

Research summary

Continuation Study of Student Performance and Engagement in the Middle Years Programme

Based on a research report prepared for the IB by:

Julie Wade and Natalie L Wolanin

Background

The International Baccalaureate (IB) aims to develop inquiring, knowledgeable and caring young people who help to create a better and more peaceful world through intercultural understanding and respect. The IB offers four challenging and innovative programmes to students aged 3 to 19: the Primary Years Programme (PYP), the Middle Years Programme (MYP), the Diploma Programme (DP) and the IB Career-related Certificate (IBCC). Currently the IB works with more than 3,600 schools in 145 countries to develop and offer IB programmes to over 1,121,000 students.

This research project focuses specifically on the MYP. The programme, for students aged 11 to 16, provides a framework of academic challenge that encourages students to embrace and understand the connections between subjects and the world around them, and to become critical and reflective thinkers. In an effort to better understand the performance and engagement of students in the MYP, the IB partnered with a large, socio-economically diverse school district of rural, urban and suburban communities. At the time of this study (the 2011–2012 school year) the district included the following authorized IB programmes: one PYP school, five MYP middle schools and eight DP high schools. Three of the DP high schools also offer the MYP to students in grades 9 and 10. All MYP schools in this district use a whole-school model that does not enable students to self-select to participate in the MYP.

The subsequent commissioned study aims to substantiate and extend the findings of an initial study, “Student Performance and Student Engagement in the International Baccalaureate Middle Years Programme” (Wade 2011), by examining whether the findings for grade 8 MYP performance extend into grades 9 and 10. The broad objective of this three-phase continuation study is to examine the influence of the MYP on later high school performance and course enrollment, as well as to gain a more thorough understanding of the MYP experience from both student and teacher perspectives. This particular study was conducted in three phases:

1. an analysis of the impact of previous enrollment in MYP on high school course-taking and performance
2. a comparison between students previously enrolled in MYP and students previously enrolled in non-MYP schools on global mindedness and perceptions of middle school experiences
3. an examination of the perceptions of MYP teachers about the programme and MYP professional development.

Project design and data collection

The three-phase study utilized a mixed-method approach that included both quantitative and qualitative data collection and analysis.

- Phase 1 analysed the high school mathematics and science enrollment and performance of students previously enrolled in the five district MYP middle schools and five non-MYP middle schools. Grades 9 and 10 science and mathematics course enrollment and performance were examined for: students who attended an MYP middle school in grade 8 during the 2009–2010 school year ($N = 1,317$) and students who attended a demographically similar non-MYP middle school in grade 8 during the same school year ($N = 1,266$). The study also examined biology and algebra 1 state-mandated test scores in relation to previous MYP enrollment. The study was conducted using two levels of control to reduce the selection bias:
 1. by design, in the selection of demographically similar comparison schools
 2. by statistical procedures, controlling for student background characteristics.
- Phase 2 examined students' perceptions of their middle school experience with an emphasis on key features of the MYP, such as promoting active citizenship and global understanding. An online survey was administered in the spring of 2012 to grade 9 students in four high schools. This phase compared the perceptions of grade 9 high school students previously enrolled in the MYP with those of students previously

enrolled in non-MYP middle schools. Two levels of control were used to reduce the effect of demographic differences between the two groups:

1. by selecting a comparison group using propensity score matching
2. by statistically controlling for student background characteristics.

The survey included questions about students' middle school experience, plans for high school course enrollment, intended enrollment in the DP, student volunteer experience and the Global-Mindedness Survey developed by Hett (1993).

- Phase 3 elicited MYP teacher perceptions about the programme and their experiences in the district's MYP through online surveys and in-person interviews. A total of 298 teachers completed the survey (220 from middle schools and 78 from the high schools). Fifteen teachers were selected for in-person interviews—three teachers from each of the five MYP middle schools—and all were interviewed by district research staff.

