

How to get knowledge questions right

John Sprague outlines what makes good knowledge questions in TOK



What are the methods used to work out whether every even number is the sum of two primes?

Fundamental knowledge questions (KQs) are often the biggest pitfall for students and teachers. The analysis and questions explored in theory of knowledge are distinct from the common types of questions and analyses within the disciplines — otherwise TOK wouldn't be a distinct class.

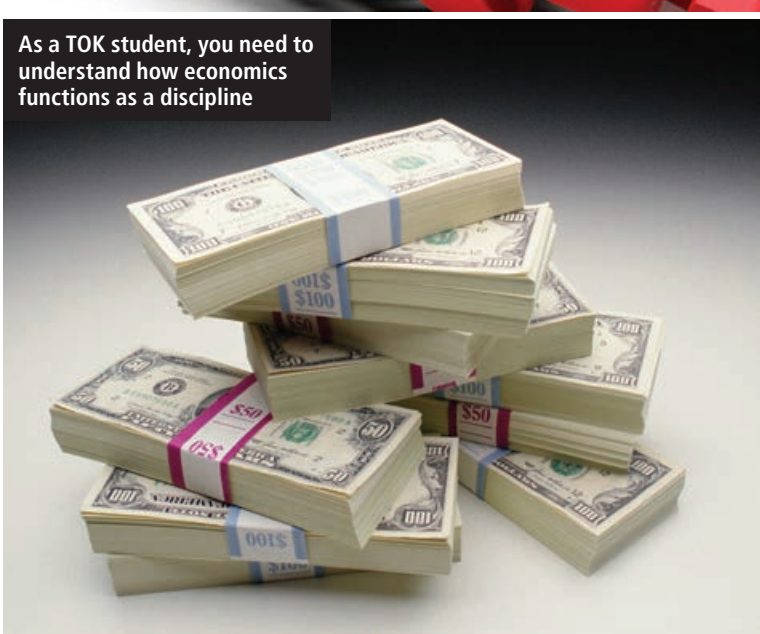
Common misconceptions

Before we start taking this apart, it might be useful to address some common mistakes.

KQs are not simply 'debatable questions'

All IB classrooms are full of debate, not just TOK. The truly 'TOK' analysis is out to make sense of these debates at a different level to what an expert in the field of the discipline might use.

To pick a common example, whether neo-classicist economic theory or Keynesian theory best describes economic markets is interesting to both economists and TOK students, but the TOK students will use this debate to explore the nature of economics as a field of knowledge.



As a TOK student, you need to understand how economics functions as a discipline

The debate is important, but not because we want to know which is right. As TOK students, we want to better understand how economics functions as a discipline.

'How do we know...' is not enough

A question starting with 'How do we know...' is not enough to make a knowledge question. Strictly speaking, the following questions are knowledge questions:

- 'How do we know whether humans first arrived in the Americas over the Bering Strait land bridge?'
- 'How do we know whether every even number is the sum of two primes?'
- 'How do we know whether the ruins of this Roman settlement held any military significance?'

However, your TOK response must avoid slipping into answering these questions from the perspective of the area of knowledge (AOK). Suppose a student works toward an answer to the question about humans arriving on the North American continent by drawing together all the available archaeological evidence and concluding 'we do know because of this evidence...'. In other words the student has asked 'How do we know...' and answered 'we know because this evidence says so'. Unfortunately, this is only a question of *whether* we know and what evidence supports it, and this is a question *within* the discipline. In other words, it has been 'first order'.

A good KQ would interrogate the methods archaeologists employ and whether they lead to reliable claims, or would examine the assumptions required in such an investigation or the role technology

plays in the reliability of that knowledge. Maybe North America's first human inhabitants did come across a land bridge, but we don't need to answer this in order to perform a TOK analysis — rather we need to investigate the methods used to find out.

