

# Theory of knowledge

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## Essay

### The range and suitability of the work submitted

Overall, candidates this session had a stronger performance on the essay than in the previous May session. There has been continued improvement in TOK essays, and this is supported by comments made by examiners in their reports for this session. Examiners noted that, in every language, and especially in Spanish, they have seen essays with more focus on the prescribed title that show evidence of the candidate's exploration of the title and the use of effective examples that are linked to the claims they make. Examiners are always reminded to look for what is there in the essay rather than what they think is missing and, paying close attention to the assessment instrument, to award the highest fair mark.

This session, most candidates addressed two areas of knowledge (AOKs) in their essays. Given the 1600-word limit, essays where candidates discussed three or more AOKs were noticeably weaker because the exploration or link to the AOKs lacked depth.

Examiners commented positively on the improvement in the structure of the essays. While there is no one "right" way to write a TOK essay, successful candidates begin the essay in a way that shows a clear understanding of the whole title. Terms in the title should be explained in a way that not only indicates their meaning in the context of the prescribed title but also shows familiarity with the terms as part of the TOK course. Dictionary definitions of key terms like "knowledge" and "truth" rarely add to the understanding of the term in the context of the title. That said, it is entirely acceptable to use the dictionary to define words in the titles such as, multiplicity, retain and wholly, etc.

Many examiners noted an increase in instances where candidates have not cited appropriate referencing for words or ideas that are not their own. While the IB does not prescribe which style(s) of referencing or in-text citation students should use, works cited must be acknowledged in a way that would allow the reader to find the source of the material. (See TOK guide pages 53-54 of the PDF version.) Failure to cite the source of an example, for instance, could undermine the credibility of the example which might, in turn, undermine the effectiveness of the discussion. The assessment instrument states, for level 2, that "arguments are offered but are unclear and/or not supported by effective examples. An example for which the source is not adequately cited may not be regarded as an effective example.

Many examiners comment that the AOKs of mathematics and the natural and human sciences are handled well in the essays, but many also remark that the same is not seen in the discussions of history, which is often written off as a biased account of the past. This results in discussions of history are often underdeveloped or superficial. Many candidates seem not to understand that the historian's craft of studying the past involves using the historical method as their main tool just as scientists use the scientific method as their tool. Oft-cited examples from the natural sciences appeal to case studies of scientists at work (Pasteur, Watson & Crick, Harvey) and examples from human sciences centre on human scientists, their experiments and discoveries (Piaget, Skinner, Maslow, Keynes). Examples in mathematics often reflect on the work of Pythagoras and Euclid, Euler or Ramanujan. In the same way, in history, examples should focus on historians and their work, for example, Klaus Fischer on Hitler and the Final solution, Herbert Feis on the Cold War, or Lefebvre vs. Cobban on the French Revolution. In other words, just as examples in other AOKs are taken from the history of those disciplines (landmark experiments in science,

landmark mathematical results) examples for history should be taken from the interpretations of past events (historiography) by noted historians. Candidates should be instructed to avoid sweeping and stereotypical claims that historians are necessarily “biased” or swayed by emotion or by “nationalistic patriotism” and deliberately slant their accounts or select their material to suit their preconceptions. Respected historians research and write under the watchful gaze of other historians, who peer-review their work just as the work of the biologist or psychologist is peer-reviewed.

## Candidate performance on specific titles

The overall popularity of the titles was 6, 3, 5, 2, 1, and 4. Each of the 88,164 candidate’s responses to a title was naturally an individual one, so generalizing about performance is difficult. What follows are some of the comments on many examiner reports and seem to point to key factors that contributed to the success or lack of success of candidates on each title.

