

Teachers' perspectives on incorporating TOK into everyday teaching

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Summary

This study into *Teachers' perspectives on incorporating TOK into everyday teaching* involved 26 International Baccalaureate Diploma Programme (IBDP) teachers from 3 different schools in China, Hong Kong, and Australia. I have used semi-structured interviews in this study to highlight teachers' perspectives regarding their experiences of integrating Theory of Knowledge (TOK) into their subject-based teaching. Teachers from across each of the IBDP's six subject discussed their experiences through face-to-face interviews at two of the schools at the end of 2019. For the final school, located in Hong Kong, disruptions resulting from the social movement beginning in 2019, and subsequently the Covid-19 pandemic in early 2020, resulted in interviews taking place via Zoom in early 2021. The aim of this report is to suggest key themes that emerged from these interviews, prioritising the views of teachers while using the researcher's interpretation and analysis to try and point to some of the commonalities that exist among the disparate voices. Participants were overwhelmingly positive about TOK as a core component of the IBDP. They saw it as a useful mechanism for helping students to think scientifically, historically or mathematically, and as key to the development of critical thinking. However, it was also clear that teachers generally lacked confidence about their understanding of TOK and that this then acts as a barrier to integrating TOK. Moreover, the teachers interviewed felt that there was not enough time to focus on TOK in their subjects. The report suggests that the interviews reveal that, rather than functioning as a core component of the IBDP, TOK is thought about and referred to as an 'added extra', with tokenistic references being made to it for the sake of 'checking boxes'. As such, implications of this research might lead to thinking through what it might mean look like to re-place TOK as core to the IBDP.

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Introduction

According to the International Baccalaureate (IB) 2019-20 Annual Review, there are over 3,500 authorised Diploma Programmes (DP) across the world. As of February 2021, there are in total 7,300 programmes being offered, inclusive of the Primary Years Programme (PYP), Middle Years Programme (MYP) and the Career-related Programme (CP) in 158 countries across 5,400 schools. The number of DP candidates according to the 2019-20 Annual Review was a little over 105,000.¹ These students typically complete one course from each of the six subject groups (Studies in language and literature, Language acquisition, Individuals and societies, Sciences, Mathematics, The arts), as well as the Core², comprising Theory of Knowledge (TOK), Creativity, Activity, Service (CAS) and the Extended Essay (EE).³

When IB first offered the DP in 1968, the first of a 6-year trial, there were “a handful of mostly private, international schools” (Tarc, 2009, p.12) that provided the 29 students who took the first examinations in 1970. By the final year of the trial, there were 377 students who sat examinations for the Diploma (Peterson, 2003, p.67). Just as the current iteration of the DP requires students to complete a subject in each of the six groups, this was also the case with the earliest development of the program, with CAS, TOK and EE being added in 1965, 1967 and 1972 respectively (Tarc, 2009, p.11).

Of course, there is much that has changed over the years as the IB has grown and as times have changed. At the heart of the DP framework is the Core –TOK, EE, CAS – and all students must complete these

¹ It should be noted that DP *candidates* refers to those who will complete the full requirements of the DP. To speak of DP *students*, is to include those who are known as DP *course* candidates. The latter group do not complete the full requirements of the DP and are, therefore, not eligible to be awarded the diploma. These students “may take as many or as few DP courses as they wish” for which they will be given scores out of 7. For more information, see “What is the difference between the IB diploma score and the IB diploma course results”:

<https://www.ibo.org/programmes/diploma-programme/assessment-and-exams/getting-results/assessment-faq/>

² In this report, I use the capitalised version of the term ‘Core’ to signify the group of subjects, TOK, CAS and EE (see footnote below for explanations of these courses). At times, I have discussed matters concerning whether or not TOK is ‘core’ in the understanding and implementation of TOK. When written with the lower case, I am referring to TOK’s centrality or importance. The distinction between the capitalised and non-capitalised versions of the word point to the distinction between how it is ‘imagined’ by the IB in its official documents and how it is ‘imagined’ in practice not only within schools but also, for example, through IB workshops. The IB, though, when referring to the group of courses TOK, CAS, and EE, uses the non-capitalised ‘core’. As such, I have preserved this when quoting directly from the IB. The context of the quotes should make the intended meaning clear.

³ As described by the IB, the DP core comprises:

“- [Theory of knowledge](#), in which students reflect on the nature of knowledge and on how we know what we claim to know.

- [The extended essay](#), which is an independent, self-directed piece of research, finishing with a 4,000-word paper.

- [Creativity, activity, service](#), in which students complete projects related to those three concepts.”

More about the DP curriculum, including requirements for completing the Diploma and information about the six subject groups, can be found here: <https://www.ibo.org/programmes/diploma-programme/curriculum/>

components in order to be awarded the Diploma. And while there has been significant change within these three components of the Core, it is interesting to note that TOK has been part of the DP since its inception.

As Peterson himself writes, the TOK course “was to many the crown of the whole” DP (p.46). Peterson notes that the aim in developing TOK was to “counteract two weaknesses” identified in other university preparation courses:

The first was the tendency which most students had to study their different subjects in watertight compartments. Not only did they fail to relate apparently disparate subjects such as physics and history to each other; they often did not see the connections between literature and psychology or history and literature...The second weakness was the failure to make explicit in the minds of students the differing forms which academic learning and knowledge take. (p.47)

Thus, TOK was designed to help students to “think about the questions which underlie the nature of knowledge as presented in the school disciplines and his daily life” (p.48). In many ways, little has changed in regard to the aim and form of TOK over the decades since it was first conceived. Within the duration of this particular project, one of the more historically significant changes to the TOK syllabus took place. Previous modes of assessment and the list of Areas of Knowledge (AOK) have both changed and the use of Ways of Knowing (WOK) has been removed altogether (IBO, 2020). Yet, TOK still aims to assist students’ thinking about “the questions which underlie the nature of knowledge” within and across the disciplines.

To fulfill this aim of having students consider knowledge-related questions both within and across the disciplines, the IB states that “all DP teachers are encouraged to help students to identify TOK knowledge questions in their subject lessons” (IBO, 2015, p.61) and that “The DP coordinator should ensure that the TOK teacher and the individual subject teachers collaborate in developing an understanding of the requirements of TOK across the DP” (IBO, 2015, p.24). The DP is a rigorous and demanding programme, for both students and teachers. There are increasing demands on what schools are expected to do, and provide, for students. This, of course, means that there are increasing demands on teachers. As such, this study sets out to gain the perspectives of teachers on the challenges and successes in attempting to incorporate TOK into their everyday teaching, in an attempt to fulfill the aim of assisting students’ thinking about how to understand the nature of knowledge within the disciplines, and the connections between them.

Literature review

TOK is referred to as serving a range of different purposes. As such, the precise aims of TOK is not always clear. Hughes, in referencing the 2013 IB Course Guide for TOK, refers to it as “a course ‘in critical thinking’” (2014, p.30). Horn and Veermans also claim that TOK as a “course is specifically designed to facilitate development of [critical thinking] skills which are taught explicitly” (2019, p.27). However, this is not necessarily how TOK has always been framed. As Peterson notes, TOK was designed to help students to “think about the questions which underlie the nature of knowledge as presented in the schools' disciplines and his daily life” (2003, p.48). And in the most recent Course Guide, the term “critical thinking” only exists once, as an example of a knowledge question. The list of the aims of TOK are focused on how we know what we know, an understanding of different perspectives, the development of open-mindedness, intercultural understanding, consideration of ethics, ambiguity and the ability to critically reflect on one’s own position (IBO, 2020, p.8).

Of course, one might argue that all of these aims are inextricably tied to the concept of critical thinking. Indeed, it would appear that the IB has, over its history, positioned TOK in this way, rather than explicitly stating that it is a course about, or for, critical thinking. Hughes himself acknowledges that, “the syllabus description is, arguably, not specifically focused on developing critical thinking skills (2013, p.37). While he makes the claim that the five course aims listed in the 2013 syllabus “relate to critical thinking more explicitly” (p.37), I would suggest that the aims conform to the more consistent historical pattern in which criticality is implicit, rather than TOK being presented as a course primarily for critical thinking.

Thus, TOK may be better described as a course concerned with knowledge. This leads some to note that the course “is essentially one in epistemology” (Hughes, 2014, p.36), while others view it as about “explicitly connecting and differentiating the methods and assumptions of the disciplinary traditions” (Tarc, 2009, p.29). Bergeron and Rogers state that TOK is “designed to develop student understanding of knowledge and the process of knowing” (2015, p.4). Condoleon notes that IB “emphasizes the development of critical thinking skills...” but does so “...via the exploration of ‘knowledge questions’” (2018, p.7), linking the two major notions of critical thinking and knowledge. This is also how TOK is framed by Cole et al. who write that TOK seeks “to teach critical thinking explicitly and systematically in an epistemological course” (2015,

p.248). This dual purpose of TOK contributes to the seemingly allusive nature of the course. As Hamer notes, “The ToK Guide (1994) maintains the course is not a philosophy or an epistemological subject although these issues will be confronted” (2010, p.43). Indeed, in the current course guide the terms ‘philosophy’ and ‘epistemology’ do not appear at all – neither as a description of what the course is, nor what it is not.