Abstract concepts are not enough

A question about abstract concepts is not enough to make a KQ. In order to develop 'general' KQs, teachers rightly coach students to 'decontextualise' from the specifics of an investigation when constructing KQs, but simply shifting to a conceptual debate still doesn't make a KQ.

One example I've seen offered as a KQ many times is the 'nature/nurture debate'. Why humans behave in certain ways in various circumstances is intriguing and is a good first-order question asked by people who study human behaviour. This is a highly conceptual debate, in that we are shifting out of the world of actual behaviour and asking about the concepts and theories used to describe this behaviour.

However, that we are talking about theory and concepts still isn't enough to turn this into a TOK debate. The answers to the nature/nurture debate still might comprise questions and methods squarely within a discipline, whereas the KQ will ask about the *implications* of the answer, the *reliability* of the answer or the central *assumptions* used in the approach.

Asking how an AOK would approach the issue

So many of the interesting topics we investigate in TOK are genuinely multidisciplinary. Take the land bridge to North America example:

A good knowledge question would interrogate the methods that archaeologists use and whether they lead to reliable claims



you could approach it by looking at the biology of the first human inhabitants, you could investigate the archaeology of human remains, you could take a zoological approach and trace the history of the North American large mammals and link it to human hunting patterns. The best questions are multi-faceted, and tracing the various approaches of disciplines will help you understand those approaches.

However, to make this sort of investigation into a KQ, we must compare these approaches and critically reflect on them (see p. 42).

What makes a good KQ?

KQs should be about knowledge

For a TOK student, getting this right is the most important thing in TOK. The question you ask in your presentation and the questions you use to explore the prescribed titles for the essay must be questions about knowledge. Sometimes the distinction between a 'second-order' question as opposed to a 'first-order' question is used to illustrate what a good KQ is like.

First-order questions are questions that a subject teacher might ask about the world and which seek to find an answer from within the subject. These are generally the questions you ask in your individual discipline classes. But it is the second-order knowledge that you need to be firmly focused on in your TOK classrooms and assessment. In summary:

- First-order questions or claims are *within* a discipline or AOK. Analysis uses the methods of the discipline or AOK.
- Second-order questions or claims are *about* the discipline or AOK (its methods for constructing knowledge). Analysis is focused on the approach the discipline or AOK takes, not the results of such an analysis.

In Table 1, the examples in the left-hand column are first order because they are questions about objects or concepts *in the world*, and finding the answer depends on using the methods and processes that the relevant subject teaches.

Second-order questions, on the other hand, are not out to seek answers *within* the subject, but are questions about how that subject goes about answering its questions. They are questions about the processes of constructing knowledge, or about what counts as knowledge in that field. For instance, I might ask the first-order question about whether or not UFOs exist, but I would be asking a second-order question if I wondered whether the testimony of my Uncle Bob is enough to persuade me on the matter. The first question is about things in the world (UFOs), the second question is about the rules of creating knowledge about those things (for example whether Uncle Bob and his tin-foil hat are *reliable* sources of knowledge).

Table 1 First order vs second order

First-order questions	Second-order questions
What is William Carlos Williams' poem 'The Red Wheelbarrow' really about?	How can my interpretation of poetry be as reliable as a university professor's?
How important to Spanish culture is bullfighting?	How does not living in culture make it difficult to understand about the importance of traditions within that culture?
How many more fundamental elements will be found with new technology?	What role does technology play in developing new knowledge in the natural sciences?
Are UFOs real?	What sort of evidence is required for extraordinary claims?



How important are ethical issues in the application of physics or biology?

The knowledge framework is probably the best tool to use when trying to keep your questions about knowledge. It is there to help you structure and guide your thinking. If you can clearly tie your question to the sorts of issues raised by the various elements of the knowledge framework, you are probably on your way to developing a good KQ.

Scope and application

Perhaps you are interested in the nature of the knowledge being constructed by experts in some AOKs. Linking your investigation about the *types* of questions being asked by members of an AOK community or asking what types of problems are being solved is a good way of focusing your KQ. Some questions related to this element might be:

- How important are ethical considerations in the application of physics or biology?
- What types of things are being described by mathematics and how can those things have any bearing on understanding human behaviour (economics)?

