

# Research Summary

## *The International Baccalaureate Diploma Programme in Mexico as Preparation for Higher Education*

**Based on a research report prepared for the IB by:**

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**June 2013**

# Background

Through intercultural understanding and respect, the International Baccalaureate (IB) aims to develop inquiring, knowledgeable and caring young people in order to create a better and more peaceful world. The IB offers a continuum of international education for students between the ages of 3 and 19 years. The Primary Years Programme (PYP) is designed for students aged 3 to 12; the Middle Years Programme (MYP) serves students aged 11 to 16; and the Diploma Programme (DP) and IB Career-related certificate (IBCC) are aimed at students aged 16 to 19. Founded in 1968, the organization currently works with more than 3,500 schools in over 140 countries to deliver academically rigorous programmes to over one million students.

In this report, the researchers examine the relationship between Mexican students' enrollment in the DP and their college preparedness at four Mexican case study schools. Similar to the United States and many other countries worldwide, Mexico is experiencing strong growth in IB programme implementation in schools. From 2000–2004, the number of schools in Mexico offering IB programmes doubled; it then more than doubled again in the following eight years from 2004–2012 such that today over 90 schools in Mexico offer IB programmes. While there is a growing body of research on the relationship between IB Diploma Programme enrollment and preparedness for higher education in the US, UK and Australia, there is currently very little research on the IB Diploma Programme in Mexico and in other Latin American countries. The lack of research on the Diploma Programme in Mexico is the motivation for this RAND study.

## The Mexican Upper Secondary Educational Setting

In the Mexican education system, primary and lower-secondary education includes grades kindergarten through nine. Upper-secondary is a compulsory three-year system for students aged 16–18. There are three types of upper-secondary programs: general (bachillerato), which includes the IB Diploma Programme, technological and technical professional education. Once a student starts a track, historically they were not permitted to switch tracks. However, in 2012, the Mexican education ministry adopted a series of upper-secondary reforms that attempt to unify the three upper-secondary tracks and provide students with more flexible ways to persist through upper-secondary to graduation. The implementation of this reform is an ongoing process.

In contrast to most education systems worldwide, universities in Mexico constitute a significant proportion (or 15%) of general upper-secondary education options. Students who attend university high schools are guaranteed post-secondary admission into that university. Private schools provide more than 20 % of upper-secondary options (World Bank 2010). As of March 2013, 6 university-hosted schools (that is, 10% of all upper-secondary schools offering the Diploma Programme), 1 state-sponsored school and 53 private schools offer the IB Diploma Programme in Mexico, such that over 90% of institutions offering the Diploma Programme are private.

# Research Design and Data Collection

This study uses a case study methodology to analyze the relationship between students' enrollment in the Diploma Programme and their college preparedness. At each of the four case study schools, the researchers interviewed DP coordinators, teachers, school administrators and guidance counsellors. In focus group settings, the researchers interviewed students about their perceptions of the Diploma Programme experience as preparation for higher education. The researchers also examined the admissions processes at 12 universities, frequently attended by Mexican students in the Diploma Programme, and/or that offer some form of credit for participation in the programme. To supplement the qualitative understanding of the relationship between student performance in the DP and their post-secondary preparedness, school data on students' grades and college enrollment was matched to IB data on students' IB subject matter and overall examination scores.

## Sample

Of 91 IB World Schools in Mexico, 60 schools offer the Diploma Programme, while the others offer the Primary Years Programme and the Middle Years Programme for younger students. Of the schools that offer the DP, virtually all are private upper-secondary (or begin in earlier grades) or university-based. The sample of four case study schools was selected to include a mix of university-based and private secondary schools. Like many IB World Schools, the four case study schools offer the DP in addition to other upper-secondary tracks. The sampling strategy was to pick cases that could illuminate "typical" Diploma Programme schools in Mexico and that would facilitate comparisons between private and university-based programs (Miles, Hubermann 1994).

In addition to the four case study schools, the researchers investigated 12 universities' websites to learn about their requirements for admission and the characteristics they seek in prospective students. The following 12 universities were included because they are a) described on the IB website ([www.ibo.org](http://www.ibo.org)) as institutions that offer credit for earning the IB Diploma *and* are universities that IB students are likely to attend and/or b) are among the most highly attended universities among students in the sample:

- Anahuac University (UA)
- Autonomous Technological Institute of Mexico (ITAM)
- Benemerita Autonomous University of Puebla (BUAP)
- Center for Economic Research and Teaching (CIDE)
- College of Mexico (COLMEX)
- Iberoamerican University (UIA)
- Metropolitan Autonomous University (UAM)
- Monterrey Institute of Technology and Higher Education (ITESM)
- National Autonomous University of Mexico (UNAM),
- National Polytechnic Institute (IPN)
- University of the Americas (UDLA)
- University of Monterrey (UDEM)

## Administrative data and measures

For the administrative data collection aspect of the study, each case study school was asked to provide student records that could be matched to IB data in order to demonstrate the relationship between performance in the Diploma Programme and college preparation.