One could reasonably argue that TOK is a course about knowledge – understood through “the central question, ‘How do we know that?’” (IBO, 2020, p.8) – with the aim to develop critical thinking. Affirming this kind of view, Beek notes that the evaluation of differing perspectives, critical thinking and open-mindedness are all developed in the DP through TOK (2017, p.19). However, this focus on thinking may be too narrow a definition. Indeed, Clissold describes the course with a nuance that shifts the focus of its purpose away from the seemingly “hard” and rational aim of critical thinking when she describes it as a “course that explores the nature of knowledge across all disciplines, encouraging an appreciation of other culture, international perspectives” (2012, p.69). It is clear, then, that there are a range of purposes that TOK sets out to achieve that should be understood as distinct, though not mutually exclusive. Wright and Lee put it well when they state that “through the TOK course students develop core cognitive skills, such as critical thinking alongside *interpersonal* non-cognitive skills, including an international outlook” (2014, p.204). Similarly, Metli and Martin write that “TOK encourages students to appreciate other cultural perspectives through critical thinking” (2018, p.30), highlighting that there are a range of desired outcomes for TOK, both cognitive and dispositional, and relating to international-mindedness.

To see TOK as serving a number of important purposes in DP students’ development is part of why the course “was to many the crown of the whole” DP (Peterson, 2003, p.46). However, the apparent lack of clarity or a fixed purpose can function to make it a difficult course for teachers to understand and integrate. This study seeks to hear from teachers about their experience of trying to integrate TOK and what it is that this would mean for them. While this may cast some light on what the teachers themselves perceive to be the purposes of TOK, this report is primarily concerned with understanding teachers’ thoughts on integrating TOK into their lessons.

Research design

Aims of the study

In this research project, I aimed to investigate how IB teachers feel about the challenges and successes of incorporating TOK into their teaching within the different subject groups of the DP. Given that the IB states that the 'core relies on the disciplines to provide enrichment' and that this involves 'transferring the critical thinking process developed in TOK to the study of academic disciplines' (IBO, 2015, p.62), I sought to explore teachers' perceptions of the successes and, especially, challenges in achieving this.

The research thus aimed to provide a better understanding of problems and possibilities for TOK integration at the level of curriculum, pedagogy and teacher professional development. It is hoped that this small study will provide a good basis from which further targeted research and policy work can proceed.

The key research questions underpinning the project are:

- What are the key challenges that teachers face in incorporating TOK into their classes?
- How are the aims of TOK as a Core component of the DP understood by teachers?
- How is TOK understood and incorporated by teachers in different subject areas?

Method

The research method involved, firstly, a literature review exploring how TOK has been understood. As far as I could ascertain⁴, there is no existing literature that focuses specifically on the integration of TOK across the subjects. Secondly, the study involved the collection of interview data which was interpreted and analysed in an attempt to identify themes and implications. These interviews were semi-structured as this approach enables the researcher to 'gather data on the more intangible aspects of the school's culture, e.g. values, assumptions, beliefs, wishes, problems.' (Cohen et al., 2007, p.97) The semi-structured interview, then, allowed me, as the researcher, to understand how teachers themselves perceive the challenges and opportunities that the incorporation of TOK into classroom teaching presents. So while the semi-structured interview sets the agenda for the conversations, it 'does not presuppose the nature of the response.' (Cohen

⁴ While I searched for any literature related to TOK using the university library database, Google Scholar, and more generic Google searches, my approach is perhaps best described as a hybrid between a literature review - which, as described by Grant & Booth (2009), "may not include comprehensive searching" and provides "examination of recent or current literature" (p.94) – and a critical review, which involves elements of critical evaluation of the literature rather than mere description (p.94),

et al., 2007, p.321) As such, once the research participant begins to respond, the semi-structured approach provides the possibility to ask follow-up questions in order to probe deeper into the responses which may not have been expected. I devised interview questions with the research questions in mind (see below) and in response to the IB's stated aims for TOK's incorporation into the DP more broadly.

The plan was to record semi-structured interviews with 24 teachers across three different schools (8 teachers per school), in three different countries (China, Hong Kong, Australia). The primary reason for conducting interviews in three different countries was to see if there were any system level and cultural differences that had any noteworthy influence on the findings or, indeed, if these were not particularly relevant to teachers' perceptions of the challenges and successes in integrating TOK. The hope was to primarily interview teachers who do not teach the specific subject, TOK. This was to allow me to understand the particular challenges faced by those who are not ordinarily involved in the teaching of TOK. While one may assume that non-TOK teachers will find the incorporation of TOK into subject-specific classes more difficult, there are other factors (such as, for example, the number of years of IB teaching experience, included in the participants table below) that may contribute to teachers' sense of self-efficacy in this area. Schools were asked to invite interest from teachers from the following four categories.

- 1: Group 1 (Studies in language and literature) and Group 2 (Language acquisition);
- 2: Group 3 (Individuals and societies);
- 3: Group 4 (Sciences) and 5 (Mathematics) teachers; and
- 4: Group 6 (The arts).

The plan was to interview two teachers from each category ($2 \times 4 = 8$) in each of the three schools ($3 \times 8 = 24$), to enable six distinct responses from individuals in each of the four categories. However, this could not be guaranteed. While I asked school representatives to try and ensure at least one participant per category, I was careful not to place pressure on participating schools.

Participants

I have created pseudonyms for each of the schools and research participants to protect their identities. I have also attempted to discuss the data and findings in this report without linking teachers to a particular

school unless it was important to the analysis. The actual breakdown of teachers interviewed and their teaching subjects can be seen in the table below. While teachers have not been linked to their schools, it is worth noting that there were seven participants from Brisbane Independent College, nine from International School China, and 10 from Island International School Hong Kong.

Pseudonym	Subjects	Years of teaching IB	Taught TOK before?
1: Nina	Spanish B	8	Yes
2: Ken	English A	11	Yes
3: Evan	History	10	Yes
4: Connor	English A, History, Business	11	Yes
5: Julian	Physics	1	No
6: Shannon	Mathematics	6	Yes
7: Ruth	TOK	7	Yes
8: Mary	Chinese B	11	No
9: Rose	German A	8	No
10: Bill	Business & Economics	9	No
11: Perrin	English B & Spanish B	7	No
12: Asha	Geography	3	No
13: Christian	Mathematics	5	No
14: Judy	Visual Arts	5	No
15: Jackie	English A	6	Yes
16: Henry	Science	7	No
17: Theresa	Mathematics	15	No
18: Dwayne	History	4	No
19: Rosalyn	History	11	No
20: Andrew	Economics & Business	6	No
21: Gladys	English A	10	Yes
22: Martin	Chemistry	5	Yes
23: Lloyd	Economics	8	No
24: Elle	English A	7	No
25: Paul	Geography	6	No
26: Lani	Biology	7	No
Total	6 Language & literature 4 Language acquisition 12 Individuals & societies 4 Sciences 3 Mathematics 1 Visual arts 1 TOK ⁵	Mean: 7.46 years Standard Deviation: 2.94	35% have taught TOK before

Schools

The schools selected were chosen because of the various differences among them in terms of history, size, structure, student demographics, and systems. A brief overview of each school is provided here.

International School China (ISC)

International School China is a well-established three-programme IB school, with experienced teachers and leaders. At the time of the interviews, total student enrolment was over 500 students. Approximately 70 students were in the final two years of schooling, with most of these students engaged in the Diploma Programme. The school has a culturally diverse student population with over 30 nationalities represented. In recent years, the school has seen a growing number of Chinese heritage students enrol.

Being in the school, one was immediately struck by the vibrancy, positivity, and forward thinking. It was a busy place, though still warm and inviting. Most of the teaching faculty come from Anglophone countries such as the USA, Australia and the UK. Of those coming from other countries, approximately one-third were Chinese. Teachers at ISC have generally been teaching for more than 5 years and had IB experience before joining the school.

Brisbane Independent College (BIC)

Brisbane Independent College is a large and well-established co-educational private school catering to mostly Australian students. The Queensland Certificate of Education is taken by most senior students, while the DP is undertaken by around 25% of students who are in their final two years of schooling.

The school grounds feel secure, providing an ideal environment for students to happily engage in learning. The vast majority of the teaching staff are 'white' Australians, well-qualified and experienced. Most teachers at BIC teach the state curriculum, and those who do teach IBDP generally have classes in both systems.

