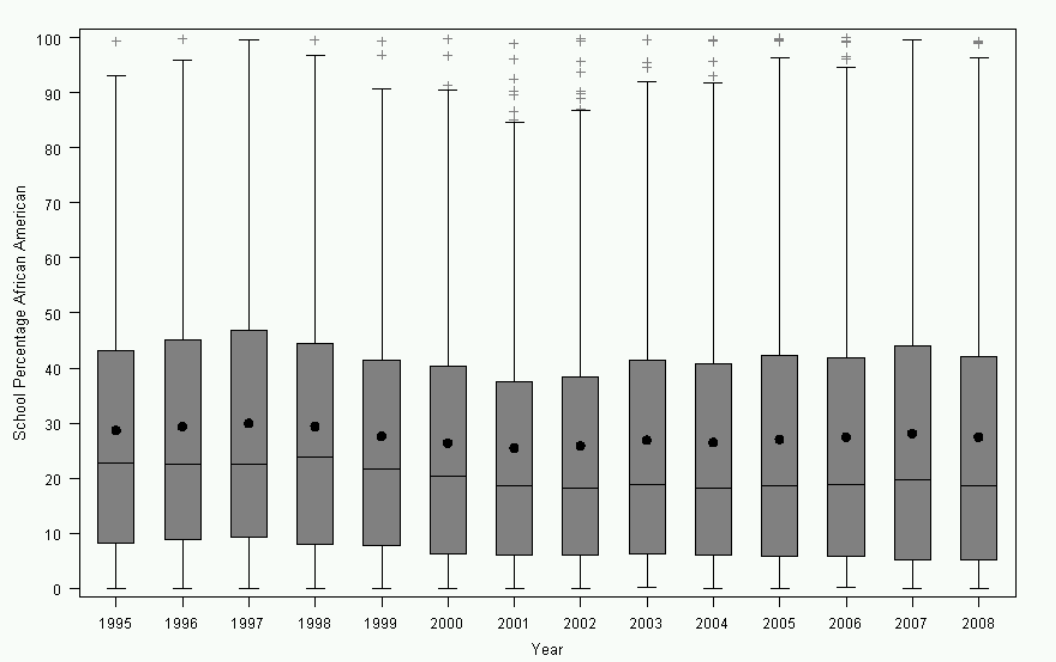
Source: Analyses of data from International Baccalaureate Americas and Common Core of Data

Figure 3. Trends in distribution of high schools offering IB Diploma Programmes by magnet status: 1999-2009



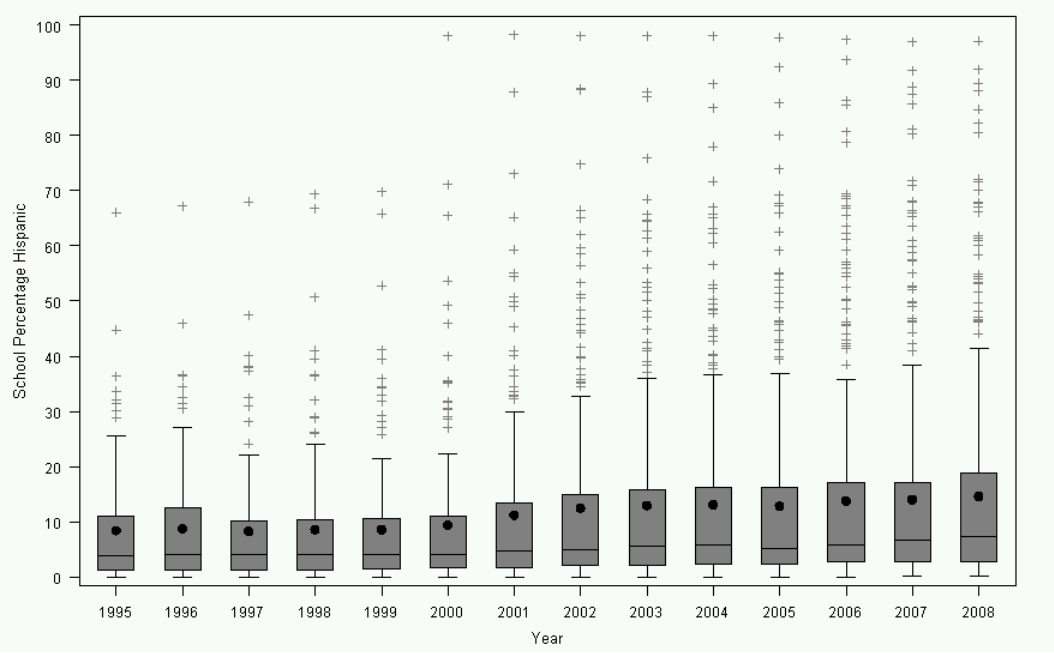
Source: Analyses of data from International Baccalaureate Americas and Common Core of Data