**Prescribed title 1: “Others have seen what is and asked why. I have seen what could be and asked why not” (Pablo Picasso). Explore this distinction with reference to two area of knowledge.**

The most successful candidates saw that the title was about the process of acquiring or producing knowledge and discussed each approach (seeing what is and asking why and seeing what could be and asking why not) in two AOKs. Even though Picasso seems to be suggesting that “seeing what could be and asking why not” was his way of producing knowledge, there were many good essays where candidates argued that “seeing what could be and asking why not” requires a good deal of first asking why things are the way they are (seeing what is and asking why). Less successful candidates immediately converted the quotation into an argument between reason and imagination, thus acknowledging a distinction but then simply giving examples where reason was required in mathematics or sciences and imagination was required in the arts. This did not always lead to a discussion of the overlaps between the two approaches or the need for both.

**Prescribed title 2: “There is a sharp line between describing something and offering an explanation of it.” To what extent do you agree with this claim?**

The most successful candidates saw that the idea of there being “a sharp line between describing something and offering an explanation” was the key point in the title and that they needed to do more than discuss the difference between description and explanation. The idea of the “sharp line” was explored in the better essays where candidates concluded that the sharpness of the line was not always clear and that, often, it was blurred, and the function of description and explanation were both involved in knowledge production or acquisition. The reliance on dictionary definitions was prevalent and successful candidates recognized the limitations of those definitions and used examples to clarify and enrich their analysis. Less successful candidates argued the merits of description and explanation and saw them as quite separate, sometimes claiming that description is “merely” about the surface or is “cursory” in nature while explanation is where we find knowledge or truth; both characteristics ignore the richness of description and explanation. Some candidates saw a “sharp line” between the two but their discussions lacked the depth of those who saw the difficulty of sometimes distinguishing between them or the value of blurring the line between them.

### Prescribed title 3: Does it matter that your personal circumstances influence how seriously your knowledge is taken?

There were many insightful responses to this prescribed title. Many candidates did a reasonable job of discussing how personal circumstances influence how seriously knowledge is taken; the most successful also addressed the question of whether it mattered. This, of course, was what the title asked. Unfortunately, many candidates seemed not to notice these first words and focused, instead, on describing the various situations where personal circumstances prevented someone from being taken seriously but did not tie this to the person's knowledge not being taken seriously. The pronouns in the title caused problems for quite a few candidates. Some were confused as to who was doing the judging and whose knowledge was or was not being taken seriously. This resulted in a misreading of the title.

### Prescribed title 4: "The role of analogy is to aid understanding rather than to provide justification. To what extent do you agree with this statement?"

Although this was not a popular title, there were many interesting responses. The most successful candidates considered what stood as an analogy in their chosen areas of knowledge, and how the analogy functioned. The title suggested that the candidate should distinguish between their function in aiding understanding and in providing justification and, in the better essays, this distinction was explored. Some successful candidates agreed with the prescribed title and defended the idea that analogies aid understanding but do not provide justification. Some very good essays also explored the way analogies were used to aid understanding and also had a role in justification. There were a variety of conclusions as to how analogies function, but the successful candidate gave examples and came to a reasoned conclusion. Less successful candidates loosely defined analogy to include any comparison between two things regardless of how close or distant the relationship. In doing this, they sometimes forgot that the purpose of the analogy was to "aid understanding" of something. Those who explored the role of analogy as an aid for understanding but did not address the idea of justification offered an unbalanced approach. In some instances, the candidate struggled to define analogy or did not see its application to areas of knowledge.

### Prescribed title 5: Given that every theory has its limitations, we need to retain a multiplicity of theories to understand the world. "Discuss this claim with reference to two areas of knowledge."

The most successful candidates attended to the question of what can be meant by "multiplicity of theories" and what is meant by "retaining them" and highlighted how doing so contributed to our understanding of the world. One key point of discussion for those who achieved higher marks is that they discussed theories in an AOK and discussed which aspects would be retained from each in order to increase understanding. The title took as a given that the reason for retaining a multiplicity of theories lies in a theory's inherent limitations. Some insightful candidates suggested that the benefit of retaining multiple theories may lie in the fact that their weaknesses – and therefore also their strengths complemented each other. Less successful candidates got bogged down in justifying that theories had limitations or had difficulty finding appropriate examples of a "multiplicity of theories" or did not see the possibility this had for enhancing our understanding.