⁵ Some teachers are represented in more than one subject area, thus the total number of subjects represented is greater than the total number of research participants.

Island International School Hong Kong (IISH)

Island International School Hong Kong is also a large and well-established school. Its curriculum offering includes the PYP, MYP and DP, and most of the school's graduating students sit for the DP exams. A sizable portion of graduating students have been at the school since the primary years, and while around 40 nationalities are represented at the school, about one-fifth are local Hong Kongers.

The faculty is very experienced, with the majority of teachers having more than four years of experience, with many holding postgraduate qualifications. A number of faculty work as school visitors, workshop leaders or examiners for the IB. The faculty largely come from the Anglophone world and less than 10% of the teachers are local Hong Kongers.

Interviews took place on-site at the first two schools - ISC and BIC - in early-October and late-November of 2019 respectively. Interviews at IISH were postponed on a number of occasions. First, they were postponed because of political unrest in Hong Kong in 2019. This led to the closure of schools for some time. Just as it looked as though interviews may be possible, Covid-19 cases began to be detected in Hong Kong in early 2020. Various attempts were made to reschedule the interviews, however, by the end of 2020 with Hong Kong schools closed again, at least until mid-February 2021, it was decided to conduct the final interviews via Zoom, which took place in March of 2021.

Findings and analysis

As might be expected, the interviews revealed a vast range of perspectives. Each individual teacher shared views that were, inevitably, based on their own experiences as an IBDP teacher. Some of the research participants had strong philosophical backgrounds, whether in the discipline of Philosophy or with respect to the philosophical foundations of their particular discipline. Others spoke of having a more practical approach to their subject content, sometimes finding the more esoteric elements of TOK rather challenging. Even the keenest advocates of TOK generally expressed that, each year when the prescribed essay topics were released, they saw the topics as challenging for themselves, let alone the students. Depending on each teacher's experience and confidence levels, they found textbook resources for integrating TOK into lessons highly valuable or not particularly helpful. Overwhelmingly, the research participants believe that

TOK is a really important component of the IBDP. They could see the potential benefits of TOK as a subject, and as a core element that works its way through the entire programme. These perceived benefits largely revolved around the way in which TOK could help students to: develop an understanding of, and comfort with, different perspectives when it comes to knowledge and truth; learn to think critically and to evaluate claims, and; better understand each of the disciplines in terms of their limits and possibilities for explaining the world. In short, the benefits of TOK relate to multiple perspectives, critical thinking, and epistemological awareness. While one may always be able to quibble over the details, this suggests that the research participants largely view the aims of TOK in the same basic way as was intended right from the outset.

While the potential benefits of TOK was acknowledged by, if not all, the vast majority of teachers who participated in the study, there was less consensus about the success of TOK as part of the DP. To speak of 'success' here, is to reference how TOK manifests and is 'imagined' in official IB materials, as well as resources created for the IBDP (often these are not produced by the IB itself), and how it is implemented and received by schools, teachers and students. That is to say, the attitude of a number of participants is akin to 'TOK is a great idea in theory, but it doesn't work so well in practice'. For a minority of research participants, this 'reality' has led them to "pull away" from TOK. For the majority, what this means is that they remain in the struggle to try and find ways to do a better job of bringing TOK into their subject-specific lessons. As with any struggle, there are moments of greater focus in trying to overcome the challenges. For the most part, the teachers who were interviewed expressed an ongoing desire to better incorporate TOK into their lessons, but that seeing this desire materialise was difficult. This discussion of the findings will begin by considering some of the successes of integrating TOK into the subjects, before focusing on the challenges.

Before moving into this, it should be noted that much of the discussion of themes is presented in sections categorised by specific subjects. In doing this, I try to show the consistencies as well as the 'outliers' from teachers teaching the same subject. What this means, though, is that not all subjects are represented all the time. This is partly a practical decision as there is too much data to quote extensively. But it is also an editorial decision as I have tried to select the most relevant and most representative material as I see it.

Successes in integrating TOK

I have chosen to use the term 'success' in a somewhat generic sense. Rather than viewing success as purely performative, referring to a situation in which a goal has been set and achieved, the understanding of success being used here may refer to the ways in which TOK is conceptualised by the research participants, and whether or not they view it in positive terms. Moreover, an example of 'success' would be that a teacher has made an attempt to integrate TOK into their lesson and feels that this resulted in positive outcomes. Positive outcomes here could refer to students' increased understanding, but also to students identifying connections between TOK and the particular subject-based lesson, or even a sense that students were interested in the lesson. Positive outcomes may also refer to teachers' sense of achievement or feeling positive about further attempts at integrating TOK into their lessons. Perhaps one of the clearest themes to emerge in relation to 'successes' was teachers' sense that TOK was a 'natural' or 'easy' fit with their subject.

The 'natural' connection between TOK and the subjects

Given that TOK was designed to help students to "think about the questions which underlie the nature of knowledge as presented in the school disciplines and his daily life" (Peterson, p.48), it was interesting to hear teachers across the disciplines suggest that TOK was a 'natural', or 'easy' fit with their subject. This is not to say that all teachers felt this way. The reasons for not seeing an 'obvious connection' between TOK and a particular subject were varied and are often connected to many of the reflections on challenges in integrating TOK into the everyday classroom. Some of these reasons relate to individual teachers' sense of not understanding TOK itself, their belief that their subject was content-focused and content-heavy, or not thinking about their particular discipline as a distinct vehicle for knowledge production. For some, though not all, the view that their subject was not a 'natural' fit with TOK, whatever the reasons that may have been given or implied, could be correlated to inexperience as a teacher, inexperience with the IB, or inexperience with TOK. For a few, the correlation seemed to be less about inexperience and more about either coming to their discipline, or having been trained in their discipline, in such a way that epistemological matters had not been of importance. The remainder of this section will focus on the ways in which the research participants in different disciplines spoke positively about the connection between TOK and their subject.

However, the analysis I offer looks to highlight the ways in which some of the teachers view a 'natural' relation between their subject and TOK as problematic when thinking about incorporation, as well as the instances when a lack of this criticality by some teachers leads to weaker integration.

History

Rosalyn states that there are some obvious links between TOK and History. She says, "if we talk about an example in history, I know perspective is the thing that comes up often and it is easy to look at perspective in history". She also notes that "historical truth" is something that comes up quite often as a connection point between history and TOK. While acknowledging this 'natural' connection between TOK and History, other teachers reflected on, and questioned, the nature of the connection. Evan comments that there are "congruent goals between the historical thinking - the conceptual metacognitive aspect of history - and Theory of Knowledge...within class, they [the students] should be looking at History in terms of the way knowledge is produced, rather than just a set of historical events". He also notes that, between the six historical concepts⁶ that underlie the History course, and the fact that History is one of the eight Areas of knowledge within the TOK framework⁷, the subject is positioned well to have TOK discussions happening quite naturally.

One interesting aspect of this, though, is the way in which that seemingly 'natural' connection may lead to TOK being explored in a more implicit way. Indeed, Evan says, "I think a lot of History teachers are doing it that way. I was doing that". But he goes on to say that "if you want to achieve the goals of teaching within the IB diploma, and teaching what is distinctive about the IB diploma, then it needs to be married with TOK, because I think that is one of the distinctive features. We are not just working within discrete discipline with addressing something called "knowledge", and looking at how it operates, how it is gained across disciplines. That needs to come from the center of TOK and needs to come from surrounding disciplines as well, in an intersecting sort of way".

⁶ The six historical concepts for DP history are: change, continuity, causation, consequence, significance and perspectives.

⁷ When the project began, there were 8 Areas of knowledge in TOK for the students to explore: mathematics, the natural sciences, the human sciences, the arts, history, ethics, religious knowledge systems, and indigenous knowledge systems. In the new course guide, which will first be assessed in 2022, there are five Areas of knowledge that students are required to study: history, the human sciences, the natural sciences, the arts, and mathematics.

Connor echoes Evan's point. He suggests that "it's an easy integration...because we are constantly looking in History, constantly examining the sources, and so basically, you are bringing in the notion of TOK all the time". However, on realising that he may have previously been addressing TOK matters in an implicit sense, Connor says, "I don't think it is good enough, because I think when you... teach TOK, you develop a lot of metalanguage that you don't necessarily have [outside of TOK], and so... the relevance becomes clear to the kids, if they have got the language as well". This comment reflects a view that if subject teachers are not using the language - the metalanguage, as Connor puts it - of TOK, then it puts students in a position where they may not only become confused, but find it difficult to see the links between the key concepts in TOK and their subjects. So while a focus on historical concepts may touch on many of the same questions that one might expect from TOK, if these questions and discussion are not approached using the same kind of language and framework as TOK, then the students will likely miss the connection.