Key findings

Phase I: High school science and mathematics enrollment and performance

Student enrollment

Using data on student course enrollment and state test scores, phase 1 provided some degree of evidence that students who attended an MYP school were more likely to enroll in advanced-level science and mathematics high school courses than their peers who attended a non-MYP school. As shown in *Table 1*, enrollment in grade 9 advanced level science and mathematics courses had the strongest association with previous MYP enrollment.

Table 1—2010–2011 and 2011–2012 enrollment in advanced-level science and mathematics courses: Students from MYP schools and non-MYP schools

Course and grade level	Students previously enrolled in MYP schools (2009–2010)		Students previously enrolled in non-MYP schools (2009–2010)	
	Group <i>N</i>	%	Group <i>N</i>	%
Enrolled in advanced-level science course in grade 9, 2010–2011	1,282	69.5	1,234	63.9
Enrolled in advanced-level science course in grade 10, 2011–2012	1,025	62.0	1,109	61.0
Enrolled in advanced-level mathematics course in grade 9, 2010-2011	1,310	52.0	1,241	47.1
Enrolled in advanced-level mathematics course in grade 10, 2011-2012	1,050	46.1	1,090	44.7

Note: “Group *N*” represent all students in study sample group (MYP or non-MYP) who had record of a course in the subject area during the specified years.

Student performance

Course grades in science and mathematics were examined for students in the MYP and non-MYP groups. Significantly higher percentages of students who previously attended non-MYP schools earned a C or higher in grade 10 science (OR = .69, $p < .005$) and in grade 9 mathematics (OR = .72, $p < .005$) courses after controlling for demographic variables and enrollment in an advanced-level course. Effect sizes were small. With regard to biology and algebra state exams, students who previously attended MYP schools were significantly more likely to

achieve a passing score on the biology exam (OR = 1.35, $p = .05$), although the effect size was small. MYP enrollment had no effect on a student's likelihood of passing the algebra 1 state exam (OR = 1.09, $p = .49$).

Phase 2: Global-mindedness and perceptions of middle school experiences among Middle Years Programme students

Global-mindedness

The Global-Mindedness Survey (Hett 1993), which was included in the online survey for this study, consists of 30 questions scored on a 4-point agreement scale ranging from “strongly agree” to “strongly disagree”. Hett defines *global-mindedness* as “a worldview in which one sees oneself as connected to the global community and feels a sense of responsibility to its members. This commitment is reflected in the individual's attitudes, beliefs, and behaviors” (1993). In this survey global-mindedness is scored on five dimensions: responsibility, cultural pluralism, efficacy, globalcentrism and interconnectedness.

Overall, students who had attended an MYP school responded to the Global-Mindedness Survey statements more positively than students who had attended non-MYP schools. *Table 2* demonstrates statements showing a significantly greater probability of agreement by previously-enrolled MYP students than by non-MYP students.

Table 2—Odds ratios for agreement with survey items on the Global-Mindedness Survey: Items with statistically significant effect for MYP enrollment

Survey item by student group	N	Odds ratio	p value	Effect size (d)
I generally find it interesting to spend time talking with people from another culture.				
MYP students	175	2.95	.04	.60
Non-MYP students	175			
I enjoy trying to understand people's behaviour in the context of their culture.				
MYP students	175	2.36	.01	.47
Non-MYP students	175			
I feel an obligation to speak out when I see my government doing something I consider to be wrong.				
MYP students	175	1.58	.06	.25
Non-MYP students	175			
The fact that a flood can kill 50,000 people in Bangladesh is very upsetting to me.				
MYP students	175	2.26	.01	.45
Non-MYP students	175			
I feel very concerned about the lives of people who live in countries where human rights are not respected.				
MYP students	175	2.44	.01	.49
Non-MYP students	175			
I am able to affect what happens on a global level by what I do in my own community.				
MYP students	175	1.49	.08	.22
Non-MYP students	175			
I think of myself not only as a citizen of my country but also as a citizen of the world.				
MYP students	175	1.87	.02	.35
Non-MYP students	175			

Additionally, when the two groups of students were compared on their scores on the five dimensions, previous enrollment in MYP had a statistically significant effect on cultural pluralism ($F = 3.73, p = .054$). Hett defines *cultural pluralism* as “an appreciation of the diversity of cultures in the world and a belief that all have something of value to offer” (1993). This is accompanied by taking pleasure in exploring and trying to understand other cultural frameworks.

