

# RESEARCH SUMMARY

## *International Baccalaureate Diploma Programme: Examining college readiness*



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

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### **Background**

This three-phase study explored the impact of the International Baccalaureate (IB) Diploma Programme (DP) on college readiness by examining the academic and non-academic preparation of students who participated in the DP in the United States. For the purpose of this study, college readiness is understood as the level of preparation a student needs to enroll and succeed in college, not simply to gain admission—that is, readiness, not just eligibility (Conley 2007). Research suggests that, to be prepared for college and career success, students must have a variety of knowledge, skills and abilities, and that both academic and non-academic factors are important for success during the transition from high school to college.

The study compared college-readiness data collected from two groups of high-achieving students who matriculated to the Robert D Clark Honors College at the University of Oregon. One group of students completed four or more DP courses in high school (referred to hereafter as “DP students”), and the other group of students did not participate in the DP (referred to hereafter as “non-DP students”). The study examined both DP and non-DP students’ levels of academic, social and emotional adjustment and investigated the degree to which specific aspects of the DP facilitated preparation for the transition from high school to college.

### **Research design**

This study examined groups of students at the University of Oregon’s Honors College. A separate and more rigorous process is required for Honors College admission. In 2012, the average high school grade point average (GPA) for University of Oregon freshmen was 3.57, while the middle 50% GPA range for admitted Honors College students was 3.79–3.98.

The research objectives were operationalized and investigated in three phases. First, researchers analysed available extant data to make quantitative comparisons across academic indicators, using both demographic and college success data from students who attended the Honors College from 2005–2012. Researchers examined college success by analysing DP and non-DP students’ college GPAs and college persistence.<sup>1</sup> The sample of DP students was comparable to the non-DP students in terms of gender and ethnic/racial composition. The Office of Institutional Research provided student records for both groups of students ( $N = 1,691$ ). In addition, student scores on the University of Oregon mathematics placement test<sup>2</sup> served as an indicator of students’ academic preparation for college.

During the second phase, researchers examined student preparation on non-academic indicators using CampusReady, a web-based survey instrument developed and validated by researchers that gauges non-academic, cognitive and college preparation

<sup>1</sup> College persistence was defined as graduation within five years or advancement to sophomore, junior or senior standing within respective two-, three- or four-year periods.

<sup>2</sup> An internally designed placement examination broken into four sections aligned to different courses to determine which mathematics course a student should take.

behaviours and attitudes mapped to the “Four Keys to College and Career Readiness” (Conley 2014). The Four Keys are shown in Figure 1.

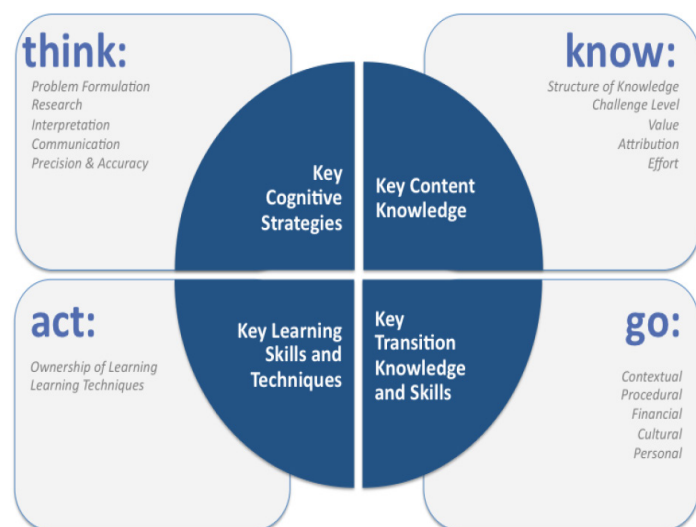


Figure 1. The Four Keys to College and Career Readiness

Using the student records provided for the extant data analysis, researchers identified currently enrolled students and sent them an email inviting them to participate in the research study by completing CampusReady. Both DP participants ( $n = 60$ ) and the non-DP comparison students ( $n = 65$ ) took the survey, producing aggregate scores for the Four Keys to College and Career Readiness.

In the third phase, researchers conducted qualitative analysis to understand how DP students adjust to college and how the DP supports this adjustment and college success. A sample of the two student groups (DP and non-DP) participated in separate design charettes.<sup>3</sup> Nine students participated in each design charette for a total participation of 18 DP students and 18 non-DP students. Qualitative observation protocols, interactive activities and discussion questions elicited information about how students’ experiences contributed to their college preparation, adjustment and success.

