THEORY OF KNOWLEDGE

> In order to secure success for their students, schools are strongly recommended to ensure that this report is read in detail by all theory of knowledge (TOK) teachers, and the Diploma Programme Coordinator.
>
> Teachers are also once again directed towards the IB Publication "Understanding Knowledge Issues" (on OCC) which provides clarification of the central concept of a 'knowledge question' (note that this document was written before the change in terminology this session from "knowledge issue" to "knowledge question", but the terms should be understood to refer to the same concept).

Overall grade boundaries

Grade:	E	D	C	B	A
Mark range:	0-4	5-10	11-16	17-22	23-30

Statistical Summary

	November 2015	November 2014	% change
English	4824	4545	6.14%
French	0	1	-100%
Spanish	2778	2352	18.11%
Chinese	38	12	216.67%
German	0	0	0%
Total candidates	7640	6910	10.56%

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

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

Examiners

Thanks are extended to the 43 examiners who assessed TOK essays this session – whose contributions form the basis for this part of the subject report. While the focus of this report remains on weaknesses in student thinking and writing that can be addressed for future cohorts, it must be recognized that many candidates produce responses of high quality to the essay task that were a pleasure to read. Accordingly, there are rewards that accrue from being a TOK examiner that stem from exposure to both strengths and shortcomings of a wide range of student work. 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).

Transfer to the new course

The nature of the specimen titles published for the new course (available on the OCC) gave a clear early indication of the importance of recognizing that the TOK course has changed. The prescribed titles for this session provided clear opportunities for new concepts to be explored and applied, and thus should have acted as prompts for some shifts in course content and organization. Among these prompts were the idea of knowledge as a **practical problem-solving tool**, and the distinction between **shared and personal knowledge**.

Less was heard of the **map metaphor** as a way of thinking about knowledge in a productive manner, and, while the **knowledge framework** may have been internalized by a fair proportion of candidates, its effects on the quality of analysis were not immediately apparent. It may take some time for these new tools to bed into the day-to-day TOK activity in the classroom, but it is vital that there is a universal understanding that there have been changes and there will be corresponding expectations in the tasks set for assessment. It is possible that some schools and candidates will have experienced disappointment with results if this has not been the case.

In addition, the nature of the new course – in which no areas of knowledge or ways of knowing form compulsory components – necessitates that prescribed titles no longer reference them individually. This means that candidates need to consider carefully which of them would be most effective in responding to the generic title, and it may be that some candidates go astray

at this very early stage in the business of crafting the essay. Teachers are advised to be aware of this change as it will apply to titles for the remainder of the life of this edition of the course.

In the effort to reduce the cognitive load on examiners, the **global impression instrument** for essays no longer mentions explicitly a number of features of essays that were previously flagged. These include the requirement for proper referencing, and the minimum expected length of the essay. Teachers and prospective candidates are hereby reminded of the severe penalties that adhere to the various forms of academic dishonesty, including plagiarism, on a diploma-wide basis. An essay that fails to take proper account of the requirements for acknowledgement of sources may now possibly be classified as an academic dishonesty case rather than simply being marked down within the TOK assessment instrument itself – and thus the negative consequences may actually be greater than before.

It is also the expectation that essays that fall well short of the permitted 1600 words will be self-penalizing on the basis that they do not contain sufficient material to gain major credit. Candidates should, therefore, not imagine that very short essays will attract high scores.

It should also be noted that no allowances are now made for essays submitted on titles that do not appear on the list for the appropriate session, or on titles that have been modified from the wordings given by the IB such that they constitute different tasks. Such essays will be given a score of zero.

Key Points

- The extant TOK course is new; it is not simply a continuation of the previous one, and hence it requires some new thinking.

- There is a suite of new tools in the new subject guide – designed to assist teachers and candidates with the enterprise of TOK analysis.

- Global impression assessment is based on the idea that work is evaluated against a gradation of single holistic descriptions and not by breaking it up into components or different dimensions.

- The disappearance of descriptions of certain features of TOK work does not mean that these features now have no consequence in the assessment process.

Degree and quality of apparent teacher guidance

As in every recent session, the concern was expressed by many examiners that assistance to candidates ranges from far too extensive to non-existent. At one extreme, it seems that candidates are being provided with common templates and formulaic guidance such that there is little room for them to express themselves in their own terms. Sadly, when guidance verges into interference with the candidate's own thinking, it is often "help" sites rather than teachers themselves that are responsible. One examiner opined that: "freshness counts. Many candidates who use help sites do not use them at all critically and just copy the examples suggested, which is why we find so many essays with the same material."

At the other (and more common) extreme, there are large numbers of essays that seem to have been written by candidates with no input from teachers at all. In the words of one examiner: "it sometimes seems that the teacher has never even glanced at the candidate's work. Sometimes the candidate is wildly off-track, and the teacher doesn't seem to have done anything to bail the candidate out. I'm not talking about over-coaching; just a nudge away from a precipice." There were some cases in which it was hard to believe that the teacher had looked at the TOK subject guide at all. Teachers need to find ways to facilitate the degree of clarity in candidates' work without imposing their thinking upon the candidates themselves.

Between these extremes, good work was to be found in which candidates seemed to be aware of the expectations of a TOK essay and recognized the appropriate avenues made available by the prescribed titles. Such candidates successfully used their essays as vehicles for productive and creative thought.

Teachers and candidates should note that the TK/PPF form is to be submitted separately from the essay itself. Some candidates uploaded the two as one document, and it was striking how poor these essays tended to be – suggesting that the ability to follow instructions is positively correlated with the quality of the work itself.

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.

- Disturbingly large numbers of candidates seem to turn to "help" sites on the World Wide Web in order to source definitions, examples and arguments that inevitably do not otherwise form part of their own academic and life experience, and hence are not "owned" or their significance fully understood.

