

THEORY OF KNOWLEDGE

In order to secure success for their candidates, schools are strongly recommended to ensure that this report is read in detail by all theory of knowledge (TOK) teachers, and the Diploma Programme Coordinators.

Overall grade boundaries

Boundaries for this session were set as below:

| | | | | | |
|--------------------|----------|----------|----------|----------|----------|
| Grade: | E | D | C | B | A |
| Mark range: | 0 - 3 | 4 - 9 | 10 - 15 | 16 - 21 | 22 - 30 |

Teachers are reminded that the essay score is doubled and added to the presentation score to give a maximum possible total of 30 marks.

Statistical Summary

| | May 2017 | May 2016 | % change |
|-------------------------|---------------|----------|---------------|
| English | 71,591 | 67,448 | 6.14% |
| French | 720 | 655 | 9.92% |
| Spanish | 7,212 | 6,021 | 19.78% |
| German | 117 | 96 | 21.88% |
| Chinese | 659 | 540 | 22.04% |
| Total candidates | 80,299 | 74,807 | 7.41% |

Section 1: The essay

Component grade boundaries

Essay grade boundaries for this session were set during the grade award meeting after extensive reading and discussion of scripts, as follows:

| | | | | | |
|--------------------|----------|----------|----------|----------|----------|
| Grade: | E | D | C | B | A |
| Mark range: | 0-1 | 2-3 | 4-5 | 6-7 | 8-10 |

These boundaries remained unchanged from previous sessions.

Examiners

Thanks are extended to 422 examiners who assessed theory of knowledge (TOK) essays this session. The comments in a document such as this tend to focus on weaknesses of assessed work, but there are many rewards associated with the opportunity to appraise TOK work from around the world. Teachers who wish to become examiners can visit <http://www.ibo.org/informationfor/examiners/> for more information (note that teachers must have two years' experience of teaching TOK before examining). It is often the case that teachers find examining helpful both in terms of their own understanding of the course and for the insight afforded with respect to the strengths and weaknesses of their own candidates.

General comments

Essays this session exhibited a modest improvement in quality as compared with that of May 2016. However, the overall picture masks once again a severe dichotomy between performance in the English and Spanish language domains.

Sadly it must also be noted once again that there are grave concerns about the quality of essays submitted in Spanish, and an overwhelming proportion of the overall decline in performance must be attributed to a further large number of new Spanish-language schools registering candidates this session. This fact makes it all the more important that this report (together with the subject guide, teacher support material and other associated documents) is read and understood by all TOK teachers.

With regard to the essay task as a whole, the following extended quote from a senior examiner makes a number of important points and neatly captures the essence of its intention:

"The best papers are written by candidates who introduce a level of nuance to their responses - who are comfortable with uncertainty or a lack of final clarity or resolution. Most TOK instruction should encourage this kind of thinking where binary responses will not do and will never suffice. Candidates who are able to suggest with a certain maturity of thought the necessity of seeing difficult issues from several (often conflicting) perspectives at once are always most likely to be the most successful."

"This is not the same as hedging or backing away from reaching definitive conclusions or insights regarding the nature of expert disagreement, the significance of pattern recognition, or the universal value of facing difficult challenges or controversial exploration. Obviously, the best papers offer greater detail, greater insight and fresh examples; in short they offer many possible avenues of inquiry.

"More importantly, the best papers offer what a great deal of professional work offers: intelligent, provisional conclusions that shed partial light on ever complex and evolving problems. Partial truths are invaluable. Too many candidates dissatisfied with this lack of resolution unfortunately go the other way and claim that if we don't know everything, then we don't know anything.

"Keats, when talking about poetry says 'the point of diving into the lake is not to immediately swim to the shore but to be in the lake, to luxuriate in the sensation of water'. I would say the point of responding to an open TOK title is not immediately to rush to a conclusion by dismissing anything difficult that gets in the way, or reducing all conceptual problems to an intellectually lazy relativism, but to "luxuriate" in the complexities of human thought and language."

Key points

- Some teachers are providing too much input, sometimes with counterproductive results
- Some teachers seem not to be providing any guidance to candidates at all
- The distinctive nature of the TOK essay requires carefully tailored support from the candidate's teacher
- Poor formatting can be difficult to ignore during the marking process

Optionality in the course

In this edition of the TOK course, teachers and candidates are advised to study six areas of knowledge (see TOK subject guide, pages 8 and 28). In addition, there is a suggestion that four ways of knowing should be given particular attention (see TOK subject guide, pages 8 and 23). As the numbers of areas and ways presented in the subject guide exceeds these figures, there is freedom of choice as to which parts of the course can be studied. The subject guide provides for these choices in the interests of flexibility with regard to the local circumstances of schools and the interests and preferences of teachers and candidates. Fairness of assessment within this structure dictates that prescribed titles cannot specify parts of the course, and so one of the first hurdles encountered by candidates is to make decisions as to which of them should form the bulk of the essay content.

