OXFORD IB THEORY OF KNOWLEDGE

2018 Blog Compendium

Eileen Dombrowski

Posts are compiled from the Oxford Education Blog: https://educationblog.oup.com/category/theory-of-knowledge with further support from Eileen's personal website Activating TOK: https://activatingtok.net

Eileen has compiled these posts into a continuous document so that you can browse through them quickly. You're welcome to use the ideas and downloadable materials in your classroom.

OXFORD

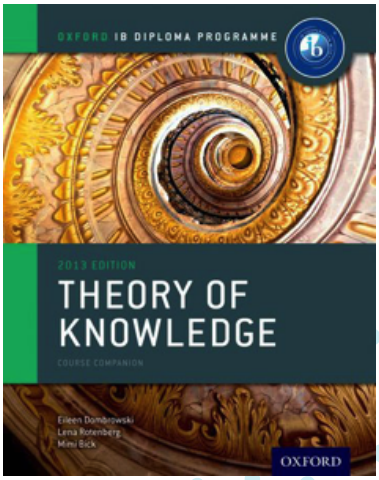
FOREWORD, AND LAST WORD!

December 17, 2018

Today, my dear colleagues, I offer you my final contribution to our Theory of Knowledge course. And then it's time for me to say farewell.

For convenient access, I've compiled below all the posts I've done for Theory of Knowledge throughout 2018 into a downloadable document, with a table of contents for quick browsing. I hope you'll find here some ideas that will stir your own thoughts within our shared enterprise. It's an ambitious project we've taken on – to teach our students to think more clearly and to give them a vast comparative overview of knowledge! Not an undertaking for the faint of heart! Fortunately, it's great fun to go romping through big ideas with students who are ready for them.

At this point, I've had more than 30 years of fun in TOK and loved playing with the course ideas through many contexts. I really enjoyed my own students and delighted in meeting TOK colleagues as I led workshops and worked on the assessment team. I've also appreciated the cyber-world, as I designed and facilitated online workshops. Writing the Theory of Knowledge book with my co-authors was immensely absorbing, pulling together so many threads of the course to support inquiry teaching. And I've loved blogging, developing ideas on perspectives and critical thinking – and staying connected with all of you! Yes, I've had lots and lots and lots of fun romping about with ideas, trying always to connect that lofty overview with the reality of life on the ground.



But today is different. Today I retire. With a wave and a smile, I exit Theory of Knowledge. Tomorrow, other activities beckon!

I wish you all the very best. May you enjoy the course as much as I have!

Eileen Dombrowski

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Theo Dombrowski

January 29, 2018.

"How am I *supposed* to appreciate it?" Art, science, and some silly assumptions

Do we expect to understand art and the natural sciences in the same way? Today, here's a cartoon to open a comparison in class discussion, with questions and a download at the end. I hope it gives you not only material for class but also a smile.

Using the cartoon in class

This cartoon, drawn for Theory of Knowledge by my husband Theo, is clearly intended to give a humorous kick in its conclusion by setting up false expectations in the reader and then, in its final frame, turning the tables. It does this by mimicking and echoing many of the most common contemptuous comments made about so-called "modern art" – yet rarely made about other areas of knowledge.

At the same time, though, attitudes recently expressed towards science in some countries may, sadly, make this contrast less obvious. Contempt for facts – even for the findings of illustrious scientific groups – has contaminated public discourse and often decision-making.

It would be sad indeed if our students endorsed the attitudes expressed by the characters in this cartoon. They are the ones to be treated with laughter, not the science or the art that they dismiss – even though I suspect their comments find an echo in many of us!

How could this cartoon be used in class?

The questions that follow it could open a discussion directed toward a succession of related topics. Use them as they are, or use them to prompt your own ideas. You might choose one or two, to ask lightly and reinforce points already made in class, so that you give only a few class minutes in passing to the cartoon. You might, though, want to print them out for students to consider in small group discussions, so that the cartoon and questions fuel a lesson.

"How am I supposed to appreciate it?" Theory of Knowledge Questions for Discussion

1. The angry speaker in this cartoon is unlikely to represent attitudes that any of us in a Theory of Knowledge class hold personally. Nevertheless, can you recognize in yourself even a minor inclination to make some of the same judgments as shown in the cartoon – towards some famous works of art, or towards any other areas of knowledge? Do you yourself respect and often admire achievements in different areas of knowledge, even if you don't personally understand them?
2. Is there a difference in your expectations of the sciences and the arts in this regard? Do you assume that you should be able to understand both – or maybe neither? What does "understanding" involve for gravitational waves – that is, for those of us who are not physicists? What does "understanding" involve for abstract art – that is, for those of us who are not artists or art critics?
3. Before we can evaluate whether a new development in an area of knowledge is an exciting contribution – or even worthwhile – how much background knowledge do you think we need to have? Is a judgment with no background knowledge just as good as one with a lot of background knowledge? Which would you expect to be more accessible to you without much study: an artwork (whether a painting, a novel, or a musical composition) or a scientific discovery? Which are you more inclined to judge for whether it's worthwhile?
4. What makes a scientific discovery or scientific explanation be accepted as valuable in its area of knowledge? Who judges? What is meant by the "scientific community"? What are their criteria for evaluation and judgment? What is meant by "scientific consensus"? What is meant by an "expert"?

5. What makes a work of art – a painting, dance performance, novel, film, musical composition, for instance – be accepted as valuable in its area of knowledge? Who judges? What are the criteria for evaluation and judgment, and are they communally shared? To what extent does an audience in the arts expect consensus? What is meant by an "expert"?

   Note for further reflection: The cartoon is based on four of the most innovative, iconic – and mocked – twentieth century artists. You might want to check out some of the works of Pablo Picasso, Henry Moore, Andy Warhol, and Jackson Pollock and consider why, in defying the norms of "traditional art", they have been so susceptible to mockery. What about their work could have made them seem beyond the fringe for even those who felt they possessed considerable knowledge of art and artistic standards?

6. Based on your responses to #4 and #5 above, in what ways is evaluation of work in the arts and in the sciences similar? In what ways is it different?

7. But so what? Are developments in either field any use in our lives? Do we expect that knowledge should be useful above all? What do you think are the best things that the sciences and the arts contribute to our lives?

To give you maximum flexibility, I've prepared the cartoon and questions as a download:
DOWNLOAD FORMATTED CARTOON AND QUESTIONS: ART vs SCIENCE cartoon and questions

February 12, 2018

"Fake news": updating TOK critique

"Fake news" is a term that I would happily consign to the annals of 2016 and 2017. Goodbye. But as it lives on, it morphs meaning – and takes on further allure for TOK analysis. It doesn't just face us, belligerently, with issues of truth and falsehood. It also offers an excellent current example, rooted in real life situations, of another topic central to Theory of Knowledge: the interaction between concepts and language. Further, its shifts in meaning demonstrate the care that we have to take with our tools of analysis – that is, our words and terms. **Time for a TOK update!**

"Fake News": useful example for TOK

As we emphasize in TOK, concepts are bound tightly with language. In treating areas of knowledge, we note the essential role of definitions in keeping groups in effective communication, and the need for careful broadening, narrowing, or complete recasting of earlier definitions as we learn more and more about a subject under study.

If we want our students to understand the importance of best practice with language, though, what could be more effective than examining its opposite – especially with a lively example of contemporary relevance? We want our students to see the fog sometimes created by language, in order to be able to *see through it*.

What does the term "fake news" actually – currently! – mean? Tackling this example involves recognizing the value of new terms in new situations – if the definition is clear – but also recognizing the way terms can be taken over and used in different ways with different purposes, taking public thought with them.

"Fake News": recommended podcast

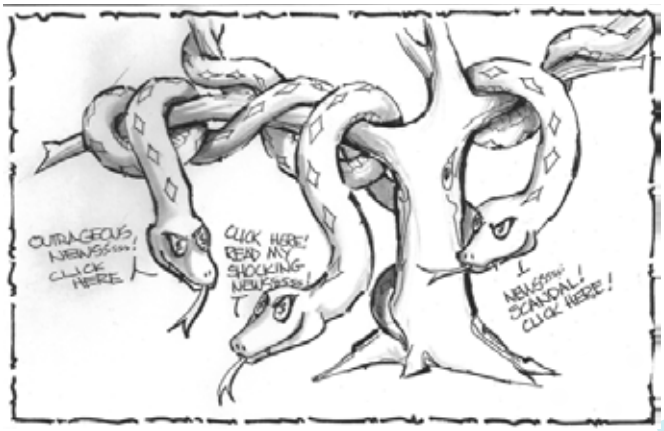
For an understanding of the shifts in meaning of "fake news" and their significance, I highly recommend a two-part treatment of the topic on the BBC podcast Trending. Introducing the first episode, host Mike Wendling declares that the term has become part of "a global conversation about echo chambers, about trust in the media, and about something called a post-truth society". He introduces three experts on social media, who comment on usage and context across two informative and entertaining episodes (each 23 minutes):

- "History of 'Fake News', Part 1", BBC Trending. January 14, 2018. "The meaning of 'fake news' has been completely transformed – so what does it mean now?"
- "History of 'Fake News', Part 2", BBC Trending. January 21, 2018. "How do we tackle online misinformation? And what new forms is it taking?"

For immediate use in TOK, the 2-minute clip that introduces the podcast episodes is useful. Its central argument is clear and its conclusion firmly supports our own goals in teaching critical thinking – suggesting that we should now be bypassing the term "fake news" and instead, more analytically, "concentrating on differences between facts, opinion, speculation, and outright fiction."

For more extensive use in TOK, I summarize below – with cartoon illustration by my husband Theo Dombrowski – different meanings of the term "fake news" traced by the experts in social media speaking on this podcast, and augment their comments from other sources.

Meaning 1. "Fake news" designates sensational click-bait stories fabricated for profit



"Fake news" first became a widely used term to describe not merely misreported facts, ***but stories that took leave of fact altogether*** – fictional stories that mashed together fragments of other stories and added sensational claims. Such stories circulated through social media in the run-up to the American election in 2016. Most of them were against Hillary Clinton or supporting Donald Trump. Hillary Clinton, one preposterous story

claimed, was involved in a child sex-trafficking ring run out of a pizza shop. Another claimed that the Pope had endorsed Donald Trump for president. These went viral and drew massive attention.

Was this calculated propaganda? If so, backed by whom?

As Craig Silverman, Media Editor of Buzzfeed News, explains in the Trending podcast, the fakery was traced to Macedonia, to news production centres where hundreds of teenagers were churning out false stories. They had discovered how profitable it could be to prompt people to click the link to sensational stories and thereby gain themselves advertising revenue via Facebook. Moreover, they had discovered how readily Americans, especially on some networks they targeted, would click on anything to do with Donald Trump. So they invented sensational pro-Trump stories as bait, fabricating "fake news" with no interest but profit.

Meaning 2. "Fake news" is an accusatory label applied to information one rejects because it is contrary to one's own position or interests.

But then, how do terms get taken over and used for different meaning and different purpose? TOK students, examining the influence of different perspectives, will notice not only that opposing groups use different expressions for the same thing, and that they seem to mean different things by the same terms, but also that they often seize on particular terminology to use over and over to build their own associations. As they – and cognitive scientists – have realized, such repetition can be weirdly, and irrationally, persuasive.

As the panelists in the Trending podcast point out, the term "fake news" has been picked up in this way by politicians and the media, with a shift in meaning to become a **disparaging label for information that is so incompatible with one's own views and interests that one rejects it as false**. President Donald Trump first used it most publicly in this way in his inauguration speech and, according to the panelists, thereafter seized on it as his own. Throughout late 2016 and 2017, this application of the term caught on in the media, used in a partisan way. Craig Silverman acknowledges ruefully, "We did this to ourselves. By 'we', I mean the media…. Our industry is partly to blame for the confusion we're at."

Clare Wardle of Harvard's Shorenstein Center and First Draft News refuses to use the term herself, as she explains (at minute 6:50), because it has become meaningless, and clouds our thinking:

> "The reason I don't like the term now is that it is used as way to describe everything, whether it's a sponsored post, whether it's an ad, whether it's a visual meme, whether it's a bot on twitter, whether it's a rumour that you don't like. People just use it now as a term against any information they don't like. So partly I hate using it because it's not helpful, and if this is a really complex problem, and we're going to start thinking of ways we can intervene, we need to understand and have clear definitions….
>
> "It's being used globally by leaders as a way to describe information they don't like, as a way to crack down on information they don't like and that's not something that we want. So therefore I think we just need to think very carefully about the language that we use."

However, where Clare Wardle refuses to use "fake news", Craig Silverman thinks the better solution would be to use it consistently with its original sense of stories fabricated for profit. He feels it was a useful term for regulators and legislators now concerned with the issue, as it pointed the way to possible solutions.

What are the solutions?

First step: clear thought and language! These experts in social media are fully in agreement that clarity of thought and definition is necessary for identifying a host of connected but distinct problems for anyone trying to find reliable knowledge. They point to differences in *kinds of false news* (e.g. honest mistakes, misinformation, disinformation, misleading and partisan treatment, and images and memes not using language) and in kinds of motivations (e.g. political, social, psychological, financial) behind it, and insist that distinguishing clearly the different threads in the complexity is a necessary step before it is possible to find appropriate solutions.

Some of those solutions, then, might lie in technological fixes and regulation, with social media platforms such as Facebook now giving attention to these new problems. However, larger solutions depend on human alertness and critical thinking.

Interestingly, as Alexios Mantzarlis, Director of International Fact-Checking Network of the Poynter Institute suggests, social media platforms have provided fertile ground for all kinds of fake news, *but at the same time* they also provide a means of user engagement in seeking out accurate information. "It would be much harder to check facts," he says, "without a search engine as powerful as google."