Studies in language and Literature

The perceived connection between TOK and the subject also exists for teachers of Language and literature. For example, Jackie says, "I think that the nature of Lang and Lit, you know, it's about interpretation and language is a way of knowing and you know, how does the meaning of a text change when we read another text, what is the role of culture, the things that are implicit to the Lang and Lit course, by their very nature, are kind of TOK thinking". It was interesting to hear that a number of teachers suggested that the apparently 'natural' connection between TOK and Language and literature is something that students were also able to identify. Elle talks about the many times her students tell her that what they are doing "is TOK". Reflecting on this, she says, "of course we are, you know, when we're looking at...what we extract from literature and what, you know, the construction of language means to us. So, yeah, I feel like the fit [between TOK and Language and literature] is maybe too natural sometimes". This phrase, "too natural sometimes", spoke to the "implicit" nature of the connection that Jackie had identified above, and that some of the History teachers viewed not only as a strength, but a potential problem. Nevertheless, when the teachers talked about some of the things they do with their students, it was clear that in many classrooms there exists an analytic distance that involves the students stepping back to consider the construction of texts by imposing

techniques and language of interpretive criticism. The question then becomes whether this distance provides a space to bring the metalanguage of TOK into the lesson.

Gladys concurs with the other Language and literature teachers, saying, “yeah I feel it’s a very natural lead into it [discussions of TOK in the class]”. She then refers to some of the techniques or tasks that are associated with Language and literature and these, perhaps, speak to this analytic distance that may help to create the space to allow more explicit connection to TOK. Gladys proceeds, “because when we talk about, even just the power of language, when we annotate a ... non-literary piece, for example, a speech, we immediately look at the sense of connotation, and the use of euphemism. And so students are aware of different subtleties of it, and then, when we draw back into terms of the context of it all, they just get into different ways to look at that piece from different readers’ responses, different readers’ effects, let’s look at the author’s purpose, so it seems like a natural blend”. What this comment alludes to is that seeing the “natural blend” of TOK and one’s subject needs to be seen as an opportunity to take the next step of incorporating TOK into the lesson, rather than as an end in itself. One of the ‘traps’ perhaps for teachers who feel that their subjects quite easily deal with the aims of TOK as being about the constructed nature of knowledge, and the possibility of different perspectives, is that they may feel as though the ‘TOK job’ is done when, in actual fact, the students may not have had the opportunity to draw direct and explicit connections between their text analysis and questions of knowledge as they emerge in TOK.

A number of teachers also commented that when there seemed to be ‘obvious’ connections between their class and TOK, the students themselves would often acknowledge this. When asked about how she finds the task of incorporating TOK into her German Language and literature classes, Rose replies, “Actually it’s quite easy in literature because we talk about language and how language is transferring knowledge, it’s kinda made out...different levels of knowledge which are shown in literature”. She then goes on to refer to TOK notions such as ‘personal knowledge’ and how this is connected to how truth is constructed. Rose continues, “so it’s not like there’s one truth, it’s a constructed thing out of many parts and it’s personalized, and it depends on your personal experience, personal knowledge to see the different messages and the different layers. So the core I would try to teach my students is that every piece of writing has a reason to be done in this time, in this society by this person and you as a reader, take something different out of it,

depending on your background, your culture, your knowledge, your experience, your gender, your age, so you can re-read the text every time again and every time you read it new because you changed. And then they say, '(gasp), this is TOK'. This is another example of the fact that there is something very positive about the seemingly 'natural' connection between the subject and TOK. It is, perhaps, a recognition that bringing to DP students' attention that the epistemological structure of disciplines is relevant to their experience in each of their subjects. It is also an example, though, of possible lost opportunities for teachers to be more explicit in making the connections themselves.

One very interesting reflection came from Ken, whose comments did not contradict other Language and literature teachers but approached the connection between the subject and TOK from a rather different angle. Ken mentions that he connects his English literature class to TOK "every lesson". He talks of beginning each lesson with three or four objectives on the whiteboard and that "almost always, at least one will be theory of knowledge based". What's interesting about Ken's explanation of this is that he doesn't immediately state that this is because there is an easy link between TOK and Literature. Instead, he actually suggests that "English is so much candy floss at times" and that he uses Ways of Knowing, Areas of Knowledge, and the language and process of claims and counter-claims as a way to have students engage more critically with a text. "Then the literature", he says, "comes to life with our skills from Theory of Knowledge". This was a different way of thinking about the connection. While teachers generally began with their subject expertise and then thought about how to associate that with TOK, Ken looked to TOK to enrich the analysis of literature. Viewed this way, incorporating TOK was not either an unwanted or unnecessary imposition on the class, but a welcome pedagogical device. This reflection is suggestive of a possible way to reconceptualise TOK so that it is not seen so much as an 'added extra', but as an important way of opening and deepening the students' engagement with the subject itself.

Mathematics

After talking about the way in which introducing complex numbers to students "is mindblowing" for them, Theresa is asked if she thinks TOK and mathematics go well together. Her response is unequivocal, "I think it's a phenomenal fit". However, she immediately cautions that this does not mean that all mathematics teachers integrate TOK or know how to do it well because a number of mathematics teachers may have

backgrounds in business, economics or science rather than pure mathematics. She says, “when you have people who have not necessarily themselves explored the mathematical world beyond what kind of second year of university maths level is then, for them, maybe TOK doesn't feel as natural”. This is something that became apparent during the interviews. There were teachers for whom the philosophical foundation of their discipline was both interesting and of great importance. Some teachers, though, reflected that they did not generally give much thought to the deeper epistemological nature of their subjects.

While the interviews did suggest that one's own education and interests have an impact on the way in which TOK issues are understood, embraced or resisted, some participants gave good insight approaches to TOK integration that might appear to be less esoteric and 'deep'. Indeed, Christian notes that there are ways to engage students in TOK aspects through applied mathematics: “we are looking at ways of presenting statistics and sort of looking deeper into house prices. For example, a median would be the one you would use if you are buying a house, and an average would be the one if you are selling a house, what are the ethics involved in that into presenting the data in a different way?”. He comments that when issues to do with the application of mathematics in the real world are being discussed, the students are generally quite engaged. Christian then mentions that he had begun introducing calculus to his class and the 'limit paradox', and then says, “that was a bit more esoteric and they were not quite as engaged in the esoteric stuff than the real world, but it's still a real link to TOK”.

These comments from Theresa and Christian raise some important points. Firstly, it would seem that there is a sense that mathematics fits well with TOK, whether in its 'pure' or 'applied' form. However, the likelihood of the students being engaged in these TOK aspects of mathematics, and developing curiosity as well as understanding, depends in part on the ability of the teacher to be able to explore the particular connection. Theresa is highly trained in pure mathematics at a postgraduate level, but many mathematics teachers completed a major in mathematics as part of a liberal arts degree or their teacher training and, as such, do not have the same depth of knowledge. What is important, then, is that teachers are able to see and understand the opportunities they have for integrating TOK based on their own strengths, rather than feeling as though they have to be able to comment on the same topics as their colleagues.

Language acquisition

Teachers focusing on particular areas of interest or aspects of TOK that seemed to best connect with the particular subject understandably seems quite common. For example, language acquisition teachers talked of the opportunities that their subjects presented for integrating TOK through discussion of culture. As Mary says, “For example in another unit on ‘physical well being’, we were talking about, discussing, the Chinese traditional way for [medical] treatment. Some students showed interest in the topic about the ‘phases’, like the ‘scientific phase’ and the ‘religion phase’. How do they balance? For some monks in China, when they get sick, what do they believe more? The scientific phase or their religion phase? I feel it’s a very good topic”. In discussing different cultural perspectives, it can be quite common to then focus on issues of contention, and to discuss these reflectively.

Perrin comments that one of his students said to him, “You do a lot of TOK in your lessons. And I don’t think I do like a proper TOK...I don’t really think that I embed TOK within my lessons, but I like my students to actually think with the language...and I think this is why my students feel that I am introducing TOK, because I think they have this kind of idea that, ‘okay, when we go into the TOK, we start thinking’”. Perrin gives examples of some of the lessons he does in Spanish B and these examples reflect an approach that tries to connect language to the ideas that structure our thinking and behaviour. The conversation with Perrin was interesting, however, because it was sometimes unclear as to whether he saw a link between language acquisition and TOK or if the link was more to do with his own predilections. For example, he states, “I am a very reflective person and being reflective is probably...one of the IB learner profiles...I like best”. For Perrin, then, the connection between TOK and Language B may have been less important than the seemingly ‘natural’ connection between TOK and his own interest in thinking and big ideas. This differing sense of naturalness, though, appears to have a similar effect in terms of potentially diminishing the engagement with TOK in an explicit way. While it is not entirely relevant to the discussion here, it is worth noting that despite his ‘philosophical disposition’, when asked if he uses language and framework of TOK, Perrin responds, “I don’t use it...I don’t even know the jargon, terminology, knowledge question and I don’t know”. This comment also speaks to issues that will be covered later when looking at the challenges to incorporating TOK, such as the ‘jargon’ and a general lack of understanding or confidence with the specificities of TOK.