### Prescribed Title 6: "Present knowledge is wholly dependent on past knowledge." Discuss this claim with reference to two areas of knowledge.

The most successful candidates understood that the title rested on the concept of dependence: how and to what extent does present knowledge "depend" on past knowledge and what is meant by "depend." The presence of the word "wholly" gave the opportunity for a more nuanced perspective about the degree

to which present knowledge is dependent on past knowledge and gave candidate the opportunity to explore the idea that there is knowledge that does not wholly depend on past knowledge. The use of serendipity or the “Aha!” moment as a phenomenon that can suggest that there is no connection between present and past knowledge made for some excellent discussions, particularly when candidates acknowledged the probability of some connection, if not complete dependence, on past knowledge. Less successful candidates got lost in a discussion of what is past knowledge and what is present knowledge and missed the part of the title that suggested the dynamic relationship between the two.

## Recommendations and guidance for the teaching of future candidates

- Candidates should not change the title by rewriting it or paraphrasing it. They should copy the title exactly as it is written and write to the title exactly as it is written. This same advice is given every year, and yet candidates continue to rewrite titles. The titles are carefully and purposely crafted. Candidates who rewrite the title usually go off in a direction that is not consistent with the intention of the original title.
- Candidates should return to the language of the title as they proceed through their essay. Examiners often comment that midway through the essay they sometimes cannot tell what title is being discussed as the candidate gets off track or only focuses on one part of the prescribed title. Candidates who use the language of the prescribed title will find that it helps them to stay focused on the whole title.
- Unlike the requirement for the internal assessment, the candidate is not required to construct an original knowledge questions at the beginning of the essay. Doing this almost always results in the candidate veering off course and responding to that knowledge question rather than addressing the title. In fact, it is not necessary for any questions that drive the inquiry to be asked *explicitly*. Knowledge questions can be implicit in the candidate’s discussion. Knowledge questions should arise naturally as a candidate responds to the prescribed title. Just as they are asked questions about knowledge, certainty, evidence, etc. in their TOK course, these questions help them to focus on second order thinking, which is the focus of TOK discussions. These questions show that students are able to engage in discussions of various areas of knowledge with a TOK lens that keeps them focused on how they know what they claim to know rather than just focusing on the claims themselves.
- With respect to examples, there seems to be a general agreement on the need for deeper analysis or exploration. Candidates should be reminded that an example cannot function on its own; the examiner is not expected infer why the example is helpful or appropriate. It should be clear from the candidate’s exploration how this example sheds further light on a matter or helps the reader to make a connection that otherwise would not be possible. There may also be an opportunity to suggest the implications of the example. The example should be clearly linked to the AOK or aspect of the prescribed title that is being discussed. The exploration of the example need not be lengthy, but it must give the reader a better or deeper understanding of the subject being discussed or a heightened awareness of the candidate’s position. This is what the assessment instrument means by real-life examples [being] fully evaluated.
- A final word about the nature and importance of counter claims. A counterclaim suggests to the examiner that the candidate is aware that his or her perspective is only one of perhaps many ways of considering a subject. It is also likely that differing points of view are implied in the prescribed title. Offering and then evaluating a counterclaim helps the candidate to reconsider his or her own perspective. Asking candidates to identify and possibly explore a different way of considering one or more of the claims made in the essay encourages reflection and self-awareness and ensures a richer discussion.

## Presentation

### The range and suitability of the work submitted

Examiners often comment on how gratifying it is to moderate TOK presentation planning documents (TK/PPDs) in which it is evident that the TOK presentation task has been understood and the candidates' choices of real-life situation and knowledge question are very much a reflection of the candidate's own thinking and interests.

