

# Survey about the place of inquiry within the International Baccalaureate

This survey aims to document attitudes, beliefs, convictions and teaching practices of International Baccalaureate mathematics teachers concerning inquiry-based learning (IBL) and the Mathematical Exploration within the IB Diploma Programme. This research is conducted by Jana Lackova under the supervision of Prof. Jean-Luc Dorier and Sylvie Coppé at the Geneva University. This survey is part of a PhD thesis that studies the place of inquiry within the IB and is independent from any IB mandated research.

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## **Respect for privacy and data retention**

The data will be collected in a completely anonymous way. We have no way of linking your answers to your identity. As a matter of fact, we do not record any personal data that could identify you. As a consequence once the responses are recorded we will not be able to destroy them if you request it. The data will be kept and archived under the responsibility of Prof. Jean-Luc Dorier (thesis supervisor), without time limit. The data may be reused as part of other research conducted by the above-mentioned officials. In addition, the data can be deposited on open science platforms (collaborative research tool) in order to share them with other researchers.

Before you get access to the survey, please fill out the following consent form.

## **Consent form**

- Based on the above information, I confirm my agreement to participate in the survey "The place of inquiry within the International Baccalaureate".
  
- I authorize the use of all data for scientific purposes and publication of the results in scientific journals or books.
  
- I have read and understand the conditions of participation in this survey.

This survey should take no more than 30 minutes to complete. If you wish to receive the results of the survey, please contact [Jana.Lackova@unige.ch](mailto:Jana.Lackova@unige.ch)

## General information

1. Nationality: \_\_\_\_\_

2. School information

Country			
Type of school	Public	Private	
		Profitable	Not for profit

3. Achieved education

Degree in mathematics			Degree in mathematics education			Teaching certificate	
bachelor	master	PhD	bachelor	master	PhD	Yes	No

4. Mathematics teaching experience:

In your 1 <sup>st</sup> year	1-2 years	3-5 years	6-10 years	Over 10 years

IB teaching experience:

In your 1 <sup>st</sup> year	1-2 years	3-5 years	6-10 years	Over 10 years

5. I have experience in teaching the following courses:

MYP	Mathematical studies	Mathematics SL	Mathematics HL	Further Mathematics HL

6. This year I have taught:

MYP	Mathematical studies	Mathematics SL	Mathematics HL	Further Mathematics HL

IBL stands for inquiry-based learning.

IB stands for International Baccalaureate

We suggest the following definition when referring to IBL:

Inquiry-based activities lead students to “observe phenomena, ask questions, look for mathematical and scientific ways of how to answer these questions (like carrying out experiments, systematically controlling variables, drawing diagrams, calculating, looking for patterns and relationships, making conjectures and generalizations), interpret and evaluate their solutions and communicate and discuss their solutions effectively.” (Dorier & Maass, 2014, p. 300)

## Previous experience with IBL...

	<b>YES</b>	<b>NO</b>		
<b>1</b> I experienced some IBL as a student.				
If YES	Strongly disagree	Disagree	Agree	Strongly agree
a. This experience helped me better understand mathematics.				
b. It was interesting but not very useful.				
c. It was a waste of time.				
If NO	Strongly disagree	Disagree	Agree	Strongly agree
a. An IBL experience would have enhanced my understanding of mathematics.				
	<b>YES</b>	<b>NO</b>		
<b>2</b> I used IBL approaches prior to my IB teaching experience.				
The IB provided me with my first IBL experience.				
I followed an IBL related training.				
If YES	Strongly disagree	Disagree	Agree	Strongly agree
a. This training helped me understand the principles behind IBL.				
b. It provided me with useful resources for the Mathematical exploration				
c. It helped me implement more IBL in my daily teaching.				
If NO	Strongly disagree	Disagree	Agree	Strongly agree
a. I did not have an opportunity to participate at an IBL related training but I would like to do one.				
b. I did not participate at an IBL related training because I already implement IBL in my teaching.				
c. I did not participate at an IBL related training because I am not interested in IBL.				

Institutional approach. To what extent do you agree with the following statements?

	Strongly disagree	Disagree	Agree	Strongly agree
1 IB is an institution that promotes IBL.				
2 I became an IB teacher because its educational philosophy promotes IBL.				
3 The IB provides sufficient resources to support IBL approaches.				
4 Assessment of students takes sufficiently into account notions of IBL.				
5 My school encourages teaching and learning based on inquiry.				
6 IBL is only marginal because teaching-to-test prevails in my school.				
7 I am aware of the existence of the document called "Approaches to teaching and learning".	<b>YES</b>	<b>NO</b>		
If YES	Strongly disagree	Disagree	Agree	Strongly agree
a) This document helps me reflect on my teaching practices.				
b) This document is too idealistic and far away from the teaching reality				

## Attitudes, beliefs and convictions about mathematics teaching.

Please indicate how important each of the following is to you as a mathematics teacher.

