

Office of the Superintendent of Schools  
MONTGOMERY COUNTY PUBLIC SCHOOLS  
Rockville, Maryland

October 16, 2019

MEMORANDUM

To: Members of the Board of Education

From: Jack R. Smith, Superintendent of Schools

Subject: International Baccalaureate Programs (09-10-19-04-B)

During the *Choice Update: High School Programs*, discussion, Board members requested the following information:

**Question B**

Mr. Tinbrite requested data on the number of students who participated in the Middle Years Program (MYP) in Grades 9 and 10, and who articulated on to the IB program and scored a 4 or more on their IB exams, compared to the number of students scoring a 4 or better on the IB exam without having participated in the MYP.

**Response**

In 2015, Montgomery County Public Schools (MCPS), in partnership with the International Baccalaureate Organization, completed a research study titled, *A Comparison of MYP and Non-MYP Students' Participation and Performance in High School*. This study examined the impact of participation in the International Baccalaureate (IB) Middle Years Programme (MYP) on high school course enrollment and achievement. At the time of the research, MCPS had 22 authorized IB programmes, including 1 Primary Years Programme, 7 Middle Years Programmes, 8 Diploma Programmes (DP), and 2 IB Career-related Programmes. Four of the high schools offering the DP also offered the MYP for students in Grades 9 and 10. This study focused on the relationship between previous enrollment in the MYP and the following high school outcomes. One focus area was on course-taking and exam performance in the DP.

The findings of the study concluded that former MYP students took, on average, a similar number of DP courses compared to former non-MYP students. Further analysis was performed with the sample of students who took at least one DP exam. Within this sample, previously enrolled MYP students earned more scores of 4 or higher compared with their non-MYP counterparts. On average, students who previously were enrolled in the MYP earned one more score of 4 or higher than did non-MYP students.

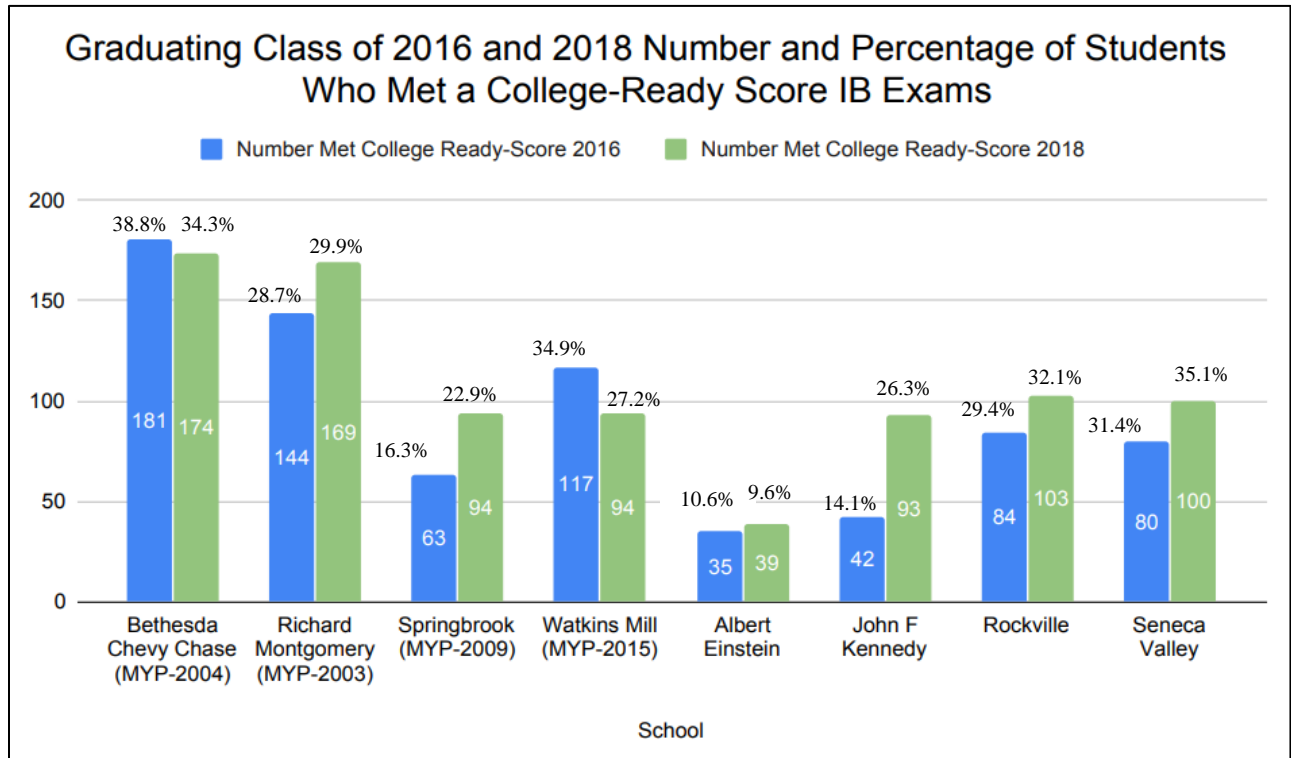
The study summary is attached for your reference. The [full Research Report](#) may be accessed on the IB website. The following chart provides data for the classes of 2016 and 2018 meeting a college-ready score on an IB exam.