The TOK essay is comparative in nature, and indeed many recent prescribed titles indicate explicitly that two areas of knowledge should be included in a response. It is important to be able to draw contrasts between the areas that are selected, and evidence suggests that the capacity to do this is uppermost in candidates' minds when they make these decisions. This is as it should be, but a sophisticated analysis is also dependent upon finding points of similarity across the spectrum of knowledge, and this should be borne in mind as choices of areas are deliberated and made. The teacher's role in providing guidance to candidates should

include some discussion on this matter as the decisions settled upon will have a strong bearing upon the eventual quality of the essay.

Key Points

- The generic nature of current prescribed titles means that great care must be invested in the choice of parts of the course to be examined
- While it is advisable to select areas of knowledge that show distinct contrasts, comparisons that allow points of similarity are also crucial to the balance and sophistication of the response

Misunderstandings about knowledge questions

It is clear that some candidates (and some of their teachers) have a poor understanding of what is required when attempting to respond to a prescribed essay title. The following is presented as an attempt to clarify the intentions of the TOK essay task with respect to knowledge questions.

The form of a prescribed title can vary to some extent:

It can be just a question:

To what extent do the concepts that we use shape the conclusions that we reach? (May 2016)

Should key events in the historical development of areas of knowledge always be judged by the standards of their time? (May 2017)

It can be a question followed by a clarification indicating how to respond to it:

Is explanation a prerequisite for prediction? Explore this question in relation to two areas of knowledge. (November 2015)

Given access to the same facts, how is it possible that there can be disagreement between experts in a discipline? Develop your answer with reference to two areas of knowledge. (May 2017)

It can be a claim followed by a question or clarification indicating how to respond to it:

"Without application in the world, the value of knowledge is greatly diminished." Consider this claim with respect to two areas of knowledge. (May 2016)

"Facts are needed to establish theories but theories are needed to make sense of facts." Discuss this statement with reference to two areas of knowledge. (May 2017)

In all of these cases, **the task is to respond to the title exactly as it has been presented.** Under no circumstances should the candidate immediately present a knowledge question ("my knowledge question is...") such that it appears as if the title has been replaced by it. The essay

task is not about "finding" a central knowledge question to which the rest of the essay is a response; that is rather a central requirement for the TOK presentation.

In order to construct a successful response to the title, it will be necessary to establish at least tentative or partial or provisional answers to a number of subsidiary questions as the essay unfolds. For example:

Is the availability of more data always helpful in the production of knowledge? Explore this question with reference to two areas of knowledge. (November 2016)

Under what conditions might the availability of more data enhance knowledge production? Possibly when data previously available was sparse, or in areas where data plays an important role in the construction of knowledge...

In what areas does this seem to be the case? Maybe in the study of ancient history, or on the frontiers of modern science...

What counts as data? Perhaps restricted to the empirical domain, or expanded to include expert opinion in areas such as the arts or ethics...

Under what circumstances is more data unhelpful in the production of knowledge? Maybe when it is redundant and adds nothing to what is already firmly established, or when attempting to form a personal response to a work of art...

Is the production of knowledge possible in the absence of data? Maybe it could be argued that areas like ethics or mathematics are about reaching conclusions from axiomatic foundations rather than being built upon data...

When would knowledge production benefit from ignoring data that is nevertheless available? Possibly when the data has not been verified to the expected standards of the discipline...

To what extent has the increasing availability of data altered methods and opportunities for producing knowledge? Lots of arguments possible here about the rising phenomenon of "big data"...

Has data always been valued in knowledge production? Some cultures in the past have looked down upon an empirical approach to knowledge acquisition...

[The above is for illustrative purposes only and is not offered as a model approach to this title.]

Ideally, such questions and the discussions that they inspire can be organized into a logical sequence such that they form the backbone of the essay – each contributing to the overall answer to the prescribed title. The content of each paragraph might constitute a response to one of these questions. Hence such knowledge questions can act as markers in the development of the argument and pave the way from title to conclusion. As described here, the identification or formulation of these questions can play a crucial role in the exploration and planning phases of the essay task, and when the final essay is constructed it may not be necessary or desirable to the flow of the arguments for the questions to be stated explicitly. A

sequence of paragraphs each prefaced by “my next knowledge question is...” does not read well and is likely to appear disjointed.

So in summary, knowledge questions are NOT “alternatives” to the title, and they are best thought of as aids to the exploring and planning processes such that they become woven into the analysis but not necessarily stated explicitly in the final essay.