For the "fake news" of this second definition – news rejected as factually untrue because one does not like it – this fact checking is crucial. **Critical thinking is not dead**. It comes down to us to work past our own resistance to knowledge claims that displease us, to learn how to seek reliable sources, and not to fall for and spread misinformation. It comes down to all of us, on a broader level, to persist in correction and better communication. There's an important role here for the attitudes and skills we teach in TOK.

(And as for the so-called "backfire effect" – I'll update that term in an upcoming post!)

Meaning 3. "Fake news" could be any or all news; "truth" is subjective and "facts" are irrelevant.

This third definition of "fake news" is not one that the panelists of the Trending podcast develop in their discussion, although the extreme subjectivity that they treat does point the way. This definition almost dissolves the idea of "news" altogether, as "facts" are discredited not just as false but indistinguishably true or false, to the point of being irrelevant. Relativism to the extreme! This one worries me a lot as it comes as a dismissive attitude toward knowledge. It could infect our students with cynicism over our whole Theory of Knowledge goal of teaching critical thinking. **Why even look for accurate information and sound interpretation if nothing at all can be trusted anyhow?**

Throwing about the term "fake news" without any sense that there is an alternative, splashing mud indiscriminately on all sources and their reports, can foster a giant rejection of even the assumptions on which our attempts at thinking critically are based. Journalist and editor Paul Chadwick comments well on some of the implications of conflating all the problems of journalism:

> "To equate flawed journalism with fake news corrodes a longstanding notion on which democracies rely: that there can be such a thing as a shared approximation of truth resting on verifiable facts and corrected or clarified incrementally….
>
> "In the absence of a shared approximation of truth, democratic governance under the rule of law gets much harder, and power alone starts to determine truth."

Already at the end of 2016, writing in the New York Times, Sabrine Tavernise identifies this impact of **destroying confidence in all information regardless of its kind and quality:**

> "Fake news, and the proliferation of raw opinion that passes for news, is creating confusion, punching holes in what is true, causing a kind of fun-house effect that leaves the reader doubting everything, including real news.
>
> "That has pushed up the political temperature and increased polarization. No longer burdened with wrestling with the possibility that they might be wrong, people on the right and the left have become more entrenched in their positions, experts say. In interviews, people said they felt more empowered, more attached to their own side and less inclined to listen to the other. Polarization is fun, like cheering a goal for the home team.
>
> "There are an alarming number of people who tend to be credulous and form beliefs based on the latest thing they've read, but that's not the wider problem," said Michael Lynch, a professor of philosophy at the University of Connecticut. 'The wider problem is fake news has the effect of getting people not to believe real things.'

"He described the thinking like this: 'There's no way for me to know what is objectively true, so we'll stick to our guns and our own evidence. We'll ignore the facts because nobody knows what's really true anyway.'"

Whew! Not much left for Theory of Knowledge or the International Baccalaureate's education goals if ignorance is just as good as knowledge!

So what, in the end, is "fake news"? For Theory of Knowledge, an examination of the shifting meaning of the term opens up the connection between our language and our concepts, in a real life, highly charged public context. In the process of tracing the different implications of the definitions we adopt, we also end up facing the basic assumptions of the education that we're offering – that we value the search for the truth, and the skills it demands. One of these, clearly, is the need to clarify our concepts and to be aware of where they lead!

PS: Past Resources

I wish the posts I've written in the past were out of date. Sadly, they're not, as the issues are still with us. In case you're interested in pursuing the ideas that cluster around "fake news", you may find useful particularly these earlier articles:

- I wrote worriedly about filter bubbles in social media earlier in "Thinking beyond the knowledge bubbles" November 21, 2016.
- I treated "fake news" most explicitly and extensively in "TOK and "fake news": 3 tips, 2 downloads, and 3 resources" (March 27, 2017), though without the awareness of definitions I've gained in the meantime.
- "Consuming the news: Is knowing harder than dieting?" June 12, 2017 concerns the terror news cycle, comparing news that is splashed out and circulated quickly to junk food thoughtlessly consumed

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"History of 'Fake News', introductory clip", BBC Trending, January, 2018. http://www.bbc.co.uk/programmes/p05vg7ty

"History of 'Fake News', Part 1", BBC Trending. January 14, 2018. http://www.bbc.co.uk/programmes/w3csvtp8

"History of 'Fake News', Part 2", BBC Trending. January 21, 2018. http://www.bbc.co.uk/programmes/w3csvtp9

Susana Martinez-Conde and Stephen L Macknik, "The Delusion of Alternative Facts", Scientific American. January 27, 2017. https://blogs.scientificamerican.com/illusion-chasers/the-delusion-of-alternative-facts/ This is a good article not treated explicitly above. It offers three "rules" based on the scientific method:

Rule #1: We cannot ascertain what's true, but we can establish what's false.

Rule #2: High confidence does not equal objective proof.

Rule #3: Perception depends on perspective, but subjectivity is not a measure of reality.

Sabrina Tavernise, "As Fake News Spreads Lies, More Readers Shrug at the Truth," New York Times. DEC. 6, 2016 https://www.nytimes.com/2016/12/06/us/fake-news-partisan-republican-democrat.html

February 26, 2018

History: writing the past, drafting the future

History, it often seems to me, isn't essentially about the past. In so many ways, it's about the present and the future – the afterlife in records, interpretation, and impact on thought. In current news, I'm struck by what lives on from bygone days in three seemingly unlike examples: a controversial law (Poland), yet another statue (this one in Canada), and a day of national commemoration (Australia). What they share is an eerie sense that we're watching a troubled past in afterglow – and hearing in echo the resonance of TOK knowledge questions.

Here we go again? History is one area of knowledge that is keenly attuned to repetition, with variation! The knowledge questions from the current TOK Guide (page 41) take another turn upon the stage:

- What is a fact in history?
- What distinguishes a better historical account from a worse one?
- How can one gauge the extent to which a history is told from a particular cultural or national perspective?

Controversial law, Poland

Countries have often used laws to silence their citizens or criminalize saying things officially declared wrong: the FACTS have been adjudicated by legal decree. Similarly, citizens have been forbidden to say things that are officially bad: the approved VALUES have been legislated. From laws (arguably good) controlling slander and hate speech to laws (arguably bad) suppressing truth and alternative views, they merit attention and debate for the way they direct the knowledge that gets shared.

So here we go again? Poland's new law, approved in the Senate last month and signed into law early February by President Andrzej Duda, criminalizes references to Nazi concentration camps located in Poland as "Polish death camps" – a phrasing that may sound as if Poles, rather than the Nazis, were responsible. "It is a duty of every Pole to defend the good name of Poland," declared the Deputy Prime Minister before the Senate vote. "Just as the Jews, we were victims."

The law further threatens with fines and imprisonment (up to three years) anyone who attributes crimes of the Holocaust to (ominously for its ambiguity) "the Polish nation". Although the law permits historians and academics to discuss facts of the second world war extermination camps, critics argue that it threatens discussions by others, such as teachers or journalists, even if what they say can be supported by evidence.

Set to go into law on February 28, however, it may yet be revised according to current reports:

> "In reaction to criticism, it is to be reviewed by Poland's constitutional court which can order changes. Deputy Foreign Minister Bartosz Cichocki said late Tuesday that no criminal charges will be brought, but Poland might demand the retraction of untrue statements."

If the law was genuinely intended to protect the good name of Poland abroad, it has backfired spectacularly. The Israeli Prime Minister has reprimanded the Polish Prime Minister for claiming innocence for all Poles while, in some of his remarks, suggesting that Jews were among the perpetrators of their own genocide. In Israel, vandals painted swastikas on Poland's embassy in Tel Aviv.

In case you find useful this example of using legislation to control the terms and extent of historical discussion – or to settle the "facts" or the "truth" – I'll put some interesting links at the end. Myself, I found the following comments from a national public radio station in Boston particularly apt for TOK:

> "The bill's originators argue that it is necessary for protecting and disseminating historical truth: The Poles were victims rather than perpetrators of the Holocaust; many of them, at great personal risk, saved Jews. Upon learning of this bill, the Israeli government protested vigorously. Prime Minister Benjamin Netanyahu and others described it as an attempt to 'rewrite' history and whitewash the crimes of those who either assisted Nazis or stood by as Jews were burned at Auschwitz and other camps.
>
> "On the historical record, both governments are correct. Many Poles saved Jews (in fact, Yad Vashem, the Israeli Holocaust Museum, recognizes more Poles than members of any other nationality as 'righteous among the nations' — gentiles who helped rescue Jews). Furthermore, many Poles

> fought bravely against the Nazis as partisans. And, at the same time, scores of others assisted the Nazis enthusiastically and many, many more looked away either from fear or in tacit approval as the Germans went about implementing the 'Final Solution.'

"But the problem is not whether the bill accurately reflects what happened in Poland during the war. The problem is that history cannot and should not be adjudicated by the criminal courts. Historical truth is multilayered and complicated. Poles were both heroes and villains when it came to their attitudes and deeds toward the Jews. Sometimes the same people were both. That kind of complexity has to be discussed, debated and studied in secondary school classrooms, universities, public forums and the popular press."

There's a context, of course, for the particular Polish government to give attention to this particular law. The TOK Guide notes in general terms that "present preoccupations tend to affect the study of past events", while a commentator in The Economist notes more specifically that "in a region of competing narratives, latent grievances and weak states, leaders with a taste for demagoguery will always be tempted to draw from an ample arsenal of historical memory." From this incident, what will live on from historical memory – to influence the future?

Controversial statue, Canada

https://www.youtube.com/watch?v=BhOvk4yJn5I?rel=0&w=560&h=315 And another statue of a Great Man in History bites the dust! Indeed, governments and organizations commissioning the statues of the world might wonder if glorifying individuals is a durable long-term investment of their commemorative urge. The future might have different information on these individuals and different values for evaluating their "greatness". Better stick to Unknown Soldiers!

The statue in this case is another one of those conquerors, to whom the conquered have come, understandably, to object. Edward Cornwallis was the British military governor who in 1749 founded the city of Halifax on Canada's east coast. Notoriously brutal to the indigenous people, he issued a scalping proclamation – a cash bounty to anyone who killed a Mi'kmaq person. The title of the 1993 book by Mi'kmaq elder Daniel Paul is extremely apt: *We Were Not the Savages*.

In this example, the FACTS themselves are not in dispute, and are not suppressed. Perspectives on those facts, though, have changed over time, including the VALUES according to which particular facts are selected as most important. Just last month, in January 2018, the Halifax city council voted to remove the 1931 statue of Cornwallis in order to overcome a barrier to developing a better relationship with the indigenous people of the region. Removing the bronze statue, in a context of reconciliation, is as symbolic a gesture as erecting it to begin with, and probably more consciously so.

The decision did not please everyone. Some protestors argued for preserving the statue of Cornwallis out of pride in their "heritage". Others argued that removing a commemorative piece was not the way to deal with the past, whether one is proud of it or not.

And there are surely ongoing questions: How do we ensure that the more brutal aspects of our past are not glorified, but also not forgotten? How do we, in the present, frame such artefacts in order to take into account conflicting perspectives on how to understand them? The statue of Cornwallis was removed from a Halifax park on February 4, to be put in storage. But what will Halifax do with it next – *and with the historical memories it embodies?*

Australia Day

If a mute bronze statue can attract controversy over the colonial past, it's certainly not surprising that even more controversy surrounds a noisy national party. Like the statue, it commemorates a conqueror planting his flag – this time in Australia. On January 26, 1788 the British governor claimed Australia for his own country, landing a fleet of ships on land that his own laws treated as empty, *terra nullius* belonging to no one.

The aboriginal people of Australia, however, had existed for some 50,000 years, and this act of empire, for them, launched a history of dispossession. Many indigenous people call it "Invasion Day" or "Survival Day" and call for a national celebration of contemporary Australia

to be shifted to a different day, one less polarizing for the historical legacy that lives on into the present. The organization Reconciliation Australia explains this point of view:

> "[Reconciliation Australia], the independent organisation, which is the national expert body on reconciliation with Aboriginal and Torres Strait Islander people, says changing the date of Australia Day is "a relatively small task" that would demonstrate a willingness to address past wrongs.
>
> "Asking Indigenous people to celebrate on January 26 is like asking them to dance on their ancestors' graves," its chief executive, Karen Mundine, told Guardian Australia. "We've changed the date before – in fact January 26 has only been a national public holiday since 1994 – and will have to do so again if we want to achieve a national date that unifies all Australians."

They have considerable support in the Australian population as a whole for a move to a timing that would be more inclusive.

Nevertheless, others reject to any change, out of reasons similar to those in favour of preserving the statue of Cornwallis is Halifax – largely out of pride in what the colonial settlers achieved, a sense of legacy, and a desire to include both the good and the bad within the same day.

Also sometimes involved is impatience with a conflicting view that spoils the party. Over protests against last year's celebrations, Australia's deputy prime minister declared, "I just get sick of these people who every time, every time there's something on, they just want to make you feel guilty. They don't like Christmas, they don't like Australia Day, they're just miserable, gutted people and I wish they would crawl under a rock and hide for a little bit."

The clear conflict of perspectives – with conflicting *values* that guide the facts selected as central – makes this example an effective one for Theory of Knowledge. The following article is a useful source and provides further links: Ben Westcott, "The arguments for and against Australia Day on January 26", CNN. January 25, 2018.

And some final reflections

These three examples leapt out at me for Theory of Knowledge over the past few weeks as illuminating features of History as an area of knowledge. Separated by continents and entirely different in the form they take (a law, a statue, a national celebration), they are nevertheless similar in what they raise regarding the significance of the past as its consequences continue to play out in the present, and the significance of the present in how we shape and re-shape our records and understanding of the past. Yes, I'd say we're watching a troubled past in afterglow – and hoping that our students will hear the echo of those Theory of Knowledge knowledge questions.