Sciences

Perrin is not alone in being drawn to the class discussion of concepts and ideas that TOK encourages but feeling less sanguine about the 'TOK package'. At one point in our conversation, Martin said, "my opinion is, if you can avoid - or explain to the kids that you might have to use some of this language in your essay and exhibition - but, just remember if you're talking normally you don't need to use it. The very first example is using the word 'knower'. It's not something that people use in normal conversation and it's quite frankly absurd". Yet, he was also clear as to the reasons why he felt that TOK was easy to integrate into the Chemistry classroom. The first reason he provides is that he is "just interested in that kind of thing to start with". In saying this, he is referring back to earlier in the conversation when he said that while TOK was about both the methodological framework for each subject and critical thinking, it was also about "philosophy". As such, the first reason why Martin believes it has been easy for him to see the connections between TOK and Chemistry is because of his interest in the philosophy of science. The second reason Martin provides, though, is far more procedural: "when I first started teaching chemistry, I didn't use my own resources...someone was already at the school doing it and you look what they've got and you try and just go along with that plan to start with. And my colleague [mentions the name], on every presentation she makes has on the second slide a TOK section. So, every single lesson, you...sometimes have a one-minute conversation, sometimes it can go on for a little bit longer. And it's a good reminder for students...and it also gets students to think about chemistry". This second point, then, is less about Martin himself being someone who thinks about the epistemology of science, but speaks to the impact that can be had through making it explicit that there is always a link between the subject and key questions of knowledge.

It was interesting to hear teachers of different science subjects talk about the link in different ways. Martin's view is that "the most important thing I would say is that we're looking at models here we're not looking at facts" and that there are different theories and models of, for example, the structure of the atom. For him, this is "very much TOK rather than Chemistry when you're teaching this lesson". Other teachers, though, seemed to need a little more prompting to be able to see the connections between their subject and TOK. For example, while Lani says that she is able to see the "connections" between the content in her Biology class and TOK, she doesn't generally talk about the connection as being "easy" or "natural". Lani says, "it's the open-ended part, I think, at least maybe with my science brain, that I struggle with". This comment is

striking in that it reveals a particular understanding not just of the self, but of science. For Lani, the scientific brain is understood as being geared towards the empirical world (that which can be known) and the kind of knowledge that has answers. So, while Martin views Chemistry as involving the study of models rather than facts, and sees this as one example of why TOK and science are a good fit, Lani's understanding of her discipline is that it deals with facts. It is not surprising, then, that she would express that the reality is, as a teacher, "you're trying to get through...you're trying to push your content". In this scenario that is felt by many teachers, articulated succinctly by Lani, TOK can easily come to be seen as an unwelcome imposition, and a burden.

The likelihood of teachers seeing 'natural' connections between TOK and their subject is not only an outcome of their own givenness to philosophical matters. The situation in which teachers do not feel expert in the subject they are teaching can also have an impact. Henry's view is that while a range of topics in environmental science "implicitly" lend themselves to exploring Ways of Knowing, this is not so easy with Biology and that this is "just the nature of the subject". However, as Henry continues, he talks about the place of "sense perception", and "technology" as Ways of Knowing for Biology, suggesting that there are links with TOK. Reflecting on this, he acknowledges that, as someone who did not major in Biology (or philosophy), it is a lack of confidence in his understanding of Biology and TOK that leads him to see there being less "natural" links between the two.

Having taught a TOK class

Connor shares that having the opportunity to teach TOK has made a significant impact on his ability to integrate TOK into his subject-specific classes. He says, "I have certainly started incorporating TOK into my Lit much more easily, and much more commonly once I started teaching TOK, because I understood where it was coming from, and therefore, the TOK moments of class are really obvious, and therefore they are easy to develop, and until I taught, I really didn't recognize those connections as easily". This is particularly interesting given that it was quite common for history and literature teachers to state that their subjects are well-suited to TOK. For example, Connor had previously commented that "particularly in History and literature, it's an easy integration [of TOK]". He then elaborates, stating that in history the class is "constantly examining the sources, and so basically, you are bringing in the notion of TOK all the time"

and in literature, “because we often look at a lot of perspectives...or different ways of examining ideas through texts, then it’s a pretty easy step into TOK”. Taking all of this together, it would seem that while the connection between TOK and some subjects may appear quite obvious and easy, integration itself becomes more ‘natural’ or seamless once the teacher has had the opportunity to teach TOK themselves.

What all of this suggests is that, across the disciplines, teachers were indeed able to see how TOK fits with their particular subject. Within each subject, there tended to be similarities between the teachers in terms of what they articulated as being the ‘obvious’ points of connection. At a general level, teachers across the subjects typically shared similar reflections about their understanding of TOK and its role in their particular subjects, though the specific emphases across the disciplines were understandably different. Those in languages were likely to focus on cultures and how language can be used to construct knowledge. Those in History tended to focus on perspectives, and those in the natural sciences reflected the importance of models. Many of the teachers, while taking a high view of TOK, admitted to not giving it much time as an explicit focus in their classes. There were a number of reasons for this. In this next section, I will consider some of the key themes that emerged as challenges to integrating TOK in the everyday classroom.

Challenges faced in integrating TOK

Lack of understanding of TOK

As mentioned in the previous section, many participants described that the language (often spoken of as ‘jargon’) of TOK was a barrier to their understanding of the course. When asked if he considers himself to be familiar with the language of TOK, Dwayne responded succinctly and definitely by simply stating, “no”. When asked if he thought that not knowing the language matters, in terms of being able to achieve the aims of TOK, Dwayne states: “I think I get a bit woolly and if I had the vocabulary that would probably help”. Prior to this, Dwayne had talked about the ways in which he encourages his students to think about historical knowledge and interpretation, introducing them to some key theories about social transformation. It was clear that, when unencumbered by the expectation of discussing matters of knowledge, Dwayne was able to speak articulately about the matter. To hear him say, then, that his thinking and speaking gets “a bit woolly” suggests that there is an important link between the ability to understand the ‘coded language’ of

TOK and one's confidence in their ability to discuss how knowledge is produced and used within their discipline.

For others, it is not just the language that needs decoding, but it is the philosophical and seemingly abstract nature of TOK that leaves them feeling confused and unable to engage with it in their classrooms. Lloyd reflects on the prescribed essay questions that are released each year and notes that they bring the realization that TOK has “suddenly become really abstract and really, like really, tough, and so sometimes it's hard to interact with students”. This leads him to reflect more broadly on TOK itself, Lloyd articulates the feeling, and the struggle, that a number of teachers expressed in differing ways, saying “When I went to that TOK training [IB workshop] I was like on day two of this and I'm like I don't think I can teach TOK, it was just like this...oh, my goodness, I...I can't even figure out what...we're talking about how to mark these assignments and, like, I couldn't even do these assignments or teach these...I don't know how to do it. So, anytime I see TOK teachers I'm like ‘hats off, buddy, I don't know how you do it’”.

Given the way Dwayne feels about TOK, he was asked about his view of teachers who suggest that TOK cannot really be integrated into their particular subjects. He immediately responds by saying, “I think that's a cop out”, but quickly softens his response by acknowledging why some teachers would express such a view, stating “again, I think it comes down to lack of confidence, lack of vocabulary...lack of training”. This comment from Dwayne speaks to a common feeling expressed by research participants.

Lack of confidence

It is, of course, unsurprising that a lack of understanding TOK would result in a lack of confidence in being able to incorporate it into one's classes. When asked what kinds of things act as a barrier to integrating TOK into the classroom, Judy mentions that for many teachers it is “a lack of confidence, or maybe just not knowing exactly how to do it best”. As mentioned above, this is a fairly common feeling expressed by the interviewees, connected to lack of training, ignorance of the TOK framework or “jargon”. But Judy goes on to make an insightful point that the lack of confidence a teacher has may not necessarily be connected only to the subject TOK. She comments, “I think it really depends on teachers' knowledge of their subject, right? I am thinking of teachers who might be new teachers or maybe are not as confident with their subject matter or knowledge of their subject. I would think they would be unlikely to get excited about integrating something

in class". This corresponds with a number of comments made, including Henry's comments in the previous section regarding Biology.