Treatment of knowledge questions

Problems continue to be noted by examiners with respect to the formulation and purpose of knowledge questions. Knowledge questions in a TOK essay should perform the function of stepping stones during the exploration of the prescribed title. They should arise naturally in the course of the analysis and their articulation in that role should provide added clarity to the structure of that analysis. Hence they are not to be thought of as "additions" to the essay; they are questions to which answers are necessary *en route* to an effective response to the title.

Accordingly, when a cluster of knowledge questions is merely listed in the introduction, the candidate's essay often turns out to be ineffective because the knowledge questions are not set out in the context of the relationships that need to exist between them. Alternatively, some candidates pepper their work with numerous knowledge questions that seem to be offered as an alternative to argumentation - often no response to them is given and they sit in the text undeveloped and ignored. It must be understood that the inclusion of knowledge questions is

a matter of quality rather than quantity; asking too many questions undermines the quality because it swiftly becomes impossible to respond to them all in the essay.

Most harmful of all is the temptation to identify one knowledge question at the start of the essay and subsequently treat it as the starting point for analysis rather than adopting the actual title on the list as the trigger for that role. This is a very dangerous strategy as it may lead to a perfectly cogent essay that fails to answer the actual title, and the candidate may easily be rewarded with (and indeed surprised by) a very low score. In the worst cases, a score of zero is possible, putting the candidate's entire diploma at risk.

In Spanish, the treatment of knowledge questions was generally poor this session – the concept seems to be misunderstood by very many candidates and their teachers. Candidates know that they need to include knowledge questions in their work, but most of those that they offered had little or nothing to do with the selected title. The quality of TOK essays from Spanish-language schools remains a major concern.

Teachers and candidates should note that the new subject guide sets out what is meant by a knowledge question (in the terminology of the new programme). Part of this description concerns what is meant by an "open question" (page 20):

> "Knowledge questions are **open** in the sense that there are a number of plausible answers to them."

Readers will note that many of the knowledge questions offered in the title-specific part of this report are couched ways that might appear to demand a definitive answer ("is it a good thing that…", "is it the case that…", etc.). Such questions could indeed be answered with an emphatic "yes" or "no", but equally well a response might be, depending upon the specific question, along the lines of "yes but only if x is included", "not unless y", or "increasingly so nowadays". It is the variety of plausible answers to the question that should be taken as the most important measure of its "openness" rather than the degree to which the formulation of the question indicates that such variety is possible. Indeed, the prefixing of knowledge questions with "to what extent…" has become somewhat of a cliché in TOK, and more successful analysis often stem from questions that are put more assertively.

> **Key Points**
>
> - Knowledge questions should act as stepping stones that arise naturally in the process of responding to prescribed titles.
>
> - A raft of knowledge questions listed in sequence in the introduction lack context and hence often do not provide a clear picture of the shape of the essay to come.
>
> - Knowledge questions used rhetorically in the main body of the essay cannot replace analysis and the attempt to provide answers to knowledge questions.
>
> - Converting a prescribed title into "my knowledge question" is a recipe for an irrelevant response.

Treatment of various ways of knowing and/or areas of knowledge

It is noticeable that the two new areas of knowledge are starting to appear more often in candidates' work, and that is to be welcomed in principle. However, there is considerable progress to be made in the quality of their treatment. Candidates sometimes seemed to regard religious knowledge systems as referring only to the particular religion with which they are familiar, leading to over-generalized claims. The category of indigenous knowledge systems often appeared to be considered co-extensive with "culture". Candidates and teachers are encouraged to try to make more specific and supportable claims in these areas. Some candidates, when responding to a title that did not specify a number of areas of knowledge to address, ended up including too many – thus widening the scope of the essay too much and producing a superficial response. As a general rule, two is an appropriate number here.

Many candidates fail to spot the distinction between knowledge *in* an area of knowledge and knowledge *about* that area of knowledge. This problem is most acute with reference to the human sciences, where candidates will confuse claims in psychology (concerning how the human mind processes knowledge) with claims about psychology (as to the methodologies employed by psychologists in order to arrive at and support claims about how the human mind works). This unfortunate shift usually involves ways of knowing – for instance, the conflation of what psychologists have found out about reason, and they ways in which they use reason in order to find these things out. In terms of TOK, the second order questions and claims about knowledge in which we are interested become mixed up with first order questions and claims about the content of particular academic disciplines.

Many essays included at the start the choices of areas of knowledge and ways of knowing that candidates had made, but often the ways of knowing were then quietly dropped from the subsequent analysis, and appeared to have been named as a sort of token gesture. While this is not good practice, it might be an indication that awareness of the knowledge framework as a richer set of analytical tools is growing in TOK practice. On the other hand, there were still many essays in which ways of knowing played a dominant role in the analysis. The key is to be able to make a judgement as to which concepts are likely to work as part of a line of argumentation in response to a particular prescribed title.

> **Key Points**
> - The new areas of knowledge need to be treated with the same degree of rigour as the more traditional ones.
> - A clear distinction must be maintained between knowledge in an area of knowledge and knowledge about an area of knowledge.
> - Ways of knowing and elements from the knowledge framework can act as effective tools in the construction of a good analysis, but the choices must be carefully considered in advance.

Use of examples

Once again examiners noted a battery of examples that cropped up in very many essays, some of which are listed below. While some of them have the potential to be effective, many candidates struggle to use them in a manner that makes them so. It is common to find examples described at length and to leave the reader to try to discern what the intention might

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have been in including them. Often it is clear that candidates do not have anything like a sufficient grasp of the facts about the example in order to use them at all. And some essays are so general that the candidate appears not to see any point in introducing examples at all. Such a general treatment is often an attempt to avoid being held to account by the factual accuracy that the use of examples demands, and candidates often also resort to unconvincing hypothetical examples in order to dodge this difficulty.

