

RESEARCH SUMMARY

A study of the International Baccalaureate Diploma Programme in China: Impact on student preparation for university studies abroad



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

The International Baccalaureate (IB) is a non-profit educational foundation that currently works with over 3,600 schools in 146 countries to provide young people with academically rigorous educational programmes designed to help them become engaged world citizens who are active, compassionate, lifelong learners. The number of IB schools worldwide has increased dramatically in recent years, responding to growing demand for an internationally oriented education and a validated path to higher education institutions. China is at the forefront of this trend with numerous schools adopting IB programmes, and the IB Diploma Programme (DP) in particular. As of November 2013, there were 63 IB World Schools offering the DP in China, representing a sevenfold increase since 2003 (see *Find an IB World School*).

This project aimed to investigate the impact of the IB Diploma Programme in China, with a focus on student preparation for university studies abroad. Specifically, this research centered on the following four goals:

- documenting the patterns of university destination of DP graduates in China in recent years;
- identifying the relationships among DP learning experiences, exit scores on IB exams, university entrance and university academic performance;
- illuminating how and why DP learning experiences have an impact on university academic performance;
- shedding light on how and why certain pedagogical approaches support students' preparation for university study abroad.

Research design

To address the goals of the study, the research team from the University of Hong Kong implemented a four-phase, multi-method study. Each of the study's phases were

analytically separate but conceptually integrated and were undertaken for the purpose of examining the impact of the DP on student learning outcomes in terms of university admission, preparation, and performance. The mixed methods study employed a sequential explanatory design (Creswell, Plano, Gutmann and Hanson 2003). The four phases of the study included:

1. quantitative analysis of DP school archival data on university entrance of DP graduates over time (using ANOVA and Chi-Square tests);
2. quantitative analysis of survey data on DP experiences, combined with DP exam data and university GPA (using descriptive analysis and structural equation modeling);
3. qualitative analysis of data derived from interviews and focus groups conducted with students and teachers at five case study DP schools (using an iterative process of data collection from the five schools as a constant comparative method for cross-case analysis); and
4. integration of both quantitative results and qualitative findings.

Findings

University destinations of DP graduates from China

The quantitative and qualitative data shed light on the diversity of nationality and citizenship of DP students in China. The study found that a majority were of Asian heritage but non-Chinese citizenship (63% of DP graduates in the 2011 and 2012 cohorts). This included United States (U.S.) and Western European country passport holders of Asian descent or nationals of other East Asian countries. Many of the DP students self-reporting Chinese nationality were non-Chinese nationals of Chinese heritage. The primary reason for the under-representation of Chinese nationals is that they must fulfill certain national requirements in order to attend international schools in China.

Despite the growing population of DP schools in China, little is known about the patterns of university destination of DP graduates. In response, the authors investigated the university destinations of students who graduated from DP schools in China between 2002 and 2012. By compiling information about graduates' university destinations over ten years from each of the 14 DP schools in this study, the authors explored patterns in university destinations in terms of geographical region and university ranking¹ over time. The final sample size comprised 1,612 students² from 14 schools during the period between 2002 and 2012.

As illustrated in Figure 1, the most popular destinations were universities in the United States, with roughly half of DP graduates (51.1%) choosing a U.S. university. The second most frequent destinations were U.K. universities, accounting for 11.4% of all the students. Other popular choices were Canadian universities, Asian universities, universities in Hong Kong/Singapore, European universities and universities in Australia/New Zealand. There may be several reasons why the majority of DP graduates attended U.S. universities. First, DP graduates may prefer U.S. universities, which have a strong academic reputation irrespective of their rankings. Second, there are a high proportion of U.S. passport holders among DP students in China. Third, the authors suggest another factor may be growing recognition of the DP by top U.S. universities.

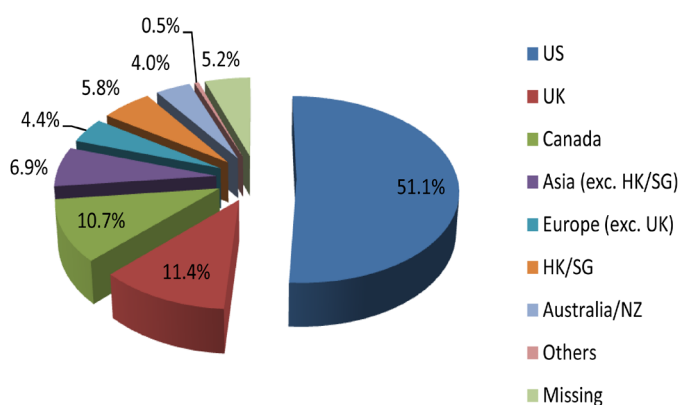


Figure 1. University destinations of DP graduates from 2002-2012 by region/country