It is possible that the numerous knowledge questions presented in subject reports over the past few years have contributed to the misunderstanding that candidates should “find” their own knowledge question right at the start (even though the reports themselves never suggest that this is what the candidate should do), or indeed fill their essays with knowledge questions and then mostly ignore them thereafter. The prominent inclusion in recent subject reports of specific knowledge questions related to each prescribed title has been with the intention of promoting an understanding of what they look like. Perhaps what was missing was an explanation of the way in which they can be made to relate to one another so as to underpin an entire analysis – this is what the exposition above is designed to address.

Key Points

- While there is a great deal of choice available to the candidate in terms of alternative titles and parts of the TOK course that can legitimately be explored within the one title that is chosen, the exact wording of the title must be respected and examined very carefully.
- Writing “my knowledge question is...” near the start of the essay is usually a recipe for disaster as it means that, in effect, the title has been displaced.
- Knowledge questions should be thought of as way-stations on the journey to an answer to the prescribed title – useful in explicit form while exploring the title and planning a response to it, but not necessarily stated explicitly in the final text.
- Possible knowledge questions have been excluded from this report, but they can be found in the corresponding set of examiner preparation notes for this session.

The role of ways of knowing

At the last course revision, the number of ways of knowing included in the subject guide was increased from four to eight. The rationale for this change was not to boost the relative contribution of ways of knowing to the course but rather to emphasize that the set of attributes available to the quest for knowledge is more complex and interactive than was previously suggested by the more restricted suite of four (see TOK subject guide, pages 8 and 27). In the spirit of this change, teachers and candidates are strongly encouraged to be very circumspect about treating ways of knowing in isolation. Unfortunately, it seems that many schools still take precisely this approach to TOK, with an extended tour of ways of knowing before addressing other aspects of the course. A consequence is that a selection of ways of knowing is often “laid on the table” at the start of essays in a way that does not prefigure sound analysis. Examiners often find themselves reading something like:

“In this essay I will be focusing upon the human sciences and history as areas of knowledge, and my ways of knowing will be intuition and memory.”

While most titles do require a clear statement of areas of knowledge to be addressed, there is no corresponding expectation for ways of knowing (except perhaps for the minority of titles which take ways of knowing as the main focus). A definitive identification of them at the start of the essay is often unnecessarily limiting for the subsequent analysis.

Because of the way the course is presented, and because of seemingly widespread practice of affording ways of knowing a privileged position in course structure, there is a strong tendency for candidates to treat ways of knowing as the primary elements of TOK analysis. This leads to a number of serious issues. Firstly, candidates tend to invoke them as “answers” rather than starting points for analysis, as if naming them were enough. The precise nature of emotion or imagination, for example, is often not considered worthy of attention. Many candidates write about how ways of knowing are “used” as if they were ingredients that ought to be “baked” together in order to generate various forms of knowledge. This is simplistic at best, and highly misleading. A deep understanding of the role of ways of knowing leads to the insight that just because a particular way of knowing is involved in justifying a claim does not guarantee that it is knowledge. It is how ways of knowing are used that supports knowledge claims.

Secondly, the effort to make ways of knowing fit with what is understood about various areas of knowledge produces some spurious connections and rather artificial constructs – we learn, for example, from many essays that history is somehow an outgrowth of memory, thus neatly sidestepping the actual role of the historian. Ways of knowing tend to be forced into the analysis in places where they do not and cannot enlighten. Sometimes they are mentioned seemingly just for the sake of making sure they are “name-checked” in the essay even though they provide no insight at all:

“Through sense perception I observed the motion of the planet...”

“With the help of reason I reached my conclusion...”

“Using language I read the historical account...”

One examiner expressed his frustration with the treatment of ways of knowing as follows:

“Ways of knowing have the general effect of cluttering the writing, confusing the flow and distracting from the real purpose. Those prescribed titles that didn’t emphasize the requirement of two areas of knowledge often suffered the indulgence of ways of knowing. Half-understood, some are picked because they appear to be the ‘best’ WOKs; some derided because they’re the ‘worst’ as they’re the least precise and the supposed creators of ‘bias’.”

The most recent subject guide gave pride of place to a set of knowledge frameworks that were designed to provide appropriate tools for TOK analysis (see TOK subject guide, page 28 onwards). While ways of knowing are frequently mentioned within these frameworks (particularly in connection with methodologies), the promotion of the frameworks was a response to some of the problems described above that stem from the limitations in the competence of ways of knowing to achieve successful TOK analysis on their own. Teachers are strongly encouraged to consider shaping their treatment of various parts of the course through the use of the framework tools. While the subject guide states that the knowledge

framework is not compulsory, neither are the ways of knowing required to form the foundation for addressing many of the prescribed titles.

Key Points

- The subject guide makes it clear that ways of knowing almost always operate together, and this should be reflected in the approach taken to them in essays.
- The great majority of current prescribed titles invite candidates to select and indicate the areas of knowledge to be explored in the essay, but, as a rule, no similar imperative applies to ways of knowing in these titles.
- Offering an explicit selection of ways of knowing at the start of the essay tends to undermine the claim above that they work together.