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March 12, 2018

Facts matter after all: rejecting the "backfire effect"

Good news: counter-argument with factual support may not be doomed after all. The **"backfire effect"**, as widely discussed in the past few years, was a truly disheartening phenomenon for anyone who cares about critical thinking or reliable knowledge. However, recent studies illustrate how the human sciences work as they offer revised conclusions – and at the same time give us back some reasons for optimism.

Backfire effect

It seemed, according to earlier studies, that presenting people with factual information that contradicted their beliefs created a "backfire" response. That is, they recoiled from the facts and became more entrenched than before in their original positions, especially when the issues were emotional or ideological.

"Results indicate that corrections frequently fail to reduce misperceptions among the targeted ideological group," reported Brendan Nyhan and Jason Reifler in 2010.

They had studied, for example, the responses of American conservatives when their belief that Iraq had weapons of mass destruction was given factual correction. The startling part of their findings was the frequent deleterious impact of facts: "We also document several instances of a 'backfire effect' in which corrections actually increase misperceptions among the group in question."

Pushback effect

However, new studies within the past year have not been able to replicate these results. As we teach in TOK, this is how the sciences progress (at least in the ideal version) replicating studies to test further the original hypothesis. As researchers Thomas Wood and Ethan Porter summarize:

> "Across all experiments, we found no corrections capable of triggering backfire, despite testing precisely the kinds of polarized issues where backfire should be expected. Evidence of factual backfire is far more tenuous than prior research suggests. By and large, citizens heed factual information, even when such information challenges their ideological commitments."

Before we get too happy about this study's implications for good argument, however, it's worth noting what it does *not* say. It doesn't suggest that people have open minds, or that we *don't* confirm our own biases as we

read and observe. We still demonstrate "pushback". It just refutes the extreme version – that evidence has a *contrary* effect on belief. Neurologist and science communicator Steven Novella makes that distinction effectively:

> "To be clear, people generally still engage in motivated reasoning when emotions are at stake. There is clear evidence that people filter the information they seek, notice, accept, and remember. Ideology also predicts how much people will respond to factual correction.
>
> "The backfire effect, however, is very specific. This occurs when people not only reject factual correction, but create counterarguments against the correction that move them further in the direction of the incorrect belief. It's probably time for us to drop this from our narrative, or at least deemphasize it and put a huge asterisk next to any mention of it."

I'm going to follow Dr. Novella's advice in the future, asterisk at the ready, about what I'll now call the "so-called backfire effect".

Implications for correcting misinformation

These revised findings have implications for any discussions where good decisions require good information. They restore confidence that people can actually change their minds if presented with factual correction.

In public debates, the importance is clear, as Alexios Mantzarlis, Director of the International Fact-Checking Network of the Poynter Institute, emphasizes.

> "The existence of the 'backfire effect isn't just a research opportunity for political scientists," he declares. "It is a question that goes to the very heart of how public debate is conducted."

Certainly, we see frequent declarations in the media that we are in a "post-truth" world – with "post-truth" being Oxford Dictionary's 2016 word of the year. And yes, certainly, the charge of "fake news" resounds to the point of meaninglessness (as treated in my recent "Fake News: Updating TOK Critique"). But Mantzarlis insists that "we do want to find the truth." Interviewed in the BBC podcast Trending, he observes (starting minute 9:10):

> "What we've seen over the past two years has been consistently that across the board regardless of partisanship when people get told a falsehood and then get told that that is a falsehood and get presented with a correction, their belief in the falsehood goes down, regardless of whether they have supported it or are against it. … Partisans … stick to beliefs more but we've found that we are fact-resistant but not fact-immune. If I can do just one thing I want to dispel this vision that all is lost and that facts are for nothing. We do want to find the truth."

Implications for TOK

"We are fact-resistant," says Mantarlis, **"but not fact immune."** OK. In TOK we can live with that. We'll continue to hammer away at good arguments and good factual support for them. Back to work, then, with lighter hearts.

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March 26, 2018

(Dis)trusting statistics: a one-page guide

A numbers expert declares he'll sum up everything he knows about analyzing statistics on the back of a postcard. Could any TOK teacher NOT instantly spring to the alert? He's inspired me to attempt my own lean summary: a *single page mini-guide* on (dis)trusting statistics, useful in our own educational context of Theory of Knowledge.

The postcard version

The numbers expert is Tim Harford of the BBC podcast "More or Less", which regularly offers listeners commentary on statistics in the world around us. His 10-minute episode "Debunking guide – on a postcard" is worth playing in a TOK class. (It also gives a sample of a podcast to which you may well wish to subscribe!) Harford gives the following five tips, illustrating each with examples:

1. **Observe your feelings.**
2. **Understand the claim.**
3. **Get the back story.**
4. **Put things in perspective.**
5. **Be curious.**

If I were using this podcast episode in class, I'd write these points prominently on a board as they are brought up, and use the list at the end to review with students what he has said.

A one-page version for TOK

I'm prompted, though, to adapt this approach of a terse summary to mesh better with the broader critical thinking skills of Theory of Knowledge. The advantage of a lean summary is that it provides a framework for ideas, into which up-to-date stories and statistics of the day can readily be fitted for illustration.

If you follow this blog or use my OUP Theory of Knowledge book , you'll already be familiar with my critical framework of The Three S's: Source, Statement, Self. You can download it here: SSS-GUIDE-TO-EVALUATING-KNOWLEDGE-CLAIMS. For further comments on internet evaluation to supplement it, see my post from March 27, 2017 "TOK and 'fake news': 3 tips, 2 downloads, and 3 resources."

So here goes for my own try at statistics – outlined below and available here for download as a single page class handout: DOMBROWSKI STATS MINI-GUIDE

And here is my challenge to you: Can you and your students come up with – and share! – a one-page framework that's even better?

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(Dis) trusting Statistics: A Mini-Guide

1. What is the source of these statistics?

What person or organization is providing this information? What are its qualifications and area of expertise? What are likely to be its biases, if any? How readily can you check the source – and possibly its sources in turn – for their qualifications, reputation, and consistency with other statistics offered by respected organizations and journals?

2. What is actually being claimed?

Are words and terms clear, and used in a way consistent with definitions in the relevant field? Is the knowledge claim a factual one about the present or past, or is it a hypothetical prediction about the future? Does it report on a single study or a meta-study? If it reports a survey, how large is the sample population and how is it sampled? (Become familiar with the following: different kinds of averages, the terms "statistically significant", "P-hacking", "background noise")

3. How are the statistics framed in context?

Are the statistics used as supporting evidence for a knowledge claim or argument? (And how valid is that argument?) Are the numbers being used – *instead* or *as well* – to impress in a more emotional way? Do accompanying images or language clarify the significance of the statistics – and/or possibly heighten an emotional impact? Does it seem that other important statistical information has been omitted?

4. What is your own emotional response to the statistics?

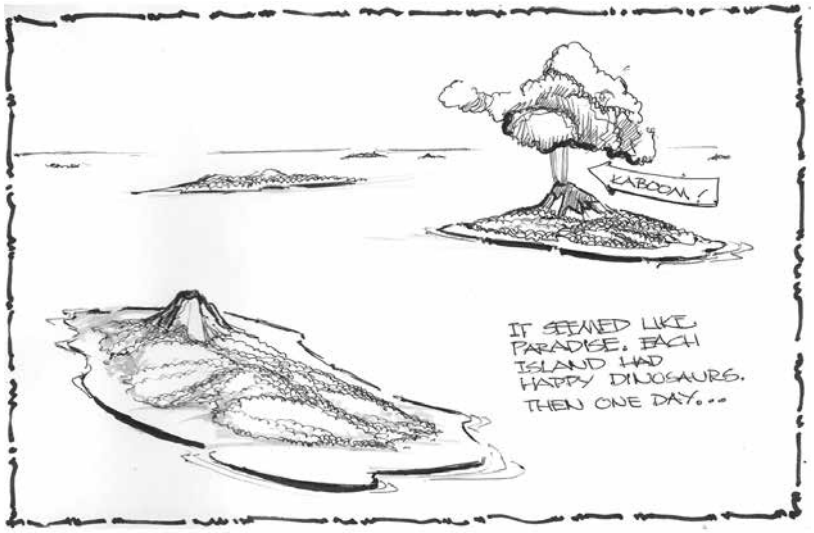
Do you notice in your own reaction to the statistics any inclination to accept or reject the statistics even before you've examined them as above? Do you detect in yourself any signs of *confirmation bias* – the inclination to believe whatever harmonizes with what you already think, or what you wish were true, regardless of the quality of the information?

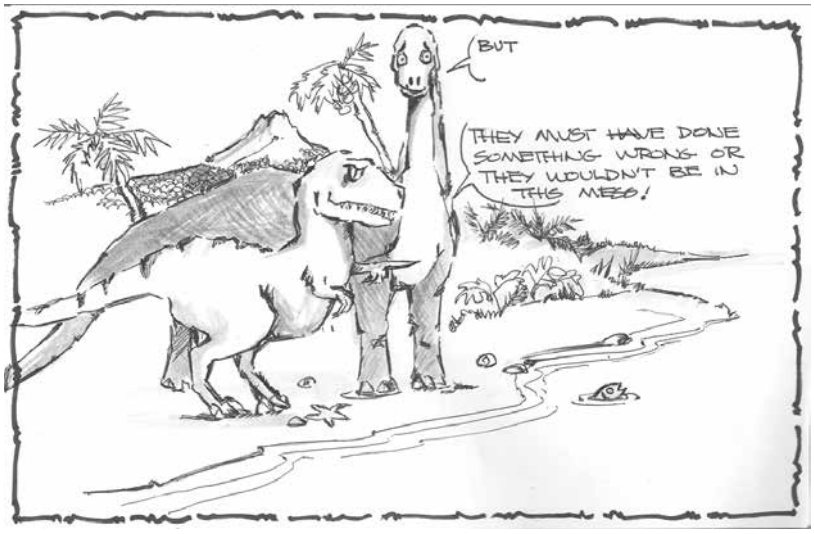
Eileen Dombrowski, Theory of Knowledge blog OUP https://educationblog.oup.com/category/theory-of-knowledge and Activating TOK https://activatingtok.net/ Cartoons Theo Dombrowski, permission to use in Tok classrooms.

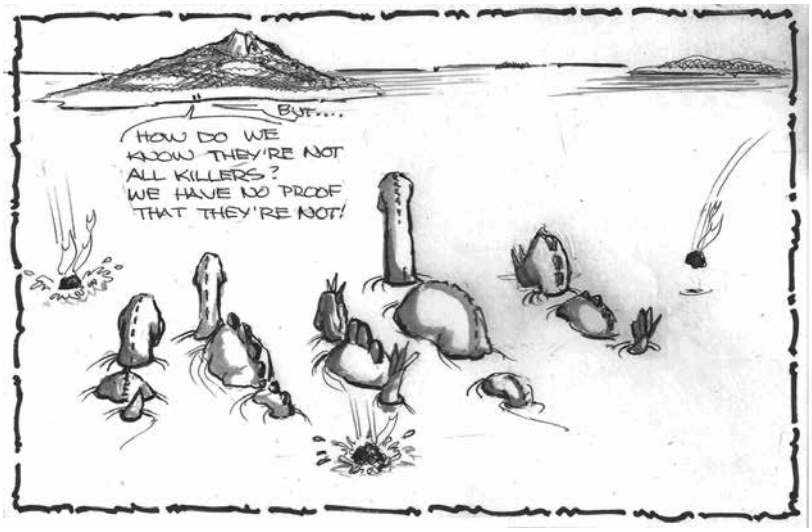
Would you argue with a T-REX?

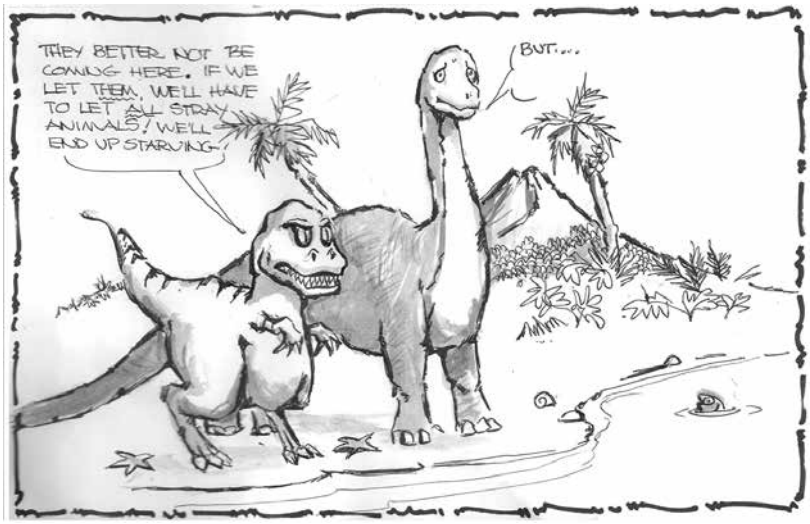
Argument and counter-argument, dinosaur style

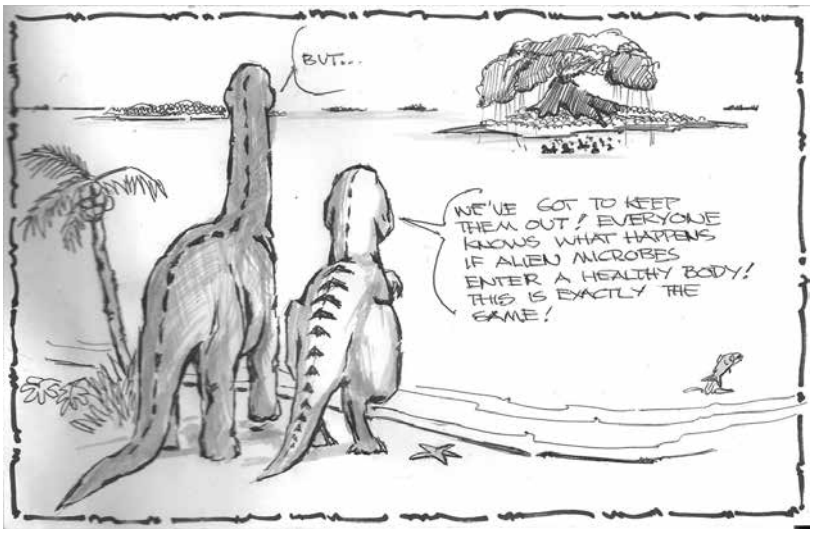
In the following frames, the tyrannosaurus rex (T-rex) clearly does not want to welcome the creatures fleeing from the island hit by disaster. What problems do you see in the arguments he makes? Try to identify and explain the T-rex's unstated assumptions, emotional appeals, and logical errors. If you were the brontosaurus, what would you say *back* to him ("But….")?

