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Research summary

Interdisciplinary learning in the International Baccalaureate

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

This study presents a set of promising practices for primary and secondary interdisciplinary learning and explores how these practices compare to current curriculum approaches in the four International Baccalaureate (IB) programmes: Primary Years Programme (PYP), Middle Years Programme (MYP), Diploma Programme (DP) and Career-Related Programme (CP).

Research design

Research and analysis were addressed through four methodological components, specifically: a literature review, an overview of IB resources, application of a benchmarking tool, and development of conclusions and considerations.

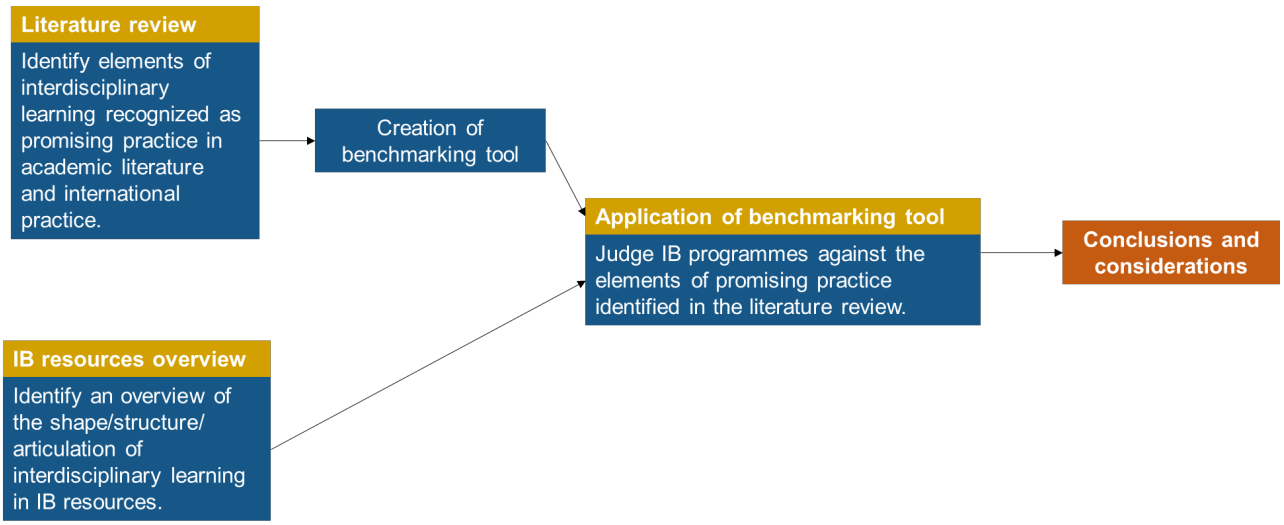

Figure 1. Research methods used

Findings

Highlights from the literature review

A review of research into primary and secondary interdisciplinary learning resulted in the following findings.

- There is not a universal definition of interdisciplinary learning that should be used in all contexts. While it is vital that stakeholders have clear and consistent definitions to work with, these definitions must be driven by the **purpose** for which interdisciplinary learning is being embedded into the curriculum.
- Interdisciplinarity is not a single variable, detachable from the wider constructivist pedagogy. Conceptual understanding, problem- and project-based learning, and student-led pedagogy, as well as other aspects of a constructivist approach, are intricately entwined with interdisciplinarity. Promising practice indicates that these pedagogic approaches work most effectively in tandem with one another.

- Interdisciplinarity is considered a more accurate reflection of real-world research and genuine roles in employment and industry. Promising practice for embedding interdisciplinarity into primary and secondary education should highlight the real-world benefits of becoming adept at working in an interdisciplinary way.
- Students themselves are rarely the initiators of promising practice. Curriculum design and teacher practice are the two most notable factors that scaffold promising practice, enabling students to benefit from interdisciplinary learning.

The most important output of the literature review was the identification of elements of promising practice (EoPP). In total, researchers identified 18 EoPPs (see table 1).

Review of IB curriculum documents using the benchmarking tool

Following the identification of the 18 EoPPs, researchers explored IB resources and documentation to understand how interdisciplinary learning is generally embedded within the IB. Additionally, based on the literature review, the researchers developed a benchmarking tool to assess each IB programme against the EoPPs.

The output of the benchmarking tool was 72 individual judgements that summarized the level of embeddedness of each EoPP within the individual programmes. Each judgement was categorized as one of: high embeddedness, moderate embeddedness, low embeddedness or no embeddedness. An embeddedness judgement of low in a specific programme does not automatically necessitate a fix. Instead, all of these judgements should be viewed as a snapshot, capturing the evidence of how each IB programme currently deploys examples of identified promising practice.

Elements of promising practice (benchmarking tool) Key: ■ = High embeddedness of element ■ = Moderate embeddedness of element ■ = Low embeddedness of element □ = No embeddedness of element	PYP	MYP	DP	CP
EoPP 1: To deliver a coherent, research-informed **definition** of interdisciplinary learning that is guided by the intended **purpose** of deploying interdisciplinarity.	■	■	■	■
EoPP 2: To engage clearly and coherently with the differences and similarities between **interdisciplinarity** and other related terms such as **multidisciplinarity** and **transdisciplinarity**.	■	■	■	□
EoPP 3: To ensure a significant level of teacher **scaffolding** to help students deploy disciplines and interdisciplinarity effectively.	■	■	■	■
EoPP 4: To explicitly link interdisciplinary learning with other features of **constructivist pedagogy**, including concept-based teaching, student-led inquiry, collaboration, and authentic learning.	■	■	■	■
EoPP 5: To clearly articulate and communicate to staff and students the **value** and **benefits** of interdisciplinary learning.	■	■	■	■
EoPP 6: To promote the use of authentic **problem-solving** and interdisciplinary **project-based** learning as two key tools for developing interdisciplinarity in the classroom.	■	■	■	■
EoPP 7: To create sufficient **flexibility** in the curriculum for teachers to authentically link learning to student interests and new	■	■	■	■