But by far the most common complaint from examiners concerns the uniformity of examples. One wrote: "this was the most distressing aspect of this session – I felt like I was marking the same essays over and over again." This uniformity was once again observed across schools as well as within them, suggesting strongly that these frequently occurring examples have come from a small number of sources accessed by large numbers of candidates. Once again, it is stressed that many of these examples could be deployed effectively if they were fully understood and their potential relation to points of analysis recognized. Examiners understand that some such examples maybe new to candidates and thus "fresh" in the context of individual student learning; nevertheless, teachers should encourage candidates to avoid examples employed commonly by many other candidates wherever possible, and focus on those that arise from candidates' own experiences with knowledge. This is in keeping with the aims of the TOK course and will help to avoid situations in which examiners tire of reading similar material. Common examples this session included:

1. The NASA Mars rover *Curiosity* and curiosity itself as a motivation for knowledge!

2. Pablo Picasso's style of painting as a "model"

3. The Diagnostic and Statistical Manual of Mental Disorders

4. The multi-store memory model and the case of Clive Wearing

5. Neoclassical and Keynesian models in macroeconomics

6. James Watson and Francis Crick's model of DNA

7. The fluid-mosaic model of membrane structure

8. Stanley Prusiner and the discovery of prions

9. Andrew Wakefield and the movement his discredited work triggered against vaccination

10. The epidemiology of Ebola in West Africa

11. Myers-Briggs personality tests

12. Wilfred Owen's *Dulce et Decorum Est*

13. Elizabeth Loftus and John Palmer's work on the effect of the wording of questions to eye-witnesses

14. The Rape of Nanking

15. Alexander Fleming and the discovery of penicillin

16. Ludwig van Beethoven and his deafness as the lack of a "way of knowing"

17. Vincent Van Gogh's *Starry Night* – seems to have become the default example for almost any claim about the visual arts

Key points

- Hypothetical examples are almost never convincing when offered as support for assertions in essays.
- Examiners greatly appreciate effort by candidates to use examples that arise naturally from their own experience.
- Candidates whose examples match those to be found on TOK "help" sites, or in other online discussions specifically concerned with the task of the TOK essay, struggle to demonstrate a mastery of them, and trigger suspicion in the minds of examiners as to the provenance of the work as a whole.

Treatment of key terms in titles

Teachers and candidates should take great care over the wording of prescribed titles with respect to "knowledge". The **production of knowledge** is a prompt for the candidate to consider the processes by which individuals or groups construct new knowledge, whereas the **acquisition of knowledge** is a broader term that is focused mainly on how existing knowledge is distributed and assimilated by individuals and groups, but may also include production as well. This is a key distinction – ignoring it can lead to an essay that is seriously off-track.

With regard to the nature of knowledge itself, some teachers still seem to be encouraging candidates to start their essays with a reflex recitation of the justified true belief definition. While there may be particular circumstances in which there is merit in taking this approach, it should never be used without a clear intention pertaining to the subsequent analysis, and the new TOK subject guide makes it clear that there are other approaches that may well lead to much more insightful responses to prescribed titles (see subject guide p16).

The unpacking process that needs to be undertaken as a first step in appraising any prescribed title often seems to be very badly handled (please refer to the new subject guide once again - page 53 for an outline of the essay-writing process that is not only recommended but now must be documented on the TK/PPF form). Perhaps encouraged by exhortations elsewhere to "define terms", candidates find it extremely difficult to resist instantly turning to a dictionary for support, even when the terms under consideration are familiar to them and are cognitively accessible. Many of these definitions never play any further part in the development of the essay – they are just mentioned and then forgotten. A true conceptual approach recognizes that there is always some "wiggle room" within which the meaning of key terms can flex - allowing, within limits, the relationships between those terms to assume different and interesting forms. Such is the foundation upon which a successful analysis can be built.

The teacher has a crucial and subtle role to play in making this foundation possible - there is a need to model this process and emphasize its crucial impact on the final product. At the same time, it is important to recognize the difference between key terms and other connecting words in the title that do not merit lengthy discussion – thus avoiding an overly pedantic approach. This also often requires teacher guidance.

Key terms in the prescribed titles this session that caused some problems included what might be meant by a "group", and the various ways in which it is possible to interpret "component" and "whole". The notion of a "problem" often needed to be manipulated rather expansively in order to create a promising basis for an essay. And as has been the case in the past, candidates also seem to struggle with the concept of an explanation.

Key points

- Definitions can close down the kind of analysis encouraged in TOK rather than enable it.

- Offering definitions for key terms and then ignoring them is a waste of words.

- "Justified true belief" is a definition for knowledge in the context of TOK that is often not well suited to an inclusive approach to knowledge questions, and needs to be used with discrimination.

- Unpacking and exploring prescribed titles (and planning the essay structure from the exploration) are key steps in the TOK essay task that require thoughtful and measured support from teachers.

Overall crafting of essay structure

Most essays conformed to expected norms of structure, with a general introduction, a statement of parts of the TOK course to be engaged, followed by analysis organized around knowledge questions stated or implied, and a concluding paragraph. There seems to be a general and gradual improvement in this aspect of the work. Nevertheless, the usual shortcomings were on display here and there:

- A lack of proof reading, or sometimes seemingly inappropriate proof reading with track changes left visible that suggest that teachers have micro-edited the text

- A paucity of paragraphs and/or poor transitions

- Essays submitted that are beyond the permitted 1600 word limit

- Essays that get mired in linguistic analysis at the start

Candidates are advised that, more often than not, the quality of the introduction is a reliable indicator of the quality of the essay as a whole. Some examiners noted a trend this session toward essays approaching the maximum word limit, with some essays seeming to have been "padded out" in order to reach it. The word limit is indeed a limit; not a destination.