Figure 4. Trends in the distribution of the percentage African American students attending high schools with IB Diploma Programmes: 1995-2008



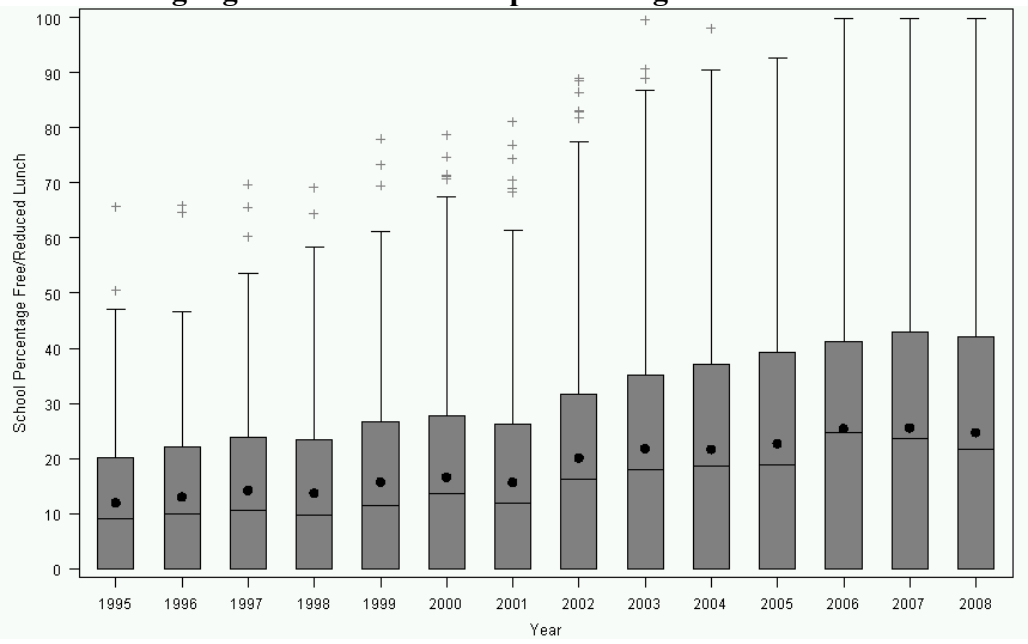
Source: Analyses of data from International Baccalaureate Americas and Common Core of Data

Figure 5. Trends in the distribution of percentage Hispanic students attending high schools with IB Diploma Programmes: 1995-2008



