



International Baccalaureate
Baccalauréat International
Bachillerato Internacional

A study on the impact of the International Baccalaureate's professional development

Research summary

**Summary developed by IB
Research, based on a report
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Background

Research literature consistently indicates that teacher quality is linked to student performance across a myriad of academic and non-academic areas of development. For this reason, education departments and school systems throughout the world have increasingly invested in teacher professional learning, aiming to align teaching practices with the most recent research and, ultimately, to improve student outcomes. At the International Baccalaureate (IB), over 85,000 teachers and school leaders participate in more than 4,500 workshops each year. This study examines the impact of the IB's professional development (PD) model, practices and services.

Research methods

This multiphase, mixed-methods study included three phases.

1. A systematic literature review, identifying critical features of high-quality professional development.
2. A comparison of the IB's PD model in relation to best practices. This theory-to-practice comparison involved document analysis, interviews, observations, program model articulation and pattern matching.
3. A study of teachers' attitudes, beliefs, knowledge and self-efficacy before and after participating in IB PD. This phase included an online survey, online situational judgment tests, interviews and secondary data analysis.



Findings

Literature review

This section presents findings from what the research literature identifies as key features of high-quality teacher professional development. The features identified through the literature review are outlined below.

Nine features of high-quality professional development

1. **Sustained length:** Longer professional development programs tend to have a greater effect. Meta-analyses show workshops less than **14 hours** in length typically show no significant effects on student achievement. However, the most consistent

effects on teacher practice are generally found when program participation is over **100 hours** (Banilower, Heck and Weiss 2007).

2. **Practice and feedback:** Opportunities for **regular practice and ongoing feedback** are critical when learning and implementing new skills. Educational research suggests teachers need multiple attempts to master a new skill.
3. **Job-embedded:** To be maximally effective, research recommends that programs be **school-based** and closely related to the daily work of teachers.
4. **Coherence with curriculum and content:** When professional development programs relate to the **current school curriculum** and teachers' **specific subject areas**, they tend to be more effective in changing participants' teaching practices.

5. **Professional development as a collective endeavor:** Collaboration is a mediating factor between professional development and teaching practice, with high levels of **active teacher collaboration** typically strengthening the effectiveness of PD. **Collective participation**—meaning, teachers attending collectively so they can build a shared understanding of the PD content—has been referred to as one of five features of effective professional development.
6. **Engaged and effective school leadership:** Effective leadership practices include **leaders participating in**, not just organizing, professional learning. Alongside any professional development process, school leaders should also create an environment where professional learning is valued and where there is a **supportive learning culture** in which teachers are able to learn and grow in their effectiveness over time.
7. **Target beliefs and attitudes:** Teacher beliefs influence practice. It is therefore important that those who design and deliver professional development endeavour to identify each cohort's underlying **beliefs and attitudes**—especially those that are malleable—prior to beginning the professional development program.
8. **Acknowledge and support cultural diversity:** Just as high-quality teaching involves understanding students' diverse backgrounds and differentiating teaching, high-quality professional development should acknowledge participants' diverse cultural backgrounds and **adapt content and delivery** to target participants' **cultural contexts**.
9. **Embed principles of andragogy (adult education):** The professional development program is **consistent with principles of andragogy**, such as: incorporating explicit learning goals for learning and practice, active learning, relevance to daily work, encouraging personal responsibility, and building on participants' past experiences.

Theory-to-practice comparison

This portion of the study aimed to determine how the IB model of professional development compares to the nine professional development best practices identified in the literature review. The research team utilized a custom-designed rubric, assigning each of the features a rating of: "substantial", "some", "limited" and "none at this stage" to indicate the extent to which that feature was reflected in the IB's professional development model.

Findings from this phase of the study indicate that the IB PD model is highly aligned to the research literature in some domains and is less so in others. More specifically, the IB's professional development model aligns strongly with best practices in terms of principles of andragogy and coherence of PD with educators' curriculum and content. Researchers found little alignment with regard to structured opportunities for ongoing practice and feedback; the role of the school leader as an engaged participant or collaborator; and the use of teacher attitudes and beliefs to inform the design and delivery of PD.