In the great majority of cases, candidates provided insightful and detailed accounts of their planning in their PPDs. Very few candidates showed minimal effort. However, occasionally the effort was misdirected because of a lack of alignment with TOK expectations. Often this was less related to the candidate's ability than it was to their preparation which was not focused on TOK thinking and exploration.

There was an interesting variety of approaches to completing the PPDs and there was a wide range of marks given by the teachers. Some presentations had been marked too generously with marks of 8 or 9 frequently awarded by teachers for presentations that did not fit the assessment instrument descriptors for levels 4 or 5 in the assessment instrument. This was found in all languages of instruction. However, there were some tendencies by language groupings that are worthy of note.

In schools where candidates submitted their presentations in French, there had to be a fair amount of moderation of some of those high marks because there was no evidence of TOK thinking in the PPDs and the teacher comments indicated that they too had difficulties focusing on the TOK expectations of the task.

Pleasingly, there were many more examples of properly completed PPDs reflecting solid presentations. Schools submitting their presentations in Spanish deserve recognition as examiners found that PPDs were much better this session and that there was evidence of an improved understanding of the presentation task. The number of schools submitting work with little relevance to TOK inquiry continues to decline. Even the weakest PPDs showed that there is an attempt to include TOK concepts albeit not always well developed. Some candidates presenting in Spanish still have difficulties with the outlines which are often unclear and do not include the necessary content, and that is seen at all levels of marking.

In some schools where the language of instruction is German, and the course is being taught as part of philosophy or ethics classes and not as a stand-alone subject, TOK tends not to be given the focus it deserves, and this results in candidates working in challenging circumstances.

### Candidate performance against each section

Many candidates handled each component of the presentation with confidence and dexterity. This section will consider each component of the presentation task through the separate boxes of the PPD but it is important to note that the PPD is read and moderated as a whole by examiners, in the same way that the teacher marks the presentation that is viewed using global impression marking. Nonetheless, the separate boxes in the PPD serve a very useful purpose: they provide the candidate with step by step guidance when planning their presentation and they provide important information to the examiner about the candidate's thinking. Many candidates would benefit from following the instructions above each of the boxes more conscientiously so as to maintain the focus of their presentation closely on TOK.

## Real-life situation

This session there was a very wide range of real-life situations and they were mostly suitable with good potential for TOK investigation. They allowed candidates the opportunity to pursue areas which were of interest to them and they were often personal experiences. These included Covid-19, examples from lessons in other IB subjects, films viewed, books read, reports and articles in the media and arts performances.

Whilst all this is clearly positive, in cases where sufficiently well-formulated knowledge questions were not extracted, some of the ensuing presentations focused on the given real-life situation to the detriment of potential exploration of knowledge. One of the biggest issues was that many of the PPDs stated and described the real-life situation in the first box but then did not revisit it in the Outline section. Instead various other real-life situations were introduced immediately and dealt with superficially so that no successful TOK analysis was possible.

The wording of the assessment criteria "explored in the context of the real-life situation" was occasionally misunderstood, such that the knowledge questions were secondary to an examination of the particulars of the real-life situation.

The weaker real-life situations were hypothetical or general topics or lacked sufficient description. The candidates always need to include the "what about it" as well. For example a real-life situation such as "the 2020 US presidential election" is inadequate as there is no specific detail or feature identified in relation to it as is required. Some real-life situations were on very obscure topics that needed a lot of explanation, which, of course, use up too many words that can be better invested in the analysis and conclusions. At times there were two or three real-life situations provided, such as a real-life situation on "a new scientific claim about the frontal cortex" along with "the Rosie the Riveter poster campaign".

## Central knowledge question

Whilst the choice of real-life situation was generally appropriate and suitable for the task, some real-life situations were ineffective for a TOK presentation because they were not about issues of any significance or their description was very vague (such as "my real-life situation is writing music in a class and preparing for college courses in educational music") which then led to unsuitable knowledge questions (in this case, "how can writing music help us in the future?").