## Findings

### Academic preparation and success

To determine the extent to which DP students are academically prepared for college, researchers examined University of Oregon mathematics

<sup>3</sup> Design charettes are a qualitative data-collection method characterized by focused, collaborative sessions that emphasize participation and creativity, and are designed to engage participants and seek ongoing innovative thinking (Smith, 2012).

placement test scores using a simultaneous regression analysis. The results indicated a statistically significant relationship ( $\beta = .12, p = .013$ ) between group membership (DP = 0, non-DP = 1) and University of Oregon mathematics placement scores after controlling for gender and minority status. On average, DP students scored higher on the University of Oregon mathematics placement test than their non-DP peers. Additionally, though small, a greater proportion of variance in University of Oregon mathematics placement test scores was associated with DP or non-DP membership ( $sr^2 = .014, F[3, 474] = 3.28, p = .02$ ) than with gender ( $sr^2 = .008$ ).

To determine the extent to which DP students are successful in college, researchers analysed students’ GPAs. Researchers found no differences between DP and non-DP students’ GPAs after controlling for gender and minority status.

Researchers also examined DP and non-DP students’ persistence as an indicator of college success. The results of a chi-squared test for independence indicated that students’ persistence in college was dependent on DP or non-DP group membership,  $\chi^2(1, N = 1,691) = 11.36, p < .001$ . As shown in Table 1, a greater proportion of DP students persisted through college in comparison with non-DP students.

	DP		Non-DP		$\chi^2$	$p$
	n	%	n	%		
Persistence						
Persisted	192	98	1,359	91		
Did not persist	4	2	136	9	11.36	< .001

Note. Chi-squared with Fisher’s exact test was used in consideration of a cell count less than 5.

Table 1. Chi-squared test of DP and non-DP students’ college persistence

### Non-academic preparation

To address students’ non-academic preparation, researchers administered the postsecondary version of the CampusReady survey to both DP and non-DP students. The  $t$ -test results for each key indicated no statistically significant differences between DP and

non-DP students' scores across the four non-academic indicators measured by CampusReady.

Researchers obtained additional information on non-academic preparation as part of the design charettes. Students were asked to complete student profile posters on how they view themselves as students, including how they reach out for help, what they enjoy about being a student, what types of classes they choose, and what differentiates them from their peers. Although there were many similarities across groups, findings suggest that the DP sample may rely less on family for academic support and are more academically independent. They seem to use risk and experimentation strategies to overcome challenges and take ownership over their learning.

DP students also reported deeper understanding of the structure of knowledge, large concepts and how content connects across disciplines. Several students provided examples of interdisciplinary learning from high school, specifically connecting world events in DP history courses with analysis of literary impacts surrounding those same events in language A: literature. The DP students were able to take multiple perspectives on the same issues, could play the devil's advocate, and were more comfortable with revising their positions.

All of these common responses indicate that the DP students carry an appreciation for learning and higher-order thinking skills into college. On the contrary, the non-DP students were more likely to mention concrete experiences and skills as what defined them as students (for example, took a trip to France, finished all readings, was organized, speaks Spanish).

## Adjustment to college

Researchers used the Adjustment Continuum activity to delve deeper into the differences between how DP and non-DP students adjust to college academically, socially and emotionally. Qualitative data from the design charettes suggest that students who participate in the DP during high school are more academically adjusted to the rigour and expectations of college courses.

Artifacts that demonstrate evidence of this adjustment are the adjustment continuum posters, shown in Figures 2 and 3. Facilitators asked students to place three stickers on an adjustment scale, one for academic (green), one for social (yellow) and one for emotional (blue). All students who participated in

the DP agreed that they were academically adjusted the moment they stepped on campus. The non-DP students had more mixed attitudes and declared that their levels of academic adjustment ranged from adjusted to still adjusting.