Figure 2 shows DP graduate university destinations from 2002 to 2012 by type of university and ranking. Notably, a majority of the DP graduates (71.6%) attended one of

world's top 500 universities³. Another 2.1% of graduates chose one of the top 200 liberal arts colleges and a majority of graduates in this group attended one of the top 50 liberal arts colleges. 7.1% of the graduates went to a specialized college or university. In this regard, it could be said that most of the DP graduates attended internationally well-known universities or academically strong institutions (the median ranking was 71).

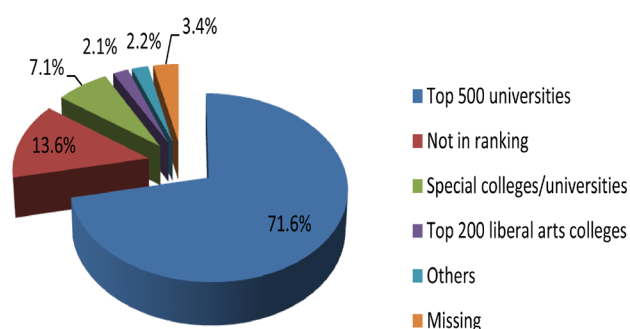


Figure 2. University destinations of DP graduates from 2002-2012 by university type and ranking

In terms of the pattern of university rankings, the authors identified more variation within years than between years. In other words, over 10 years, the average ranking of universities where DP graduates studied remained stable.

Impact of DP learning experiences on university academic performance

The aim of the second phase of the study was to conduct quantitative analysis on recent DP graduates' perceived value of learning experiences within the Diploma Programme with regard to their university studies. The focus of the analysis was on identifying relationships among key learning experiences, Diploma Programme scores and university grade point averages (GPA) of DP graduates. The combination of the two cohorts of 2011 and 2012 graduates from 14 DP schools provided a population size of 862 students. Of this population, 260 student participants completed the online survey.

The average DP score of the sample was 35.4 out of 45, which is higher than the average score of DP graduates around the world (ie approximately 30 points over the last decade⁴), as well as all DP graduates from China in 2011

¹ The authors used three major ranking tables: Academic Ranking of World Universities (ARWU) offered by Shanghai Jiao Tong University, QS World University Rankings, and the Times Higher Education World University Rankings.

² The sample size was 1,612 students out of a total of 2,406 IB students from the 14 schools, or 67%.

³ See reference 1.

⁴ See the IB document titled "Understanding the IB Diploma Programme scores". Retrieved from <http://www.ibo.org/myib/digitaltoolkit/files/pdfs/Recognition/AssessmentScoresOnePager-EN.pdf>.

and 2012 (Mean = 31.8, SD = 6.6, N = 2,680)⁵. In this regard, the survey participants were relatively high achievers. The survey questionnaire included questions regarding DP subject requirements (focusing on key curriculum and assessment requirements of DP subjects), DP core components (CAS, TOK and the extended essay), university preparation, and aspects of the IB learner profile.

Table 1 shows the average ratings of various components of the Diploma Programme and their perceived benefits for preparing students for university studies. All these items were measured using a 6-point Likert scale. The highest rating related to the DP's overall ability to prepare students for university studies, whereas DP graduates rated core components as only slightly helpful for university preparation. Quantitative analysis highlighted a perception among DP graduates that subject requirements and the IB learner profile had significantly positive relationships with university preparation.

	Mean	Standard deviation
DP subject requirements (Cronbach's $\alpha = .79$)	4.67	1.29
DP core components (Cronbach's $\alpha = .55$)	3.94	1.52
University preparation (Cronbach's $\alpha = .91$)	4.73	1.20
IB learner profile focusing on non-scholastic domains (Cronbach's $\alpha = .91$)	4.62	1.11

Note: N= 151. The % of missing values varied across the items ranging from 3.5% to 6.2%. On average, 4.9% of values of the items had missing values.

Table 1. Student ratings of DP subject requirements, core components, university preparation and the learner profile

Structural Equation Modeling (SEM) analysis indicated that the Diploma Programme score was a strong predictor of university ranking, suggesting that higher DP scores promoted DP student admission to higher ranked universities, when controlling for family background. Additionally, the DP score was a strong predictor of university GPA, suggesting that higher performance in the DP is positively associated with academic success in university studies during the first and second years.