Lani talks about the amount of support she is given, including being handed TOK lessons "on a silver platter", but still says, "I don't really feel very confident in delivering a TOK lesson...I don't know how to have that dialogue with the students. Like I'm kind of just excited when the students kind of go with it". When asked what it is that leads to this lack of confidence, Lani mentions that TOK is "wordy" and describes the difficulty she and others feel when trying to unpack the prescribed essay questions: "And sometimes even as a department when we're going through those questions like 'wait, what's it trying to ask?'". She goes on to acknowledge that, for her, "it's not something that comes naturally" to think in the conceptual way in which TOK is framed.

It can also be very difficult for those who are new to the IB. Asha is an experienced teacher of humanities subjects and has a broad range of subjects that she has taught. She is articulate and has a clear command of her discipline. Yet, despite this experience she still speaks of having very little confidence when it comes to understanding, and therefore integrating, TOK. When asked how she feels when she reads about a possible "TOK moment" that is described in the textbook, Asha says, "I don't think it works for someone like me because it's so much that I have to figure it out. Okay, so what do I do with it? [the question posed in the textbook] How do I even bring this question up? How do I pose this as a conversation? How do I integrate it into the lesson in a way that it's effective?".

More experienced IB teachers do talk of confidence developing over time. Elle has been teaching DP for seven years, and when asked to reflect on whether this has made it easier for her to integrate TOK now than when she first began teaching DP, she says: "I think my confidence around it, I think, like everyone...you know, because very few of us are have any background with it. Until we've been exposed to teach it or in a school with it...so I certainly think there has been an increase in confidence". And yet, after seven years, when asked if she feels like she is familiar with the particularities of TOK, Elle responds, "maybe not so much the framework, I think I get the language the questioning styles, I understand. Yeah I mean there are terms that, you know, you hear. In terms of like actual specific delivery of it, no not overly familiar with it". Teachers who do not feel that they adequately understand TOK, and thus lack confidence,

also then feel more acutely one of the most common themes to emerge from the research participants: lack of time.

Lack of time (generally)

Christian attributes the lack of emphasis on TOK in his classes to the busyness of school life: "It's time, just time. It's a busy place here and with the number of subjects we are teaching, if I was just teaching DP, and just teaching a couple of classes, I could use the opportunity to delve deeper". This is a view shared by many teachers, especially those who teach across the year levels as Christian does. When asked what might be a barrier to focusing more on the integration of TOK, Judy says, "I guess what a barrier is really, a practical barrier, which is, we wear a lot of hats at this school. I mean it's a small school and I would say it's like one more thing. I guess I could hear people saying. 'this is one just more thing that I need to try to squeeze into what I already have to do'". As schools seem to add ever more areas of focus, from Approaches to Learning to wellbeing and increased reporting, teachers are left to try and calculate what it is that they can realistically achieve.

Again speaking to the many competing priorities that schools are trying to manage, Gladys notes that the overall curriculum creates timetable demands, saying "sometimes...I don't see them [her students] that often, I would have breaks for like two to three weeks where I don't see them because they're doing CAS or they're doing TOK or EE, so it seems like we're lacking that sense of consistency to draw connections, because we are running out of time".

When asked if he has enough time to explicitly focus on TOK, Julian says, "No, I will be straight up 'no'. Would I like it? Yeah. Like every second Friday... maybe this is something I should do... it's period 7 Friday afternoon, the kids are a bit ratty, I am a bit tired, maybe we should have 15- 20 minute TOK spot, every second Friday, maybe that will be better for everyone". But while he attributes the lack of explicit focus to not enough time to get through the syllabus, he goes on to reflect that it is also a symptom of not having enough time more generally: "sometimes your planning time gets used up. For Science teaching, where the real issue is if I need to plan an experiment...you know, so I think...if you want to do something in the class, you want to do it successfully, you need to plan for it explicitly. Am I planning for TOK explicitly? No, it's extemporaneous - off the top of the head".

Others reflected that time was a problem at a societal level, not merely at a school or syllabus level. For example, Perrin avers, “I don’t really know, I think it could be that we as a society, we don’t take the time too much to think. We are not allowed to think. Everything goes so fast. And...it’s tough. I mean...it takes time and sometimes we don’t have the time”. Many felt that, irrespective of the various hats they wear, or the general perception of ‘busyness’ in society, many of the DP subjects’ syllabus requirements took time away from greater focus on TOK in the classroom.

Lack of time (too much content in subject syllabi)

Nina talks about the fact that there are many connections between TOK and her discipline of language acquisition. But, she says, “I am teaching them [the students] how to write their name and say it, but then go to reading authentic materials, which they are going to have to do in a year and a half, and having a 10-minute conversation, and now there are going to be listening tests as well...all kinds of things, so I suppose TOK is not my greatest concern in Spanish ab initio”.⁸ There was a tension apparent when Nina was talking about this because, on the one hand, she could see the benefit to bringing TOK into her classes, saying that ab initio and TOK “connects in many ways”, but simply felt that she didn’t have the time to do so. Having explained all that needs to be taught and learnt in ab initio, bringing the conversations back to TOK she remarks, “however, if there was more time, there are possibilities to do all kinds of things”. This same sentiment is expressed by Mary who, when asked if she thinks that the expectation to integrate TOK into her class is a good thing, responds “it is a good thing. It helps some students to open more widely”, before sharing enthusiastically about a TOK-related topic her students have discussed in class. However, when asked about what makes integrating TOK challenging, Mary says, “we should focus on the language part because of limited time in ab initio curriculum, right. So, if we spend too much time, focus on integrating TOK and English teaching into my Mandarin class, it wastes too much time”. Thus, while language teachers can see the potential benefits of talking about how we know what we know through language and different cultural perspectives on knowledge, students in ab initio courses, as well as Language B, do not yet have the ability to engage in discussions of a TOK nature in the language that they are learning.

⁸ Language ab initio is a language acquisition course for students with no prior experience of the language being studied. Language B, on the other hand, is for students who already have some exposure to, and familiarity with, the language being studied.

Some teachers said that time-pressure is less of a concern for them than it is for teachers of other subjects. While Gladys does view her subject area of English Language and literature as demanding in terms of time, she acknowledges that “different subjects such as history and business have a lot of content that they have to focus on first and it does seem that TOK seems to be put on the side”. So too, Lloyd does not feel too much time pressure himself, but recognises that most teachers do: “but it's definitely true, like it's like a really common complaint, I guess, all DP teachers are up against the clock with it's almost like we're always behind” and, as a result, Lloyd acknowledges that because “we're always trying to keep up with it [the requirements of the subject] so anytime you push more stuff in”, there is a risk that this extra expectation won't get done or won't be treated seriously.

Andrew speaks of the same problem wherein the lack of time leads to superficial engagement with TOK, saying “Okay ah I'll be honest. I don't make that connection really, with TOK. I think it's not just me, you know, I think a lot of teachers also find that challenging”. While not making a connection to TOK may be related to lack of understanding or confidence, in this case Andrew says, “I think the biggest challenge is not really about not being able to find that connection. I think it's to do with time, and I think it's also to do with the amount of content that we have to deliver in the DP curriculum - it's immense, right. So you know, in the absence of time that, you know I wish, if I have all the time that I have with my students I would dig deeper into TOK. But I would say that, in terms of the connection with TOK it's quite surface level.

But not everyone felt that more time would lead to better integration of TOK. For example, while Julian and Andrew felt that proper engagement with TOK required planning, Shannon commented on the way in which planning for TOK within the lesson would lead to superficial engagement. She says, “I suppose in many instances, it can feel a little bit superficial, when it's planned in advance. You know, you'll see a pocket in a textbook, 'link this idea', which reminds you, oh, I should be doing more of this. The more successful time of being probably where I haven't planned to embed it in a lesson, and it's just come out organically”. Shannon comments, though, that she is able to allow for organic TOK conversations to take place in her Mathematics Studies class, but that this may not be possible in higher level mathematics. When asked if this is related to the nature of the course content, or if it is a matter of time, Shannon reflects, “I think with higher level Math ... I've seen our higher level Math teacher and what she does, and her own time that she

gives up to get these kids through that course, and I think it's time. I think there's sort of two areas there: time for the teacher to be engaged with TOK and actually learn a bit more about it, and then time with your class".

Other teachers talked about the fact that the DP is exam-based and that the students – let alone the parents, schools and teachers – tend to have high expectations regarding end of course results. As Theresa says, "IB is all exam-driven, right, so, in the end, if something is not really being tested, how is it, in the limited amount of time per student that they have to achieve excellence in everything they can, you know, they have to choose, and they're going to just do past papers, which means that they're not going to think about how this all connects to the big world, they just want to get 45 [out of 45 points toward the Diploma]". What we see, then, is that teachers and students perceive a delicate balance between teaching for subject understanding and understanding of TOK, suggesting that such aims are, if not mutually exclusive, in tension with each other. It is, perhaps, for this reason that Nina says, "we only touch on things really quickly, because there's not much time to do anything. So, they [the students] don't have much time to develop their understanding". However, the integration of TOK in the classroom is not only about academic achievement, but about providing the rigorous, well-rounded education intended by the IB. The positioning of the students within this is, of course, most pertinent. As such, the next section briefly focuses on two key themes related to students which emerged during the interviews: cultural background and language proficiency.