Quality of analysis

There were a good many thoughtful and analytic essays this session, but when the mark was low the usual culprit was too much description. The propensity was to describe and tell, rather than explore and show. As always, examiners cited this aspect as the most challenging aspect of the essay task, and often the least satisfactory in practice. Essays often contain too many generalizations rather than evidence of close attention to specific claims, and with rhetorical questions intended to stand in for the analysis itself. It is not uncommon to see candidates bogged down in definitional squabbles that prevent the essay from reaching any satisfactory point of departure.

Analysis was particularly poor in essays in Spanish, and many essays suffered in assessment because of it. There was a general tendency toward abstraction and deviation from the topics. It is clear that teachers have not worked on justification of claims and exemplification. Counterclaims are viewed collectively as an item on a tick list rather than a dimension of an essay that provides depth and perspective. Disturbingly, one examiner opined that: "it could be argued that the quality of analysis has declined as the dependence on help websites has increased. Regurgitation is not analysis."

As with the construction of an exploratory essay at the macro level, the construction of requisite argumentation at a more micro level is a skill that needs to be taught, modelled and practiced. The recognition of implications remains a challenging aspect of analysis for most candidates.

Key points

- Candidates should be assisted to understand the difference between description and analysis.

- Analysis in a TOK essay demands the inclusion of counterclaims and different perspectives.

Factual accuracy and acknowledgement of sources

There were fewer concerns this session with factual accuracy, but still some complaints about quality of referencing. Points worth noting:

- Candidates need to be reminded of the need to connect claims in the essay with references at the end through the use of citations; otherwise the requirements of academic honesty are not fully met

- As the TOK essay is intended to provide an opportunity for the candidate to set out her own thinking, essays that rely heavily upon acknowledgement of teachers' notes may be looked upon with some suspicion

- Bulky footnotes should be avoided, especially if they are an obvious attempt to circumvent the word limit

- References should be to sources actually used in the construction of the essay, not extended to comprehensive bibliographies in the style of a literature review

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Presentation of work

Despite some evidence of an improvement this session, candidates and schools are asked yet again to observe the following requests in order to assist with the assessment process:

- Ensure that candidates use <u>DOUBLE SPACING</u> and a font size of 12

- Avoid the inclusion of any reference to candidate name or number, or school name or IB code on the essay – this prohibition extends to any cover page from which the candidate or school can be identified

- Use a 'standard' font such as Times New Roman, Calibri or Arial

- Use default-sized margins without any added border

- Write the prescribed title at the start of the essay as stated on the list

- Avoid at all costs adding a paraphrased or otherwise altered version of the prescribed title before, after, or anywhere else on the essay

- Take note of the 1600 word requirement for the TOK essay – the actual word-count must be entered when the essay is uploaded

Despite the request for double-spacing that has been repeated in every subject report over recent years, some candidates and schools are still not complying with this simple measure. Single-spaced essays create significant and totally avoidable difficulties with the marking – many examiners find them hard to read and they create difficulties with the insertion of comments that aid the assessment process. It is strongly recommended that teachers spread the word that candidates who insist on presenting work in this fashion are doing themselves no favours with examiners. Perhaps the most effective expression of this came from one examiner who noted that: "those who do not double-space spark a second of annoyance in the examiner's mind after reading so many scripts".

There were also a few concerns about the veracity of the stated word counts on some essays, where figures such as 1,598 seemed to be at variance with the actual length of the work. Candidates are reminded that this information must be stated during upload and therefore comes under the solemn declaration made by the candidate concerning the nature of the work submitted.

Feedback on specific titles

1. 1. "The main reason knowledge is produced is to solve problems." To what extent do you agree with this statement?

Knowledge questions

Knowledge questions that a candidate *could have* identified in the course of the development of a response to the title include:

- What different sorts of problems are solved by knowledge and how does this affect the nature of the knowledge gained?
- How do different areas of knowledge allow us to solve problems?
- What roles do ways of knowing play in allowing knowledge to solve problems?
- Is there a hierarchy of areas of knowledge in terms of their usefulness in solving problems?
- How might areas of knowledge themselves generate problems to be solved at a later date?
- As an alternative to the thesis in the question: what might the phrase "knowledge for its own sake" mean?

This was a popular title but one in which many candidates struggled to develop the central concept of a "problem". In some cases, the notion seemed to defeat candidates at the outset. Often, the meaning was restricted to practical uses of knowledge in fields such as medicine and engineering; sometimes extended to areas such as conflict resolution and economic development. In this way, it was possible to relate the title to both natural and human sciences. In many cases, all problems were assumed to fit into these sorts of categories without any attempt to look elsewhere.

More sophisticated treatments extended the analysis to epistemic problems within disciplines that needed to be solved in order to make progress with knowledge itself, and such candidates often developed the idea of a problem beyond its negative connotation of a hindrance and considered how problems might act as stimuli for intellectual activity. Other areas of knowledge received attention – mathematics as a discipline capable of providing solutions to problems across a wide range of other areas of knowledge, history (less convincingly) as offering guidance for policy- and decision-making, and occasionally indigenous knowledge systems – often rightly or wrongly characterized as particularly concerned with addressing practical problems.

There were several common misreadings of the title. Some candidates seemed to interpret "the main reason" as "the only reason". Many essays dealt with the fact that knowledge solves problems rather than the issue presented by the title, which was that the motivation for seeking knowledge often lies with the desire to solve problems. And most damagingly, a number of candidates contextualized "solving problems" in everyday school learning, and thus wrote about knowledge acquisition rather than production, as demanded by the title.

Most candidates disagreed with the claim in the title, and identified counterclaims concerned with how knowledge might arise from serendipitous discovery, or an inquisitive attitude. Certain examples routinely appeared here – most prominently the discovery of penicillin, which seemed to arise in almost every essay. Better responses tried to explore the relationship between knowledge and problems more deeply, including the ways in which solving a problem may lead to the emergence of others.