Concepts and language

It is never very interesting to simply ask whether speaking the same language helps knowledge grow (it does). Rather you might be asking about the importance of certain concepts in an AOK, or about how the meanings of certain concepts like 'truth', 'reliability' or 'evidence' change across AOKs and how that impacts the knowledge within that AOK. You might also investigate how the manipulation of that language impacts the knowledge using that language.

Methodology

Here a good KQ would investigate the rules and methods that someone working within an AOK must follow for their knowledge to be reliable or accepted by the community. Each community of knowers will have their own expectations and rules for being a functioning member of that



How has new technology influenced the construction of knowledge in AOKs?

community. The 2015 film *The Man Who Knew Infinity* is an interesting story about the Indian mathematician Ramanujan and how he struggled to learn the methods of the mathematical community, methods which he had to follow in order for his extraordinary mathematical intuitions to be accepted by the wider community.

Historical development

KQs in this area will explore how the nature, methods, concepts or content have changed over time in an AOK and what that says about the nature of knowledge in that community. That severe ethical constraints have been imposed on the study of human behaviour, for instance, means on one hand that certain questions can't be easily studied, and on the other hand that ethics plays a huge role in nearly every AOK. You might also explore how new technology has influenced the construction of knowledge in AOKs.

Links to personal knowledge

Here KQs might be developed which explore how individuals and wider AOK communities interact. Do my intuitions and insights in fundamental particle physics matter to the physics community without experimentation, observation or mathematical proof to back them up? But how might my intuitions and insights be managed in the art or history communities? Also, in what ways do personal influences (propaganda, bias, personal experience) impact the reliability or justifiability of the knowledge I produce in an AOK?

While working in TOK, you must continually think to yourself, 'Is my discussion genuinely about knowledge?' Making sure that your discussion fits into one of these five categories is a helpful way of staying on track.

The following two criteria are less complex, but important. They will help you develop evaluative and grounded questions, rather than overly descriptive or hypothetical analyses.

KQs should be open

In addition to being about knowledge, a good KQ is an open question: one that cannot be answered simply with 'yes', 'no' or 'maybe'. The question should require an analysis that shows the complexity behind the knowledge issues involved. Questions beginning with 'To what extent...', 'How does...' or 'What is...' are often the basis of good KQs. This is not to say that you cannot develop a successful presentation around a closed question. Keeping the question phrased as an open question, however, will allow for more identification and exploration of alternative perspectives.

'Does the historical method incorporate elements of the scientific method?' might provide the starting point for a good presentation, but it too easily leads into a descriptive essay, just giving examples of when it does. But 'What are the consequences for historical knowledge when trying to apply a scientific method in justifying historical claims?' both allows you to show how history makes use of elements of the scientific method, and extends the analysis into a more sophisticated exploration of the consequences of such a move.

KQs should make use of TOK concepts and vocabulary

The TOK course is structured around a number of concepts: the AOKs and the knowledge framework are the primary ones. It is a good idea to put those concepts to use when framing your KQ. My advice is to avoid focusing on ways of knowing (WOKs) as these tend to shift the discussion to the individual rather than a community of knowers.

Many good KQs reference elements of the TOK specification and place them in relation to one another. The presentation's argument then becomes about exploring and interrogating those relationships. Earlier, we questioned the relationship between economics (human science) and mathematics. Some good KQs won't explicitly reference another AOK or the knowledge framework, but explore notions like reliability, certainty or justification, which are certainly common TOK themes.

IBReviewExtras



Get more information on first- and second-order knowledge claims at www.hoddereducation.co.uk/ibreviewextras

John Sprague is lead editor for IB REVIEW and is the TOK coordinator at Tanglin Trust School, Singapore. He is the author of *TOK: Skills for Success* (Hodder Education).