Students and the integration of TOK

One key aspect discussed in relation to the challenges and successes of integrating TOK was regarded students. This is important because, irrespective of the teachers' own understanding of and interest in TOK, their incorporation of TOK into their classes is necessarily connected to the students they have before them. When talking about students' interaction with TOK, participants discussed the course's sophistication, unwieldiness, and lack of possible points as being reasons why students did not embrace TOK in their subjects. Other reasons given for limited interest among students included it being seen as a token 'add-on' as well as the TOK language being associated with general 'IB fatigue' along with the Learner Profile, international mindedness, service and reflection. Perhaps two of the more pertinent themes that emerged

in conversations with the study participants, though, was the effect of the students' cultural backgrounds and language proficiency on teachers' integration of TOK into their subjects.

Cultural Background

Lani talked about the students in her school that have come from local Hong Kong schools and mentioned that many of the students have talked with her about the fact they don't like the international school approach "they just want it to be very fact, answer...and they really struggle with it". She is quick to point out that she doesn't wish to generalise and considers that this cultural aspect also intersects with a student's intellectual capability and disposition, suggesting that "stronger students" may be more likely to engage with TOK.

Martin reflects on how the students in his class who come from Asia cope with TOK aspects and says, "the Western idea of individualism and questioning authority is kind of add odds with like Confucianism ... the source is the Greek teachings and, you know, the atomization of society, the individual is everything. And the Confucian and Taoist idea that the community at large is more important than the individual". Emerging from this, Martin suggests that it "does seem to be that the Western students may be a bit more argumentative or willing to question authority". In this sense, Martin acknowledges that it can be more difficult to encourage his students who are from a non-Western cultural background to voice their opinions during a class discussion. Importantly, he also notes that it can be hard to know if these students are quiet because of cultural reasons or because they may not be too proficient in English language. But, this does not lead him to consider that students from Asian cultures are at a disadvantage when it comes to TOK discussions. In fact, Martin reflects that the Western tradition's insistence on absolute truth compared with Eastern traditions' acceptance of paradox and even logical impossibilities leads to TOK being something that might be more comfortable for his students from Asian backgrounds: "I certainly think that the students who come from a very much Chinese background would have far less difficulty accepting it [TOK] than would somebody who's, you know maybe both parents are bankers right, and they're believe in maths and they really believe that facts are facts and the kids were brought up in the same way, they're going to find it more difficult to get onboard. The bias, I would say, would be against the Western tradition, more than kind of an Eastern tradition".

Conversely, Andrew's view is that his students from Asian backgrounds are more given to seeing things concretely as 'black and white' than the non-Asian students. He says, "More often than not, the math HL kids are predominantly Asians or Chinese. I think, maybe you know the cultural aspect does play an important role in terms of how they perceive TOK...they don't really appreciate TOK at all. Umm, it's also maybe because of...maybe just parent expectations that perhaps, you know, doing TOK or learning about TOK is again a waste of time because it doesn't give them the you know the concrete solid tangible knowledge that, I guess, maybe Asian parents would expect from there from the child".

Perrin also has the view that cultural background makes a difference to the incorporation of TOK in classes, but sees it in a different way again. His perspective is that "Chinese and Korean students are usually trained, I would say, that the best way to show respect to you is that I don't tell you what I think. You are the one who should tell me, who must tell me, what I need to do". But he also identifies a political element, adding, "And this is especially relevant in China...they are not sometimes actually willing to express what they think openly".

What is interesting about this snapshot of teachers' views is that cultural difference is not so easily generalised. These responses also suggest that one ought to be careful, then, not to essentialise particular ethnicities and cultures. Indeed, more than one teacher talked about students who were ethnically Asian, and perhaps even had relatively culturally traditional home environments, but had done their entire schooling in international schools, as engaging in ways that might seem different to common stereotypes. In such circumstances, other markers of difference - intellectual disposition, social status etc. - are considered as reasons why some students actively engage in TOK discussions while others don't. What this suggests is that trying to locate culture as *the* point of difference is deeply problematic. This point is made by Paul who says, "I would be guessing to be honest with you, but remember who is engaging and what their background is. Because sometimes it's like, sometimes I'm not even aware of what their background is...it's like I don't know where they've lived before Hong Kong, or like their ethnicity, their racial background, I don't think is a good demarcation of that. Where just because they're white doesn't mean they lived in North America, right? So, it would be presumptuous, but I think like there's definitely personality types...". He goes on to reflect the problematic nature of cultural and ethnic stereotypes, explaining "You'll

get that kid who's like. Yeah, you're quiet. You're conservative. You have a Chinese background. But so are you, and you're from Canada, so it's hard to state”.

Language proficiency

Moreover, as a number of teachers pointed out, it is difficult to determine if Asian students (who made up the vast majority of students who do not have English as a mother-tongue in this study) do not engage in TOK-related discussions because their approach to knowledge, authority, etc. is affected by their cultural background, or because of a lack of proficiency in English. For instance, Christian says, “some of the TOK language is, again for some English speakers, it can be challenging...I think that for students for whom English is not their first language, I think it is a challenge”. Andrew compares his experience in his previous school, which was a local school using the IB, with his current school in Hong Kong: “in my previous school I don't do it as explicitly, I actually don't really do TOK in my previous school...[because] I think language is also another issue with my students, so many of them are EAL or ESL [English as an Additional or Second Language] learners, so for them, even if I really want to integrate TOK into my subject discipline, it would naturally be very difficult for them to grasp, because their English level isn't very strong to begin with. Whereas the learners here at [IISHK], being an international school, most of them have a very strong, I would say, you know English foundation already which allows them access to these higher level sort of concepts and mindset within the TOK curriculum”. Having a class of students with limited English language proficiency, then, is seen as a barrier to integrating TOK. The issue is framed here as being one of accessibility to concepts.

Linked to this, limited proficiency in English may also affect the students' confidence. Commenting on the students in her class who are from Asian backgrounds, Asha reflects that she thinks “there's some language inhibition that holds students back from confidently articulating what they think. So, they might be thinking it, but they are not saying it because they don't feel confident. If you had a Korean speaker in my class who is asking the same question in Korean, they might be able to articulate it more clearly. I don't know. I am not sure. I think it's hard though, because you are getting into sort of heavy topics that require English”. As has been mentioned in an earlier section, the problem of language translation can be seen as a problem of

time. That is, teachers feeling as though if they were to take the time helping students with limited English language proficiency to understand TOK, then they would be sacrificing time on the subject content.

Some teachers viewed the challenges associated with language proficiency in different ways. As a German Language A teacher, Rose talks about some of the problems of translation, noting that trying to incorporate TOK into a non-English Language and literature class brings with it certain challenges. For example, she mentions that the students “learn concepts in TOK and phrases and words, and when they try to translate them into their mother tongue, like German, for one [English] word there are like five different [German] words with different connotations”. However, while this is a genuine challenge, Rose says it “is a positive thing” as “the process itself of translating into a different word helps to clarify what it [a particular word] is about”. For a language teacher, then, it is possible to see that translating and discussing key TOK concepts is also serving to enhance the aims of the subject itself. It is more likely, though, that spending time on translation may be considered to be at cross-purposes with what the teacher is trying to do in that particular class.

When it came to cultural background, teachers generally did not make comments about all members of a particular ethnic or cultural group responding to TOK in the same way. It was also not common for them to make value judgments about students’ backgrounds. However, comments were made about the fact that cultural differences do exist, and they do matter. Indeed, viewed positively, teachers saw natural entry points for talking about perspectives, and for talking about different approaches to health treatment, for example, as a result of having culturally diverse classrooms. It appeared that teachers were sensitive to the fact that they did not want to make sweeping generalizations or essentialise any particular group. Yet, the acknowledgement of difference perhaps implies that there was an underlying belief that, for example, students from East Asia think differently and engage in the educational process differently. Further questioning would be required to understand this aspect better. What did appear more clearly, though, was the prevalence of teachers seeing proficiency in English language as a barrier to students’ engagement with TOK within their classes. A very important point, however, is that teachers from the one school that did not have a large Asian cohort, BIC, also noted the problem of language for students. Of course, this was not a lack of proficiency in English, but a lack of proficiency with the kind of technical and philosophical

language required for TOK concepts and, of course, the specific language of TOK itself. Thus, students coming from non-English speaking backgrounds perhaps suffer a double disadvantage when trying to grapple with TOK in their classes.