Pre- and post-workshop participation outcomes

This section describes findings from pre- and post-workshop participation surveys targeting changes in teachers' attitudes, beliefs, knowledge and self-efficacy as outcomes of participation in face-to-face IB workshops. During this phase of the study, 171 educators completed these surveys, including 108 who had attended one of three face-to-face IB workshops,¹ as well as 63 who had not attended but were included as a comparison group.

Overview of changes in participants' self-efficacy and attitudes

Findings suggest many educators in this sample reported stronger outcomes after taking part in IB professional development workshops. After attending IB PD workshops, participants, on average, reported:

- significantly higher feelings of general self-efficacy with respect to workshop content

¹ Selected workshops included: Making the PYP happen in the classroom (Category 1), Approaches to learning in the MYP (Category 3), and DP history (Category 2).



- significantly higher feelings of context-specific self-efficacy with respect to applying workshop content in their own classrooms and school contexts
- significantly higher feelings of collective self-efficacy² related to workshop content
- significantly more positive attitudes towards the IB's approaches to teaching and learning.

To understand participant outcomes after attending IB professional development workshops, the researchers developed overall outcome indicators based on the pre- and post-participation surveys. These outcome indicators were created by averaging participant scores for attitudes, beliefs and self-efficacy before and after workshop participation. Findings indicated that for workshop participants, overall PD

outcome scores were significantly higher on the post-test than on the pre-test. Similar changes were not observed among those in the comparison group, which indicates that improvements can likely be ascribed to IB workshop participation.

Attitudes

Researchers examined three types of attitudes in the study: attitudes towards the IB's approaches to teaching and learning, general attitudes towards the workshop content and strategies, and specific attitudes towards workshop content and strategies.³ After attending workshops, participants in the sample reported significantly more positive attitudes towards the IB's approach to teaching and learning and significantly more positive specific attitudes towards

² Collective self-efficacy refers to a group of teachers' beliefs that, as a collective, they have the capabilities to accomplish chosen tasks and achieve their goals (Bandura 1986).

³ General attitudes refer to broad, high-level attitudes towards a construct that are not connected to the individual; for example, the view that 'using inquiry-based learning strategies is good'. Specific attitudes are connected to the individual and relate to the individual performing particular behaviours in specific contexts; for example, it is a good idea for me to use inquiry-based learning in my year 6 classroom.

workshop content and strategies. Somewhat more positive attitudes were noted for general attitudes towards workshop content and strategies. Effect sizes were small for all measures of attitudes.

Beliefs

Participants' positive outcome expectancy beliefs⁴ were somewhat higher, but not significantly higher, after attending PD workshops. However, participants also reported stronger negative outcome expectancy beliefs⁵ in one area—participants were more likely to believe that applying workshop content in practice would require them to work more hours, and potentially lead them to fall behind in other commitments.

Knowledge

The study also measured participant knowledge about workshop content. Participants who attended PD workshops achieved slightly higher scores on knowledge items after attending the workshops compared to pre-workshop participation, although these differences represent a small effect size and were not statistically significant.

What is an effect size?

Effect sizes are a simple way of measuring the size of differences between groups. Effect sizes of between 0 and 0.2 are considered small, 0.5 is considered medium, and 0.8 is considered large. An effect size of 1.0 is one that is clearly noticeable.

Self-efficacy

In general, self-reported impacts of IB PD participation were particularly pronounced for measures of self-efficacy. Effect sizes were large for general self-efficacy (1.21) and medium for context-specific self-efficacy (0.68) (see figures 1 and 2). Self-efficacy in this context refers to educators' beliefs that they understand workshop content, know how to put it into practice, and can implement workshop

strategies within the constraints of their current school environments. Smaller effect sizes were observed in the other domains. Given the critical role self-efficacy plays in supporting educator practice, however, these findings are a positive indication of the potential for IB professional development to shape instructional practice at IB World Schools.

Similar changes in self-efficacy were not observed for the comparison group, which indicates that observed changes may be attributed to the IB workshops, and not to natural improvements over time, or to increased familiarity with the survey instruments during the second survey administration.