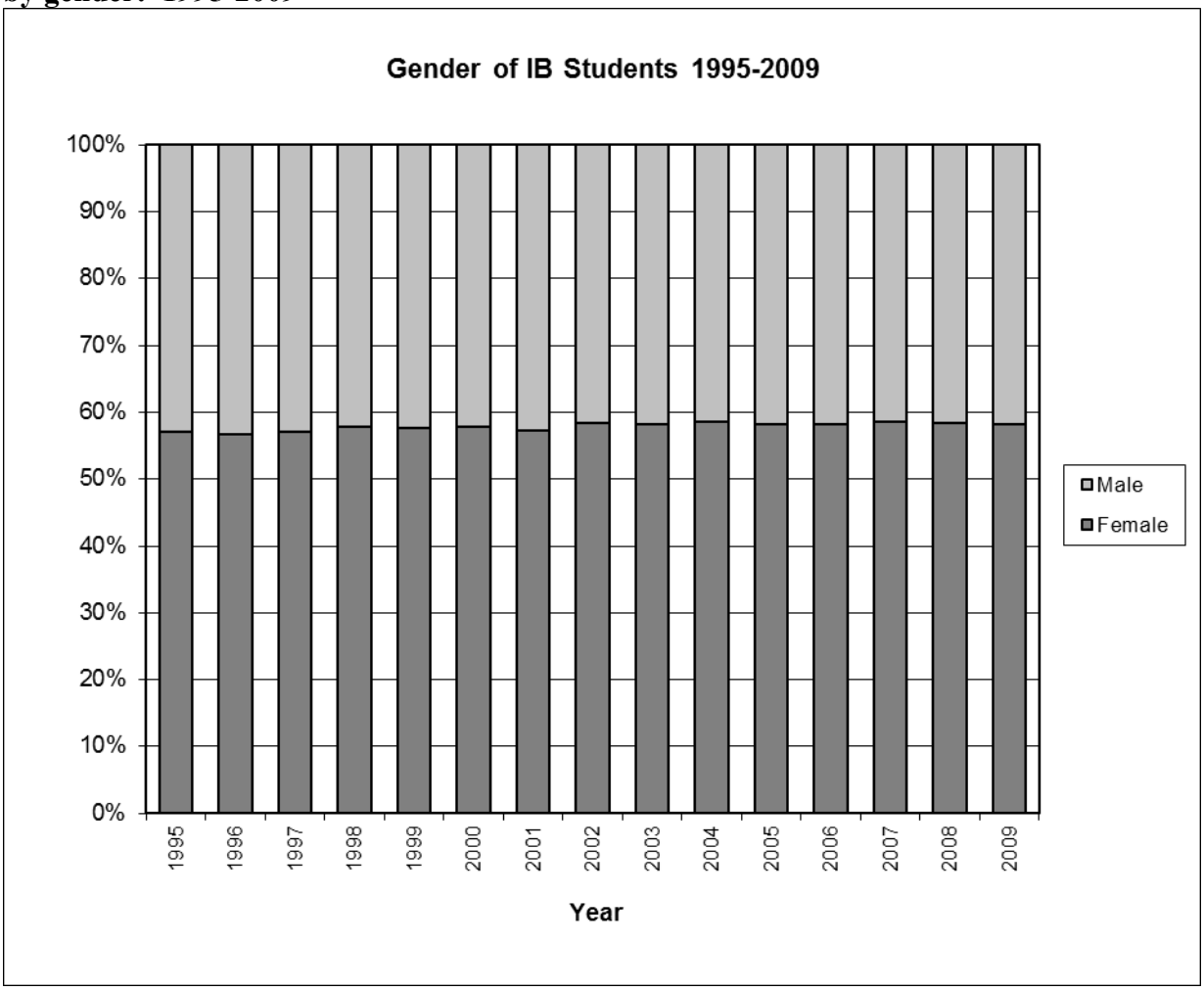
Source: Analyses of data from International Baccalaureate Americas and Common Core of Data

Figure 6. Trends in the distribution of the percentage Free/Reduced Lunch Eligible students attending high schools with IB Diploma Programmes 1995-2008