Areas of knowledge, knowledge production and learning

As (a) TOK is a course about knowledge and knowing, and (b) knowledge is a human construct, it is important to be clear about the relation between the two in TOK work. Discussion of how knowledge is produced by expert practitioners in subject disciplines is a central aim of the TOK course, but there must also be room for the exploring the ways in which other groups and individuals, such as the TOK student, come to know.

Phrases such as “the production of knowledge” (e.g. M17 title 4) or “knowledge produced” (e.g. M17 title 1) give a cue that there should be an emphasis on the former:

“In the **production of knowledge**, traditions of areas of knowledge offer correctives for ways of knowing.” To what extent do you agree with this statement?

“It is only **knowledge produced** with difficulty that we truly value.” To what extent do you agree with this statement?

Whereas “the acquisition of knowledge” (e.g. N16 title #1) allows for more latitude:

The **acquisition of knowledge** is more a matter of recognition than of judgment.” Evaluate this claim with reference to two areas of knowledge.

One reason why the distinction between shared knowledge and personal knowledge was introduced was to draw attention to the need for balance in this respect.

With regard to the comparisons between areas of knowledge that are so important to TOK analysis, examiners sometimes lamented a seemingly ingrained prejudice for and against particular areas. A key ingredient is the notion of discipline as a systematic and rigorous set of practices and norms by which knowledge is both produced, understood and organized. This is clear in the comments of one examiner:

“Candidates have a common view that the natural sciences and mathematics come closest to the truth. They know this because they are increasingly adept at scientific method, and they see science at work in our most impressive technologies. The arts and history and some human sciences are riddled, they believe, with self-preference and personal knowledge alone:

anything goes with these. More should be done in these underrated areas, if possible, to have candidates do real work with the methodologies of historical research, for instance. They need to know how much discipline is there in this area. They need to understand that art isn't just flinging paint, but requires years of work in technique."

Key Points

- Candidates are advised to look carefully at the wording of prescribed titles in order to ascertain what kind of engagement with knowledge is being elicited
- Candidates should beware of clichéd comparisons between “harder” and “softer” areas of knowledge

Aspects of essay content

As with previous sessions, a wide variety of examples was on offer in essays, but a preponderance of a particular group of them drew some concerns among examiners. Some examples appear with great regularity but, with some additional thought, could have been substituted by others that would function at least equally effectively, and perhaps have offered additional insights. Many examples have much potential when they have been mastered by candidates and applied in situations where they support or illustrate the exact claims being made about knowledge. Unfortunately, this is often not the case.

Some examples stem directly from candidate experience in other DP components, and as such are to be welcomed as evidence for a primary aim of TOK in action. However, there may be other such points of contact across the Diploma that could also be exploited. Candidates often included their own experiences with extended essays and internally assessed tasks, and this is to be encouraged as long as they are described in enough detail to illustrate the claims at large.

Examiners are aware that the ideal of the TOK essay as the culmination of the student's personal adventure to date in knowledge is perhaps unrealistic for many candidates on grounds of the limits of personal experience or motivation, but it must be pointed out that the constraints imposed by these factors can be exacerbated by the temptation to rely on external sources designed specifically to “help” with the task. As there is a finite quantity of such material available, shared patterns of essay structure and content across schools often become evident to examiners. If a candidate's first move is to search the internet for material that responds directly to a prescribed title, there is no way back from the “contamination” of thought that has occurred, and the short-circuiting of the process of internalization often leads to correspondingly poor work. Teachers are strongly urged to lead their candidates to formulate a personal and independent response to a title before allowing the wider world into the task that lies before them.

“Well-travelled” examples this session included, just to name a few, van Gogh's *Starry Night*, Howard Zinn's work on American history, John Maynard Keynes and Milton Friedman, Davson-Danielli and Singer-Nicholson models of membrane structure, spontaneous generation and Louis Pasteur, Michael Shermer's “patternicity” and classification of errors, Marcel Duchamp's *Fountain*, Alexander Fleming and penicillin, other serendipitous

discoveries such as the pacemaker, Edward Jenner and smallpox, and Salem witch trials. As mentioned in every subject report, there is nothing in principle wrong with any of these examples – what is important is that they are used where the point they make is effective and when care is taken with factual accuracy. At the same time, examiners are human and are likely to appreciate the effort to engage fresh examples, and teachers can play a role in encouraging this.