research developments, and to reflectively develop best practice approaches.				
EoPP 8: To encourage the use of a wide variety of **multimodal** sources, enabling students to build their own links between disciplines, and to explore knowledge areas.				
EoPP 9: To show **proactive engagement** with the key **challenges** that frequently cause a disconnect between the theory and the practice of developing interdisciplinary learning.				
EoPP 10: To develop interdisciplinarity within an **age-appropriate** structure, with scope for **development** along the primary to secondary age continuum.				
EoPP 11: To explain the link between interdisciplinarity and key **skills and competences**, including communication, critical thinking, synthesis, and metacognitive awareness of perspectives.				
EoPP 12: To take interdisciplinary learning into account in the **design of assessment**.				
EoPP 13: To **link interdisciplinary assessment** with conceptual understanding, disciplinary grounding, advancement through integration, and critical awareness.				
EoPP 14: To encourage **interdisciplinarity** and individual **disciplines** to **mutually reinforce** one another, with interdisciplinary methods being used to develop deep and innovative disciplinary understanding.				
EoPP 15: To embed interdisciplinary learning into the curriculum in a manner that takes into account the intrinsic and individual **nature of specific disciplines**.				
EoPP 16: To provide **continuing professional development** opportunities for teachers to learn about potential interdisciplinary content and refine effective pedagogies.				
EoPP 17: To encourage and enable collaborative practices within schools that encompass **teacher-to-teacher collaboration** within an effective format, but also involve a **school-wide effort**.				
EoPP 18: To **put time aside** in the curriculum explicitly for teachers to **reflect and collaborate** on interdisciplinarity, developing innovative methods, building understanding of content areas, and cultivating enthusiasm for interdisciplinarity.				

Table 1. Summary of benchmarking tool judgements

Main conclusions

Alignment with promising practice

Looking across all programmes, the IB currently embeds more than half of the identified promising practices to a high degree. As a whole, the IB has strong practices in the following areas linked to effective interdisciplinary learning: scaffolding, pedagogy, problem- and project-based learning, age-appropriateness, development of key skills, and encouraging teacher-to-teacher collaboration and school-wide contributions. Although there is scope to develop further clarity and consistency in some areas, this indicates that the IB is in a strong position to refine effective approaches based on its current curriculum models.

Interdisciplinarity by programme

Different IB programmes have different stated aims in relation to interdisciplinary learning and embed interdisciplinary learning in distinct ways. The PYP explicitly expresses itself as a transdisciplinary programme, and this was substantiated by the audit's finding of widespread use of subject integration across the curriculum. The MYP curriculum model

also suffuses interdisciplinary learning across all components, though some resources articulate the emphasis on interdisciplinarity more clearly and extensively than others. The DP and CP are not explicitly interdisciplinary programmes, but they do contain some elements that clearly channel interdisciplinary learning; specifically, parts of the core lend themselves to interdisciplinarity and some subject options are highly interdisciplinary.

Challenges and opportunities for embedding interdisciplinary learning

There are genuine challenges to effectively embedding interdisciplinary learning into primary and secondary education, but there are also specific actions that can help to overcome these hurdles. Some of the challenges include the risk of using superficial interdisciplinary examples rather than framing knowledge in a fundamentally interdisciplinary way, and the risk of failing to bridge the gaps in methods, logic and knowledge foundations of individual disciplines. However, there are also specific actions that can reduce the likelihood of these challenges impacting successful implementation of interdisciplinary learning. Such actions include effective and continuing professional development for school staff related to interdisciplinary teaching methods and content, as well as emphasizing the conceptual links between disciplines at both a macro and micro level.

Constructivist approaches to learning

"Breadth versus depth", an idea sometimes discussed in the context of interdisciplinary primary and secondary curricula, is a false dichotomy. Instead, interdisciplinary learning should be part of a pedagogic package that enables a balanced combination of both broad and deep learning. The links between interdisciplinarity and other aspects of constructivist pedagogy suggest that interdisciplinarity is not a distinct choice, but is part of an evidence-based constructivist approach to learning. Interdisciplinarity should be viewed as an effective conduit and a key constituent part of a larger constructivist package—enabling the development of both broad competences and deep subject knowledge.

Appropriate for any age

How interdisciplinary learning is embedded into primary and secondary educational frameworks should be shaped by the intended outcome of the interdisciplinary learning. With strong ties established between what interdisciplinarity is intended to achieve and how its nature is communicated to stakeholders, interdisciplinary learning can be appropriate for any age group.

Conclusions

This study identified a number of promising practices related to interdisciplinary teaching and learning. Some of these include that definitions of interdisciplinarity should be guided by the intended purpose of the learning and that interdisciplinary learning is most

effective as part of a wider constructivist pedagogy. The IB curriculum document audit revealed that, across programmes, the IB embeds interdisciplinary learning to a high degree. Some of the key areas of strength in IB practice are: scaffolding, pedagogy, problem- and project-based learning, age-appropriateness, development of key skills, and encouraging teacher collaboration and school-wide effort. While there are opportunities to develop further clarity and consistency in certain areas, the IB is in a strong position to continue to refine effective approaches for interdisciplinary learning across the four programmes.

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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