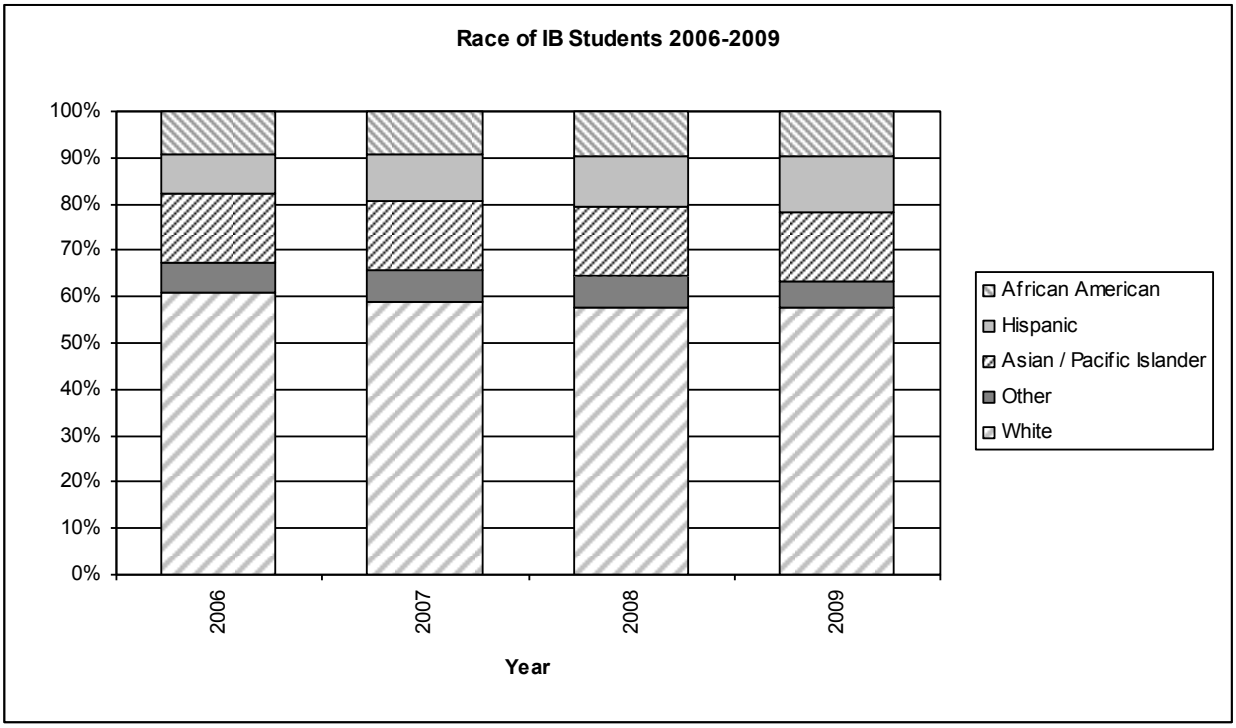
Source: Analyses of data from International Baccalaureate Americas and Common Core of Data

Figure 7. Trends in the distribution of students participating in IB Diploma Programmes by gender: 1995-2009