Key Points

- Candidates are strongly advised to resist the temptation to search for responses to prescribed titles on “help” sites or elsewhere as, once accessed, they contaminate the candidate’s thinking and cannot be “unthought”.
- Some examples are inherently ineffective because they are simplistic and cannot support the quality of analysis that is required in TOK.
- Some examples are employed ineffectively because they do not support the point being made or because they are described without due care for accuracy.
- Some examples have their origins in other DP courses, and these should be generally encouraged.
- Fresh examples are more likely to be effective, but even relatively common ones can work well if they are used with respect for their nature.

Feedback on specific titles

1. “It is only knowledge produced with difficulty that we truly value.” To what extent do you agree with this statement?

Many candidates found it difficult to maintain a sustained focus on the relationship between the two key variables in this title. A common move was to assert that the value that we place on knowledge is relative to the individual or the group – but rather than taking this possibility as a starting point for analysis it was often employed as an obstacle to further exploration of the issue.

Many candidates took it as axiomatic that value is a function of utility, and this undermined any effort to examine the key relationship as the title suggests that value accrues from a different source. Even where the emphasis was kept firmly on difficulty of production, discussion often lacked a nuanced understanding of what that might involve. Various kinds of difficulty were often not teased out, and approaches to this title often seemed to miss much of what difficulty can bring to the value of knowledge and why we in fact do “truly” value it beyond its utility. The title offered an opportunity to explore a very real human experience, one that certainly at some time in life we have all had, and candidates might have considered focusing on this phenomenon with greater sensitivity and understanding.

Knowledge is produced in many forms, both personal and shared, and procedural and propositional. How knowledge is produced and why we value it needs to be considered in an expanded sense if the argument is to go anywhere beyond an isolated series of examples. Some standard examples of serendipitous knowledge production were often cited (penicillin,

pacemakers, X-rays), but candidates often did not acknowledge that the circumstances that led up to them may well have been difficult to achieve, including the development of skills in the protagonists themselves.

Some candidates allowed their responses to drift too far toward knowledge acquisition rather than production, with the result that their essays were concerned largely with school learning. The title also required a careful application of logic that was not always successfully achieved. The claim holds that it is only knowledge produced with difficulty that is truly valued, and establishing instances of such knowledge that are not valued, while interesting and relevant, does not directly contradict the claim.

2. Facts are needed to establish theories but theories are needed to make sense of facts.” Discuss this statement with reference to two areas of knowledge.

Candidates selecting this title tended to focus on the first half of the claim and largely ignore the second. As a result, the tension that it generates often did not figure as it should have done, as the apparent circularity did not lead the title becoming effectively problematized.

Stronger candidates contrasted inductive reasoning in theory formation with the explanatory power of the theories thus produced, and some made moves to contrast the epistemic imperative to capture reality in simplified theoretical form in order to attain useful knowledge with the psychological need to “make sense” of the world in which we live.

There were some troubled attempts to compare the sciences with mathematics, and the distinct concepts of theories and theorems often got conflated. Overwhelmingly, candidates discussed theories of a scientific nature, and it was a rare essay that made a comparison with the normative theories of ethics and their different relationships with facts.

Examples employed with respect to this title often included Darwin’s formulation of the theory of evolution by natural selection from painstaking observational studies and the way in which the theory created a unified understanding in biology.

3. Should key events in the historical development of areas of knowledge always be judged by the standards of their time?

Candidates experienced a lot of conceptual problems with this title. In many cases, “key events in the historical development of areas of knowledge” was reduced simply to “events in the past”. At best, this shift made possible only an account of how historians go about their job of evaluating past events, and the entire essay necessarily concerned only history as an area of knowledge. Nevertheless, if the candidate had succeeded in distinguishing clearly between an argument for understanding the circumstances of the time of the event and that for assessing it in the light of the consequences that stemmed from it, the tension between the two perspectives might have been successfully applied to events embedded in a range of other areas of knowledge.

But too often candidates also ignored the idea of “key events” and “within a discipline” in favor of talking about general practices or traditions (slavery, human sacrifice) which were then evaluated in their own right without reference to an event or a discipline.

Many candidates also struggled with the idea of standards, and there were difficulties in maintaining distance between the events and the standards so that the latter could be used to judge the former. When candidates took the production of iconic art works as key events in the arts, they were sometimes more successful in applying consistent standards to them. The inclusion of the word “should” in the title seemed to lead candidates to consider the title as asking a predominantly ethical question rather than one about what would be the best set of standards to apply to a given event.

The word “always” in the title was sometimes used as a way to dismiss the title’s claim out of hand, whereas it might have stirred the candidate into taking a more categorical and less relativistic approach to the title. Why does it make sense to judge events from our current perspective? Why is it wrong to do so? Answering these questions does not preclude the use of examples to nuance the response but it does discourage the candidate from simply describing a series of events that are rightly or wrongly judged and leave it at that.

4. “In the production of knowledge, traditions of areas of knowledge offer correctives for ways of knowing.” To what extent do you agree with this statement?