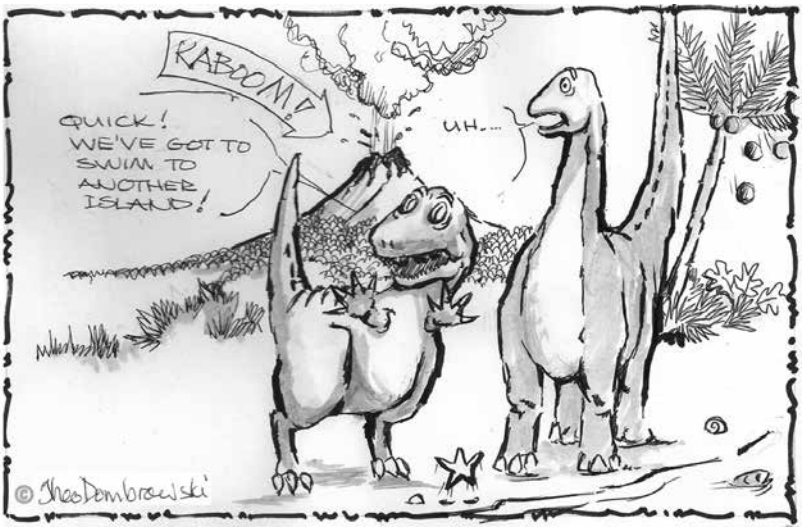












Cartoons Theo Dombrowski, permission granted to teachers to use in their own classrooms. Eileen Dombrowski, OUP Theory of Knowledge Blog https://educationblog.oup.com/category/theory-of-knowledge & https://activatingtok.net/

April 9, 2018

Biases, fallacies, argument: Would you argue with a T-rex?

If you were the brontosaurus, what would you say *back*? This cartoon sequence is designed for TOK to prompt examination of assumptions, emotional appeals, and fallacies of argument. Students will quickly see some real world relevance and echoes of common knowledge claims.

If you would find this activity useful with your own students, please feel free to download a formatted copy here (with permission given to teachers to use it in their own classrooms): Would you argue with a T-rex?

Using the cartoon sequence in class

Why did my husband Theo and I resort to designing cartoons for a TOK activity? Well, to be honest, it was partly for fun – of a sort! But we also recognize that a storyline or a touch of humour helps to engage students. These cartoons provide, we hope, a light boost for them to look at assumptions behind some common knowledge claims and the flawed reasoning that often comes with arguments based on them.

I wasn't sure whether to provide any commentary to accompany them in this blog post, since I think I can safely assume that all TOK teachers will see the fallacies and biases. But then, I thought to myself, if our positions were reversed, I'd like you to tell me at least what you had in mind!

Frames 1 and 6: Story frame and ethics

The first and last boxes are simply the story frame. If you wanted, you could use the story to **raise ethical questions** of what we owe to others, reciprocally, within a context that's metaphorical – and how we would know our obligations. (Are those other dinosaurs fleeing their erupting island "creatures" or "fellow creatures"?) However, I'd be inclined just to leave those ideas implicit, or just nod in their direction, unless students raise them for discussion themselves. To go exploring ethical imperatives in any serious way, I'd choose more substantial stimulus material than these cartoons.

Frame 2: "They must have done something wrong…."

Human beings seek **causes** for events – as observed long before cognitive scientists studied our intuitive biases and their role in swift, pre-rational conclusions. Plenty of fallacies crowd around the attribution of cause as we try to understand our world and make living in it less dangerous and threatening. In this frame, the tyrannosaurus immediately seizes on a cause of the natural catastrophe of volcanic eruption – the action of the creatures themselves. Clearly, no chain of evidence links the cause and the effect in this case!

I don't think it's necessary for students to apply a name to a cognitive bias in order to identify the thinking. But this one has been given the name **"just world fallacy"**, a cognitive bias toward treating the world as much fairer (more just) than, on reflection, one might acknowledge it to be. The world can feel safer if you feel that people get what they deserve, and that if your own actions are blameless then you are safe. This bias often lies behind blaming victims for their own problems – assuming that the victims of bullying or assault, for example, must have done something to provoke attack (with the result of directing blame toward them as well as – or instead of – the perpetrators).

Important here is only to get students to spell out what the T-rex is assuming behind his comment: that those in a mess must have done something to get there, that it's somehow their own fault! You might choose to note that sometimes – outside this cartoon – people (as individuals, as societies) MAY have caused their own problems (at least in part), but conversely, they may NOT have caused them. Finding solutions requires moving beyond blaming and analyzing causes in a thoughtful and critical way.

For general treatment of cause, see my TOK book pages 252-254, for a treatment of causal fallacies see page 128, and for the cognitive bias "just-world fallacy" see page 201 in the chapter on intuition.

Frame 3: "We have no proof that they're not."

This one is a variation on the **"argument from ignorance"** – assuming a knowledge claim to be true on the grounds that there's no proof that it's not. Silly? Yes, silly – but possibly deadly. The classic: If you can't prove that you're not a witch, you must be one! It's important for this cartoon only to pin down the assumption, so that students might be more alert to the way that absence of evidence is sometimes flung about in arguments. A catchy summary is often quoted, making a good point in a pithy way: "Absence of evidence is not evidence of absence." This assertion simply needs a follow-up, always mentally tagged on: "Neither is it evidence of presence. More study needed."

For further comments on the argument from ignorance, see my TOK book page 126 on errors in the reasoning process.

Frame 4: "We'll end up starving."

The important thing in this frame is to identify the emotional content, so that threat is recognized as being assumed – and can then be questioned and evaluated. The **"appeal to fear"** is one of the most common fallacies, and permeates arguments about how best to deal with a world that is often scary. It's a bit more complicated than the others here, though, in that fear can be an appropriate reaction if the threat is genuine. If you ask "What is being assumed?" then there's a chance to identify the nature of the threat and look more thoughtfully at whether the situation requires a fight-or-flight response – or the numerous social and political versions of it.

Mixed in with the fear here is an all-or-nothing **over-simplification** – that if you allow any creatures ashore, you must allow them all. This is a common argument for taking no action at all: if you can't *fully* solve a problem, then why try? ("THAT measure won't go far. It won't solve the problem. So it's useless.") Yet we know that problems are often solved using a combination of several measures.

To a large extent, this all-or-nothing argument is a classic **"false dilemma"**: a situation with several possible alternative choices is simplified to allow only two contrary positions; either we do A (accept all) or we do B (reject all). (The classic: *either* you're with us or you're against us.) Arguments that use a false dilemma make one of the two alternatives sound terrible, thus leaving only one acceptable choice. They don't allow that C, D, and E might also be possibilities, and they certainly discourage the creative generation of alternatives important in problem-solving.

Plus in this frame there's a touch of **"slippery slope"** thinking, according to which a particular action is treated as the first in an imagined sequence. It's seen as the first step toward dreadful ruin – as if it will precipitate an inevitable sequence of increasingly awful consequences. "Don't do that" is rephrased as "Don't take that dangerous first step!" While we do have to be alert to "taking first steps" that are genuinely dangerous, again the weight of attention should fall on assessing the risk based on good information. A panicky reaction to imagined doom can get in the way of an evidence-based evaluation.

For further comments on logical fallacies in dealing with alternatives and gradations, see my TOK book page 127 on errors in the reasoning process. For logical fallacies using emotional appeals, see pages 171 to 173.

Frame 5: "If alien microbes enter…."

Microbes? This one is the common fallacy of **"false analogy"** – a metaphorical comparison treated as though it's a factual equivalent, and used to draw a conclusion. Personally, I like analogies and I'm fond of metaphors: when well used, they do help us to conceptualize abstractions or understand complexity. But even a good analogy has to be identified as carrying only some points of likeness! It can illustrate an argument, but it can't logically carry it. Here, the analogy chosen is one of disease, so instantly reflects and reinforces the appeal to fear.

For further comments on logical fallacies using metaphors, see my TOK book page 149 for explanation and an activity.

Enough! You'll probably interpret these cartoon frames slightly differently from how Theo and I do, and your students might interpret them differently from how you do. If you opt to try out this cartoon-based discussion in class, we'd love some comments back from you on how it worked.

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April 23, 2018

Exercise for awareness: facts, feelings, and changing your mind

(by Theo Dombrowski) Here's a challenge for your students. Are they open to changing their opinions if faced with contrary facts? Today we offer a class exercise – ready for you to download, to use directly or to customize – whose goal is student self-awareness. It demands reflection, research, and discussion, and should raise discussion on facts, feelings, values, opinions, and confirmation bias in accepting or rejecting knowledge claims. **The formatted version is available for download at the end of this post**.

What would it take to make me change my mind?

Much recent research indicates that it is almost impossible to get people to change their opinions by presenting them with rational evidence alone. How would you rank your own ability to change your mind if confronted with strong evidence?

Part I Procedure: Three steps to directed reflection

Do NOT look at the list yet of **Fifteen Knowledge Claims**. Avoid temptation! First, read these directions and commit yourself to them. These will be the steps you'll take:

1. Read the knowledge claims and rate yourself from 1 to 5, where 1 is strongly agree and 5 is strongly disagree.
2. Rate yourself from 1 to 5 on how strong your feelings are about the truth of each knowledge claim. 1 is "I never thought about it and couldn't care less" and 5 is "I care a lot about the accuracy of this statement."
3. Ask yourself about each knowledge claim, "What would it take to make me change my mind? What kind of evidence and how much would I need?" Note that each of these statements is **fact-based**, not **value-based**.

Part 2: Directed reflection: Apply the three steps to each one of the statements in the list below…..

WHAT WOULD IT TAKE TO MAKE ME CHANGE MY MIND?

FIFTEEN KNOWLEDGE CLAIMS

Rating: Agree? 1 is "strongly agree" to 5 is "strongly disagree". Feelings? 1 is "I don't care" to 5 is "I care a lot".	**Agree? Rate 1 to 5**	**Feelings? Rate 1 to 5**
1. Finger print evidence is highly accurate.		
2. Some people have extra-sensory powers.		
3. Organic food is healthier than non-organic food.		
4. Some buildings are haunted.		
5. Some people have negative health effects when they eat MSG, common in Chinese food.		
6. Homeopathic medicine is effective.		
7. The attack on the New York Twin Towers was known in advance by U.S. intelligence.		
8. Taking a multi-vitamin each day improves overall health.		
9. Positive thinking improves ability to fight cancer.		
10. Lie detector machines/tests work.		
11. Genetically modified food is less safe to eat than "natural" food.		
12. Immigrants put a burden on taxpayers and take jobs away from locals.		
13. Space aliens have visited earth.		
14. The U.S. moon landings didn't actually take place.		
15. Acupuncture is an effective treatment.		

Part 3 Research

Now that you have rated yourself on each of the knowledge claims, you will want to know that scientific skeptics consider each of them to have little or no genuine evidence to support them. Upon reading that do you feel a flash of irritation? Are you skeptical about skeptics? Consider your emotional state as you begin your research.

Now choose 1 or more of the **Fifteen Knowledge Claims** and research it. You will find many, many websites making absolutely opposite claims. You may wish to choose a statement either because the topic really interests you or because you have ranked yourself more than 3 on it for the extent of your agreement or the strength of your feelings.

Your task is:

1. to filter through the websites to pick those that seem most credible, and state why--to the rational mind.
2. to summarize the evidence and assess the degree to which it is convincing/ conclusive--to the rational mind.
3. to conclude whether you have enough evidence either to confirm your opinion or change it.

Finally, ask yourself whether you think that, in general, you are open-minded about considering factual evidence when it comes to fact-based issues or, in contrast, whether you feel there is value in having emotion or personal preference override purely factual evidence.

Much research indicates that people are generally most inclined to have the same opinions as their friends and family, even when those opinions are fact-based. Do you think that is true of you?

Part 4 Discussion

At the end of your research, find someone else in your class who researched one of the same knowledge claims as you. Compare your methods, your reasoning, and your conclusions. If your conclusions differ significantly from those of your classmate do you find yourself "digging in" to your own position or being convinced by your classmate's position?

Remember: the point of this exercise is to encourage self-awareness. We are all mixes of emotion and reason (amongst other things), but it can be helpful to realize how much we can, when we are conscious of our own ways of thinking, reach more nearly rational conclusions on factual issues.

If you would find this class activity useful in your own Theory of Knowledge class, download a formatted version here:

Dombrowski REFLECTION ON OPINION

Feel free, as well, to adapt the exercise to your own class context.

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Cartoons copyright Theo Dombrowski, used here with permission. Permission also granted to teachers using them in their own classrooms.