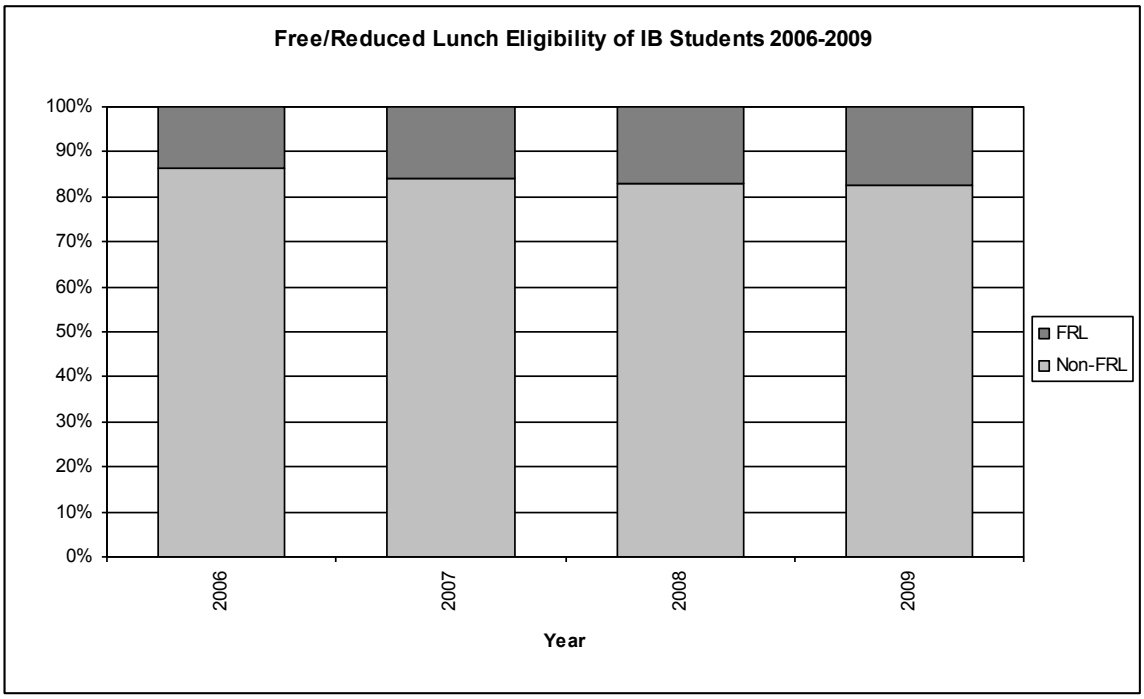
Source: Analyses of data from International Baccalaureate Americas and Common Core of Data

Figure 8. Trends in the distribution of students participating in IB Diploma Programmes by race/ethnicity: 2006-2009



Source: Analyses of data from International Baccalaureate Americas and Common Core of Data

Figure 9. Trends in the distribution of students participating in IB Diploma Programmes by Free/Reduced Lunch eligibility: 2006-2009



Source: Analyses of data from International Baccalaureate Americas and Common Core of Data

Table 1. Characteristics of IB Diploma Programmes in Public High Schools In Florida

Characteristic	N	Minimum	Maximum	Mean	Std. Deviation
Years since IB authorization	45	1.00	28.00	12.33	8.29
Title I School	45	0.00	1.00	0.40	0.50
Free/Reduced Price Lunch	45	0.11	0.84	0.50	0.18
Magnet School or Program	45	0.00	1.00	0.38	0.49
Minority Rate (from Florida Accountability Report)	45	0.19	0.99	0.55	0.26

Table 2. Percentage of Florida IB Diploma Programmes that Consider Diversity or Are Used to Improve School Racial Balance by School Demographic Characteristics

Demographic Characteristic	Diversity a factor in admissions?	Program used to improve school racial balance?
All programs	14%	22%
Title I Schools	11%	33%
Magnet Schools	12%	35%
Low-income schools	18%	32%
Majority-minority schools *	19%	38%