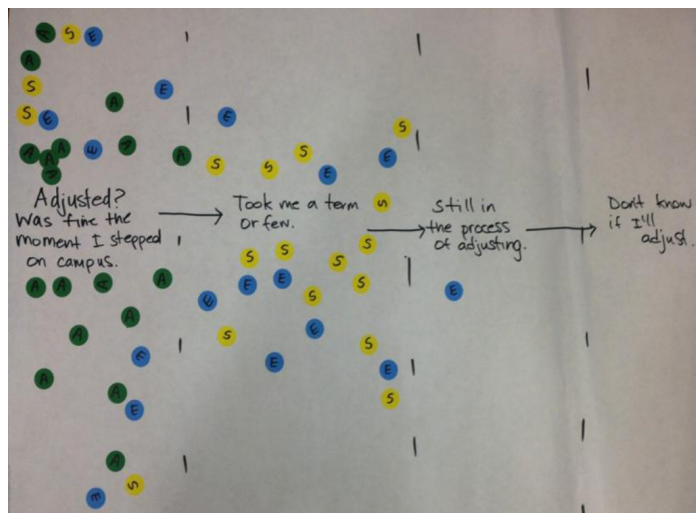


Figure 2. DP students: Academic, social and emotional adjustment continuum

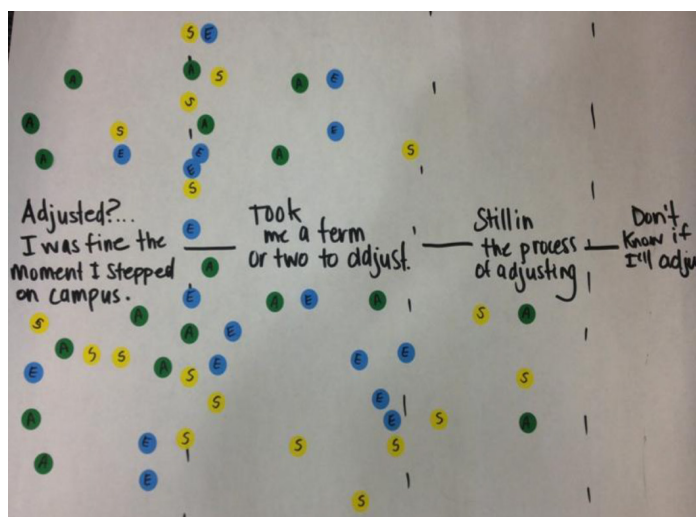


Figure 3. Non-DP students: Academic, social and emotional adjustment continuum

Follow-up questions revealed reasons for the differences in adjustment self-ratings.

- The DP students' responses suggest they were not intimidated by the heavy workload required in college honors courses. The DP had taught them how to balance coursework and manage their time.
- The DP students had experience with the pressure of an end of course IB exam, and therefore, were prepared for an exam-based grading structure in college.

- The non-DP students in the comparison group indicated that they felt less adept at managing their time or studying for culminating examinations.

Both groups of students felt that emotional and social adjustment took more time due to finding new social groups, solidifying their college identity and being away from home for the first time.

### The DP as preparation for college

To further explore the aspects of the DP that prepare students for college success and adjustment, all students participated in three activities (“T-Chart”, “Index It” and “Attribute Sort”).

#### T-Chart

For the T-Chart activity, facilitators provided students with basic instructions, but students were allowed to add any academic and life experiences that shaped their high school experiences. Facilitators specifically asked the DP students to include components of the DP on their T-Chart. As shown in Figure 4, the charts provided interesting insight into students’ perceptions about which components of high school, and the DP in particular, were valuable and useful in preparing them for college. Follow-up questions resulted in discussion about why students placed components where they did on the chart.

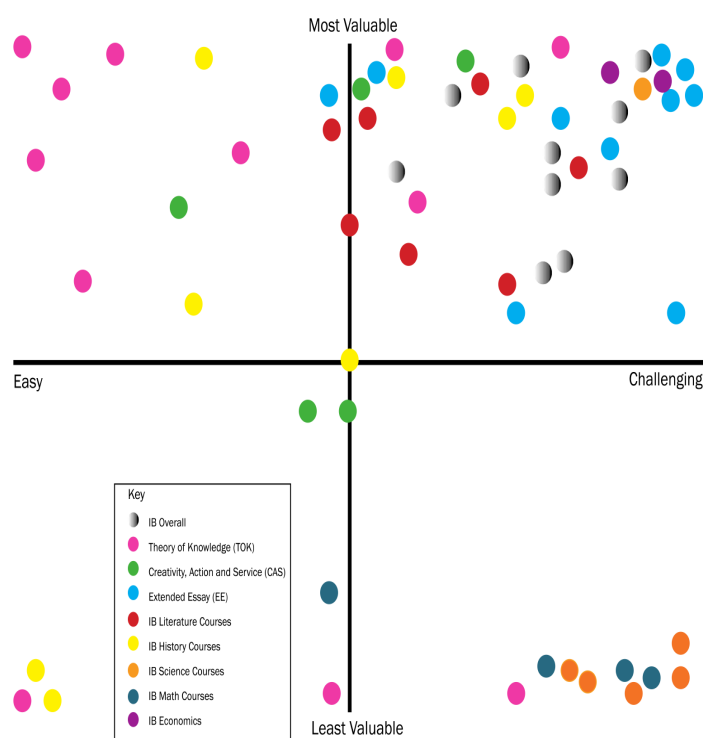


Figure 4. T-Chart of IB Diploma Programme components

**Extended essay.** All 10 DP students who placed the extended essay on their charts rated it as a valuable component of the DP. Students noted that the skills they learned from the extended essay (for example, finding relevant sources, determining the credibility of sources, organizing information, producing a coherent extended paper and citing sources) are very useful in college and that they feel more prepared to conduct research than do many other students in their classes. Several DP students also mentioned feeling more prepared for their college thesis due to the experience of working with a mentor, conducting in-depth research and writing their extended essay.