May 7, 2018

"But then I checked the facts…"

Today, it's time to lighten up – with a TOK cartoon, and a smile. In recent months, we've been heavy on a cluster of inter-connected topics: confirmation bias, fake news (variously defined), fact-checking, "pushback" to opposing views, and class activities for self-awareness of cognitive resistance to changing our minds. But today – as May exams descend on IB students and teachers of the Northern Hemisphere – today we pull these threads together in way that should tax nobody's mind! Best wishes from Theo and me for a fine month of May! – Eileen

Getting the facts, changing your mind

May 14, 2018

A TOK class for exam month: mathematics, nature, art, technology…and peaceful contemplation of beauty

May in the northern hemisphere. The return of long daylight. But also IB exams. Tired students. Tired teachers. Time to take a class into the calm and beauty of pattern, with gentle TOK reflection on the deep intersections of mathematics, nature, art and technology. This year, my favourite vehicle is the animated sculpture of John Edmark, especially with the video "Creating the Never-Ending Bloom" in which the designer is commenting on his work.

Edmark, who lectures in engineering at Stanford, stresses the intersection of mathematics and the world:

> "If change is the only constant in nature, it is written in the language of geometry.
>
> "Much of my work celebrates the patterns underlying space and growth. Through kinetic sculptures and transformable objects, I strive to give viewers access to the surprising structures hidden within apparently amorphous space.
>
> "While art is often a vehicle for fantasy, my work is an invitation to plunge deeper into our own world and discover just how astonishing it can be. In experiencing a surprising behavior, one's sense of wonder and delight is increased by the recognition that it is occurring within the context of actual physical constraints. The works can be thought of as instruments that amplify our awareness of the sometimes tenuous relationship between facts and perception."

At this point in the year, such a video serves to bring together many of the threads probably already discussed in Theory of Knowledge – for instance, mathematics and the world, mathematical proportions and beauty, or the role of technology in knowledge. Looking back on the year, it could also stir reflection on TOK areas of knowledge and the merits and drawbacks of compartmentalizing knowledge.

It's been a couple of years since I've argued for a class of peaceful contemplation during exams. The videos I suggested in 2016 are still available and, to my mind, still as effective for what we can achieve with northern hemisphere students mid-May: "Beasts, whirligigs, and raindrops: engineering, art, and the play of the imagination".

You'll see that I've roughly made this argument before – that TOK need not stress articulate analysis every minute, much as we value it. There are moments when a point is better made by not talking. A connection may not be teased apart or debriefed without such commentary, but its application to the world may sink more gently and pleasantly into a weary mind.

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May 23, 2018

Sense perception: Yanny or Laurel?

https://youtu.be/7X_WvGAhMlQ

Create a 5-minute buzz in TOK class over sense perception. Which version of the words do your students hear? It seems that groups of people are truly split over how they interpret the sound file! The first video here (from The Guardian) simply gives the options – as you'll want just to get your class going – while the second (from CNN) gives some variations and a bit of explanation. (https://youtu.be/y7wXRm3sTBo)

Remember the dress that became such a viral sensation? It's been three years since it split people over whether it was blue or gold, with many very fierce in their response. Have a look back to what I posted then: What colour is that dress? Millions disagree!

Yanny or laurel – blue or gold. These are lively examples to tuck into TOK files along with the best of our optical illusions. The variability of interpretation in the sense perception of a simple sound or colour allows us to raise in a very lighthearted way in TOK the problematic nature of witnessing and "fact", and the self-questioning that helps to build more reliable shared knowledge.

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Yanny vs Laurel: which name do you hear? Audio. Guardian news, May 16, 2018. https://youtu.be/7X_WvGAhMlQ

Yanny vs Laurel debate explained: Bridget Breaks It Down. CNet, May 16, 2018. https://youtu.be/y7wXRm3sTBo

June 11, 2018

Download TOK Resources: Fifteen from my Files

Bonus. Fifteen in one! You may have most of these resources already – my Theory of Knowledge overviews, guides to critical thinking, and classroom activities. But I'm in the throes of getting myself organized (yes, oh yes!) on a shiny new laptop, and I thought you might find it handy if I shared in one place the list I've just pulled together. Help yourself. I hope that something here will prove useful to you for your own thinking about TOK.

Most of my posts don't contain formatted downloadable lessons, of course. So I'll start with my most recent annual collections of diverse offerings – suggestions, lesson ideas, and commentary on contemporary situations and research that characterize this TOK blog on knowledge across the year.

Dombrowski_COLLECTED_BLOG_2017

Dombrowski_COLLECTED_BLOG_2016

Dombrowski_COLLECTED_BLOG_2015

Next are reflections on teaching the Theory of Knowledge course that I love. "Eileen's advice to New TOK Teachers" is now three years old, but I offer it still to new teachers in hopes that they may find the pleasure in the course that I've found myself.

Dombrowski-ADVICE_FOR_NEW_TOK_TEACHERS

Next are overviews. A couple are graphic overviews of the course itself, and the others are generic guides to being critically aware in face of all the knowledge claims that surround us.

Dombrowski-TOK-GRAPHIC_OVERVIEW

Dombrowski-SIMPLIFIED_KNOWLEDGE-FRAMEWORK

Dombrowski_SSS_1_CRITICAL_GUIDE

Dombrowski_SSS_2_DIGITAL_MEDIA

Dombrowski_STATISTICS_MINI-GUIDE

Last are classroom lessons, some of them the recent ones with cartoons by my husband Theo. They're self-sufficient to use as class handouts, but you'll find ideas on using them in the blog posts from which I'm presently extracting them.

Dombrowski_LOVE_LIT_LOGIC

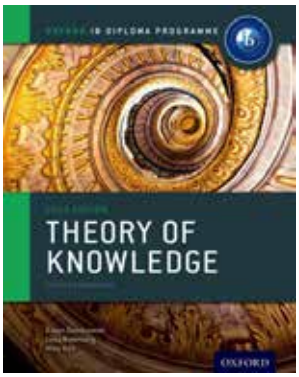
Dombrowski_CENTRISM

Dombrowski_ART_SCIENCE

Dombrowski_EXPERTS

Dombrowski_ARGUMENT_FALLACIES (The background analysis useful for this one is in my blog post "Biases, fallacies, argument: Would you argue with a T-Rex?" April 9, 2018.)

Dombrowski_CHANGE_MIND



All of these resources complement the core OUP book Theory of Knowledge (2013) that I wrote with my TOK colleagues and dear friends Lena Rotenberg and Mimi Bick.

As I tidy my files and move my consciousness to a new laptop, I confess that I do have an immense pang of guilt. My old one has been so reliable, worked so hard for me, and introduced me to so much interest and pleasure out there on the web. Its keyboard which my fingertips have touched daily for nine years now has many of its letters worn off and it's grimy with neglect. I'm feeling downright unfaithful as I transfer my affections to a new laptop that's slimmer, smarter, and faster. I wouldn't like to be treated in this way myself! But leave it I will. And, with thanks, I'll take its memory.

June 25, 2018

"Art is dialogue about difficult subjects"

"Only art has the power to build bridges between communities," asserts an art historian in response to a current exhibit in Srinigar, Kashmir. One of the hosts of the exhibition similarly affirms, "Art is dialogue and conversation about difficult subjects." As TOK teachers, we have a world of examples to bring to class on art as an area of knowledge. However, this current one, treated in the following article with brief interviews and backstories, is powerful in prompting thought and discussion on the role of art in communicating and creating knowledge: *The Kashmiri art bringing Hindus and Muslims together*.

In TOK, students consider for art the same questions they apply to other areas of knowledge:

- "What is the purpose of this area of knowledge? What does it aim to do?"
- "How does it achieve its goals?"
- "What are the characteristics of the knowledge it gives us? What does it contribute to the total of our knowledge?"

The general answers to these questions will be similar regardless of what particular examples we choose for entering and illustrating discussion. Whether we use biological population studies or massive experiments on the Higgs boson in physics, we will be able in class to trace common goals and methods in science. So, too, in art.

Yet the purposes claimed for art are variable and their criteria of evaluation are open to debate. An exhibit such as this one is excellent in focusing class discussion on many goals – for instance: representation, expression, aesthetic achievement, and social commentary. It also anchors art creation very firmly in context as significantly both individual and social, and in a shared exhibition as both individual pieces and a collective. (For goals of art and criteria of evaluation, see Chapter 15 in the Theory of Knowledge Course Book.) If students also think that this attempt to bridge painful differences is valuable – or even moving – then perhaps we heighten not only their understanding of what art can aspire to do but also, we hope, their appreciation.

We don't have to agree, of course, that ONLY art has the "power to build bridge between communities". How might other areas of knowledge contribute to the bridge-building? Our students, with the awareness of perspectives that we foster in TOK, might have some ideas!

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August 13, 2018

"Stay cool. TOK teachers can handle this." Astrology and belief

Are we on "the path back into darkness, tribalism, feudalism, superstition, and belief in magic"? The apparent upsurge of belief in astrology has sent one of my favourite bloggers and podcasters, neurologist and skeptic Steven Novella, into a paroxysm of sheer frustration. How can anything so thoroughly debunked as astrology make inroads back into public belief? But – stay cool, Steven! This is a job for Theory of Knowledge teachers! It seems to me we're in a perfect spot to raise questions about astrology – not with earnest annoyance but with humour and a light heart.

Steven Novella's sense of urgency arises from witnessing, too often, woo-woo relativism turn critical thinking to mush. TOK teachers are his staunch allies as he fumes at treatment of all knowledge as equally acceptable – or equally dismissible. Alas that the fine human quality of tolerance of diverse claims and perspectives can be carried so far that knowledge is indistinguishable from nonsense! We might want to rage a bit ourselves. But then let's shrug and cheer up. After all, in the northern hemisphere most of us are launching into a new teaching year and don't want to burn out too early!

What does astrology offer Theory of Knowledge?

There are several lines of discussion that can be animated by taking astrological horoscopes and personality profiles into class.

1. What do we mean by "believing", in the case of a horoscope?
2. What is the difference between science and pseudo-science?
3. How can social factors influence whether people are likely to believe their horoscopes?
4. Why is it significant to recognize "the fallacy of personal validation" in the reading of horoscopes – and in the methodology of psychology?

What appeals to me about using astrology in TOK, though, is mainly that doing so could be not just effective but fun. People often enjoy reflecting on their own personalities and predicting their own futures, and when they're the age of our students they tend to find personality and relationships particularly engaging. Moreover, they'll probably like the story of psychologist Forer and the test he ran with his students.

I see the ideal outcome of using astrology to be a confirmation that it has no scientific basis, with discussion of the difference between science and pseudo-science. At the same time, it would be a pity not to recognize that horoscopes have an imaginative appeal or that people who "believe" them – or at least, while reading them, don't disbelieve them – are quite possibly doing no harm!

1. "Believing" a horoscope

The premise behind astrology is that the position of the stars and planets influences human characteristics and the course of human lives. It has a long history in many cultures, such that consulting the position of planets at birth and at important occasions has often formed a basis for life decisions such as a suitable match for marriage.

Here, for convenience, I'm using the western zodiac based still on 12 divisions (ignoring the 13th). But you may choose otherwise.

> **Western Astrology Star Sign Dates**
> Aries (March 21-April 19),Taurus (April 20-May 20), Gemini (May 21-June 20), Cancer (June 21-July 22), Leo (July 23-August 22), Virgo (August 23-September 22), Libra (September 23-October 22), Scorpio (October 23-November 21), Sagittarius (November 22-December 21), Capricorn (December 22-January 19), Aquarius (January 20 to February 18), Pisces (February 19 to March 20)

I suggest opening a discussion with a real horoscope, taken from a newspaper or online source. This one, for instance, is my own Leo horoscope for this month of August:

> "**August 2018** - On August 8, the sun conjoins retrograde Mercury. It's easier to read between the lines and hear what is not quite said out loud. The new moon and solar eclipse on August 11 could bring a sudden opportunity to do something important. You may have wanted to do this for a long time, or it may have never crossed your mind before.
>
> Mercury goes stationary direct on the eighteenth. You may think that you're ready to pounce on a new project, but take some time for conditions to get back up to speed. The sun leaves Leo and enters Virgo on the twenty-second. Make full use of a slower pace and having more time to address enjoyable details.
>
> The full moon on August 26 shows you how a few people really feel about an issue that they've complained about a lot. The issue may be real, but it isn't that important. Sometimes people like to complain. "

My husband Theo, a Taurus, gets a horoscope that comments on romance. I don't take it seriously – but, still, my interest instantly perks:

> "**August 2018** - The moon-Venus trine on August 5 can soften an awkward situation and lead to more romance when Venus trines Mars on August 7. Uranus goes retrograde in Taurus that day, too. What you say may not be what is heard.
>
> Home life gets dicey with the new moon (and solar eclipse) on the eleventh. Too much of a good thing might create a problem or disagreement later.
>
> On August 18, retrograde Mercury sextiles Venus. Get a deeper look into an artistic or romantic matter. Mercury goes direct that night. What you learn from the sextile will be useful soon.
>
> The full moon on the twenty-sixth brings good luck in a financial matter and maybe some unexpected income opportunities. Get plugged into a more upscale network now. Venus squares Pluto that day, too. It's not a good time to push intimacy. Mars goes direct the next day, and some people may have trouble hearing no."

For class, you'll need to print out all 12 horoscopes for the month you're in, to distribute them to the students to whom they apply.

Questions for class:

- Do you believe your horoscope? If so, what do you mean by "believe" in this case? Do you believe that it is giving literal, factual predictions – or do you mean something else?
- Does it provide testable statements, that could be proven factually false by the events of the month?
- Does it give advice? If so, is that advice specific particular situations or generally applicable to most situations and most people? Is any of it bad advice, or would you consider it generally good advice in most circumstances?
- To what extent are predictions and advice dependent on your own interpretation of what they mean within your own life?
- Do you find it entertaining and imaginatively engaging to read your horoscope? If so, why?