	Not very important	Somewhat important	Important	Very important
1 Allowing students to explore and construct meaning from investigations.				
2 Teaching to the test.				
3 Having students work on projects.				
4 Having students come up with their own questions.				
5 Allowing students to search for information (internet, textbooks...).				
6 Having students work in collaborative groups.				
7 Giving students a lot of exam questions.				
8 Using inquiry to introduce new concepts.				
9 Having students deal with unfamiliar problems.				
10 Giving students enough time to search for solutions.				
11 Allowing class discussions about different approaches to solve problems.				
12 Developing higher order thinking skills such as problem solving, inferring, predicting, generalising, etc.				

## Attitudes, beliefs and convictions about IBL.

To what extent do you agree with the following statements?

	Strongly disagree	Disagree	Agree	Strongly agree
1 IBL is effective for enhancing student understanding of mathematical concepts.				
2 IBL is a suitable preparation for standardized exams.				
3 IBL is more appropriate for MYP.				
4 IBL tends to disappear with the approaching exams.				
5 IBL helps overcome problems with students' motivation towards mathematics.				
6 IBL suites all students' needs.				
7 IBL works better for high-ability students.				
8 Weak students are not able to learn by inquiry.				

## Implementation difficulties.

Many educators believe that mathematics should be taught by inquiry. However, teachers may have concerns about using this method. Below is a list of “concerns” that might be encountered by mathematics teachers. To what degree do you agree with the following statements?

	Strongly disagree	Disagree	Agree	Strongly agree
1 It is too difficult to cover all content through inquiry.				
2 It is difficult to sustain inquiry because of the exam pressure.				
3 I am afraid that basic skills will not be mastered.				
4 I am afraid that students get lost and frustrated.				
5 I am afraid that discipline issues might appear (the students will be “off-task”).				
6 I don’t feel well prepared to teach by inquiry.				
7 I would need to change my teaching style.				
8 It takes too much time to develop meaningful inquiry activities.				
9 I don’t have enough IBL resources.				
10 The available instructional material is often of poor quality.				
11 Computer and other learning technologies are not available at my school.				
12 I am not equipped with the necessary mathematics knowledge.				
13 I find connecting mathematics to real-world context rather difficult.				
14 The mathematics needed to do inquiry is often inaccessible to students.				
15 Other:				

## The Mathematical Exploration: beliefs and convictions.

To what extent do you agree with the following statements?

	Strongly disagree	Disagree	Agree	Strongly agree
1 The Mathematical Exploration provides students with good opportunities to do mathematics.				
2 The Mathematical Exploration is good complement to the written exams.				
3 The Mathematical Exploration is a good way to assess inquiry-specific objectives.				
4 I wouldn't do the Mathematical Exploration if I had a choice.				
5 20% in the final evaluation is enough to reflect the importance of IBL.				
6 The Mathematical Exploration shouldn't count in the final assessment.				
7 The exploration makes me implement more inquiry-based activities daily teaching.				
8 Teaching the curriculum content and conducting the exploration are not compatible.				

## The Mathematical Exploration: teaching practices.

	Never	Sometimes	Often	Always
1 I let my students freely choose their topic.				
2 I limit the students' choices to certain areas of mathematics.				
3 I suggest exploration ideas as the teaching of the course progresses.				
4 I encourage students to use techniques such as mind maps to help with topic selection.				
5 I depend from the school calendar for the exploration.				
6 I have my students present their exploration in class.				
7 I organize individual interviews with my students.				
8 I give students time to work on their exploration in class.				
9 I explain in detail the assessment criteria.				
10 I do small investigation or modelling tasks in class prior to the exploration in order to foster inquiry-habits of mind.				

## Day-to-day teaching practices.

How often does the following occur in your classroom?

Please provide your answers based on your teaching experience with Mathematics SL course.  
(if Math SL)

Please provide your answers based on your teaching experience with a course of your  
choice: \_\_\_\_\_

	Never or hardly ever	1-2 times/ semester	1-2 times per months	on weekly basis
1 Introducing new topics/concepts through investigations or problems.				
2 Students working on unfamiliar problems.				
3 Students designing their own investigations.				
4 Modelling using real-life data.				
5 Working on rich tasks and open-ended problems.				
6 Students working together to share ideas				
7 Discussions about different solutions of problems.				
8 Students explaining solutions to each other.				
9 Solving exam-like questions.				

## Time for inquiry

1. On a scale from 0-100%, provide a value that best represents the percentage of instructional time your students are engaged in inquiry in Mathematics SL course: \_\_\_\_\_%

Or

- On a scale from 0-100%, provide a value that best represents the percentage of instructional time your students are engaged in inquiry in \_\_\_\_\_ course: \_\_\_\_\_%

2. Ideally, what percentage of instructional time should be devoted to inquiry? \_\_\_\_\_%