Most schools did not have records of all of the requested variables and for one school it was not possible to match the school data to IB data. Regardless, a database was created for the three schools that could be matched to IB data; and a separate database was created for the fourth unmatched school. For schools with the most comprehensive data, the variables included: student identification number, school identification number, date of birth, gender, grade point average, DP cumulative score, DP exam scores in each tested subject and/or course, whether the student earned the IB Diploma, whether Diploma-recipients earned the bilingual IB Diploma, name of the university in which student enrolled, the university-major into which the student enrolled<sup>1</sup>, whether the college is public or private, whether the college is located in Mexico, and whether the student received a scholarship (merit or otherwise) to assist with their financial obligations to the university.

The researchers also created five new variables:

- College major category: Each student's individual focus of study was assigned to one of seven groupings of college majors (humanities, social sciences, physical sciences, medical sciences, arts, business, and engineering).
- Ranking of university-major combinations: Two variables were created describing the university-major combinations' ranks (#1 rank and Top 5 rank). Ranks were determined as #1 or Top 5 by Mexico City's *Reforma* newspaper in its 2011, 2012 or 2013 rankings. For example, the medicine major at UNAM is a university-major combination. Since Mexican students apply to university-major combinations rather than to universities (as is a common practice in the US), the university-major ranking is more useful to prospective Mexican students than university rankings.
- Grades on the official IB Theory of Knowledge and Extended Essay: Existing grades of A through E were translated into a numeric scale of 1 through 5, such that 5=A, 4=B and so forth. These variables allow the researchers to examine correlations between these grades and university outcomes.<sup>2</sup>

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1 In Mexico, students apply to and enroll in a university-major combination. For example, they might apply to the National University medicine program. They do not apply generally to the National University.

2 This transformation is not strictly representative of the IB scoring system as the IB does not explicitly state that the "distance" between an A and a B is the same as that between a C and a D, or that a B is worth twice a D, etc. However, it is only possible to demonstrate correlations between numeric values, and so this was done to permit a more dynamic analysis of the IB administrative data.

# Discussion of research questions

## Who are the Mexican IB students?

Administrative records for students who graduated from the Diploma Programme at the four case study schools from 2010–2012 (n=354) provide information about students' age and gender, as well as about changes in cohort size. Most start the two-year DP around the age of 17 and the gender proportions vary across schools with the percentage of male DP students ranging from 35–55%. In 2010, across the four schools, 111 students graduated from the DP. By 2012, that number increased to 133 students.

Information about students' economic backgrounds, shown in Table 1 below, is based on interview data.

**Table 1. IB students' economic backgrounds at the four case study schools.**

	<b>Approximate Percent IB in 2012-2013</b>	<b>Family economic background of all students at the school</b>	<b>IB programme costs</b>	<b>Economic difference IB vs. non-IB?</b>
<b>School 1</b>	33%	Middle to upper middle income	Not noted as different from non-IB	Not perceived
<b>School 2</b>	10%	Middle, upper middle and upper income	IB most expensive of three options	Not perceived
<b>School 3</b>	8%	Middle to upper middle income 90% of all students receive some type of financial support, however only 10% of IB students do.	IB most expensive of three options	IB students seem to be from wealthier backgrounds
<b>School 4</b>	30%	Middle to upper middle income.	IB more expensive than standard track	IB students seem to be from wealthier backgrounds

Interview data also provides information about the academic backgrounds of IB students. Across all four schools, interview data consistently indicates that stronger students select to enroll in the DP. None of the schools, however, require that students score above a certain threshold on an IB entrance exam. Most teachers and administrators describe IB students as those with a “strong academic background”, “curiosity to learn new things” and “better at analysis and questioning than non-IB students”.

Most students explain their decision to enroll in the Diploma Programme as stemming from lack of satisfaction with other options and from their desire to take on a new challenge. For example, one student asked, “If I have the chance to take a program that will make you a better person, why shouldn't I take it if I think I'm capable of doing well?”

