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# Student performance and student engagement in the International Baccalaureate Middle Years Programme

*Based on a research report prepared for the IB  
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# Project overview

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 challenging and innovative programmes to students at three levels: the Primary Years Programme, the Middle Years Programme and the Diploma Programme. Currently, the IB works with more than 3,000 schools in 140 countries to offer IB programmes to more than 900,000 students.

This research project focuses specifically on the Middle Years Programme (MYP). The MYP employs an inquiry-based approach to teaching and learning with an emphasis on interdisciplinary instruction; the programme strives to encourage students to become lifelong learners and active citizens with a global perspective. 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. All MYP schools in this particular district use a whole-school model, which does not enable students to self-select to participate in the MYP. Students do not apply to attend the school, and all students and teachers in the school participate in the MYP.

The subsequent commissioned research project focused on five middle schools in the district that implemented the MYP between 2003 and 2008. In these five schools, more than 4,000 students in grades 6 through 8 were enrolled in the MYP at the time of the study. Specifically, this study examined the academic performance and engagement of these MYP students as compared to their peers from five other demographically similar middle schools in the same district that do not offer the MYP. The study also examined student and parent ratings of school climate and the relationship between student engagement and student performance in the two groups of schools.

## Project design

This study utilized a mixed-methods approach that used qualitative and quantitative data to examine student performance, student engagement, student and parent perceptions of school climate, and reported experiences of school principals. The following questions guided this study.

1. What are the characteristics of the five MYP schools and five non-MYP comparison schools?
2. How did students in MYP and non-MYP schools perform on state and local assessments?
3. What were the levels of school engagement in MYP and non-MYP schools, as measured by *Middle Grades Survey of Student Engagement* (MGSSE) and by student attendance and suspensions?
4. How did students and parents in the MYP and non-MYP schools rate their schools on a survey of school environment?

5. What was the relationship between student engagement and student performance in MYP and non-MYP schools?
6. What were the experiences and perceptions of administrators in MYP and non-MYP schools regarding school climate and student engagement?

Outcome measures for students in MYP schools were compared with those of students in non-MYP comparison schools, and differences in students' background characteristics were controlled in two ways: by design, in the selection of demographically similar comparison schools; and by statistical procedures, controlling for student background characteristics.

## Key findings

**Student performance.** Performance on annual state assessments in mathematics, reading and science was examined using logistic regression for the students in MYP and non-MYP schools. The percentages of students in each group of schools meeting the standard for proficient or advanced performance level in the study year (2009–2010) are shown in table 1.

The results show that a higher percentage of students in MYP schools achieved a proficient or advanced performance level on mathematics and science assessments compared with their counterparts in five comparison schools, after controlling for differences in background and previous year's test performance where possible. These logistic regression results were statistically significant with small but practically significant effect sizes for all grades in mathematics and grade 8 in science.

**Table 1**  
Percentage of students scoring proficient or advanced on mathematics, reading and science in MYP schools and comparison schools, 2009–2010

|                                       | Grade | MYP schools |          | Comparison schools |          |
|---------------------------------------|-------|-------------|----------|--------------------|----------|
|                                       |       | N           | Per cent | N                  | Per cent |
| Mathematics<br>Proficient or advanced | 6     | 1,058       | 85.7***  | 1,090              | 82.6     |
|                                       | 7     | 1,300       | 82.8**   | 1,115              | 78.9     |
|                                       | 8     | 1,243       | 78.7***  | 1,228              | 73.1     |
| Reading<br>Proficient or advanced     | 6     | 1,034       | 90.9     | 1,071              | 90.8     |
|                                       | 7     | 1,254       | 88.8     | 1,091              | 90.0     |
|                                       | 8     | 1,208       | 88.7     | 1,182              | 88.2     |
| Science<br>Proficient or advanced     | 8     | 1,343       | 77.5***  | 1,293              | 72.0     |

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

**Student engagement.** Student engagement was measured both with student records (attendance, suspensions) and with results of the MGSSE. Attendance and suspension rates are shown in table 2. Results show that grade 6 students in MYP schools had a significantly higher mean attendance rate than students in comparison schools, while a significantly

smaller percentage of grade 8 MYP students, as compared to non-MYP students, had one or more suspensions during the year.<sup>1</sup>

**Table 2**  
Mean attendance and suspension rates for students in  
MYP schools and comparison schools, spring 2010

|  | Grade | MYP schools |        |       | Comparison schools |      |       |
|--|-------|-------------|--------|-------|--------------------|------|-------|
|  |       | N           | Mean   | SD    | N                  | Mean | (SD)  |
| Mean attendance rate:  | 6     | 1,081       | 96.3** | (3.6) | 1,114              | 95.8 | (4.1) |
| Per cent of days<br>attended   | 7     | 1,332       | 95.5   | (4.3) | 1,143              | 95.4 | (4.6) |
|  | 8     | 1,281       | 95.1   | (5.0) | 1,251              | 95.3 | (4.7) |
| Per cent of students with<br>one or more out-of-<br>school suspensions | 6     | 1,158       | 2.2    |       | 1,179              | 2.3  |       |
|  | 7     | 1,432       | 3.1    |       | 1,212              | 4.1  |       |
|  | 8     | 1,351       | 3.3*** |       | 1,302              | 5.5  |       |

In terms of students' perceptions of school climate as measured by the MGSSE, students' responses to individual survey items (see table 3) revealed statistically significant differences indicating more MYP students in grade 6 and grade 8 agreed with the item "Overall, I feel good about being in this school."