**Comparison of the Graduating Class of 2016 and 2018  
Number of Students Who Met a College-Ready Score on an IB Exam**

High School	N Took IB Test		N IB Test Takers Score 4 or Higher	
	2016	2018	2016	2018
Bethesda-Chevy Chase (MYP-2004)	213	212	181	174
Albert Einstein	39	59	35	39
John F. Kennedy	76	159	42	93
Richard Montgomery (MYP-2003)	146	170	144	169
Rockville	88	108	84	103
Seneca Valley	111	120	80	100
Springbrook (MYP-2009)	83	111	63	94
Watkins Mill (MYP-2015)	149	147	117	94

Note: Bethesda-Chevy Chase, Richard Montgomery, Springbrook, and Watkins Mill high schools are MYP schools, Grades 9 and 10.

The following figure portrays the number and percentage of students who met a college-ready score on IB exams for the classes of 2016 and 2018.



If you have questions, please contact Dr. Maria V. Navarro, chief academic officer, at 240-740-3040.

JRS:MVN:NTH:cc

Attachment

Copy to:

- Executive Staff
- Ms. Rogovoy
- Mr. Murphy
- Ms. Webb

# RESEARCH SUMMARY

## *A comparison of MYP and non-MYP students' participation and performance in high school*



**Summary developed by the IB Research department based on a report prepared by:**

**Julie H Wade and Natalie L Wolanin**

**December 2015**

### Background

This study examined the impact of participation in the International Baccalaureate (IB) Middle Years Programme (MYP) on high school course enrollment and achievement. The study used data from a large, socio-economically diverse school district in the United States. At the time of the research, the district had 22 authorized IB programmes, including one Primary Years Programme (PYP), seven Middle Years Programmes, eight Diploma Programmes (DP) and two IB Career-related Programmes (CP). Four of the high schools offering the DP also offered the MYP for students in grades 9 and 10. All PYPs and MYPs in the district employed a whole-school model. This study focused on the relationship between previous enrollment in the MYP and the following high school outcomes.

- Participation and performance on Advanced Placement (AP) and DP exams
- Performance on SAT or ACT college admission tests
- Course-taking and exam performance in the DP

The MYP, an educational programme for students aged 11 to 16, provides a framework of academic challenge that encourages students to embrace and understand the connections between traditional subjects and the real world, and become critical and reflective thinkers (IB 2015). The programme is intended to promote the education of the whole person, emphasizing the importance of a broad and balanced education. The aim is to teach not only content knowledge but also to help students develop a genuine understanding of the underlying principles in and across disciplines.

### Research design

This study compared the outcomes of high school students who had attended an MYP school with those of students who had attended a non-MYP school

within the same school district. Different samples were used to address the research questions.

- The first two research questions examined AP and DP exam participation and performance as well as the SAT and ACT performance of former MYP and non-MYP students. The groups were drawn from an earlier study sample (Wade 2011) and were matched on demographic characteristics, such as gender, race and ethnicity, and income level. Analyses compared outcomes for students who attended an MYP middle school in grade 8 during the 2009–2010 school year ( $N = 885$ ) and students who attended a demographically similar non-MYP middle school in grade 8 during the same school year ( $N = 885$ ).
- The third research question examined IB course-taking and enrollment in the DP. Analyses compared outcomes of two groups of students—MYP and non-MYP—from three high schools. The high schools were selected for the study because they met two criteria: first, they offered the DP; second, they enrolled students from both MYP and non-MYP middle schools. Analytic groups were made up of 266 students who formerly attended an MYP school and 266 students who formerly attended a non-MYP school. The two groups of students were identified using propensity scores to match them based on demographic characteristics.

Logistic regression analyses were conducted to examine the effect of MYP enrollment on the outcomes of interest.

### Findings

#### **Impact of previous MYP enrollment on participation and performance on AP and DP exams**

Results show that students previously enrolled in the MYP were 34% more likely to take at least one AP or

	Students previously enrolled in MYP schools		Students previously enrolled in non-MYP schools		MYP effect			
	N	Adjusted mean	N	Adjusted mean	Mean difference	Std. error	p	ES (d)
Number of AP/DP exams taken <sup>a</sup>	597	5.77	556	4.50	1.27	.13	.00	.37
Number of college-ready scores on AP/DP exams earned <sup>b</sup>	597	4.23	556	3.44	.79	.14	.01	.21

**Table 1. Adjusted mean number of AP/DP exams taken and adjusted mean number of college-ready scores: Students from MYP and non-MYP schools who took at least one AP or DP exam**

Note. Means were adjusted using the following covariates: race/ethnicity, gender, ESOL, FARMS, and special education.