2. Assess the advantages and disadvantages of using models to produce knowledge of the world.

Knowledge questions that a candidate could have identified in the course of the development of a response to the title include:

- What are the roles of models within an area of knowledge?
- What is it about the models in an area of knowledge that make them effective?
- Is simplicity a desirable characteristic in models?
- How can we know what factors to include, and what to leave out, in a model?
- What criteria can we use to decide between different models of the same phenomenon?
- How are the assumptions a model makes related to its reliability?

Some candidates approached this title without sufficient clarity about what could count as a model. The most obvious notion was a model as a representation of reality, as in the map metaphor indicated in the subject guide. But the treatment was sometimes expanded to include models as exemplars or standards (thus opening up possibilities for the treatment of the arts, ethics and religious knowledge systems) – this would have been more effective if candidates had exhibited more awareness of the differences between the uses of the word. Rather than appearing inclusive, such essays tended to come across as disjointed.

Stronger candidates divided representational models into physical and conceptual categories, and sometimes added mathematical models as a third group. However, a significant number of essays described mathematical models used in other disciplines such as the natural sciences as "models in mathematics". This generated confusion. While models in mathematics do exist they are rather esoteric entities and not what is meant by a mathematical model.

Key aspects of analysis concerning advantages and disadvantages of models dealt with the processes of simplification, abstraction and selection, and the attendant dangers of over-simplification, divorce from reality, and cognitive bias. More competent essays referred to the purposes of models – sometimes distinguishing between those designed for accuracy (production of knowledge) and those that promote understanding at various levels of education (acquisition of knowledge), and followed the wording of the title in focusing on the former. Less successful candidates allowed themselves to be seduced by the latter prospect.

Common examples used to illustrate points of analysis included models employed in biology, chemistry, psychology, economics and geography – hence the natural and human sciences were popular areas of knowledge upon which to focus. However, it was here that some candidates got into trouble through conflation of models with theories, laws, equations, and other related ways in which knowledge is structured. Other candidates wrote in a vague and general way, and it might be worth reiterating here that responses to titles that do not ask directly for a consideration of areas of knowledge or ways of knowing are still expected to refer

to these elements of the course, and this expectation is reflected in the descriptions found in the assessment instrument for the essay.

Many essays succeeded in enumerating advantages and disadvantages of models but failed to take sufficient note of the command term to assess these items and thus fell short of providing a satisfactory conclusion.

3. "Without the group to verify it, knowledge is not possible." Discuss.

Knowledge questions

Knowledge questions that a candidate *could have* identified in the course of the development of a response to the title include:

- What types of verification are found in areas of knowledge and to what extent do they rely on groups?
- Which ways of knowing would be used by a group to evaluate knowledge in different areas of knowledge?
- How might groups decide on criteria for verifying knowledge in different areas?
- What are the advantages and disadvantages of requiring that knowledge is verified by a group?
- How does the constitution of the group in a particular area of knowledge relate to the nature of knowledge in this area?
- Are there circumstances in which groups can hinder the production of knowledge?

This title included a deliberately provocative claim to provide a firm starting point for analysis. In the spirit of TOK, it was expected that candidates would explore its applicability to different areas rather than seek out a single counter-instance of knowledge independent of groups, and consider the matter closed with a "knockout" punch.

Most essays made use of the distinctions between shared and personal knowledge that have prominence in the new subject guide, and many reverted to employing the justified true belief definition of knowledge in order then to focus on the source of the required justification. This tactic worked best when combined with other approaches to the nature of knowledge. Candidates who elected not to do so ran the danger of an overly rarefied treatment, and their essays often stalled on a discussion of what is and what is not knowledge. There was a need to move beyond this definitional focus.

While weaker candidates struggled to marshal the concept of the group, more sophisticated responses explored the differing composition of groups associated with various areas of knowledge, such as those involved in peer review, triangulation of source material, cultural consensus, and the appraisal of works of art. Some essays included a deeper analysis of various group influences on artists themselves and the concessions they make to audiences in terms of artistic conventions.

There were some good accounts in the area of religious knowledge systems and how religions seem simultaneously to encompass a deeply personal experience beyond the verification of any group at the same time as a powerful shared imperative. Similarly, matters of conscience in ethics were examined for the degree of influence they bear from cultural norms. Attempts to engage with indigenous knowledge systems seemed less successful, with too many assumptions made about the ubiquity of communal knowledge in this area.

For top performance, it was necessary for candidate to think beyond an answer to the title itself and consider its potential implications.

> **4. "In some areas of knowledge we try to reduce a complex whole to simple components, but in others we try to integrate simple components into a complex whole." Discuss this distinction with reference to two areas of knowledge.**

Knowledge questions

Knowledge questions that a candidate *could have* identified in the course of the development of a response to the title include:

> - What might be meant by "reduction to simple components"? Is such a reduction always possible within an area of knowledge?
> - How can simple components be integrated into a complex whole?
> - Are these processes mutually exclusive or does one imply the other?
> - How can either of these operations be carried out within context of particular areas of knowledge?
> - What are the strengths and weaknesses of these reductive or holistic processes applied to the production of knowledge?
> - How might ways of knowing be involved in the processes of reduction and integration?

This turned out not to be a popular title – perhaps not surprisingly given its length as compared to most of the others, which often worryingly seems to be a criterion of selection by some candidates. It is worth noting that longer titles often provide more structure around which essays can be built.

