

Performance comparison between IB and non-IB school students on the International Schools' Assessment



International Baccalaureate
Baccalauréat International
Bachillerato Internacional

Research summary

Summary developed by the IB Research department based on a report prepared by: Australian Council for Educational Research (ACER)

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Purpose

This study examines International Baccalaureate (IB) **Primary Years Programme (PYP)** and **Middle Years Programme (MYP)** student performance on the **International Schools' Assessment (ISA)** in comparison with that of non-IB students from the same ISA cohorts. The ISA is an assessment created for students in international schools (grades 3 through 10), in the areas of **Reading, Mathematical literacy, Narrative writing, Expository writing¹** and **Scientific literacy**. This study replicates previous research (Tan, Bibby 2010; Tan, Bibby 2012), using more recent ISA assessment results (2017–2019).

Research design

In 2017–2019, of the 445 schools participating in the ISA, 201 were IB World Schools with authorized PYP or MYP programmes.² The majority of IB schools were from the Asia-Pacific region (43%), followed by the Middle East (26%), Europe (20%), the Americas (6%) and Africa (5%). The PYP cohort included students from grades 3 to 6, and the MYP cohort included students from grades 7 to 10.

The non-IB cohort consisted of students from schools with no authorized or candidate IB programme in the corresponding grade levels, and excluded schools that had withdrawn from the PYP or MYP any time before 2017. The researchers constructed two groups of non-IB schools for comparison: the “broad” group included all non-IB schools participating in the ISA,

¹ The Narrative writing assessment asks students to write a story or reflective piece based on a prompt (usually a picture); the writing is then assessed based on content, language and spelling. The Expository writing task involves students responding to a prompt (such as a short dialogue) by taking an explanatory or persuasive approach; students' writing is then assessed based on content, ESOL language, and structure and organization (ACER 2021).

² The analysis was restricted to PYP and MYP schools and students, as the ISA does not assess students in their final two years of secondary schooling (corresponding to the Diploma Programme).

and the “narrow” group consisted of non-IB schools that had formal accreditation by an international education board. This summary focuses on results from the “narrow” non-IB group, which allows for a more rigorous comparison to IB schools.

Researchers used multilevel modelling to examine the differences between IB and non-IB student performance, while accounting for the hierarchical nature of the data (students in schools) and controlling for student-level variables (gender and English-speaking background). To determine the magnitude of the effect between the two groups, researchers calculated Cohen’s *d* effect size.

The results are presented to show significant difference ($p < 0.05$) between the IB and non-IB groups as well as effect sizes to indicate the practical significance of the difference. Cohen’s *d* effect sizes are categorized as follows:

- **negligible:** less than 0.1
- **small:** 0.1–0.2
- **medium:** 0.2–0.5
- **large:** 0.5 and above.

Findings

Differences between IB and non-IB students on ISA domain areas

This section presents the magnitude of effects between IB students and non-IB students in all five ISA assessment domain areas.

The findings showed that PYP and the MYP students performed significantly better than students from non-IB schools in the ISA assessment areas at a number of grade levels (see table).

Grade	Mathematical literacy	Reading	Narrative writing	Expository writing	Scientific literacy
3		++	+	++	NA
4					NA
5		++	+	++	NA
6					NA
7		+	++	++	++
8				++	
9	++	++	++	++	++
10					+++

Notes.

A (+) symbol indicates a significant result in favour of IB students.

A blank cell indicates that there was no significant difference between IB and non-IB students.

+: small effect size; ++: medium effect size; +++: large effect size.

Scientific literacy assessments were not available for grades 3–6, indicated by not applicable (NA).

Table. Comparison of effect sizes across all ISA domains

- PYP and MYP students performed as well or better than non-IB students in all comparisons—there were no instances in which non-IB students significantly outperformed IB students at any grade level or domain.
- PYP students performed particularly well in Reading, Narrative writing and Expository writing (note: Scientific literacy assessments were not available for grades 3–6).
- MYP students performed particularly well across many grades in Narrative writing, Expository writing and Scientific literacy, and had a notable result for Scientific literacy at grade 10 (large effect size).
- MYP students achieved better results than non-IB students on all academic domains at grade 9, with medium effect sizes.
- IB students and non-IB students performed equally well, with no significant differences, on a few comparisons, more often in Mathematical literacy and Reading.