<sup>a</sup> Includes only students who took at least one AP or DP exam. Levene's test of equality of variances,  $p < .01$ .

<sup>b</sup> Includes only students who took at least one AP or DP exam. Levene's test of equality of variances,  $p < .01$ .

DP exam in high school. Moreover, MYP enrollment significantly increased the likelihood of achieving at least one “college-ready” score<sup>1</sup> on a college preparatory exam (by 39%).

Further analysis was conducted with the sample of students who took at least one college preparatory exam (AP or DP). Results show that among these students, former MYP students took significantly more AP or DP exams and also earned more college-ready scores on these exams than their non-MYP peers (see table 1). The effect size results indicate that among AP or DP test-takers, the students who had previously attended an MYP school took on average one more exam than the non-MYP students.

### Impact of previous MYP enrollment on performance on SAT or ACT tests

Previous enrollment in the MYP did not appear to be related to taking the SAT or ACT; similar percentages

of MYP students and non-MYP students took the SAT or ACT. Enrollment in the MYP was also not related to meeting the district target of 1,650 for the SAT or 24 for the ACT.<sup>2</sup> Lastly, scores on the SAT were not significantly different for former MYP and non-MYP students.

### Impact of previous MYP enrollment on participation and performance in the DP

Former MYP students took on average a similar number of DP courses compared to former non-MYP students. Further analysis was performed with the sample of students who took at least one DP exam. Within this sample, previously enrolled MYP students earned more scores of 4 or higher compared with their non-MYP counterparts. MYP enrollment had a moderate effect size ( $d = .50$ ), which was a practically significant effect (table 2). On average, students who previously were enrolled in the MYP earned one more score of 4 or higher than did non-MYP students.

	Students previously enrolled in MYP schools		Students previously enrolled in non-MYP schools		MYP effect			
	N	Adjusted mean	N	Adjusted mean	Mean difference	Std. error	p	ES (d)
Number of DP courses taken <sup>a</sup>	90	3.90	89	3.84	0.06	.41	.93	.01
Number of DP exams taken <sup>b</sup>	39	3.88	53	3.07	0.81	.30	.09	.35
Number of college-ready scores on DP exams earned <sup>c</sup>	39	3.03	53	2.05	0.98	.26	.02	.50

**Table 2. Adjusted mean number of IB courses taken, exams taken and exams earning 4 or above: Analytic sub-groups of students from MYP and non-MYP schools**

Note. Means were adjusted using the following covariates: race/ethnicity, gender, ESOL, FARMS, and special education.

<sup>a</sup> Includes only students who took at least one IB course. Levene's test of equality of variances,  $p = .478$ .

<sup>b</sup> Includes only students who took at least one IB exam. Levene's test of equality of variances,  $p = .062$ .

<sup>c</sup> Includes only students who took at least one IB exam. Levene's test of equality of variances,  $p = .049$ .

<sup>1</sup>A “college-ready” score is defined in this study as a 3 or higher on an AP exam or a 4 or higher on a DP exam.

<sup>2</sup>The school district in this study has established a milestone of 1,650 on the SAT or 24 on the ACT, as an indicator of student college and career readiness.

## Conclusions

Previous research has reported that students view the rigour of the MYP as a benefit of the programme (Wade and Wolanin 2013), and that MYP participation prepares students for the DP by providing them with an understanding of criterion-based assessment and by developing their organizational and inquiry skills (Walker, Bryant and Lee 2014). The results from this study show that previous enrollment in the MYP increases students' likelihood of participation in college preparatory coursework and achievement of college-ready scores on AP/DP exams. Further, MYP enrollment contributes in particular to achievement of more college-ready scores (4 or higher) on DP exams. The findings, however, show no significant contribution to participation and performance on college admission tests (SAT/ACT).

## References

- International Baccalaureate Organization. 2015. *Middle Years Programme*. Retrieved 1 February 2015, from <http://ibo.org/en/programmes/middle-years-programme/>.
- Wade, J. 2011. *Student performance and student engagement in the International Baccalaureate Middle Years Programme in Montgomery County Public Schools*. Unpublished report dated March 2011. Rockville, MD.
- Wade, J and Wolanin, N. 2013. *Global mindedness and perceptions of middle school experiences among students enrolled in the International Baccalaureate Middle Years Programme in Montgomery County Public Schools*. Unpublished report dated January 2013. Rockville, MD.
- Walker, A, Bryant, D, and Lee, M. 2014. *The International Baccalaureate continuum: Student, teacher and school outcomes*. Report prepared for the IB.

This summary was developed by the IB Research department. A copy of the full report is available at <http://ibo.org/en/about-the-ib/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:

Wade, JH and Wolanin NL. 2015. *A comparison of MYP and non-MYP students' participation and performance in high school*. Bethesda, MD, USA. International Baccalaureate Organization.