Administrative data confirms that across schools and cohorts, most DP students are above average students. During their first year of three-year upper-secondary school, all IB and non-IB students are required to take courses from the Mexican national curriculum. Students' performance in the national curriculum is assessed on a scale of 5–10. A score of 5 is defined as “not sufficient”, 8–9 is considered “good” and 10 is “excellent”. At the mean and median across the three schools for which this data was available, DP students earned between 8 and 9 in their first year of upper-secondary school.

## What are Mexican IB DP students' postsecondary destinations? How do these findings compare to those of non-IB students attending the same school?

Given that IB students, like most students who study at the elite Mexican private and university-based schools that offer the Diploma Programme, tend to be well-prepared for the university admissions exams and have strong grade point averages, most apply to and are accepted to top Mexican universities. Most teachers generally believe that while the DP is good preparation for college, students in other programs experience acceptances and rejections at a similar rate from a comparable calibre of Mexican universities.

The administrative data, matched to *Reforma* newspaper rankings data, demonstrates that DP students do indeed enroll in the top ranking university-major combinations in Mexico. Table 2 shows the number of DP students who enrolled in #1 and Top 5 ranked university-major combinations as well as the number of students who enrolled in non-ranked university-major combinations and non-Mexican universities.

**Table 2: 2013 Reforma newspaper rankings of the Mexican university-field combinations enrollment by Diploma Programme students (n=160)**

Diploma Programme Student University Enrollment Condition	# of students
Students enrolled in a <i>Reforma</i> -ranked university-major	89
Students enrolled in a #1 ranked university-major	37
Students enrolled in a Top 5 ranked university-major (includes students who enrolled in a #1 ranked)	73
Students enrolled in a major that is not reviewed as part of the <i>Reforma</i> university-field ranking system	48
Students enrolled at a non-Mexican (foreign) university	17
Students missing university enrollment variables	6

Of the 89 Diploma Programme students that enrolled in ranked university-major combinations, 42% enrolled in a #1 ranked program and 82% in a Top 5 program. These statistics confirm the perceptions (of teachers and administrators that were interviewed) that DP students tend to enroll in top Mexican universities.

The university enrollment data available for two case study schools (n=160) indicates that IB students enrolled in 30 different universities, located in Canada (n=2) Mexico (n=17), the Netherlands (n=1), Spain (n=1), Switzerland (n=1), the United Kingdom (n=3) and the United States (n=5). Twelve

universities, or 40%, are public. From the university-hosted school, approximately 35% of the universities that students enrolled in are public, compared to nearly 20% from the private school. Across both schools in the study, 55 out of 160 of IB students, or 34%, receive some form of scholarship during at least their first year of university. The majority of the scholarships, 33 out of 55, or 60%, went to students from the university-hosted IB programme that continued their tertiary studies at the same university.

## What is the nature of the relationship between Mexican IB DP students' performance and postsecondary admissions? How do these findings compare to those of non-IB students attending the same school?

Most IB students, teachers and administrators believe that the Diploma Programme prepares students for the challenge of college course work. However, they do not think that enrollment or performance in the DP gives IB students an admissions advantage to Mexican universities over non-IB students from their school. Specifically, students, teachers and administrators do not think that students' grades in the DP help them with university admissions, nor do they think that their IB examination results help. Though they see enrollment in the DP as helpful as a means of college preparation, as one teacher summarizes, "IB is not as important for admissions as it is for college performance." The possibility that DP grades and/or examination records might help boost students' college admissions options does not seem to be a primary motivating factor for students' DP enrollment. Many Mexican universities rely primarily on university-specific examinations that are not particularly well aligned to the DP curriculum to determine admissions. Among those universities that also consider grade point averages among admissions criteria, most do not give extra weight to grades from the DP even though it tends to be more demanding than other tracks. Finally, most Mexican universities do not grant credit for successful completion of DP requirements. Given typical admission criteria and lack of credit for IB credentials, few IB students and teachers view the DP as providing an admissions advantage over non-IB tracks offered in the same school (i.e. *Prepa*, *CCH*, etc.).

Though most Mexican teachers and administrators believe that there is no relationship between DP performance and college admissions success, they do perceive a positive relationship between DP enrollment and college preparedness. This study did not collect the type of data that would be able to validate or counter the perception. However, the administrative data provides evidence of a suggestive relationship between students' performance in the DP and their university admissions (based on relevant and available data from two schools in the study). At these two schools there are significant correlations between whether IB students earn a scholarship and their IB performance as measured by their total IB points on a scale of 1 to 45 (private: 0.39, SE=0.14; university: 0.26, SE=0.13). At the university-based school, there is also a significant relationship between whether students earn a bilingual diploma and whether they enroll at a university in Mexico or foreign university (-0.39, SE=0.18). The conclusions in this paragraph should not be given too much weight as it is the result of very basic uncontrolled correlations based on data from two schools.