One of the interesting questions here for Theory of Knowledge is what we mean by "believe", since belief comes in so many shapes, sizes, colours and temperatures – metaphorically! – and so many degrees of conviction and significance! With astrology as a focus example, we might be able to explore, with our students, the ambiguous nature and sweeping inclusion of this word – part of the central vocabulary for TOK.

Is the number of people who appear to "believe" in astrology affected by the kinds of questions they're asked? Has "belief" in astrology really risen in recent years? In the United States,the National Science Foundation's study harks back several years: "In 2012, slightly more than half of Americans said that astrology was 'not at all scientific,' whereas nearly two-thirds gave this response in 2010. The comparable percentage

has not been this low since 1983." Current articles in The Atlantic and in The Independent assert the rise of astrology in popular culture as a starting premise for their discussion.

Worth reading, though, is an article by researcher Nicholas Campion ("How many people actually believe in astrology?") He acknowledges the limitations of his sample size and the difficulties of pinning down what people actually mean by "believing": "My samples were small, and each one represented a snapshot of a particular group, which makes it difficult to generalise. But all suggest that when we ask a variety of questions we arrive at different answers. How many people believe in astrology? It could be 22%. It may be 73%." I wonder if he took into account Coleridge's temporary "willing suspension of disbelief" that those of us who teach literature so often invoke.

2. What is the difference between science and pseudo-science?

Astrology is likewise useful in Theory of Knowledge in providing a good example of a classic pseudo-science (as opposed to the evidence-based scientific field of astronomy). Handy articles online that outline its features can be found here:

- This is a basic explanation of astrology from a NASA site for children: "Constellations and their symbols"
- This is a summary from a Berkeley educational site: "Astrology: Is it scientific?"
- This paper by Ivan Kelly is a critique of astrology, debunking it thoroughly, probably in more detail than you ever wanted. It's a really handy reference: "The Concepts of Modern Astrology: A Critique"

For us in TOK, the distinction between science and pseudo-science is an important one supported in the course materials and all the relevant textbooks. (See my own *Theory of Knowledge*, especially chapters 3 and 19.) The major distinction lies, of course, in whether knowledge claims in astrology can be – and are – ***tested against evidence***. If the knowledge claims elude any testing altogether, or if they are not open to being proved false by contrary evidence, then the field is not scientific.

Another major distinction is whether the explanatory link a field draws between events is merely ***correlation*** (When A happened, B happened.) or whether that link is one of ***cause***. But again the central point is that scientific knowledge claims are open to being provisionally confirmed on the basis of evidence, or proved false and discarded on the basis of evidence.

Some people point out that the constellations have long been out of alignment with their interpretive traditions, and that just fixing the math introduces a 13th constellation (Ophiuchus) and changes all of the horoscopes of the past. Astrological predictions have not even been consistent with astrology's own basic assumptions! Some "believers" may be utterly dismayed to discover that they're a different sign from what they previously thought – and therefore, with different planetary influences, they must conclude they have different characteristics and a different destiny. Identity crisis! (Interesting article in the New Scientist: "No, NASA hasn't changed the zodiac signs") But really, whether there are 12 or 13 or 22 constellations is beside the point when the stars cannot be established to affect human destinies in any case.

3. How can social factors influence whether people are likely to believe their horoscope?

Social and cultural factors are forever influencing what we believe. No news there! Just as a reflection on our times, though, it's interesting to note what factors some social commentators have picked out that influence the apparent current upsurge in belief in astrology. Several that I've noticed have come up in a spate of recent articles:

- Social unrest and cultural agitation have been argued to create a sense of anxiety and instability. At such times, belief in superstitions often increases to ease stress by affirming that everything happens for a reason.
- Ideas about personality and relationship patterns involve so much complexity that astrology is welcomed as providing simple answers.
- The simple patterns of astrology compress to symbols and a few words, so lend themselves to circulation on social media.

- The "post-truth" era discourages critical thinking and encourages relativism, so that the line between "true" and "false" has become much harder for people to draw.
- Tolerance of diversity encourages people not to reject – at least out loud, explicitly – a system of belief that has been culturally important in the past for many people.
- The LGBTQ community has been rejected by mainstream religion, so that members of that community who yearn for spiritual explanations have been drawn in large numbers to astrology – and influence others. (interesting article: Krista Burton "Is Astrology Religion for Those of Us With No Religion?)

If you ask your students WHY they think people might believe in astrology, their conjectures may be just as valid as those of many social commentators who are simply proposing their own ideas. In the realm of conjecture, we can't point reliably to cause – but part of an exploration of ideas is asking the questions and wondering about the answers. Out of such discussion may come testable hypotheses and surveys that give us more reliable answers.

4. Forer and "the fallacy of personal validation"

And now we come to a really good story! Have you already heard of the personality test that psychologist Bernard Forer gave to his students? Fortunately, your students are not likely to have, so you'll have the fun of storytelling yourself.

Forer aimed to demonstrate human gullibility, with application to tests in psychology in which test subjects took the role of validating the accuracy of the method by validating its results – subjectively. Or, as he puts one of his conclusions: "Validation of a test instrument or of a personality sketch by means of personal validation is a fallacious procedure which presupposes objectivity of self-evaluation and an understanding of other persons on the part of the client."

So…what Forer did first was to give all his students a personality test in which they chose the characteristics that best described them. In a subsequent class, he said he had derived an individual personality profile for each one of them. He did have a real profile for each, based on the tests, but that's not the one he handed out first. Instead, he made sure that no one in the class could see each other's profile – and then handed out to everyone the same profile!

He asked them to raise their hands if they felt the test had done a good job. Almost all students raised their hands. Then he read out the first part of the profile and asked his students to raise their hands if they had found something similar in their own profile. "As all hands rose," Forer reports, "the class burst into laughter."

You might burst into laughter, too. Here is the profile, consisting of 13 statements:

> "You have a need for other people to like and admire you, and yet you tend to be critical of yourself. While you have some personality weaknesses you are generally able to compensate for them. You have considerable unused capacity that you have not turned to your advantage. Disciplined and self-controlled on the outside, you tend to be worrisome and insecure on the inside. At times you have serious doubts as to whether you have made the right decision or done the right thing. You prefer a certain amount of change and variety and become dissatisfied when hemmed in by restrictions and limitations. You also pride yourself as an independent thinker; and do not accept others' statements without satisfactory proof. But you have found it unwise to be too frank in revealing yourself to others. At times you are extroverted, affable, and sociable, while at other times you are introverted, wary, and reserved. Some of your aspirations tend to be rather unrealistic."

You might want to share this with your own students and ask them simply: **"Why did almost all of Forer's students think the profile was a good description of themselves?"**

I think students will quickly see that the profile is open to a ***huge amount of interpretation***, such that we can readily fit the statements into our own understanding of our own lives. We can interpret "personality weaknesses" in many ways, just as we can interpret being "generally able to compensate for them". Once some statements are accepted, then we more readily confirm the others. (*Confirmation bias* is never far away in a TOK discussion!)

It helps, too, that ***the profile is flattering***, so that people are more likely to accept it. Can you think of less favourable ways of phrasing any of the 13 statements that make up the profile Forer produced? Try doing so with these:

- "You have considerable unused capacity that you have not turned to your advantage."
- "You prefer a certain amount of change and variety and become dissatisfied when hemmed in by restrictions and limitations."

Teachers with lots of practice writing tactful reports on students might have particular insight into what these two statements could imply!

Moreover, students will quickly see that statements that apply to ALL people, in a vague and woolly way, are going to apply to particular individuals – and you can tuck into discussion, with future class uses in mind, another application of ***universal positive statements*** ("all") as opposed the particular positive statements ("some").

Conclusion: What's the harm in astrology?

The real crux of a TOK class on astrology, or any other thoroughly debunked superstition, is ***whether it matters if what we believe is true.***

Steven Novella, fuming over the apparent rise of belief in astrology, is absolutely right in pointing out some of the dangers. Erosion of respect for truth is a keenly felt issue in an era that resounds with charges of "fake news". He condemns a blanket relativism, "hypertolerance that erases all enlightenment and hard-won knowledge", and insists on many of the basic tenets of our own Theory of Knowledge course:

> *"We do know stuff, even if all knowledge is partial and tentative. Not knowing everything is not the same thing as knowing nothing. And when you take knowing nothing as a premise, then, of course, you can believe in anything. Reality is then whatever you want it to be. All news is fake news…*
>
> *"That, of course, is where critical thinking comes in… Scientific literacy is good, but not enough. Education is not enough. General intelligence is not enough. You need to know how to think."*

Certainly, people who are gullible can be a danger to themselves in being targets for scams, and a danger to others in being drawn easily into political or social movements that persuade through false information and deceitful tactics. In TOK, we might well echo Dr. Novella: **"You need to know how to think."**

All the same, though, could I put in a good word for astrology? It's worth knowing about, since it has a long history and is part of many cultures. It's part of the history of thought, and, like many cultural myths, comes along with appreciation of artefacts, arts, and practices. It contributes many images, stories, and songs that run through contemporary culture as well, providing common references points.

Moreover, astrology continues to exercise an intuitive appeal to many people. Intuition as a TOK "way of knowing" gives us swift grasp of patterns and connections, visual and narrative, before the slower processing of reason as a "way of knowing" kicks in and has the time to examine them. It's a problem that intuitions are often difficult to dislodge, inclining us to a whole array of cognitive biases and superstitious explanations.

Yet intuitions feed into imagination, another TOK "way of knowing". And loving literature, film, and photography for their narratives and images, I wouldn't dismiss lightly a system of interlocking stories and pictures that has appealed to so many people. Astrology has a story-making function we can all enjoy, and from it we can take reflections that we might find enrich our lives. We can surely see astrology for what IT IS NOT – and it's not a science – but surely we can also see it, more appreciatively, for what IT IS.

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August 27, 2018

"Deepfakes" and TOK: more trouble ahead for critical thinking?

Could the development in artificial intelligence dubbed **"deepfakes"** really "trigger social unrest, political controversy, international tensions" and "even lead to war"? Have our previous methods of telling fact from fiction been irremediably undermined? As teachers, we're careening down new paths in evaluation of knowledge claims, trying to learn to steer in time to teach our students to drive!

Technology just got even more amazing, and our everyday critical thinking just got even more challenging. "Deepfakes" are not merely a mini-advance in digital adjustment of images and videos. Instead, they are developments in machine learning, as artificial intelligence learns and applies the algorithms to enable users to replace elements of a video with other ones not part of the original. It is now possible for users to swap one person's face with another's, such as (in its early applications) replacing a porn performer's face with a celebrity's. It is now possible to create convincing videos of world leaders firmly saying things they did not say – in fact. In fact.

Your students will be quick, I'm sure, to imagine possible uses of this technology if directed against them or against others. Indeed, it's been around for just long enough that they may have their own examples to offer, and may know that deepfake pornography has been banned from leading social media sites.

And you will be quick, I'm equally sure, to see the increased difficulties of distinguishing fact from fiction and evidence from fakery. On social media, the fog just thickened. Or, I should say, it just "deepened": the term "deepfake" is a fusion of the deep learning of artificial intelligence and more familiar fakery.

Handy resources for class

To introduce this topic to class – or to respond to students who are introducing it already – one good explanation I've found is from about six months ago, from the British Broadcasting Company (BBC) programme Click: "Deepfakes and the technology behind it" is available on YouTube, and opens with an explanation of the new technology and a commentary on its significance. I recommend the first 7.5 minutes.

https://www.youtube.com/watch?v=8LhI-e2B8Lg

Click also makes **short clips** available on the BBC website, useful in class for being concise and effectively illustrated. In just 1:33 minutes Click demonstrates face-swapping software and raises issues of falsified representation, privacy and consent, and legality: "Deepfakes: the face-swapping software"

Click also shows the creative use of such software in films "War for the Planet of Apes visual effects". Whether applied to deception or to more innocent storytelling, machine learning for image swapping has become highly sophisticated – so we have to become highly aware.

For **text-based explanation and commentary**, a useful article from the Associated Press at the beginning of last month appeared in numerous Canadian and American news sources": "I never said that! High-tech deception of 'deepfake' videos".

What NOT to do with "deepfakes" in class

Clearly, the whole topic of fake news and of technology for fakery is appallingly relevant to Theory of Knowledge, as we aim for critical thinking and evaluation of evidence. It shakes some of the guidance we gave fairly easily in the past. However, I hope that it *reinforces* some of our determination as educators NOT to fall into the fog. I have three major resolutions. You're with me in this, right?

Resolution 1: not to teach defeat

We've just been handed a troubling development in fabricating evidence, and it seems that some commentators feel overwhelmed. But in TOK we're not.

Of the two extreme reactions to finding complexity and difficulties oppressive, we're certainly unlikely in TOK to have the first one: that is, to reject complexity in favour of easy answers and pat generalizations. The whole support of our course encourages us to engage with multiple perspectives and ambiguities. So, first, ***we acknowledge the problems*** – and typically through posing questions about impact on knowledge.

- How might deepfakes affect our knowledge of present realities and records of the recent past? What areas of social exchange particularly use video? What *areas of knowledge* use video as evidence?
- Is it only sense perception as a way of *knowing* that is affected by deepfakes? Or are other ways of knowing also affected?
- To what extent do deepfakes present genuinely new difficulties in assessing evidence?
- As media consumers, what adjustments should we make, if any, in our acceptance of circulated videos, and our further circulation of them?
- Do deepfakes play more strongly to our cognitive tendency toward confirmation bias than did the simpler fakes of the past? Or -- given the predisposition to reinforce our past beliefs even with shoddy evidence -- do they actually make any difference?

We're not likely to have the other extreme reaction, either: that is, to treat conflicting versions as indistinguishably valid, or to entertain ambiguities to the point that we lose the boundaries of definitions and evidence. So, second, ***we don't treat the problems as blurring truth beyond recognition!*** The job is tough. But we're onto it!