**Table 3**  
Percentage of students agreeing with survey items  
in MYP schools and comparison schools

| Survey item  | Grade | MYP schools |                             | Comparison schools |                             |
|--|-------|-------------|-----------------------------|--------------------|-----------------------------|
|  |       | N           | Per cent agree <sup>†</sup> | N                  | Per cent agree <sup>†</sup> |
| Overall, I feel good about<br>being in this school.                  | 6     | 1,035       | 90.0***                     | 828                | 86.4                        |
|  | 7     | 1,140       | 85.4                        | 892                | 83.6                        |
|  | 8     | 1,115       | 84.2**                      | 831                | 81.2                        |
| This school makes me<br>feel confident about who I<br>am.            | 6     | 1,029       | 72.8                        | 827                | 71.9                        |
|  | 7     | 1,133       | 69.7                        | 889                | 72.4                        |
|  | 8     | 1,112       | 69.4                        | 831                | 69.1                        |
| I am an important part of<br>my school community.                    | 6     | 1,018       | 62.4                        | 824                | 60.4                        |
|  | 7     | 1,130       | 57.9                        | 881                | 59.4                        |
|  | 8     | 1,106       | 57.6                        | 824                | 60.6                        |
| There is at least one adult<br>in this school who cares<br>about me. | 6     | 1,026       | 86.4                        | 825                | 87.0                        |
|  | 7     | 1,132       | 84.2                        | 887                | 85.2                        |
|  | 8     | 1,111       | 87.3                        | 829                | 87.5                        |

<sup>†</sup> The effect size was negligible (Cohen's  $d=0.12$ ) for the grade 6 comparison, whereas the effect size for the grade 8 difference was small but of practical significance (Cohen's  $d=0.39$ ).

| Survey item                                      | Grade | MYP schools |                             | Comparison schools |                             |
|--|-------|-------------|-----------------------------|--------------------|-----------------------------|
|  |       | N           | Per cent agree <sup>†</sup> | N                  | Per cent agree <sup>†</sup> |
| I can be who I am at this school.                | 6     | 1,022       | 75.9                        | 816                | 73.4                        |
|  | 7     | 1,125       | 73.8                        | 884                | 75.2                        |
|  | 8     | 1,109       | 75.7                        | 826                | 73.8                        |
| All students are treated equally at this school. | 6     | 1,013       | 54.3**                      | 816                | 47.7                        |
|  | 7     | 1,122       | 47.4                        | 873                | 51.1                        |
|  | 8     | 1,098       | 46.5                        | 818                | 50.6                        |

<sup>†</sup> Per cent agree represents students marking “Strongly agree” or “Agree” on a four-point scale.

In terms of student engagement as measured by the MGSSE, however, at all grade levels, students in MYP schools and students in the comparison schools did not differ in their ratings on the three dimensions of student engagement: academic, behavioural and emotional.

**Student and parent ratings of school environment.** Student and parent responses to the *Survey of School Environment* administered by the school district provided further information about school climate, particularly in terms of a welcoming atmosphere and school efforts at promoting positive relationships. Parent and student responses to individual survey items addressing aspects of school climate did not differ between MYP and non-MYP schools. However, student overall ratings of their school in the form of a grade between A and D were more positive in the MYP schools than in the comparison schools, both for grade 6 and grade 8 students. Higher percentages of students in MYP schools compared with students in non-MYP schools gave their school a grade of A or B (71% vs 63% in grade 6 and 56% vs 48% in grade 8).

**Relationship of student engagement to academic performance.** The relationship between students’ ratings of school engagement and their academic performance was examined, controlling for demographic variables and, when possible, previous year’s performance. Overall, the analyses showed a positive association between student engagement and some measures of student performance, both among students in MYP schools and students in comparison schools. Analyses at each grade level did not reveal differences in the engagement–performance relationship between the two groups of students in MYP and comparison schools.

**Experiences of principals.** Interviews were conducted with principals in both the five MYP schools and the five comparison schools to learn more about the programmes and strategies in place at their schools and how they may influence school climate and student engagement. The positive influences of a variety of programmes reported by principals in both MYP and comparison schools may help explain the similar ratings of school engagement and school climate by students in both groups of schools.

One strategy reported by MYP principals in particular, however, was interdisciplinary learning. It was this approach that most distinguished the interviews of MYP principals from those of the comparison school principals. All five principals in MYP schools noted interdisciplinary learning as a positive influence in their school related to MYP.

In addition, four of the five MYP principals identified teacher professional development and the support of the MYP coordinator as important benefits of the programme. All teachers in MYP schools receive initial and continuing professional development in the programme's instructional approach.

## Conclusion

Some evidence of student achievement benefits from MYP was suggested by the data; specifically, performance in mathematics and science was slightly but significantly higher for MYP students compared with students in similar non-MYP schools. Ratings of student engagement, for the most part, were similar for students in both the MYP and non-MYP comparison schools. An overall rating of school environment, however, was higher for MYP students compared with non-MYP students, and a higher percentage of MYP students agreed that "Overall, I feel good about being in this school", compared with non-MYP students. It is important to note that the whole-school model of the MYP in the school district provided a research sample not confounded by student self-selection factors. All students enrolled in the five MYP schools in the district participate in MYP and students do not apply to attend these schools.

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

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