## What are IB DP students', teachers' and administrators' perceptions of the key components of the IB DP as means of college preparation? How do these findings compare to the perceptions of programmatic requirements of other tracks offered at the same school as means of college preparation?

According to most students, teachers and administrators, many aspects of the Diploma Programme seem to prepare students in Mexico for their university studies. Highlights include the learner profile,

the theory of knowledge (TOK) course, the extended essay (EE) and the creativity, action and service (CAS) course. As one teacher nicely summarized it, “The extended essay develops research skills, the theory of knowledge course develops thinking and the creativity, action and service program develops the person.” Teachers and students also discussed the value of IB coursework as a means of college preparation, particularly for higher-level courses. All agreed that DP requirements are more demanding than the non-IB requirements of CCH, Prepa Nacional and the alternative university-hosted tracks. The vast majority of students, teachers and administrators agree that the DP prepares students better for college than non-IB programs.

Teachers and students agree that DP requirements are more demanding than the non-IB requirements of CCH and Prepa Nacional at the private schools and the alternative requirements at the university-hosted programs. Most teachers base their perspectives on their experience teaching to one or more sets of programmatic requirements beyond those of the DP. As the DP is a two-year course and upper-secondary is a three-year course of studies, all students base their comparative perspectives on their personal experience during their non-DP first year of upper-secondary.

Administrators and teachers explain that, “The IB subjects are studied in more depth and there’s extra work that’s not required of other students”, “IB requirements are more demanding than CCH”, “IB is harder than is typical in Mexican schools” and “The other programs don’t have a TOK or EE and those are key tools for college work”. The comments from students aligned very closely with their teachers, “The other programs don’t have the same depth, those students learn subjects more superficially and through memorizing” and “students in other programs would not be able to complete an IB test.”

## Do the answers to the first four questions differ by whether IB DP programs are offered in private secondary or university-based schools?

As noted above, with only two schools in each type, any differences are extremely exploratory. In most regards, clear differences were not found between private and university-hosted schools. DP students from the two private schools are less likely to enroll directly into a non-Mexican university than university-hosted DP students. University-hosted students are more likely to enroll in the host university than in other universities.

# Implications and recommendations

## For the IB and IB schools in Mexico:

- 1) In partnership with AMEXCAOBI, it would be beneficial for the IB to continue policy conversations with:
  - a. Mexican universities regarding acceptance of Diploma Programme credit.
  - b. Mexican upper-secondary public education policymakers regarding expansion of the Diploma Programme into state schools.
- 2) The IB could help low-income students to navigate the admissions and financial aid processes.
- 3) There will be value in studying Diploma Programme adoption and implementation in Nuevo Leon to learn lessons that could facilitate broader public school adoption and implementation throughout Mexico and potentially in other countries.



- 4) IB partnerships with continuing education providers and/or *PROFORDEMS* could be a viable way for the IB to begin to ensure that IB teachers in public schools receive the training they need.
- 5) The IB could modify the content of training to meet the needs of teacher in Mexico. There may also be ways for the IB to encourage greater online training participation.

For academic upper-secondary education in Mexico:

- 1) Given dissatisfaction with other options motivated the majority of the students to enroll in the Diploma Programme, there may be value in developing a new academic honours curriculum, to replace and/or supplement CCH and Prepa. This could be accomplished by:
  - a. Expanding the Diploma Programme to more university-hosted schools and to state schools  
and/or
  - b. Drawing from some of the most useful features of the Diploma Programme as a means of increasing the rigour of existing Mexican academic options.
- 2) There may be value in upper-secondary policy makers working in partnership with university admissions officials to alter current university admissions examinations and processes so that they better measure students' preparedness for college work. This could better align admissions process with academic upper-secondary competency-based curriculum and with the expectations of college coursework.
- 3) To accomplish recommendations #1 and #2 above, Mexican upper-secondary policy makers and university leaders might initiate strategic partnerships with IB leadership and staff, as well as AMEXCAOBI members.

## References

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This summary was developed by the IB Research Department. A copy of the full report, prepared by RAND is available at <http://www.ibo.org/research>. For more information on this study or other IB research, please email [research@ibo.org](mailto:research@ibo.org).

To cite the full report, please use the following:

**Saavedra, A, Lavore, E, Flores, G. 2013. *The International Baccalaureate Diploma Programme in Mexico as Preparation for Higher Education*. Santa Monica, CA. RAND Education.**