Although there were many good quality knowledge questions, there were also quite a few which were too broad (e.g. "to what extent does ethics contribute to society?" which isn't clearly pointed at a question about knowledge) or were questions about the real-life situation and not second order questions (not about knowledge) which led to candidates finding it difficult to produce a TOK focused presentation. These treated polemic situations, moral dilemmas, or had to do with human behaviour, decision-making and not the acquisition or production of knowledge as shown by the following examples:

- "to what extent can a child soldier be held accountable for his actions?"
- "does race influence decisions made by the justice system?"
- "to what extent does imitation influence behaviour?"



- “are video games ruining teenagers’ youth?”

A great number, however, focused on TOK and the knowledge questions did help the candidates to investigate knowledge, as the following three examples of good knowledge questions extracted from well-described real-life situations show. These knowledge questions are not specific to a topic or situation -they are general. They ask how we know something, require the use of TOK concepts and are open because there are different possible answers to them.

### Example A

Describe your real-life situation:

The discovery of unnaturally high concentrations of Iridium in the earth’s crust at the boundary between the cretaceous and the tertiary geological epochs.

State your central knowledge question (this must be expressed as a question):

How can we form knowledge of past events when there are explanatory gaps in present knowledge?

### Example B

Describe your real-life situation:

In a maths class we came across vectors. When we attempt to visualize a vector with three elements, we can easily do so. However, if there are more than three elements, we cannot visualize them, despite that we can operate on them.

State your central knowledge question (this must be expressed as a question):

How is visualization important to understand certain concepts?

### Example C

Describe your real-life situation:

Joshua Bell, a world-renowned violinist, busked undercover in a busy metro. Although over a thousand people passed by Bell, fewer than ten stopped to listen to him play.

State your central knowledge question (this must be expressed as a question):

To what extent does context and expert judgement influence our construction of knowledge in the arts?

### Explain the connection:

This was usually understood quite well but suffered when knowledge questions were inadequate or had not been thoughtfully based on some aspect of the real-life situation. It is recommended that teachers explain to their candidates why the explanation of the connection is important. It is what will put the candidate in the right direction for the development of the presentation. If the connection does no more than repeat the real-life situation, or add to it, then the candidate will not be prompted to develop a TOK focused presentation.

A good explanation of the connection should be concise. Words need to be saved for the Outline. The following example shows what is required and sufficient. The real-life situation was about the Earth Summit Conference in Rio in 1992 which the candidate described as “dealing with the precautionary principle which states that there is a social responsibility to take action against potential risks even when scientific knowledge is limited”. The knowledge question which was extracted was: “How much evidence is needed to validate a claim?” The connection is well explained by the candidate thus:

Explain the connection between your real-life situation and your knowledge question:

There is a lot of debate about whether action needs to be taken against climate change, as there is no cause-effect relationship between human activity and climate change. To answer this, we will explore how much evidence is enough to corroborate a claim.

### Outline:

Many candidates made a real effort to provide a good and detailed account of the development of their presentations. There were many outlines which were sophisticated and showed a TOK argument in the concise manner expected of the outline. However, there were weaknesses which need pointing out.

In many cases it was obvious that candidates were given a structure by their teachers and often this did not align with the expectations of the presentation and seemed more accordant with the essay such as the expectation to include at least two areas of knowledge. The presentation assessment instrument has no such expectation and does not even mention areas of knowledge or ways of knowing. For the presentation, the candidate needs to explore their knowledge question in the context of the real-life situation *using convincing arguments with investigation of different perspectives*. *Convincing arguments* will most likely have the backing of examples from areas of knowledge or ways of knowing. *Investigation of different perspectives* was harder for candidates and an explicit focus on different perspectives was infrequent. Some candidates seemed to consider that an area of knowledge is a perspective. Teachers should remind their students that a perspective is a point of view, therefore it is a person or people who have a perspective. Mathematics does not have a perspective, but a mathematician and mathematicians do, equally a scientist and the scientific community do. There are different ways of communicating perspectives and candidates often do so competently through claims and counterclaims.