Supportive contextual factors

Findings suggested two contextual features that were related to positive PD outcomes in this sample: the presence of organizational norms that support and expect educators to put what they learn during workshops into practice, and school environments where there is a strong sense of collective self-efficacy. When these two features were present, teachers tended to report more positive attitudes and beliefs, and stronger general and collective self-efficacy.

Critical success factors

Similarly, attitudes, beliefs and self-efficacy tended to be higher when two specific mechanisms were in place.

- Modelling and practice during the workshop: when participants had opportunities to practice applying workshop content, or to observe workshop leaders model strategies, outcomes tended to be higher.
- Practice and feedback after the workshop: when participants had opportunities to practice applying workshop strategies, and to obtain feedback on their efforts after attending workshops, PD outcomes also tended to be higher.

Participants in this study held the view that strong professional development outcomes require a partnership between the IB and its World School partners, and the integration of critical success factors before, during and after workshop attendance (see figure 3).

⁴ Beliefs about positive outcomes that would follow from putting workshop content and strategies into practice.

⁵ Beliefs about negative outcomes that could follow from putting workshop content and strategies into practice.

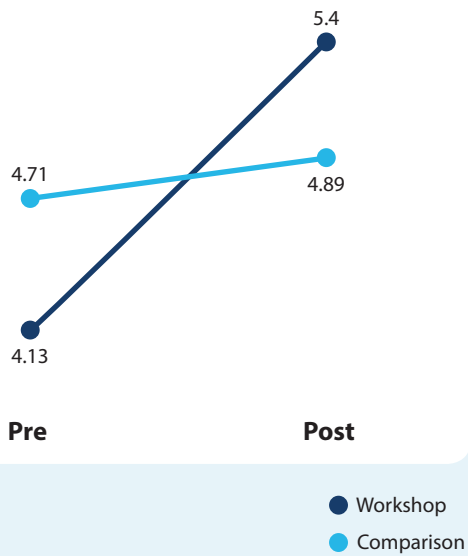


Figure 1. Change in workshop-related self-efficacy (General)

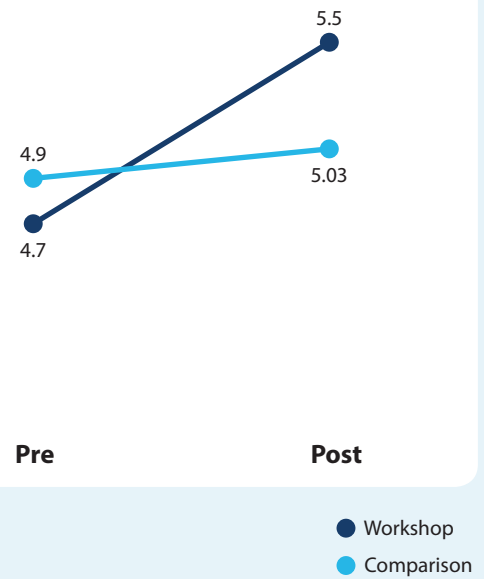


Figure 2. Change in workshop-related self-efficacy (Context-specific)