To update our critical skills, we can work in partnership with other IB courses that are facing the same challenges in examining and developing student research skills. Our role is both reflective, in considering broad knowledge questions, and practical, in considering implications for the critical skills we need to teach:

- What role does awareness of a problem play in finding a solution?
- For a technological problem, to what extent do we seek technological solutions? Is it inevitable that we also need human judgment?
- To what extent do you think we will simply adapt to this latest technological simulation of reality, even when (or especially when) videos purport to show events with political implications? How do we corroborate or dismiss a video report at present?
- What counts as a reliable source? How do we know? Do "deepfakes" make the evaluation of the source even more significant than it was before? Does the nature of the video material circulated on social media -- or indeed all material so circulated -- make it increasingly important to value the quality journalism accessible to us?

We Theory of Knowledge teachers have an important role to play in education, conveying to our students a ***respect for truth as precious*** – precious for making sound personal decisions, understanding of other people and human interactions, and creating reliable shared knowledge. In treating topics such as deepfakes, and other unprecedented deceptions that come up on a changing horizon, we also convey to our students the ***need to keep developing awareness and thinking skills*** in a world that doesn't stay still.

Resolution 2: not to retreat from the controversies of the world

We haven't seen the last of deepfakes, and we can see that they offer new challenges to the methodologies of our areas of knowledge, as they do to our everyday exchange of knowledge. But that's nothing new for TOK. We have long recognized that the knowledge we deal with is totally entwined with the real world and its complex issues. It would be so much easier for us if there were a simpler sphere, solely academic and calm, into which we could retreat. But that mythical ivory tower – well, it has always been built upon the ground!

We recognize that building reliable knowledge is a continuing human enterprise, conducted in the real world, with all its frequent messiness and duplicity.

Resolution 3: not just to groan but also to cheer

But surely, we can also enjoy the advances in knowledge that mess up the way we've hitherto dealt with knowledge! In the arms race between deceptions and methods of detecting them, we need -- what? More knowledge!

"Deepfakes" are impressive breakthroughs in technology – amazing, at least for today. From detached discussion to hands-on playing with the technology, we have lots of different entry points to alerting our students to this recent development in videos circulated on their networks – and to marvel with them over what it's possible now to do.

We might also appreciate some of the creative uses of technology akin to what is used in the deepfakes. It would be hard to resist the enthusiasm of Dan Lemmon, the Visual Effects Supervisor for the War for the Planet of the Apes, who is interviewed in a clip from Click that I cited earlier. He is concerned only with the "creative challenge": "How can we take our technical tools and bend them to tell this story? Or what can we invent or make up to be able to tell this story?" In my opinion, his comments on his work could equally apply to ours as teachers: **"One of the things that's so great about our job is not knowing what the next thing is, and that for us is the thing that's so much fun."**

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September 10, 2018

TOK Ethics: balancing detachment and engagement

It's easy to spark discussion in TOK when the topic is Ethics. This area of knowledge offers its own tinder, and a spark can quickly flame. But what then? How much should we fuel student engagement with the case studies or issues, and how much should we instead encourage them to take a giant step back? In treating Ethics in Theory of Knowledge, we walk the line between two extremes, excessive engagement and excessive detachment.

Excessive Engagement

At the one extreme, students can become caught up completely in a sample topic – such as whether they should do X or Y ethically in a particular situation, or whether acting in a particular way is morally wrong. If the topic is one that affects them, it can stimulate lively interaction, with plenty of opinions. It can leave students feeling that they've really had a good TOK class. But they'd be wrong.

Unfortunately, if they are engaged entirely in the specific case study or situation, they haven't detached enough to consider the kinds of arguments they are making, or the differences from approaches that their classmates might be taking. They'll have generated lots of heat, but very little light! Unless as teachers we guide them toward reflection on the assumptions and lines of argument that emerge from example situations, we give them very little that will transfer to general understanding of ethics as an area of knowledge.

We want our students to follow and make general ethical arguments, to understand good argument (with good justifications) as a method of establishing knowledge claims, and to see the structure of thought of major ethical systems that use this method. Arguments based on consequences (utilitarianism), for instance, take into account different factors from arguments based on duties or principles (deontology), make different intellectual moves, and encounter different problems in establishing their knowledge claims. If students understand ***how*** ethics works and therefore ***why*** our systems of ethical thought don't always deliver universally accepted answers, they are more likely to appreciate what the area contributes to our knowledge – despite its uncertainties.

Excessive Detachment

At the other extreme, what are we giving our students? What do we teach them if we encourage them to recognize and apply ethical arguments and counter-arguments with none of the engagement sparked by a real life topic? If students come to treat ethics as if it's a game of ping-pong, bouncing arguments neatly back and forth only to score, it may look like slick TOK. But wouldn't we be teaching them that ethics is just a verbal game, intellectually oh-so-clever -- but necessarily oppositional and emotionally arid?

What's the point of the whole area of knowledge if it is reduced to debates whose lack of perfect resolution is seen as a grand failure? And why, then, would our students ever turn to ethics to give insight or understanding in life cases when they care?

It's a balancing act for TOK. We want to detach for argument and analysis, and at the same time still recognize and foster the caring engagement that is also characteristic of ethics. How?

Finding a balance

In my mind, the balance depends on keeping the stress on concepts and general patterns – on how we know, or at least attempt to know, about goodness and right action. I'd say, though, that we need to anchor the thought in the world around us, with judgments that are often difficult but have significance for individuals, societies, or even all people of the world. I think we need to demonstrate the difficulties of condemning evil or approving good, but not become so mired in the difficulties that we suggest that the attempt is futile. We're not out to undermine areas of knowledge but to illuminate them and, where we can, even celebrate them as achievements.

I have a few suggestions, and I'd welcome comments from other teachers. You may think I have it all wrong, or you may have other ideas on getting it right.

- Emphasize the *humanity* of ethics as an area of knowledge – the lofty aspirations and the range of ways of knowing (all of the WOKs!) involved. *All* areas of knowledge are human achievements, but its obvious involvement in life, with all its complexities, makes ethics stand out. If it doesn't always give tidy answers, surely that's a reflection of the subject matter with which it deals.
- Emphasize not just when it's controversial and when its alternative systems reach an impasse, but also when it works fairly easily, so that we don't leave students thinking ethics is an area of intractable disagreements. Ethical arguments converge, more or less, for most of the choices in our lives.
- Keep the case studies real. Yes, there's a place for those endless trolley problems and other "thought experiments" that cut out or control the variables of context. However, once students grasp a line of argument then surely it's more illuminating to move to the messy world of pandemics (but dedicated medical practitioners), falling bombs (but attempts at ceasefires and arms control), and fleeing refugees (but compassionate rescue and settlement).
    - Use stories of individuals and their struggles to do the right thing in the messy world. There are so many admirable people responding to need wherever you care to look, drawing on many ideas of ethical behaviour and often facing troubling dilemmas. Personally, I think that we might even highlight the *aspiration* that so often lies at the heart of ethics – and often the *inspiration* as well. Here I suppose I may be stepping beyond TOK into larger ideas associated with the IB. But perhaps not. After all, part of understanding an area of knowledge is seeing *what motivates it and why it matters.*
    - Connect TOK with issues that students' IB subjects sometimes raise, for instance issues of academic honesty or acceptable methods of research. Connect with Creativity Action Service (CAS) to consider – in context of their own lives – what we owe to others, and what understanding of personal responsibility is provided by ethics as an area of knowledge.

It seems to me that our treatment of Ethics in TOK is particularly important in these days of nasty screaming on the internet – these days of lurking trolls, cyber-bullies, and claims that are outrageously false! In TOK, there are things that I think we do particularly well.

For one thing, we benefit our students greatly as we help them make distinctions in their thinking between *facts* and *values*. Disagreements over factual issues aren't resolved by public debate, but by checking evidence and the consensus of appropriate experts. (e.g. Vaccination does not, in fact, cause autism, regardless of some opinions.) Values, however, are open to different opinions on what's good or bad, ugly or beautiful, and discussion can be enriched by multiple points of view. When the values are moral ones, then that's when ethics as an area of knowledge steps in – helping discussion become more thoughtful and better informed.

For another thing, we contribute enormously to our students' education as we give them a space in which to differ – genuinely differ over topics that they care about – and at the same time to *listen* to each other and be able to offer alternative arguments and views with civility. As we do so, we create a context for appreciating that contrasting perspectives are neither a failure nor a threat, but provide alternative ways of thinking to be considered and assessed. Many classrooms give students this chance to practise peaceful and respectful disagreement. But, to my eyes, Theory of Knowledge, with its stress on perspectives as animating knowledge, is awfully well placed to do this particularly well. As a TOK teacher – just as unbiased as I am – wouldn't you agree?

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cartoons on ethics by Theo Dombrowski, used here with permission. He gives permission to you, too, if you want to use these in your own classroom.

September 24, 2018

“Crisis of authentication”: true art, false art, and the science of detection

Cunning criminality is nothing new. But the "faithful duplicity" of some recent forgeries has stunned art experts and shaken the markets and social organizations that envelop this area of knowledge. Stories of stolen fortunes and international detective work however, can kick-start student interest as we use *fake art* to raise questions about *real art*. The TOK questions scream to be asked: What is a "real" work of art if a forgery is indistinguishable? What gives works of art their *value*?

Stories: truth, fakery, and stupendous fraud

When we start in TOK with a Real Life Situation (RLS) – as our course evaluation puts it – we often get the advantage of the appeal of stories. An excellent article in a recent Guardian Weekly gives us background for narration of modern fakes and provides an account of processes of authentication: The master detective.

In our contemporary context of electronic fakery of all kinds – including the "deep fakes" on which I recently blogged – it's not surprising that the arms race between criminality and attempts at detection should escalate in the art world. Forgeries can take various forms – such as direct copies of authentic works while a collector keeps the original, or paintings that copy the materials and style of a highly regarded artist and are claimed to be the "lost work" of the master. Writer Samanth Subramanian points out the dynamics of detection around recent frauds:

> "The quality of these paintings – their faithful duplicity – jolted the market. The sums of money at stake in art, never paltry to begin with, have grown monstrous….
>
> "In lockstep, the incentive to be a proficient forger has soared; a single, expertly executed old master knockoff can finance a long, comfortable retirement. The technologies available to abet the aspiring forger have also improved. Naturally, then, the frauds are getting better, touching off a crisis of authentication for the institutions of the art world: the museums and galleries and auction houses and experts who are expected to know the real thing from its imitation."

It's hard to grasp the sheer amount money involved. For instance, at least 25 works sold by French collector Giuliano Ruffini, all of them now shadowed with doubt of their authenticity, total about $235 million.

Science meets art: the process of authentication

And so…enter ***the detective, the scientist***. Sotheby's, the auction-house for much of the world's pricey art, gives buyers a guarantee. Obviously, then, it needs an expert to authenticate paintings – and at the end of 2016 it took the unprecedented step of hiring its own scientific analyst. Meet James Martin, "the art world's foremost forensic art detective". The Guardian article outlines some of Martin's techniques, and an article from Wired describes further:

> "'We're analyzing samples so small they're invisible to the naked eye,' Martin says.
>
> "In his investigations, he relies on research, his vast knowledge of art history, and a collection of highly specialized tools—microscopes, cameras, spectrometers—to answer questions like: Did the forger paint over another painting? Are the materials consistent with the era? Were any elements added later? Is the signature real?"

In his lab, Martin closely analyses the physical materials of paintings. In one case, he defeated a forger by finding a single polypropylene fiber stuck in the paint of a 12-square-foot painting – a kind of fiber that didn't exist before 1958.

Clearly, the general issues here for TOK go beyond fibers in paint and link the process of art authentication with the tests in other disciplines – such as carbon dating of artifacts, historical dating of documents by their materials – and connect art with science and technology and with issues of evidence in all areas of knowledge.

Bigger question: What gives a work of art its value?

Did Franz Hals really do the painting that is claimed to be his work? This is question of ***fact*** – of whether a knowledge claim is true or false – and appropriately answered by reference to evidence. This is the question that our scientific sleuth James Martin answers for Sotheby's Auction House.

Does it matter whether Franz Hals really painted it? What difference does it make? This is no longer a question of fact but a question of ***values.*** No amount of evidence will suffice to provide an answer to this question.

Clearly, the two questions are related, as Subramanian points out:

> "For Sotheby's, the question of authenticity is not merely, or even primarily, academic. There is more at stake than a satisfying answer to the fundamental conundrum of whether authenticity matters at all – a debate that has been fought and refought in the history of western art. 'If a fake is so expert that even after the most thorough and trustworthy examination its authenticity is still open to doubt,' the critic Aline Saarinen once wondered, 'is it or is it not as satisfactory a work of art as if it were unequivocally genuine?' Typically, this debate comes to rest at the same place every time. Of course authenticity matters; to study a false Rembrandt as a true one would be to hobble our understanding of Rembrandt as an artist, and of the evolution of art. Now, however, the question's philosophical whimsy has been replaced by financial urgency. At a time when the art market is synonymous with art itself, a lack of regard for attribution would derail a trade that traffics in the scarcity of authentic Rembrandts."

So is it the market, then, that ultimately makes a painting valuable? Or is the market price a reflection of a value ascribed otherwise? In a class discussion, students are likely to raise a number of good points, leaving it to us as teachers to prod with further questions and then debrief main points at the end.

Art, an area of knowledge that thrives on different perspectives

As students argue for different perspectives, moreover, they are taking part in the continuing life of the arts, an area of knowledge that thrives on the discussion that surrounds works, whether they are paintings, literature, musical compositions, dance, films, or any of the other creative forms that both communicate and stimulate communication. (And I love the list of *TOK titles for May 2019,* which invite some truly thoughtful discussion of the arts!)