The following two outlines have *convincing arguments* and *investigation of different perspectives*. Note that the PPD states that candidates may write their outlines as continuous prose or as a list of points. The first is an example in continuous prose and the second as a list of points.

### Example 1

The real-life situation in this example was about the negative response by those affected by the 1986 Child Labour Prohibition and Regulation Act in India from which the knowledge question extracted was “To

what extent does emotion as compared to reason play a role in the development of economic perspectives?" The connection was clearly explained by the candidate who stated that "responses varied - some largely used emotion and ethics to claim that nothing justifies the act; others reasoned that without the employment of children they and their families risk their chances of survival; others said that child employment should be permitted as long as it does not harm the child and the pay is adequate. All three approaches use different ways of knowing and areas of knowledge to justify their judgement which leads to my knowledge question".

Outline how you intend to develop your TOK presentation in the context of your real-life situation. Include analysis of your main knowledge question and related knowledge questions as well as arguments and perspectives. Responses can be presented in continuous prose or as a list of points:

I intend to analyse emotion and reason in ethics and economics, thus dividing the presentation in four parts. Emotion will be explored in terms of how it affects economic decisions; buying or refusing to buy products based on positive and negative decisions. John Keynes' 'animal spirits' claim. The role of emotion will also be analysed in how it is used to justify being completely against child labour as hurting children (considered pure and innocent) hurts us on an emotional level.

Reason in economics will be analysed through how inductive reasoning is largely used and the fallacies associated. The example explored will be that of cutting interest rates in the past boosted the economy during recessions however it did not do the same during the GFC. Reason was used to ban child labour based on previous government bans being successful and an assumption that it would automatically increase education; fallacious as the premises were not correct. However, reason was also used by people in the survey to say that without child labour, we risk the lives of people in poverty.

I intend to analyse reason and emotion in ethics showing how the natural contract, utilitarian view and social contract approach stem from this. Emotion in ethics evokes sympathy and/or empathy (also uses imagination as a way of knowing) while reason is used to justify moral judgements as well. Previous unrestricted unethical acts such as the Holocaust prove that society will descend into chaos without emotion and reason in ethics. All three will be shown to develop economic perspectives. Emotion to say that child labour is unethical whereas reason to say that it is a best of the worst choice situation.

## Example 2

In this example, the knowledge question was "in what ways do models help or hinder the development of accurate knowledge?" and was extracted from the real-life situation described as follows "The original DNA model has a rule in which a large base pair must be paired with a small base pair. Researchers have created two new versions of the DNA molecule, that there are other ways for life to be encoded swapping out different base pairs. This defies Watson and Crick's DNA model". The connection was explained: "Researchers use models as a basis for research, but it is questionable whether models truly assist us in developing accurate knowledge or if they limit the scope for research. We have chosen to explore scientific models thus the natural and human sciences were chosen. The words 'help and hinder' were incorporated in order to explore the way models affect the way knowledge is produced".

Outline how you intend to develop your TOK presentation in the context of your real-life situation. Include analysis of your main knowledge question and related knowledge questions as well as arguments and perspectives. Responses can be presented in continuous prose or as a list of points

Natural sciences

Claim: Models in the natural sciences help create accurate knowledge

Evidence: Scientists build models of volcanoes to understand pyroclastic flow since it is a phenomenon that is difficult and dangerous to observe in real life.

Counterclaim: However, models in the natural sciences may hinder the production of accurate knowledge.

Evidence: Mesocosm models and their lack of adequate replication with respect to the real world

Human sciences

Claim: Models in the human sciences can help the production of accurate knowledge.

Evidence: Atkinson and Shiffrin multi-store model helps us understand memory as it is difficult to observe directly and is based on the understanding that memory is stored in the neural pathways and synapses.

Counterclaim: Models in the human sciences hinder the accurate production of knowledge.