Those candidates who did choose this title interpreted the whole-vs-component dimension in terms of reductionism versus holism, or reduction versus integration, or analysis versus synthesis. There was only mixed success in applying these oppositions, and often the reader was left wondering whether the essay was describing methods of enquiry or the actual objects of study. A common subsequent move was to invoke the natural sciences and the arts as the selected areas of knowledge, and to characterize the former as mainly about reduction and the latter about integration. However, there were many spirited efforts to include counterclaims in both areas. Some candidates gave an account of emergent properties and the limits of the effectiveness of reduction as part of this analysis.

Weaker essays failed to get much beyond the simplistic observation that most things, like the human body, are composed of parts, and that we could look at the whole thing and also look at the parts. Less successful essays also omitted to consider the important part of the title that asserts that each of the two processes is located in particular areas of knowledge and not others. Where this point was addressed, most candidates concluded that both processes could be found in some areas – with some pleasing accounts of how works of art might consist of a representative component of some aspect of the world, or make some transcendent statement about a range of specific circumstances or experiences. Similarly, mathematics could be regarded as a holistic product of precisely related axioms and theorems, or as being primarily composed of individual proofs.

5. "No knowledge can be produced by a single way of knowing." Discuss.

Knowledge questions

Knowledge questions that a candidate *could have* identified in the course of the development of a response to the title include:

- What is it about ways of knowing that suggests that they need to work together in order to produce knowledge?

- What kind of knowledge would be produced by a single way of knowing?

- Is there a relationship that connects the number of ways of knowing employed by an area of knowledge and its reliability?

- Can some ways of knowing be subsumed by others?

- Is there a hierarchy of ways of knowing with respect to knowledge production?

- If the product of a single way of knowing is not knowledge, then what is it?

This was another popular title, and one that again was built around a provocative claim. While the intention was not for candidates to find one piece of knowledge entirely dependent upon a single way of knowing and declare the project over, there was a need for balance between describing situations in which ways of knowing interact and an attempt to identify those in which one way of knowing seemed to be prominent. Too many essays assumed at the outset that the claim in the title is true and proceeded to concentrate on instances of the former type.

Some candidates relied on the justified true belief conception of knowledge as a starting point, and then referred to ways of knowing as prospective types of justification. This approach was successful in some cases, but only as a starting point for analysis. Where an effort was made to find knowledge constructed from the application of a single way of knowing, mathematics was frequently addressed as disproportionately dependent on reason. However, many candidates did recognize that other ways of knowing must be involved – either through the use of language or the intervention of intuition in the formulation of problems to be solved using reason. A second candidate way of knowing for independent action was often faith in the context of religious knowledge systems, but candidates were less successful here in showing how faith is influenced by other ways, or indeed that faith itself is not always central to religious belief. Accounts were regularly too simplistic here.

Scientific method was commonly discussed as an example of a complex interplay of ways of knowing from imagination to sense perception to reason and so on. The relations between emotion and sense perception were similarly explored in connection with the arts, and there was some worthwhile treatment of ethics as an area in which emotion, reason and intuition cannot be disentangled without gross distortion of knowledge. General points were often made about the need for language almost everywhere in knowledge (not only for communication but for thought itself), and some candidates went on to contrast shared knowledge with personal knowledge in this respect. The pointlessness of other ways of knowing (and indeed perhaps knowledge as a whole) in the absence of memory was mentioned here and there.

Weaker essays failed to recognize any implication of an answer to the claim in the title, and they sometimes approached the title at an uncomfortable angle with the discussion remaining too close to knowledge acquisition rather than production as demanded. Some weaker candidates spread their ammunition too widely and tried to address all of the eight ways of knowing enumerated in the subject guide.

6. Is explanation a prerequisite for prediction? Explore this question in relation to two areas of knowledge.

Knowledge questions

Knowledge questions that a candidate *could have* identified in the course of the development of a response to the title include:

- Do different areas of knowledge draw upon different types of explanation?
- Are explanations always grounded in something that is in itself not amenable to explanation?
- Is what makes an explanation satisfactory a purely psychological question rather than an epistemic one?
- What counts as a prediction? Does this include statistical predictions?
- Where does explanation feature in the mechanics of prediction?
- Is the noting of patterns an explanation?

This was a very unpopular title. As with previous titles that explicitly referred to explanations, this concept was very poorly understood. The treatment of prediction was not much better, with poor discrimination from guesses. This is somewhat surprising, given the prominence of "explain" and "predict" as command terms across diverse parts of the IB diploma programme. Explanations were routinely treated as approximations to the truth as opposed to means for understanding – note here that the title does not refer to production of knowledge alone and so candidates were free to explore how it is acquired and distributed as well.

There were a few high quality responses – some of which were quite technical in nature – but numerous candidates who selected this title chose areas of knowledge that proved to be ineffective (at least in their hands), such as the arts, ethics and mathematics. Candidates who more successfully focussed on the natural and human sciences gravitated towards meteorology, astronomy, evolution, and the global financial crisis of 2008.

Section 2: The presentation

Component grade boundaries

The following boundaries were applied for this session

Grade:	E	D	C	B	A
Mark range:	0-2	3-4	5-6	7-8	9-10

General

Moderation of oral presentations through the presentation planning document (TK/PPD) was introduced last session, in May 2015. As stated in the report for the session the reason for the introduction of moderation was that a better model was needed than the verification of videos of a few oral presentations. That did not address the need for schools to have equal treatment nor the reality of grade inflation by schools.

This session, November 2015, examiners have received the TK/PPDs randomly and anonymously (except from schools which used the old forms). Examiners could thus not be influenced by preconceived notions of a school or by impressions of the quality of a school's oral presentations formed from the first TK/PPDs seen. Each TK/PPD is moderated untainted.

Dynamic sampling was also introduced this session whereby examiners moderate a small sample of work from a school and confirm marks if they consider them to be correct. In cases of difference, a further sample of work is released for inspection so that the end judgement is a balanced one. When examiners write their feedback at the end of the process they are able to see all of the samples from a school together.