*$p < .05$

Table 3. Admissions Characteristics of Florida IB Diploma Programmes

Characteristic	Mean		Std. Deviation		t
Program Age					
Title I / Non-Title I	11.83	12.67	9.84	7.26	-0.327
Magnet / Non-magnet	17.06	9.46	7.82	7.29	3.30**
Low-income / Above Median Income	9.46	15.62	8.01	7.49	-2.65*
Majority-minority / Majority White	11.95	12.67	8.88	7.92	-0.285
Number of applicants per year					
Total	188.37		144.93		
Title I / Non-Title I	158.06	216.52	146.01	147.24	-1.27
Magnet / Non-magnet	251.56	152.00	172.67	117.25	2.02*
Low-income / Above Median Income	154.78	236.94	129.38	160.41	-1.82†
Majority-minority / Majority White	209.25	173.33	155.22	141.94	0.77
Number of applicants accepted per year					
Total	118.86		65.41		
Title I / Non-Title I	102.50	128.63	62.74	67.83	0.23
Magnet / Non-magnet	139.12	102.70	72.05	58.55	1.76†
Low-income / Above Median Income	97.95	142.89	58.38	68.54	-2.24*
Majority-minority / Majority White	128.95	108.43	71.45	61.38	0.34
Percentage of applicants accepted per year					
Total	0.73		0.24		
Title I / Non-Title I	0.73	0.70	0.22	0.25	0.42
Magnet / Non-magnet	0.65	0.76	0.21	0.25	-1.53
Low-income / Above Median Income	0.70	0.73	0.22	0.25	-0.38
Majority-minority / Majority White	0.64	0.77	0.21	0.25	-1.68
Minimum GPA for admission					
Total	2.93		0.22		
Title I / Non-Title I	2.94	2.92	0.19	0.24	0.30
Magnet / Non-magnet	2.87	2.96	0.32	0.13	-1.16
Low-income / Above Median Income	2.94	2.90	0.17	0.27	0.55
Majority-minority / Majority White	2.91	2.94	0.22	0.22	-0.33
Minimum GPA for continued enrollment					
Total	2.70		0.26		
Title I / Non-Title I	2.56	2.78	0.21	0.26	-2.94**
Magnet / Non-magnet	2.65	2.72	0.28	0.25	-0.80
Low-income / Above Median Income	2.65	2.74	0.29	0.23	-1.03
Majority-minority / Majority White	2.64	2.74	0.26	0.26	-1.31

**$p < 0.01$, *$p < 0.05$, †$p < 0.10$

Table 4. Items required or recommended for admission to Florida IB Diploma Programmes

Admission Criterion	Total	Required	Recommended	Neither
Prior coursework (advanced or honors program, pre-IB)	41	24	13	4
Title I[†]	18	9	5	4
Magnet	14	9	4	1
Low-income	21	12	6	3
Majority-minority	18	10	5	3
Minimum GPA	42	35	6	1
Title I	18	15	3	0
Magnet	15	14	1	0
Low-income	21	18	3	0
Majority-minority	19	16	3	0
Minimum standardized test scores	42	26	12	4
Title I	17	10	6	1
Magnet	16	10	3	3
Low-income	21	12	8	1
Majority-minority	19	9	7	3
Attendance or discipline record	40	15	18	7
Title I	16	3	9	4
Magnet	14	5	6	3
Low-income	20	6	11	3
Majority-minority	18	7	10	1
Parent signature	42	39	1	2
Title I[†]	17	14	1	2
Magnet	15	14	0	1
Low-income	22	20	1	1
Majority-minority	19	17	1	1
Writing sample or innovative illustration	40	16	5	19
Title I	16	4	3	9
Magnet	14	3	2	9
Low-income	20	8	3	9
Majority-minority	17	4	3	10
Letters of recommendation	36	12	3	21
Title I	14	4	1	9
Magnet	13	3	1	9
Low-income	17	4	2	11
Majority-minority	14	3	1	10

Interview	38	5	3	30
Title I	15	2	2	11
Magnet	13	0	2	11
Low-income[†]	19	4	3	12
Majority-minority	16	3	2	11
Parent involvement	37	5	25	7
Title I	15	3	9	3
Magnet	13	2	9	2
Low-income	18	2	13	3
Majority-minority	15	2	11	2

[†] $p < 0.10$

Table 5. Degree to which GPA and standardized test score minimums are enforced in admissions decisions in Florida IB Diploma Programmes

Level of enforcement	All Prpgrams	Title I Schools	Magnet Schools	Low-income Schools	Majority-minority Schools
Total	42	18	16	22	20
Without exception	11	4	4	5	4
Very strictly	11	5	3	8	6
Somewhat strictly	18	8	9	8	9
Not strictly	2	1	0	1	1