Planned enrollment and course-taking

In comparison to non-MYP students, previous MYP enrollment did not have a considerable influence on plans for high school courses or intended DP enrollment. About one-third of the students in each of the groups reported that they intended to enroll in the DP. Likewise, plans for high school courses in science, social studies and world languages of MYP students and non-MYP students were similar.

Engagement with service and international issues

The data suggests that previous MYP students were more likely to report engaging in student service learning (SSL) projects in school as well as volunteer activities outside of school than their peers from non-MYP middle schools. The effect of MYP was statistically significant on involvement in SSL projects outside of school ($OR = 1.74, p = .01$) although the effect size was small. One student described his/her experience with community service, stating:

Making sandwiches for the homeless was a significant learning experience because I felt like I was making a difference for people in my community.

The percentages for school-organized projects and outside volunteer activities are displayed in *Table 3*.

**Table 3—Response to survey question about participation in student service learning, volunteer and extracurricular activities:
MYP and non-MYP students matched on demographic characteristics**

Have you participated in any of the following activities in middle school or during the current year? (Choose all that apply)	Students previously enrolled in MYP schools (N = 175)		Students previously enrolled in non-MYP schools (N = 175)		Diff. in %
	n	%	n	%	
School-organized SSL project	91	52.0	77	44.0	8.0
SSL project outside of school (on my own or with family, friends, other groups)	105	60.0	81	46.3	13.7

Additionally, former MYP students were significantly more likely to report spending a moderate amount or a lot of time on learning about and discussing issues related to the environment ($\chi^2 = 8.51, p = .04$) and other cultures ($\chi^2 = 8.10, p = .04$) than were students who had been enrolled in non-MYP middle schools.

Middle Years Programme student perceptions

The open-ended survey questions addressed students’ thoughts and opinions about their MYP experience. A total of 385 students responded to the question, “What has been your most significant learning experience in MYP?” Fourteen per cent of the responding students named projects/assignments or a specific class; 12% reported learning about cultures, and 11% named community service and learning how to help others.

Students from MYP middle schools also were asked, “What are the benefits of being an MYP student?” The most frequent responses included: having a better understanding of the world, learning something new, participating in a more rigorous and challenging curriculum, and learning about other cultures. *Table 4* displays student responses on the benefits of being an MYP student.

**Table 4—Benefits of being an MYP student:
Most frequent responses (N = 403)**

What are the benefits of being an MYP student?	n	%
Better understanding of world around you/connect to world around you	68	16.9
Learn new/different things/opportunities/projects	59	14.6
More rigorous/challenging	52	12.9
Learn about other cultures	52	12.9
Prepares you for IB/higher courses/helps get into IB	43	10.7
Looks good on college applications/helps get into better college	42	10.4
Prepares you for college/life/real world	42	10.4
Better person/character traits/learn about yourself	20	5.0
Better education/higher standard/good teachers	15	3.7
More open minded/think about things differently	14	3.5
Learn how to help/impact others	14	3.5
Better student, organized	10	2.5
None/nothing/non-existent/did not benefit	18	4.5
Don't know/not sure	31	7.7
Other responses by fewer than 10 students	32	7.9

Note: Respondents' answers could include more than one category, so percentages add to more than 100.

When asked how it feels to be an MYP student 16% of the 403 respondents reported feeling proud. One student explained the feeling this way:

“It makes me feel proud to be a part of a programme that raises awareness about the environment and different cultures.”

Finally, the surveyed students were asked about the challenges of being an MYP student. The most frequently reported challenges were that the work is harder and there is a heavier load of coursework, assignments and projects.

Phase 3: Middle Years Programme teacher perceptions

Phase 3 of the study aimed to address two questions:

1. What are the perceptions and experiences of MYP teachers with regard to their professional development?
2. What are the perceptions and experiences of MYP teachers with regard to the MYP?