Evidence: If the biological medical model of abnormality is applied it only takes into consideration biological factors that can affect a psychological diagnosis, for example, neurotransmitters affecting mental health – it does not consider environmental or external factors such as childhood upbringing.

Different perspective (for the claim)

However, there are new developments with transferring memory from one animal to another via injections of RNS. This different view from psychology research challenges what we know about memory and how we shouldn't just focus on memory models as a basis for knowledge.

In several PPDs, clear analysis of the central arguments was rare. That was the case particularly where the candidate did no more than provide a list of headings, or a series of questions, or a list of intentions instead of an argument. The headings usually listed ways of knowing and/or areas of knowledge in the attempt to include TOK terminology, but such lists are of no use at all in showing arguments and perspectives. This is evident in the following very weak example:

### Example 3

Outline how you intend to develop your TOK presentation in the context of your real-life situation. Include analysis of your main knowledge question and related knowledge questions as well as arguments and perspectives. Responses can be presented in continuous prose or as a list of points:

- Arguments for and against my knowledge question: can we get peace through weaponry?
- Article about it
- Assumptions
- Ways of knowing: reason, emotion, intuition
- Areas of knowledge: natural sciences, ethics
- My perspective
- Conclusion

### Conclusion:

Few candidates appear to have a clear idea of what they are expected to do in terms of conclusions. In many cases, candidates provided a summary of their presentation or repeated what they had already said in the other sections. Some of the conclusions reached did not need TOK thinking to be arrived at or they

were about the impact of the social or ethical issues that were being discussed. Many candidates thus missed the opportunity to evidence their use of analysis in additional real-life situations.

Below are the conclusions for the two good examples of outlines given above. They both do as required.

### Example 1

Show the significance of your conclusions with particular reference to your real-life situation and indicate how those conclusions might be relevant to other real-life situations:

We conclude that if researchers solely focus on the model then they may fail to investigate other possible areas of research, hence may fail to make future breakthroughs. Linking to real-life situation, the DNA model effectively helps us understand the basis of how life is formed, however new discoveries of XNA where the structure has changed has made us question the accuracy of the original model. Furthermore, with these implications we must question the accuracy of weather prediction models such as the hurricane forecast computer models. If meteorologists solely rely on weather prediction models, they may fail to understand the anomalies that are associated with weather.

### Example 2

Show the significance of your conclusions with particular reference to your real-life situation and indicate how those conclusions might be relevant to other real-life situations:

Emotion and reason both contribute significantly to our knowledge of both ethics and economics. Emotion promotes beneficial economic perspectives but can be impulsive whereas reason leads to sound economic decisions but can be fallacious. Similar real-life situations are the sweatshops in Dhaka; we find them unethical reasonably and emotionally, and we know through reasoning that they cannot be simply banned because people's livelihoods depend on them. Hence, when faced with whether to buy clothes made in sweatshops or not, we draw knowledge from these ways of knowing to form a perspective. Largely following emotion to make an economic and ethical decision was demonstrated by the 1986 Child Labour Prohibition and Regulation Act, however there was obviously a degree of reasoning behind it. With equal importance given to emotion, reason and ethics in economics, it is likely that a successful perspective would have been developed on the issue.

## Teacher comments

There were many helpful teachers' comments which served to gain a better understanding of a candidate's presentation and/or fill the gaps found in the candidate section. Teacher comments were most helpful when they focused on the use of TOK within the presentations. Least helpful were those which commented on the candidate's progress over the two years of the TOK course, summarised the candidate's presentation or reported on how engrossed the audience was, without referring to the candidate's application of TOK.

Teachers need to justify the mark they award and show how they applied the assessment instrument. Generic repetitions of the phrases in the assessment instrument are unhelpful. The teacher comments are central to the moderating process which is why they need to demonstrate why the marks they awarded were justified with clear evidence from the presentations delivered.

Below are the teacher comments for the two examples of very good outlines and conclusions given above.

Example 1 – the teacher provided a helpful and detailed comment which reinforced the candidate section showing a sustained focus on the role of models in understanding knowledge.