This title was hugely unpopular, and it is interesting to speculate as to the reasons. The word “traditions” was chosen in an attempt to open up possibilities for responses so that not only methodology but also other elements of the knowledge framework, such as concepts and uses of language might be acceptable areas of focus. Uncertainty as to what “traditions” might mean in this context probably made a major contribution to the decisions of candidates to look elsewhere.

The notion that ways of knowing might be deeply flawed and in need of correction might have been difficult for candidates to reconcile with the view commonly advanced by them that WOKs are the fundamental building blocks of knowledge. But it is surely not unusual during TOK instruction to highlight the shortcomings of ways of knowing.

In any case, responses to this title tended to bifurcate between those candidates who had grasped the meaning of the title and those who could only offer rather bizarre interpretations due to misunderstanding of what was being asked. Those who succeeded did indeed give most attention to methodologies, with the various aspects of scientific method prominent as guardians against the limitations of sense perception, the slipshod use of reasoning and the unconstrained products of imagination, to name just a few ways of knowing. Similar approaches were often taken, sometimes with less success, in relation to the practices of historians, artists and others.

Notwithstanding any difficulties in decoding the title, the underlying idea in the title is fairly simple and inclusive to the TOK course as presently constituted (with areas of knowledge and ways of knowing), and it is unfortunate that the question was not addressed with more frequency.

5. Given access to the same facts, how is it possible that there can be disagreement between experts in a discipline? Develop your answer with reference to two areas of knowledge.

There were many good answers to this question. However poor responses usually traced one of these well-worn routes: (1) they omitted any mention of experts and just concentrated on disagreement in general, or (2) they started from the premise that experts had access to different facts, or (3) they did not worry enough about the notion of “access”, or (4) they put any disagreement down to “bias” or “subjectivity” on behalf of the experts.

Many candidates seemed to have a limited understanding of just what constitutes expertise – adhering to claims that experts disagree for very personal and fundamentally emotional reasons. For example, one candidate wrote that “some disagreement can be explained away by ignorant but well-meaning experts who lack critical thinking skills.” Another candidate asserted that “it is human nature that scientists will jump to conclusions without fully evaluating the alternate reasoning and explanation which is covered up by their own emotion, carelessly leading them astray without realizing it.”

Too often a candidate’s entire argument rested on the assumption that all disagreement between experts is irrational, and little time spent on the possibility that disagreement might be grounded in rational debate, or in the nature of the disciplines themselves. Certainly some disagreements are driven by self-serving motivation – by politics, or by emotion even, but not all. And even where there is to be found a venal motivation lurking beneath the surface, it is often more nuanced than the candidate suggests.

Many essays were concerned with looking in a very general way at why people disagree. The concept of a fact was sometimes ignored, sometimes laid out in too rigid terms or sometimes stretched so far as to lose meaning. Not easy to navigate between these extremes. But by focusing only on the disagreement portion of the title, some candidates avoided the more challenging problems suggested by the title. Certainly, people in general disagree over important matters all the time and for a variety of reasons. It is when the disagreement between experts seems to be grounded in common facts that it becomes more complicated to explain. Candidates often qualified the title to make it easier to deal with – such that the experts don’t have access to the same facts, or that sometimes the facts are not available. These strategies, of course, allowed the candidate to avoid the difficulties of the title entirely.

6. “Humans are pattern-seeking animals and we are adept at finding patterns whether they exist or not” (adapted from Michael Shermer). Discuss knowledge questions raised by this idea in two areas of knowledge.

The title asked candidates to consider knowledge questions that might emerge from the title’s claim. But too often there were descriptive essays that went through a series of examples of patterns correctly or incorrectly identified, followed by an evaluation of these examples in terms of their utility. Unfortunately, by relying on this limited approach, opportunities for rich conceptual or theoretical approaches to the title that explore this capacity with the purpose of isolating explanations for what it means for our species that we do this or must do this to survive were missed. And this type of exploration of underlying principles is in many ways what study in TOK strongly encourages.

Despite the effort to direct candidates toward areas of knowledge and knowledge questions, many essays read like a précis of Michael Shermer's work on what he has called "patternicity". Hence there were many accounts of type I and type II errors and the relative preferences that have become attached to them through the process of natural selection. While these matters are entirely relevant to the title, it was disappointing not to see more candidates using them as a springboard to a wider discussion about knowledge. Some essays seemed to be too embedded in the discipline of psychology, with long dissertations on cognitive priming, pareidolia and apophenia, to be successful in the realm of TOK.

Sometimes, candidates were not diligent enough in characterizing what might be meant by a pattern in the first place, with too much emphasis given to the types of examples where there is only a simple kind of correlation between variables. Is any kind of relationship a pattern?