Comparison with PISA benchmarks

The ISA scales for Reading, Mathematical Literacy and Scientific Literacy are based on those developed for the Organisation for Economic Co-operation and Development's (OECD) Programme for International

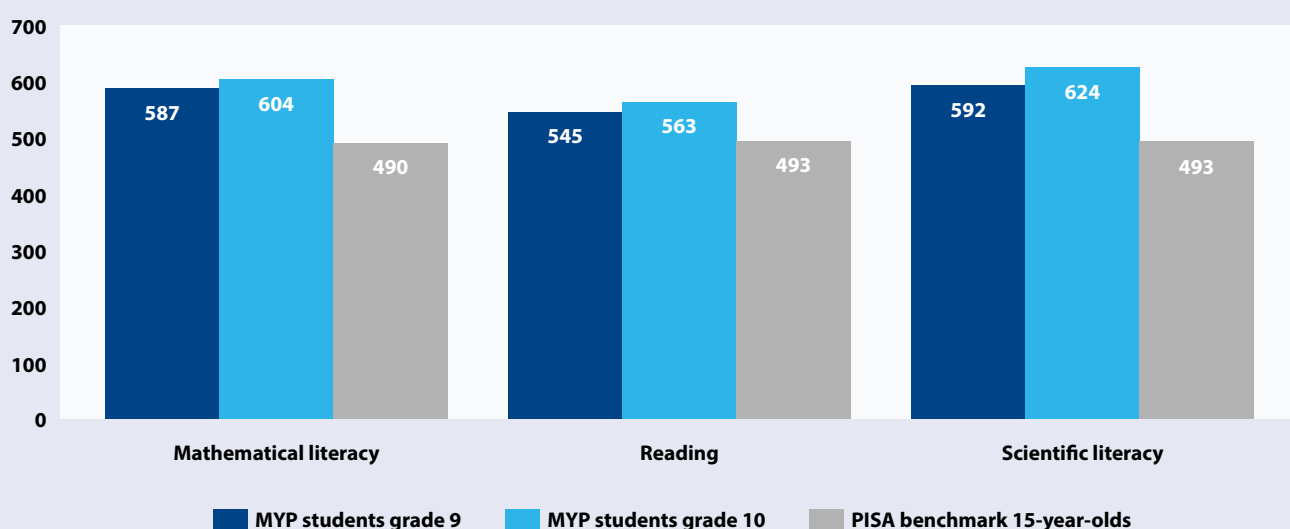
Student Assessment (PISA). The ISA scales are equated, and therefore results could be placed on a common scale and compared with the PISA scores. This section highlights findings examining how grade 9 and 10 MYP students' ISA results compared with PISA means (for 15-year-old students).



The results showed that ISA mean scores for MYP students were significantly higher than the PISA mean scores in all three domain areas, with large effect sizes (see figure).

Differences in performance by length of IB authorization

A multilevel analysis was conducted to evaluate the effects of length of IB authorization on school performance. **The analysis showed that, overall, the longer a school had been authorized to offer the PYP or MYP, the better students tended to perform on the ISA.** This was the case across many grades and academic domains.



Notes. IB student scores were aggregated from 2017–2018. PISA means were from 2015 (OECD 2016).

Figure. Grade 9 and 10 MYP student performance in Mathematical literacy, Reading and Scientific literacy compared to 2015 OECD PISA performance benchmarks

Conclusions

Consistent with previous research (Tan, Bibby 2010; Tan, Bibby 2012), analysis showed that, on a global level, PYP and MYP students performed significantly better than students from non-IB schools in the ISA assessment areas at a number of grade levels. In fact, IB students performed as well or better in all of the domain and grade comparisons. IB students outperformed non-IB students particularly in Expository writing and Scientific literacy. When comparing MYP students' ISA scores with the PISA benchmarks, MYP students had statistically higher mean scores in all three domains (Mathematical literacy, Reading

and Scientific literacy), similar to the findings of the previous two studies (Tan, Bibby 2010; Tan, Bibby 2012). Additionally, the length of time since PYP or MYP authorization appeared to have positive effects on school performance in most ISA assessment areas, with more established IB schools generally performing better. Combined with previous results, these findings provide very strong evidence that PYP and MYP students in international schools perform well academically, even when compared to a similarly high-achieving group of students.

References

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

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