As noted last session, it was evident that the planning documents which were appropriately used and completed properly represented the better presentations. In this way, some schools showed a sound understanding of the presentation task and are to be commended. However, it continues to be disappointing to find that some candidates do not understand the nature of the oral presentation task and it is a matter of very great concern that a few teachers gave high marks to presentations where the TK/PPD showed little or even no evidence of TOK understanding or even that a TOK course had been followed. Some teachers would benefit from a more rigorous and closer study of the subject guide.

As stated in the previous report, the TK/PPD is not only an assessment tool but as indicated by its name -*presentation preparation document*- it is essentially intended to aid the candidate in the planning of the presentation. The design of the TK/PPD gives the candidate direction, and schools with consistent marking used it appropriately and showed a good range of well-planned work. Unfortunately, this recommended direction was ignored by some with negative consequences.

> **Key Points**
> - Teachers must ensure that candidates understand the nature of the TOK presentation.
> - The TK/PPD must be used as a planning document.
> - Candidates and teachers must keep in mind that the TK/PPD will be used for moderation and must therefore ensure that what it states is clear to a third person.

The presentation planning document (TK/PPD)

The TK/PPD form asks candidates to consider each essential part of the presentation in turn under a specific heading. Some important points need to be made about each of these headings from both the 'Candidate Section' and the 'Teacher Section'. Teachers are requested to pay attention to these.

The candidate section

*1. **Describe** your real-life situation* (RLS)

Examiners noted that some candidates presented more than one real-life situation (RLS). The prompt is in the singular and the assessment instrument refers to a "*specified* **real-life situation".** Teachers will help candidates by insisting that they have one main real-life situation from which they extract their knowledge question. During the presentation candidates may wish to show the implications of their analysis by linking it to other, related, real-life situations but these should not have the same status as the main real-life situation on which the presentation is focused.

*2. **State** your central knowledge question (this must be expressed as a question)*

Once more it was noted that some candidates stated more than one knowledge question (KQ) and that there were examples where these knowledge questions were totally unrelated (and sometimes ignored). Here again teachers must help candidates by ensuring that they have one central knowledge question and that it is extracted from the main real-life situation as required by the assessment instrument, and in order to maintain the focus of the argument and not allow it to be diluted.

*3. **Explain** the connection between your real life situation and your knowledge question*

Most candidates completed this part appropriately. A few did not make the connection and did no more than expand on their real-life situations.

*4. **Outline** how you intend to develop your presentation, with respect to perspectives, subsidiary knowledge questions, arguments, etc. Responses below can be presented in continuous prose or as bullet points.*

The word 'outline' was interpreted by some as 'list of headlines'. They obviously did not read the next part of the instruction which asks the candidate to refer to 'perspectives, subsidiary knowledge questions, arguments' so listing is obviously inapt. In many instances the list

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included a mere mention of areas of knowledge (AOKs) or ways of knowing (WOKs), e.g. "introduction, ethics, natural sciences, history, WOKs, conclusion". This type of 'outline' was seen quite a lot and is an unacceptable interpretation because it gives no content and it does not ,in any way, do what is required from the candidate which is: "outline how you intend to develop your presentation." It is also unhelpful for the examiner, and surprising given that candidates and their teachers know that the TK/PPDs will be moderated. On the other hand, candidates who did use the 'outline' as a plan did well indicating step by step their line of argument and showing that it is possible to do this successfully in a concise manner. Such candidate plans linked the RLS to TOK vocabulary in the analysis presented of their argument. The importance of using TOK vocabulary in this section of the planning document cannot be overemphasised. In the words of one examiner, "TOK analysis means relating the descriptive parts of the presentation (in the language of the RLS) to the more abstract notions encountered in the TOK course – hence the need to 'go underwater' and use TOK vocabulary." Please refer to the TOK presentation diagram on page 55 of the TOK subject guide – the two levels represent the candidates' experiences in the TOK course (lower level – 'underwater') and in the world beyond it (upper level – 'real world' level above the water line), and the connection between the levels demonstrates the relevance of TOK to life beyond the TOK classroom.

5. Show *how your conclusions have significance for your real life situation and beyond*

Candidates were able to do the first part of the rubric well but often ignored the second *("and to others")* where they are asked to go beyond their real-life situation to show the significance of their conclusions to other real-life situations*.*

 That is indeed the hardest part, and teachers are must ensure that candidates pay attention to it as it is what distinguishes a top level presentation from other ones. As level 5 of the assessment instrument states, for that level "the outcomes of the analysis are shown to be significant to the chosen real-life situation and to others." At the same time the candidate should not give these other real-life situations the same weight as the main one, as mentioned earlier.

The teacher section

The Teacher Section asks the teacher to:
Provide **comments** *to support your assessment of the presentation*

Most teachers completed this section well and concentrated on supporting their assessment of the presentation. Some teachers, however, just copied parts of the assessment instrument for the level awarded and this is not at all helpful. Being a generic comment, it does not tell the examiner much about the particular presentation. A few just resorted to congratulating their candidates on their personal attributes or made reference to their progress in TOK, comments which again do not show justification for the mark awarded and are largely irrelevant. It is recommended that teachers write thoughtful comments linking elements of the presentation to the assessment instrument.

Key Points

- Teachers need to ensure that candidates complete all parts of the presentation planning document (TK/PPD) and that they follow the rubric appropriately.

- The TK/PPD must clearly show planning of a theory of knowledge presentation.

- Presentations must be focused on **one** central knowledge question extracted from **one** specified real-life situation.

Recommendations for IB procedures, instructions and planning documents

Teachers need to be careful when submitting electronic marks so that these match the ones they completed on the planning documents. There were a few cases where the mark entered on IBIS was different to the mark on the TK/PPD. Furthermore, it is imperative that all schools use the latest version of TK/PPD posted on the OCC. In 2016, older versions of the planning document will not be accepted.