Section 2: The presentation

Component grade boundaries

The following boundaries were applied for this session.

| | | | | | |
|--------------------|----------|----------|----------|----------|----------|
| Grade: | E | D | C | B | A |
| Mark range: | 0 - 1 | 2 - 3 | 4 - 5 | 6 - 7 | 8 - 10 |

General comments

Thanks are extended to the 58 examiners who moderated presentations this session.

As one might expect there was quite a range in the quality of the TK/PPDs viewed by examiners. It was pleasing to note that teachers are using a greater range of marks and as usual it was particularly gratifying to see high quality work. Many candidates had solid real-life situations and knowledge questions and it was evident that their teachers understand what the presentation task should be. There was a fair amount of poor work seen but teachers' marks showed better recognition of different quality of work.

The concern continues to lie in TK/PPDs which do not show anything much of what could be called TOK but are still being awarded top marks. One of the moderators expressed this concern simply but very directly thus:

"Many students seem to have a hard time distinguishing between a research presentation and a TOK presentation - but judging by the teacher comments, their teachers also seem to be struggling with that."

Another examiner commented:

"There are a lot of schools where it is apparent that the teacher really has no grasp of what a viable TOK presentation and knowledge question should look like. Many schools consistently had unviable knowledge questions for every candidate. The candidates showed that they had worked hard, but without a viable knowledge question, they could do no more but write superficial, descriptive outlines and conclusions."

Similar points were raised by several examiners.

Teachers often gave marks in the 8-10 range to poor-quality work. These schools were invariably moderated down substantially. It needs pointing out that a majority of these schools are ones that offer the course in Spanish, and schools who are offering the course for the first time. These schools need to take a more pro-active role and assume greater responsibility in preparing TOK teachers. As things stand they are doing their students a huge disservice.

Teachers are reminded that in order to provide examiners with a representative range of marks for moderation, where possible, only one TK/PPD from the same group should be uploaded as part of the sample. Please consult the TOK section of the *Handbook of procedures for the Diploma Programme* for instructions on how to replace a candidate's TK/PPD if two candidates in the same group are requested in the sample generated by IBIS.

Key Points

- Teachers must ensure that their students understand the nature of the TOK presentation and they must also study the TOK guide and other current TOK materials carefully to be certain that they are clear about the TOK presentation task
- For group presentations, schools need to ensure (where possible) that they submit only one TK/PPD as part of the sample uploaded onto IBIS

Comments regarding the completion of the TK/PPD

As mentioned in previous versions of the subject report, the TK/PPD has a double purpose: the primary purpose is to help students in the planning of their presentations; the other purpose is to allow examiners to moderate the teacher's assessment of the candidate's work.

It is compulsory for students to do their planning using the TK/PPD, and for teachers to assess the candidate's planning and actual presentation using this document. Teachers must complete the "Teacher's Comments" section of the document with comments which justify the marks they have awarded. This was not always seen. Candidates and teachers know that examiners will be moderating the presentation using the TK/PPD as evidence of the quality of TOK content and skills demonstrated by the candidate. It is surprising to still find TK/PPDs where neither candidates nor teachers have dedicated any effort to completing the document adequately.

Where TK/PPDs were completed well they clearly displayed the structure of the presentation and TOK argumentation. The *Candidate Section* gives the students step-by-step guidance but all too often examiners saw that candidates did not avail themselves of this guidance. To begin, candidates have to describe a real-life situation, then extract a knowledge question from it and thirdly explain the links between them. The point of dividing the first steps in this way is to ensure that students begin with a real-life situation and then extract a knowledge question from it. That gives them the foundation for a TOK presentation. It is in the context of that one real-life situation that the central knowledge question is explored, as stated in the assessment instrument – hence the importance of both the chosen real-life situation and the central knowledge question. Unfortunately, all too often real-life situations were not real nor situations. For instance, 'plagiarism is taking somebody else's work and pretending it is yours'. That is a topic, it is not a situation. The description is not of something concrete; it is a definition. From that example, it was difficult for the candidate to extract a knowledge question. The question was 'is plagiarism always wrong?'. That is a question about plagiarism, within the AOK of ethics, it is not a question about knowledge. The real-life situation should help the student, not hinder the formulation of a knowledge question, hence the importance of a real and significant real-life situation.

In contrast consider this other example of a real-life situation: 'supporters of the Dakota Access Pipeline say that it will be an economic boon for the USA as it will decrease reliance on foreign oil but Native Americans are against it claiming it will contaminate their land and go through sacred burial sites'. From this situation which is real, concrete and significant, and thus a good real-life situation, the candidates were able to extract a good knowledge question and

formulated it as ‘to what extent are we able to integrate knowledge from Indigenous Knowledge Systems into wider shared knowledge?’