Middle Years Programme professional development

This portion of the study used an online survey and in-person interviews to assess teacher views on the professional development they have received as MYP teachers. Nearly all middle school teachers who responded to the survey have participated in IB school-based training. The majority of teachers agreed that the training they participated in supported their learning needs and provided helpful information, especially on developing lesson plans and assessments, collaborating with others and learning about critical thinking and IB learner profile attributes.

Teacher perceptions of the Middle Years Programme

Over one-half of survey respondents felt that MYP involvement impacted their teaching strategies and content of teaching to a moderate or great extent. Furthermore, almost three-fourths of middle school teachers suggested that MYP involvement impacted their school-wide practices to a moderate or great extent. Reflecting on their MYP practices, the majority of teachers reported that they involve their students in critical thinking and connections with real-life issues, and they agreed that the MYP makes them more likely to do so. One teacher described the impact of MYP on critical thinking, explaining:

“I have learned how to create more open questions that help kids relate to what I am teaching and then watch them expand it to other topics and locations. I use questioning to expand their thinking instead of just reciting facts.”

When defining “international-mindedness”, the majority of teachers surveyed incorporated one or two of Hett’s five dimensions. The most commonly highlighted dimensions were “interconnectedness”—defined as “an awareness and appreciation of the interrelatedness of all peoples and nations which results in a sense of global belonging or kinship with the ‘human family’”—and “cultural pluralism” (Hett 1993). Incorporating current events and teaching about different cultures was the most commonly reported way that international-mindedness impacted MYP teaching.

More than one-half of teachers felt that the MYP and the district fit well together, especially in terms of critical thinking, strategies and vision. However, teachers also reported there is not enough time for the MYP because of competing district priorities and the need to manipulate materials due to differences between district and IB assessments and rubrics. Nevertheless, the majority of middle school teachers with only MYP experience agreed they are better teachers as a result of the MYP.

Conclusion

This study found some degree of evidence that students who attended an MYP school were more likely to enroll in advanced-level science and mathematics courses in high school than their peers who attended a non-MYP school. In addition, MYP students named the rigour and challenge of MYP courses as one of the top three benefits of being an MYP student.

There were few differences between MYP students and their non-MYP peers with respect to course grades in science and mathematics, or performance on biology and algebra 1 state-mandated tests. It is possible that these measures in the context of this follow-up study were not sensitive enough to detect the effects of previous enrollment in MYP.

Overall, previous enrollment in the MYP had a positive impact on measures of global-mindedness. Students who had previously been enrolled in an MYP middle school showed higher levels of global-mindedness on 7 of 30 survey statements and on the broad dimension of cultural pluralism. Previous enrollment in the MYP, however, was not related to plans for high school courses or intended DP enrollment. Students who previously attended an MYP school were more likely to report involvement in volunteer activities outside of school and to spend more time on international issues in coursework.

The majority of teachers felt that MYP trainings met their needs and helped in developing lesson plans and learning about critical thinking and IB learner profile attributes. One-half of middle school teachers and one-third of high school teachers reported that MYP impacted their teaching strategies and content to a moderate or great extent. The majority of teachers reported that they engage their students in critical thinking and real-life issues, and they agreed that the MYP makes them more likely to do so.

More than one-half of teachers felt that MYP and the district were well-aligned in terms of critical thinking, strategies and vision. However, teachers also reported a number of challenges. Most teachers highlighted that there is not enough time for the MYP due to competing district priorities and that the MYP also involves a larger workload and more documentation in general.

References

Hett, EJ. 1993. *The Development of an Instrument to Measure Global-mindedness*. Doctoral dissertation, University of San Diego.

Wade, J. 2011. *Student Performance and Student Engagement in the International Baccalaureate Middle Years Programme*. Bethesda, Maryland, USA: International Baccalaureate Organization.

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

To cite the full report, please use the following:

Wade, J and Wolanin, N. 2013. *Continuation Study of Student Performance and Engagement in the Middle Years Programme*. Bethesda, Maryland, USA. International Baccalaureate Organization.