Where possible, teachers should also ensure that they do not submit more than one TK/PPD for the same presentation. If more than one candidate selected in the sample has completed the same group presentation, please use the '**Change**' button to add a candidate with the same or similar mark that has completed a different presentation. Samples from a school should ideally be on different presentations to enable the examiner to have a better view of the teacher's marking. This of course, might not be possible for schools with small number of candidates.

It was also noticed, in some cases where schools sent more than one TK/PPD for the same presentation, that the teachers had not given the same marks for the presentation to all candidates in the same group. Schools are reminded that the marks awarded are for the presentation so that in group presentations all members of the group *must* receive the same marks. Likewise, the teacher comments must be the same for all TK/PPDs on the same presentation.

Some schools did not complete the teacher section of the planning document but added their own form. This is not appropriate and it may result in examiners not reading the additional material attached. Teachers are advised that the use of the TK/PPD published on the OCC is mandatory.

There were several schools which uploaded hand-written planning documents. This was problematic in some instances because of the poor handwriting (sometimes of both candidates and teachers); and also because some candidates used it as a means to fit-in more words using handwriting that was so tiny it was illegible. As indicated in the subject guide, the TK/PPD "… should be […] typed in standard 12 font and not exceed 500 words".

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Key Points

- Where possible, TK/PPDs in a sample must be for different presentations.

- Candidates in group presentations (two or three) must receive the same mark.

- TK/PPDs should be typed in standard 12 font and not exceed 500 words.

Recommendations for the teaching of future candidates

Examiners moderating the planning of the presentation were disappointed to find that in many cases understanding of TOK was crude. A significant proportion of the moderated TK/PPDs were entirely located within the realm of the real-life situation so there was little, if any, evidence of second order TOK thinking at all; and where there was some glimmer of analysis in those presentations, it was limited.

There was little variety in the ways of knowing and areas of knowledge considered. Most WOKs considered were reason and emotion and most AOKs the natural sciences, human sciences and ethics. It seems odd that there is not a more even distribution of WOKs and AOKs, and perhaps this is a reflection of the narrow approach to TOK taken by some schools. Ethics was the most popular AOK chosen for presentations and a red warning alert message needs to be given here because so many of those presentations fell into, what one examiner called, "the ethics-as-TOK trap". In fact, several examiners commented that the presentations about ethics that they moderated were about ethics and not about TOK. If an ethical approach is taken, candidates must be careful to consider the knowledge questions underlying the ethical ones.

Almost as popular as ethics was politics, probably because in these disciplines there is often heated debate so candidates see in them opportunities for different perspectives. This presents a problem for the TOK presentation when these are not analysed in terms of knowledge and all too often candidates did not move away from first order claims and questions to second order ones.

Many candidates selected real-life situations from current affairs and there were some accomplished presentations which reflected sound analytical skills in applying TOK concepts to the real world. More than at other times, there were also RLSs which came from candidates' local contexts and these provided interesting alternatives when considered critically.

It is evident from some TK/PPDs that the concept of the knowledge question still eludes some candidates. A good test for a knowledge question is whether it can be reformulated so that it contains the verb 'to know' in some meaningful form leading to analysis. If it cannot, then chances are that it is not a knowledge question.

A very worrying impression in regards to TOK in general is that some TOK courses seem to be devoid of content and that the TOK guide and the Teacher Support Material have not been used.

Candidates are expected to use TOK vocabulary in their answers and it is recommended that more work is done in this respect in the classroom. The presentation task would also benefit from candidates being better prepared as regards to argumentation and interpretation of ideas

and perspectives. The biggest issue with moderation was the lack of evidence in the candidate's planning or teacher comments of TOK analysis. Under these circumstances the examiner had little option but to reduce the score given by the teacher.

Key Points

- A successful presentation will use TOK vocabulary and second order questions.

- Teachers should advise candidates on their choice of knowledge question.

- Teachers must make use of IB TOK materials that support the subject.

Examples of real-life situations and knowledge questions

Below are a few examples of real-life situations and knowledge questions which were used effectively by candidates.

Real-life situations

- The Body Works exhibition: human bodies and body parts prepared using a technique called 'plastination'
- The authenticity of ISIS videos
- HeForShe movement: a solidarity campaign for gender equality
- Debate about whether to use human genetic modification in boosting fertility rates.
- A study of memory and post-traumatic stress disorder (PTSD) in a group of Air Transat passengers who experienced 30 minutes of terror over the Atlantic Ocean in 2001 which provides insights about post-traumatic stress vulnerability
- A WWI soldier who was awarded UK's Victoria Cross for repeatedly entering no man's land to save comrades. He was later diagnosed as suffering delusional insanity which raised questions about our psychological models
- The 2008 Louisiana Science Education act allowing supplementary material to be used in the science classroom criticising the theory of evolution and accepting creationism and intelligent design to be offered as alternative 'scientific theories'
- Referendum called in Ireland regarding the approval or not of same sex marriages.

Knowledge questions

- What is the role of interpretation in making value judgments?
- Does society influence our ability to reason independently?
- What role does authority play in determining what is valuable and acceptable?
- To what extent is the knowledge we employ to justify ethical decisions influenced by culture and emotion?
- What makes an explanation convincing?
- Does the situation of the observer affect the knowledge produced by a piece of music?
- What is the role of intuition in our justifications?
- To what extent do models lead to knowledge certainty in the human sciences?

Weak or non-TOK real-life situations and knowledge questions

RLS – In different countries you are considered an adult at different ages

KQ – When do we become adults?

RLS – Importance of sport for children of poor families

KQ – What is the influence of football on a child's life?

RLS – Reality and the news

KQ – What does the news tell us about reality?

RLS – A car accident in which I was involved

KQ – Which ways of knowing are affected in a car accident?

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