The second part of the *Candidate Section* is the *Outline* and the *Conclusions*. Guidance is given regarding what to include in these two parts. For the *Outline*, for instance, candidates are asked to include arguments and perspectives which are essential parts of the presentation. For TOK analysis, arguments and perspectives require consideration of related knowledge questions which is why they are included in the instructions. In the *Outline* candidates are also asked to answer in the context of their real-life situation – they must not forget the interaction between the real world and the TOK world. The instructions for the *Outline* should stop candidates from the very weak outlines that are often seen where a list of headings is given such as: ‘introduction; natural sciences; history; emotion and reason; give conclusions’. That was devoid of meaning and does not provide the teacher or the examiner any useful evidence.

Similarly, under the *Conclusions* box, candidates are instructed to show the significance of their conclusions but also to indicate how they may be relevant to other real-life situations (which could also be indicated in the *Outline* as was done by many candidates showing flow in their argumentation). A TOK presentation should be an analysis with a well-developed argument. There needs to be a sense of progression, it must show how the thinking has progressed from beginning to end, and the end is evidenced by the conclusions and their significance. Where candidates did make the significance of their conclusions explicit, they showed breadth and insight in their exploration. That is what is required according to the assessment instrument for a Level 5 presentation. The TK/PPD gives candidates the proper format to plan a TOK presentation and teachers must ensure that candidates are using it to their advantage.

Most teachers gave explanations for their assessment in the *Teacher Section*. There were fewer cases of teachers who just copied sections directly from the assessment instrument without offering a developed justification. A few teachers copy-pasted the same comment for all their students. Teachers are reminded of the importance of their role in the *Teacher Section*. Their explanations must serve to justify the mark awarded based on the evidence from the content of the presentation in line with the evidence provided in the *Candidate Section*.

Key Points

- Teachers and candidates need to understand the purposes of the TK/PPD and ensure it is being used adequately as a planning document
- Teachers need to ensure they use the *Teacher Section* of the TK/PPD adequately for the purposes of assessment and moderation
- Teachers should advise their students on their choices of real-life situation and knowledge question

Recommendations for IB procedures, instructions and forms

Candidates must select their real-life situation and extract their knowledge question from it. It must be their choice of real-life situation and their knowledge question.

Some teachers have confused the presentation task to be a presentation of the candidate’s essay. Teachers are urged to review the subject guide very carefully to understand the requirements of the presentation task. The prescribed titles are solely for the completion of the

essay. For the presentation, candidates must extract their own knowledge questions from their real-life situations. They should not use prescribed titles as knowledge questions or real-life situations.

It is very important that teachers be careful when entering the electronic marks on IBIS so that they match the ones they awarded on the TK/PPDs. Every session there are cases of marks entered on IBIS that do not match those entered on the TK/PPDs. This may result in delays issuing the schools results at best, and the wrong moderation factors being applied to the entire cohort at worst.

It is very important that candidates and teachers use the latest version of the presentation planning document, and that the format is not altered in any way. This will ensure that no content is lost during the transfer of the document content into our e-marking system. The use of older versions of the TK/PPD, or saving the latest version into a different format may result in the contents being completely lost and the candidate's work being moderated with a zero.

Teachers are reminded that group presentations must receive the same mark and the TK/PPD must contain the exact same content. The teacher's comments must also be the same for all TK/PPDs of the same presentation.

There are still a few hand-written TK/PPDs being submitted. All TK/PPDs should be typed. Schools are reminded that candidates may not exceed the 500-word limit for the whole of the *Candidate Section* nor should they attempt to bypass this requirement by using a very small font size.

Key Points

- Candidates in group presentations (two or three) must receive the same mark and teachers must write the same comment in the *Teacher Section*
- All TK/PPDs should be typed.
- The *Candidate Section* may not exceed 500 words.

Recommendations for the teaching of future candidates

As has been mentioned before candidates need to show TOK analysis in their TK/PPDs. For that they need to use TOK vocabulary and show evidence of second order TOK thinking.

Evidence suggests that a fair number of teachers need to give their students more guidance. Teachers must guide their students so that they have a concrete real-life situation from which they extract a well-formulated knowledge question. This might require a more 'hands-on' approach by teachers. The teacher's responsibilities detailed on pages 56-57 of the guide need to be observed. Of course, guidance cannot be given without an understanding of the nature of the TOK presentation and of TOK in general, and teachers must assume their responsibility to secure such understanding. It is strongly advised that teachers use up-to-date TOK materials and resources available to them on the Online Curriculum Centre (OCC).

The IB also provides regular TOK workshops for teacher training. Where possible, teachers are encouraged to request participation to enhance their training and preparation for teaching the course.

Key Points

- A successful presentation will use TOK vocabulary and second order questions.
- Teachers must be more proactive in supporting candidates in the selection of real-life situation and knowledge question extraction processes in the development of the presentation
- Teachers must assume the responsibility they have as TOK teachers and keep up to date with the requirements of the subject