Professional development

The research participants generally agreed that it would be good to have more professional development (PD) around TOK generally and, more specifically, about how to incorporate it into lessons. Despite this, there was also a feeling that in reality this may not be what makes the difference between feeling confident to integrate TOK and lacking confidence to do so. There was little praise for the way in which TOK tends to be treated in IB workshops, and this perhaps has led to some cynicism around whether or not external PD would be worthwhile. Two themes that emerged from the interviews indicate that the teachers felt that TOK-specific PD rarely occurred and, when it did, was tokenistic. When it came to comments about internal PD, fewer comments were made, but they tended to suggest that there has been an increase in TOK-related PD in recent years, but that it is often delivered as part of a 'special' session, rather than in a strategic, ongoing and integrated manner.

Mary suggested that more PD might be a way to help make it easier for her to develop a better understanding of TOK and integrate it into her classes. When asked if, when she went to IB training, workshop leaders spent much time talking about TOK, Mary responds with one word: "No". She says that she has searched the IB website for workshops related to TOK but there "are not too much". When asked what kind of PD would be most useful, Mary suggests that "cooperation with colleagues from different areas...outside of language acquisition, like Humanities or Science department". When asked if these opportunities exist within the school, she says that "it didn't happen very often before. Just started in the most recent two or three years. Last year we had one. This year we had one. All the diploma teachers have been involved in the standardization of the TOK presentation".

When asked what kinds of support she would have appreciated over the years, Ruth says, "probably more PD...it's just hard to get the PD. There's really not much out there unfortunately". While it was felt that there were not too many opportunities for either internal or external PD that was specifically focused on TOK, it was generally acknowledged that TOK was an element of IB-provided PD. However, this

component of IB workshops was not really looked upon favourably. Nina says of the two IB workshops she has attended on TOK, “one didn’t really give us much at all. The other gave us quite a lot, and yet, they really didn’t, neither of them really looked at the assessment, and in fact we were given misinformation, in one. And the second one, we didn’t get time and people had to leave, so we didn’t even look at the presentation or the essay. So I find that it’s all very ad hoc...”. Shannon notes that “there is theory of knowledge covered in PDs, [but] depending on the presenter and the audience will depend on how successful that is”.

Perhaps the most common comment related to the PDs is that the treatment of TOK is minimal, or tokenistic. Andrew states plainly that TOK is “not very prominent” in subject-based IB workshops. He continues, “the workshop leader will acknowledge that there is a need to integrate TOK into our subject, but the depth of that discussion, or strategies in terms of how we can do that, is very minimal. Maybe even at times non-existent. Like, on paper, yes they’ll say, you need to integrate it, but in practice, I don’t think that’s heavily discussed in workshops that I’ve attended at least”. Christian says that “There was mention of TOK...that was part of the workshop, but it’s only a part of it. A lot of it was other things like the IA”. Julian suggests that TOK training would be good but acknowledges that “it’s always got the risk of being tokenistic”. Indeed, the phrasing of ‘tick box’ or ‘check box’ was used by a number of the research participants. When it is put to Dwayne that this is how some others have described the place of TOK in IB workshops, he quickly responds, “I would agree, yeah”.

But a number of the teachers had suggestions for how this tokenism might be able to be overcome. Asha says that at the workshops, “they do a cursory mention of, “okay, let’s.”., it’s like they are just going to check off a box” and suggests that, instead, “maybe the IB could start doing this in their workshops where...maybe the last day, the entire thing is about ‘so, how do we bring TOK into this?’...I mean if we are really thinking about, the Diploma as a program and we are sort of working with a group of students to get them through a program to support them, that’s a pretty essential piece of the puzzle that we are missing”. Gladys shares similar sentiments when she says, “at times it seems like a checkbox of what the IB wants to make sure is presented in a way. It would be nice to have a couple of days for different subject specific teachers to share the best practices or just different ways to tackle and just to blend in our

lessons and just creative ways". This idea of sharing is something Mary also wants, but she makes clear that this needs to be targeted. She suggests, "if the IB can provide more TOK like PD, professional development, I mean very focused PD opportunities, it will be very helpful for us. Not very general discussion, but more focused, for example, we are shown some students' examples and we can practice how to mark their presentation or essays in different areas or subjects. That will be very helpful".

Implications and recommendations from the study

The participants in the study were, overwhelmingly, positive about TOK as a core component of the DP. They saw it as a really useful mechanism for helping students to think scientifically, historically or mathematically. They viewed TOK as key to the development of critical thinking, and the ability to consider different perspectives. The interviewees also indicated that TOK is viewed as helping students to see how knowledge works both within and across disciplines. However, it was also clear that teachers generally lacked confidence in integrating TOK and felt that there was not enough time to do so. In many ways, what the interviews seemed to reveal was that, rather than functioning as a central component of the DP, TOK is thought about and referred to as an 'added extra', with tokenistic references being made to it for the sake of 'checking boxes'. There were, of course, limitations to this study, not least that it was only teachers who were interviewed. However, the focus on teachers in this study was seen as the first step in understanding what might present as a challenge to integrating TOK throughout the DP subjects. Just some of the areas that could benefit from further exploration include:

- do students view TOK as core or as a token?
- when and why is TOK included as part of schools' internal PD?
- what does exemplary integration of TOK look like?
- how do IB workshop leaders feel about the inclusion of TOK as part of their presentations?

Finally, rather than producing a long list of recommendations here, the report concludes with just one major recommendation for the IB to consider, with two aspects of this recommendation elaborated. The key recommendation for the IB is to **ensure that TOK is core to each subject**.

1. TOK is often seen by teachers as a distinct subject, and a distinct epistemology. Just as it has become common in linguistically diverse classrooms to state that “all teachers are language teachers” (IBO, 2018, p.92), the same logic applies to TOK. And, just as the provision of language support outside of the classroom by specialists may result in teachers seeing language support as someone else’s job, the same could also be said for TOK being supported by the TOK teachers. However, when it comes to questions of how we know what we know, it can be argued persuasively that these kinds of questions are fundamental to a teacher’s work, no matter the discipline. That is, the mathematics teacher, the business teacher and the design teacher should all be able to explore the scope and methodology for knowing in their areas. This is not to say that such a task is easy. Indeed, as education even within universities has moved towards being concerned with outcomes and practice, evidence and measurement, less time is spent on learning about the philosophical bases of the various disciplines. This was evident in the lack of confidence many teachers expressed about their ability to explore the more philosophical elements of their subject areas. Nevertheless, while the English language specifically may not seem to have any necessary connection to scientific inquiry, the scientific method, principles of falsifiability etc. are necessary components.

While it could be argued that TOK is indeed a key aspect within each of the subjects across all groups, it could be argued that the way in which it is included in course guides, IB workshops, and textbooks (the latter are not produced by the IB) is as an “add-on”. Some teachers talked about it being treated in tokenistic ways in workshops and presented as a “pop-out box” in textbooks. Within schools, TOK - along with CAS and EE - is seen as an added extra, spatially imagined as outside of specific subjects rather than at the core of them. As such, schools have special PD meetings to remind people about TOK or create a curriculum structure that prioritizes TOK at a few key moments in the year.

There is scope, then, for the IB to firstly consider if TOK (along with CAS and EE) is core to its educational framework. If so, then the challenge is to re-place it as core. There are a number of ways in which this might be done, but perhaps one strategy worthy of consideration is related to

assessment. If each subject's course guide included an assessment task that required reflection on a knowledge question or problem and required the use of the TOK structure and concepts, this may assist in ensuring that TOK is genuinely at the core of the DP.

2. Closely linked to this suggestion to consider ways in which TOK can be assessed within the subjects, an interesting comment was made by Ken (and discussed earlier in the report) which suggested that TOK is used in his class as a **pedagogical tool**. Just as teachers may see the use of Project Zero's Visible Thinking strategies as ways to enrich learning and teaching, rather than as an imposition, perhaps TOK could be seen in a similar way. This would require significant thought as it runs the risk of instrumentalising something that is seen as literally at the core of disciplinary knowledge. Nevertheless, TOK is too often seen as an interloper that has little use and is, perhaps, somewhat of a hindrance. While some will argue that developing students' TOK understanding and skills will have a positive effect on their subject-based assessments, this is not an easy argument for teachers to embrace. This recommendation is, admittedly, a bold one. But if the IB were able to conceptualise certain teaching strategies that draw on the language and concepts of TOK and provide training on how they can be used in all subject areas, this might further help to embed TOK as core.

Whatever changes the IB might make in an attempt to re-place TOK as core to the DP, teachers will require sufficient support. This will especially need to take place through the provision of exemplar practice, through the MyIB portal and/or IB workshops. If TOK is treated as an 'added extra' in IB training and resources, it will be viewed this way by teachers and students.

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