**Creativity, action, service (CAS).** CAS received mixed responses on the T-Chart in terms of its value and challenge level. Further questioning and discussion revealed that many DP students thought that CAS is good in theory and strives to make students well rounded, but that it often feels like an add-on, rather than an integrated part of the DP.

**Theory of knowledge (TOK).** TOK appeared in all four quadrants of the T-Chart, indicating that students had very different experiences with the course. Further questioning revealed that the value and challenge level of TOK is highly dependent on the teacher. Some students had more effective teachers and felt challenged and engaged, while others reported having less effective teachers and considered the course to be a poor use of time.

**Language A: literature.** All students who included language A: literature on their charts rated it as valuable. In follow-up discussions, students indicated that they learned many skills in their literature courses that have helped them in college, including writing quality essays, learning how to handle a heavy load of reading assignments, using academic sources and being comfortable presenting in front of the class.

**DP overall.** Ten DP students also placed the DP as a whole on their T-Chart. All 10 placed it in the “Most Valuable/ Challenging” category. The placement was echoed in conversation, where students consistently mentioned the value of their DP education overall and their firm belief that it has contributed to their success in college.

#### Index It

The next activity, Index It, was designed to examine the value students placed on their experience in an accelerated-learning opportunity in relation to

preparing them for college. Overall, 16 out of 18 DP students recommended that other students participate in the DP. Students reported that the DP requires a lot of work, but is worthwhile. The DP students expressed the belief that the IB Diploma Programme encouraged them to grow into well-rounded people who look at the world differently. The programme also built a sense of community—students felt they were working with peers who care about and value education. They had a sense of pride and accomplishment from completing challenging work.

Students in the comparison group, who predominantly had experience with Advanced Placement (AP) courses, generally recommended that students only pursue AP classes if they planned to take the AP test to receive college credit. More than half of the students in the comparison group indicated that “AP is just preparing for a test”. Students viewed the DP as a holistic programme to develop strong learners, while they viewed AP as a means to obtain college credit in high school. When asked if he or she would recommend the DP to other students, one DP graduate explained:

*“Definitely do it. IB is probably the hardest thing that you have done yet and it will prepare you for the future in so many different ways. It helps you look at the world, a book, a journal, the newspaper and media differently. You will analyze it and think through it. You will become inquisitive. You will know time management and figure out how to deal with stress. You will be aware of the world and how to interact with knowledge in different contexts.”*

### **Attribute Sort**

In the third activity, all students completed the Attribute Sort task. Facilitators asked students which skills and behaviours were critical to their success as students and which were not necessary. Both groups of students believed that time management was one of the more important attributes for success. DP students also highly rated problem-solving and strong reading skills as most critical to college success.

Another insight that emerged during the design charettes was that DP students frequently mentioned that DP mathematics was not as relevant to them. As many of these students were still in their first year of college, and most were not mathematics or science

majors, this low valuation of mathematics may result from DP students not having been exposed yet to the college-level coursework that integrates mathematics skills (for example, biochemistry, statistics for social sciences or accounting for business).

## **Summary**

Overall, this study found that the DP students were better prepared for college on both academic and non-academic factors. Although analysis detected no differences in GPAs between groups, DP students who had completed four or more DP courses in high school were more likely to persist to complete college. The qualitative data suggest that students who participate in the DP during high school are more academically adjusted to the rigour and expectations of college courses once they arrive at campus. More specifically, the DP students were better able to cope with the heavy workload required in college honors courses than non-DP students. Students in the comparison group reported feeling less able to manage their time efficiently and less prepared when studying for culminating exams than DP students. Overall, the DP students indicated they held the DP in high regard and would recommend it to their fellow students. They indicated the programme was key in preparing them for success in college.

An emerging body of research is demonstrating that the DP is developing what has been described elsewhere as perhaps the single most important factor to student success, namely “the degree to which students take ownership of their learning and are allowed to do so” (Conley 2014: 73). The findings from this study illustrate some of the ways in which the DP provides a more comprehensive and effective approach to preparing students for postsecondary success than other types of curriculums.

## References

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Smith, N. 2012. "Design charrette: A vehicle for consultation or collaboration?" *Participatory Innovation Conference*. Melbourne, Australia.

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](mailto:research@ibo.org).

To cite the full report, please use the following:

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