5 To be awarded the diploma, a minimum of 24 points out of a maximum 45 must be achieved.

Qualitative case study

To expand and deepen the findings of previous research⁶, and compliment the quantitative data analysis undertaken in the current study, the authors conducted a multi-site case study of five DP schools in China. The aim of this phase was to seek more information through interviews and focus groups on how and why particular learning experiences were perceived as helpful for university preparation by DP students, teachers and coordinators in the selected schools.

A cross-section of the findings from this phase of the study includes the following:

- The case study highlighted some socio-cultural norms and values that appeared to be present among the student body of the five DP schools, primarily students of Asian descent with non-Chinese citizenship. Teachers and administrators noted that certain learner traits were specific to these students, including a strong work ethic and high expectations for their studies.
- In four schools, teachers and administrators suggested that DP students initially struggled with critical thinking and communication skills. However, this was addressed by engaging students in classroom discussions, group work and presentations.
- In contrast to the survey results, teachers and administrators were unanimous in their belief that the three core components were important in promoting a seamless transition to university. Firstly, participants agreed that CAS was beneficial in counter-balancing an emphasis on academic studies and could facilitate the development of learner profile traits. Secondly, the extended essay was highlighted by participants from all five schools as providing important training in university essay writing and research. Thirdly, interviewees suggested that the TOK course provided an important grounding in epistemological issues, helping to foster cognitive development and maturity. As one teacher explained:

"TOK is really useful because it teaches kids to think... students are taught to question everything they know. The example I give to kids is one plus one equals two, the most basic thing you know is not true: if you have one part of sugar and add another part of sugar then you still have one pile of sugar."

—School 4, Diploma Programme coordinator

6 Regarding the DP learning experiences in relation to student preparation for university study, Taylor and Porath's (2006) case study of two public schools in Canada provides an interesting finding that DP graduates perceive the program as addressing a wide range of topics and encouraging them to think critically.

- Students also perceived the extended essay to be a highly important first experience in researching and writing an academic essay.
- There was some concern among CAS coordinators and teachers, however, that students did not prioritize CAS, due to the binary nature of the assessment criteria, as simply pass or fail.
- Teachers and administrators were confident that the DP provided first-rate university preparation. There was consensus across all five schools that this resulted from the rigor and breadth of the curriculum.
- Based on anecdotal feedback from DP graduates, many of the teachers argued that the subject matter covered, especially in higher level (HL) courses, was at least equivalent to that of first year university studies. Consequently, one of teachers stated,

“A lot of our students are coasting through first-year university after the Diploma Programme because they worked so hard in Year 12 and Year 13, which is great.”
—School 4, teacher 2

- Students reported feeling self-assured that the study skills developed through the DP equipped them well for university studies. The most common study skill mentioned by students was time management.
- Teachers from all of the five DP schools described how they tailored their pedagogical methods to promote learner traits relevant for university studies. This included endeavoring to go beyond a rote-learning approach to help students become analytical, critical and independent thinkers. Others, however, suggested that the pragmatic realities of day-to-day teaching at times restricted creative pedagogical methods.

Summary of quantitative and qualitative studies

The survey data found that the great majority of DP graduates in China gained admission to high-ranking universities around the world. In addition, quantitative data analysis showed that DP graduates perceived subject requirements (ie the key curriculum and assessment requirements of DP subjects) to be slightly to moderately helpful for university preparation. Supporting these findings, qualitative data revealed that most of the student and teacher participants valued the breadth and rigor of the DP for preparing students for heavy university workloads.

The quantitative findings indicated that DP exam results are not just a predictor of gaining university admission, but also of continued success at university. This was reflected in the qualitative findings, where teachers and administrators reported that students who did well in the DP, often “coast” through the first year of university.

Quantitative analysis suggested that DP graduates rated core components as only slightly helpful to making their university studies successful. To explain this unexpected finding, the interview data indicated that a results-oriented culture coupled with a binary pass/fail system, encouraged students to de-prioritize CAS, which was often treated as a “box-ticking” exercise by students.

Both descriptive statistics and SEM results supported the importance of the IB learner profile, focusing on non-scholastic areas, for university preparation. Teachers and administrators believed the DP equipped students with broader study skills, including critical thinking, communication, and time management. Some of the interview participants raised a concern that, although the learner profile was in theory a core aspect of the DP, limited guidance from the IB on the learner profile meant that its promotion largely depended on the discretion of teachers and schools.

References

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

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