Provide brief comments to support your assessment of the presentation. These should include remarks on the extent to which the knowledge question was well formulated and connected to the real-life situation, and on the effectiveness of the arguments and TOK analysis.

This presentation focused on a knowledge question: in what ways do models help or hinder the production of knowledge? That is well connected to the real-life situation of research into the new versions of DNA which contradict traditional DNA models. This was explored using the natural and human sciences. The natural sciences argument included volcano models to understand pyroclastic flow, which focused on the safety aspect of knowledge production and countered the argument with the limited accuracy of mesocosms due to uncontrollable environmental factors that cannot be replicated to produce accurate knowledge. In the human sciences, memory models were explored convincingly through evidence application to other real-life situations, new developments through transferring memory via injections. This link was insightful and well explained. The counter claim in abnormal psychology was analytical and considered social and cultural factors impacting upon an individual when diagnosing treating disorders. Different perspectives were acknowledged. The outcome was shown to link to the real-life situation. Implications were presented using other real-life situation accuracy of weather prediction using hurricane forecast computer models, providing a concrete example. This was linked to methodology and the anomalies associated with the use of models. Overall an analytical, credible presentation.

Example 2 – the teacher offered a clear explanation which amply supported the evidence in the candidate section

Provide brief comments to support your assessment of the presentation. These should include remarks on the extent to which the knowledge question was well formulated and connected to the real-life situation, and on the effectiveness of the arguments and TOK analysis.

The candidate presented a well-articulated knowledge question which was strongly connected to the real-life situation. The presentation was carefully structured and highly organised. The candidate considered a number of perspectives including the perspective of economists, ethical, and emotional perspectives; there was a particularly insightful discussion on emotional impulse and its application to the decision making process, and also the use of emotion in the development of economic theories. The candidate made continuous and clear links back to their knowledge question throughout the presentation, demonstrating the ongoing connection between the basis of the presentation and the central real-life situation. In doing so, the candidate relied upon the subsidiary real-life situations to show a strong practical application of TOK concepts to the real world. The candidate's conclusion had great impact and demonstrated a careful consideration of the topic and its TOK implications.

## Recommendations and guidance for the teaching of future candidates

- Teachers are strongly recommended to ensure that their students understand the presentation assessment instrument and that they constantly refer to it when preparing their presentations.
- A lot more work needs to be done on understanding and formulating knowledge questions. Knowledge questions should be exemplified and discussed with the candidates. It is highly recommended that teachers use the theory of knowledge video: "*Understanding knowledge questions*". This video is

available in the TOK page of the **Programme Resource Centre** under **Teaching material > Support material**.

- Some candidates used up valuable word allowance by giving definitions for terms such as 'ethics', 'terrorist', 'truth'; it can be safely assumed that examiners are familiar with words such as these. Candidates also need to limit the number of words in their PPDs by avoiding overlong descriptions of real-life situation and connections.
- It is clearly stipulated that the TK/PPDs must be completed electronically (typed). Despite this requirement, examiners still come across a number of PPDs that have been completed by hand. It is very important for teachers and candidates to fulfil this requirement. TK/PPDs that are illegible will not be assessed, to the detriment of the candidates who have submitted them.

## Further comments

Teachers might benefit from thinking of the **three elements of moderation** – the mark, the candidate section and the teacher comments. These three elements need to be consistent with one another for the mark to stand. Where the candidate's comments are poor, or inadequately reflect the actual presentation, the teacher needs to do the work of filling in the gaps between what the student has written and the final mark. If the three are not consistent, moderation will be applied.

Candidates should be encouraged to move beyond the **merely descriptive and into the truly evaluative**. Identifying, articulating and describing the TOK dynamics (role of ways of knowing, the way the areas of knowledge work, etc.) are good starting points, but students who do not progress beyond those to make evaluative claims about what all these dynamics amount to will struggle to move into the top assessment levels.