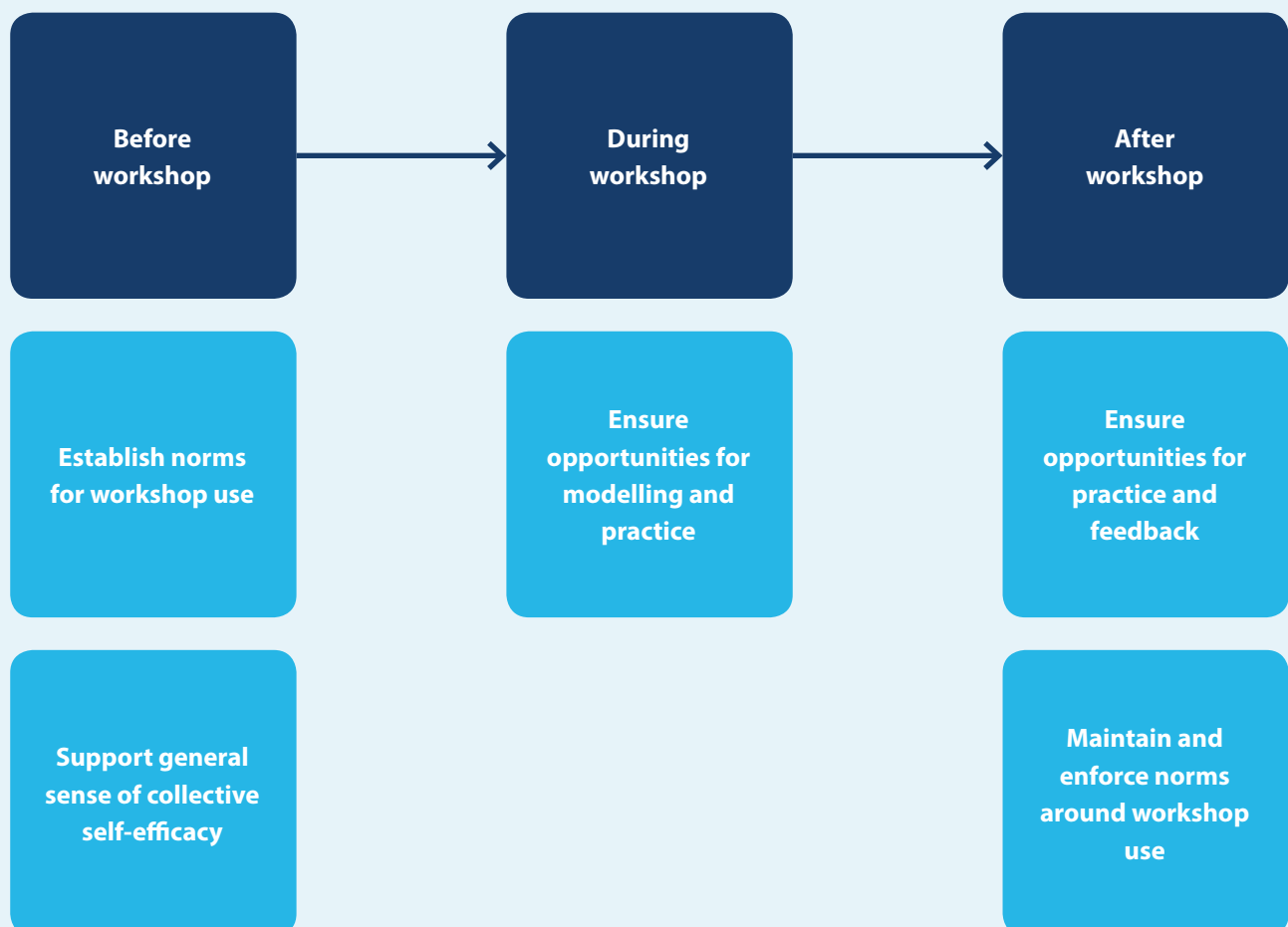


Figure 3. Critical success factors in this study before, during and after PD workshops

Summary

In assessing the IB's professional development model against the best practices identified through the literature review, findings suggest that IB PD is strongly aligned with the research literature in some areas, specifically coherence with curriculum and content, and consistency with principles of andragogy. However, there are also gaps in other domains, including practice and feedback, inclusion of school leadership in the professional learning process, and teacher beliefs and attitudes.

With regard to the pre- and post-workshop surveys, the findings from the study offer a positive indication of the potential for IB professional development to influence teaching practice in IB World Schools. Compared to pre-workshop attitudes and self-efficacy, after attending IB PD workshops, participants reported significantly more positive attitudes towards the IB's approaches to teaching and learning and significantly higher feelings of general, context-specific and collective self-efficacy. The survey data indicated positive changes for measures of self-efficacy, with medium to large effect sizes. Generally, similar changes were not observed among the comparison group.



References

- Bandura, A. 1986. *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ, US. Prentice-Hall, Inc.
- Banilower, ER, Heck, DJ and Weiss, IR. 2007. "Can professional development make the vision of the standards a reality? The impact of the national science foundation's local systemic change through teacher enhancement initiative". *Journal of Research in Science Teaching*. Vol 44, number 3. Pp 375–395.