Table 6. Academic Characteristics of Florida IB Diploma Programmes

	All programs	Title I Schools	Magnet Schools	Low-income schools	Majority-minority schools
AP courses available	100%	100%	100%	100%	100%
Must enroll in full IB program*	89%	83%	94%	77%	86%
Pre-IB program	98%	100%	100%	96%	95%
IB program offers TOK for credit	98%	100%	100%	100%	100%
IB assessments required	98%	94%	100%	95%	95%
Higher-level courses offered all areas	27%	22%	29%	32%	24%

*$p < .05$

Table 7. Degree to Which Florida IB Diploma Programme is Distinct from AP Courses in the School

Level of distinction	Number	%
Total	45	100.0
Very distinct	26	57.8
Somewhat distinct	10	22.2
Neutral	7	15.6
Not distinct	2	4.4

Table 8. Degree to Which IB Diploma Programme is Similar to Other IB Diploma Programmes in the State

Level of Similarity	Number	%
Total	45	100.0
Very similar	26	57.8
Somewhat similar	13	28.9
Neutral	2	4.4
Somewhat different	3	6.7
Very different	1	2.2

Table 9. Characteristics of Florida IB Teachers Relative to Other Teachers in The School

Level of characteristic compared to other teachers	Years of Experience		Interest in learning new pedagogical techniques	
	Number	%	Number	%
Total	43	100.0	44	100.0
Much more	5	11.6	21	47.7
Somewhat more	22	51.2	15	34.1
Same	15	34.9	8	18.2
Somewhat less	1	2.3	0	0.0
Much less	0	0.0	0	0.0

Table 10. Extent of Collaboration between IB Teachers in Florida IB Schools

Frequency of conversations between IB teachers about:	Total	Almost Daily	Once or twice per week	2 or 3 times per month	Less than once per month
What helps students learn best	43	10	12	8	13
Title I	18	5	4	3	6
Magnet**	16	9	4	0	3
Low-income	22	5	6	4	7
Majority-minority	20	7	6	2	5
Development of new curriculum	44	2	10	12	20
Title I	18	1	5	5	7
Magnet	17	2	5	2	8
Low-income	22	0	4	8	10
Majority-minority	21	1	7	5	8
IB Diploma goals	44	3	11	11	19
Title I	18	1	6	3	8
Magnet*	17	3	4	1	9
Low-income	22	0	5	5	12
Majority-minority	21	1	7	2	11
Managing classroom behavior	43	3	13	21	6
Title I†	18	0	5	8	5
Magnet	16	2	5	6	3
Low-income	22	2	6	10	4
Majority-minority	20	2	6	9	3

**$p < 0.01$, *$p < 0.05$, $^{\dagger}p < 0.10$

Table 11. Services Related to College-Going Provided Specifically for IB Students

Service	All programs	Title I Schools	Magnet Schools	Low-income schools	Majority-minority schools
Counselor for IB students only*	57%	39%	53%	59%	57%
Parent meetings	69%	72%	65%	73%	67%
SAT preparation	29%	33%	24%	36%	29%
Essay writing workshops	29%	33%	24%	27%	38%
Financial aid workshops	29%	17%	12%	32%	24%
College visits	42%	44%	29%	55%	48%
Hosting college representative	49%	56%	59%	59%	57%
Alumni panels	9%	11%	12%	9%	10%

* $p < 0.05$

Table 12. Improvements Needed in Florida IB Diploma Programmes

Type of improvement	All programs	Title I Schools	Magnet Schools	Low-income schools	Majority-minority schools
More understanding from school administrators†	56%	50%	44%	59%	40%
More understanding from district administrators	70%	67%	69%	77%	60%
More buy-in teachers†	55%	50%	33%	59%	47%
More involvement parents	57%	59%	63%	67%	65%
Changes in TOK, other curricular components†	42%	56%	38%	55%	40%
More funding	91%	94%	100%	91%	95%

'†$p < 0.10$