If you have my book Theory of Knowledge, you will find chapter 15 develops some dominant critical perspectives which you could find useful in this discussion. I'll take brief extracts here (pages 243-246), in case you don't have the book:

- Do you evaluate the artwork with an emphasis on the **ARTIST?** Critical attention focuses on the biography of the artist, the artist's intentions, the creative process, and the artist's view of the world. This attention acknowledges the **expressive goal of the arts.**
- Do you evaluate the artwork with an emphasis on the **ARTWORK** itself? Critical attention focuses on the formal features of the work, its composition and technique. This attention acknowledges the **aesthetic goal of the arts**.
- Do you evaluate the artwork with emphasis on the **AUDIENCE?** Critical attention focuses on the effect the work of art has on the audience. This attention acknowledges the **didactic goal of the arts** (to teach) and, like the first, the expressive goal – but in terms of stirring of audience emotions.
- Do you evaluate the artwork with emphasis on the **CONTEXT OF SOCIETY OR THE NATURAL WORLD?** Critical attention focuses on the effectiveness of the work in representation of society or the world, its role within tradition, and its role as a social and historical document or artifact. This attention acknowledges the **representative goal of the arts** (to hold the mirror up to nature) and the social roles given to the arts.

Evidently, the market context of an artwork places an emphasis on the artist – the creative process, the biography of the artist, the meaning placed on a work by the authentic original creator. Yet even if the market value depends on values otherwise attributed, it can take on an acquisitive, competitive impetus of its own.

The fun of the fake

You'd be entirely right in suspecting, as you surely do by now, that I actually enjoy the whole topic of forgery! For one thing, I like the stories and the images that can be brought into class (slideshows!). For another, I prefer to offer students writing or life situations that aren't perfectly tidy. I'd prefer not to give them an article to read that sums up ideas oh-so-perfectly, with answers, because it would leave them with nothing to think through actively themselves. The messy world, with its uncertainties and human foolishness, is more engaging. And personally, my moral indignation over fakery is often tempered with a wry amusement at the different ways that human beings demonstrate their ingenuity and use their knowledge.

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October 8, 2018

Retraction of major research on eating: a failure in scientific methodology, or a corrective in the process?

Cornell Scientist Resigns

Shock waves in the human sciences! Six more of Brian Wansink's published papers are being retracted, Cornell University announced September 20, bringing the total to 13, and the professor has resigned in disgrace. It is not just scientific peers who are affected as Brian Wansink's flawed methodology is exposed and his papers are withdrawn from journals. Millions of ordinary people have also been influenced by his research on "mindless eating." Nutritionists and marketers alike have also based decisions on his findings. But – what do these retractions mean for the ***methodology*** of the sciences? And – why should we seize on this example in Theory of Knowledge?

What kind of "shared knowledge" matters in the sciences?

As head of Cornell's Food and Brand lab, Wansink appeared to combine *scientific study* of environmental factors that affect eating behaviour with *skill in communicating* with the public. His research attracted extensive popular attention as it seemed to illuminate everyday over-eating, with practical implications for controlling it. He has been an influential figure in *both* science and media: he has hundreds of scientific studies to his name and has held prestigious positions in US organizations for food and nutrition. He has also appeared in popular magazines, TED talks and the Oprah Winfrey show.

Personally, I've read his book *Mindless Eating: Why We Eat More Than We Think* from cover to cover, reading my favourite bits aloud to family members. I was delighted with his experiments using endlessly replenishing soup bowls in his restaurant lab: half the participants in the meal had normal bowls, but the other half had bowls that were rigged through tubes under the table to refill as the diners ate. For this zany experiment, he won a comic Ig Nobel Prize in 2007. I found his conclusions fascinating – that people will just keep eating if their bowls don't empty:

> "We found that the participants who were unknowingly eating from self–refilling bowls ate 73% more soup that those eating from normal bowls…. We conclude that the amount of food on a plate or in a bowl provides a visual cue or consumption norm that can influence how much one expects to consume and how much one eventually consumes."

Science magazine identifies two studies that appear to contribute in a similar way to popular wisdom, but are now retracted:

> "Among the papers retracted by The Journal of the American Medical Association on 19 September are one finding that people ate more calories while watching a stimulating action movie than a tame interview show and another concluding that people given bigger bowls at a Super Bowl party served themselves more calories."

Like many others, I was intrigued by his analyses of the environmental cues that affect eating, or trigger over-eating. In my own efforts at weight control I went right out and bought smaller wine glasses and smaller dinner plates, based on his findings -- and I was one among the hordes!

Clearly, Wansink has contributed to the **"shared knowledge"** about which we speak in TOK – widely, widely shared knowledge claims! But it's the present retraction of his work that makes him a fine example for Theory of Knowledge, for a critical scrutiny of this central concept of our course.

In TOK we draw an essential distinction:

- *Knowledge claims that are* ***"shared" in the media*** may be widely disseminated, but "shared" in this sense means no more than "familiar to the public" or "popular". True and false knowledge claims alike can travel widely, and plenty of "buzz" doesn't mean plenty of credibility!
- *Knowledge claims that are* ***"shared" in the sciences,*** however, are expected to be communicated within a rigorous process of testing, peer review, and replication. What gives scientific knowledge claims their credibility is the careful methodology that generates them and then demands that they be perpetually open to further questioning and revision in the face of new evidence. At least, *this is the ideal.*

In Wansink's case, however, the ideal seems to have broken down. The Provost of Cornell University issued the following statement September 20, 2018:

> "Consistent with the university's Academic Misconduct policy, a faculty committee conducted a thorough investigation into Professor Wansink's research. The committee found that Professor Wansink committed academic misconduct in his research and scholarship, including misreporting of research data, problematic statistical techniques, failure to properly document and preserve research results, and inappropriate authorship. As provided in Cornell policy, these findings were thoroughly reviewed by and upheld by Cornell's dean of the faculty."

Professor Wansink has tendered his resignation and will be retiring from Cornell at the end of this academic year. He has been removed from all teaching and research.

Does the re-evaluation of Wansink's work demonstrate failure in the scientific process? If so, is his *individual failure* to follow careful scientific procedures the important point for science, or is the real story the *shared failure* involved in inadequate peer review for so many years?

OR, on the contrary, do *retraction and academic disciplining* demonstrate the scientific process in action, as correctives to earlier failings? After all, other scientists did pick up on some of his manipulative use of statistics (so called "p-hacking") and started to ask questions that ultimately led to the full university investigation.

"True" and "justified": Is a retracted finding necessarily false?

The advantages for TOK of this example of Brian Wansink, however, don't stop here. After all, the Cornell University announcement of his research failings do not include any comment on *whether or not his conclusions are accurate*. Wansink himself denies deliberate wrong doing, and declares that his findings will turn out to be right:

> "The university's accusations, he wrote in a statement, 'can be debated, and I did so for a year without the success I expected. There was no fraud, no intentional misreporting, no plagiarism, or no misappropriation.' He added, 'I believe all of my findings will be either supported, extended, or modified by other research groups.'"

Indeed, it's possible that he could turn out to have reached true conclusions about people's behaviour around eating and their responses to environmental cues. Some of his conclusions seem to be *intuitively* and *imaginatively* persuasive. Myself, I'm not about to go back to using big wine glasses and big plates!

But that's the thing. The scientific process might start with intuition and imagination (TOK WOK) – a canny guess or an insight into relationships among variables. But it doesn't stop there. The guesses have to be framed as *hypotheses* and subjected to *testing* (WOK sense perception/observation and reasoning). It's the process of science – **the methodology** – that disciplines human beings to put aside their prior guesses and forces them to examine what the evidence says. It forces them (we hope), even sometimes with understandable human reluctance, to lay aside conjectures that simply are not supported by the data.

The cognitive sciences tell us so much – so very, very much – about ***confirmation bias***, our tendency to notice whatever supports what we believe already and to screen out whatever contradicts it. Scientists don't stop being human as they enter their labs, but rely on the demands of a careful methodology to compel them to look at what is really there.

In short, it is the **methodology** of science that makes its conclusions reliable. Those conclusions may not turn out to be true eventually, and may be overturned by future evidence, thereby forcing revisions. But they are **justified**. That is, they are supported by evidence and the whole process of looking for it, finding it, interpreting it, sharing it. This distinction between TRUTH and JUSTIFICATION is core to Theory of Knowledge.

Brian Wansink's response to having his research invalidated – having it retracted from peer journals and having his work repudiated by Cornell University – seems to indicate that he doesn't fully accept the requirements of science. He seems to express a dismissive attitude toward some of the stuffy rigour of the method, as he writes to James Hablin of The Atlantic:

> "You can do research for other academics, or you can do research to solve problems," [Wansink] wrote to me. "Doing it for academics is more prestigious, but doing it to solve real problems in the real world is more gratifying—enriching, as I said. Having people say, 'I do something differently because of your research, and it works' takes away the sting of someone pointing out the degrees of freedom in an F-test were wrong."

It's easy to be sympathetic to his expressed feeling that the petty details of an "F-test" (whatever *that is*!) are unimportant compared with appreciation of the results of his work. But…but…**but….**

but….if expected scientific procedures have not been followed, or if statistical results have been inappropriately interpreted, then why ever should we accept the conclusions? They may turn out to be right, or they may turn out to be wrong – but without a sound scientific methodology behind them, we have no reason to accept them, no reason at all.

This is bad news for other food researchers whose own work is built on trusting his, bad news for nutritional guidance that has used his results, and bad news for public trust in the processes and institutions of science.

And what about replication?

Finally, the example of Brian Wansink leads in Theory of Knowledge to a further look at the scientific demand for review and replication of results. In recent years, the human sciences, in particular psychology, have been struggling with a number of problems in these areas, facing charges that most articles published in peer journals do not stand up to replication.

Kiera Butler, writing in *Mother Jones*, gives a good thumbnail of one of the problems facing peer review:

> "To see how Wansink's work eluded the scientific gatekeepers, it helps to understand how journals decide which studies are worthy of publication. Most people know about the system of peer review, wherein research papers are vetted by the author's academic peers prior to publication. But before that happens, the studies have to attract the attention of a journal editor. That step is key, according to Brian Nosek, a University of Virginia psychology professor who directs the scientific integrity advocacy group Center for Open Science. 'Novel, exciting, and sexy results are simply much more likely to get published,' he says…
>
> 'Wansink is exceptional in that way…His results are unfailingly interesting.'"

For a more extensive treatment of the issues and debate that surround replication, I refer you to a post I did in this blog nearly three years ago in response to findings of the **Reproducibility Project of the Open Science Collaboration**. This article is particularly useful for TOK teachers in that it frames replication in the terms of the Theory of Knowledge course: "**Reliability in psychological science: methodology in crisis?**", Oxford Education Blog. November 16, 2015.

Conclusion: Case Study

What's bad for the sciences or other areas of knowledge is often very good for TOK. The problems that practitioners face in an area of knowledge -- and their own debates about methodology -- often provide us with some lively discussions and stories for class. The current news about Brian Wansink gives us a particular good case study: his studies were interesting and easily grasped for their everyday implications; and the retraction of his work illustrates, arguably, both a (short term) failure and a (long term) success in the processes of the sciences. Moreover, an examination of the process of peer review, publication, and retraction

allows us in TOK to examine closely the concepts of "shared knowledge" and "justification", with a stress on the essential role of methodology. A terrific example altogether. But I wouldn't be surprised if you, like me, also felt a little sad.

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October 22, 2018

TOK double vision: lofty overview but critical engagement in the world

Remote or engaged? Can Theory of Knowledge have it both ways? In taking a meta-cognitive overview of knowledge, the course may appear to be cerebral and remote. But in teaching skills of thinking critically and evaluating perspectives, it is clearly engaged in life on the ground. How do we manage in TOK to maintain this ***double vision?***

As an experienced teacher and blogger soon to retire, I'm writing today primarily to new TOK teachers, to offer some central ideas on our course before I go. Other experienced teachers who are also committed to applying the thinking skills of TOK to the world may have ideas of their own to add.

A false distinction?

Does TOK really develop a "double vision"? It's possible to argue that I'm just creating a false distinction in this question. After all, even an aerial survey of knowledge has implications for life on the ground in the form of issues of local and global significance.

Indeed, our very *classification* of knowledge, which in TOK we can treat as an issue for debate, can take on a social and political edge. If I ask whether religious knowledge, one of our TOK areas of knowledge, is properly categorized as "knowledge", I can be considering concepts and definitions of "belief" and "knowledge". Yet in some contexts, even asking such a question could provoke outrage and anger. Similarly, our TOK background *assumption* that pursuing knowledge is valuable could be treated as subversive.

Moreover, when the knowledge sought has evident implications for politics or power, it would be hard to separate the intellectual pursuit from the real world impacts: this month we've seen two economists lauded with a Nobel prize for designing "methods for addressing some of our time's most basic and pressing questions about how we create long-term sustained and sustainable economic growth", while a journalist was found murdered in the EU, the third this year killed while investigating corruption.

All things considered, I have to acknowledge that even issues of lofty overview, such knowledge classifications and the value of gaining knowledge, have resonance on the ground! I don't want to exaggerate or over-simplify the difference between detached overview and real world grounding or suggest that they're separable. Indeed, it seems to me that it's the tension between them, and their interaction, that gives TOK much of its thrust.

TOK Double Vision

Certainly, we teachers benefit from holding this double vision of *both* aerial overview and grounded reality as we prepare our classes. In fact, the central inquiry of our course – the **knowledge questions** that we pose – prompt an interaction between the generalized view (*How do we know?*) and the somewhat more particularized view (*How do we know that particular thing?*). Our challenge is to aim for the ***large concepts*** and ***transferable skills*** even while we're focusing in closer detail on the methods of specific areas of knowledge or the everyday flow of knowledge claims through life in the world.

TOK's own course aims fit nicely in this regard into the general aims of the International Baccalaureate. The IB learner profile's explanation of being **"knowledgeable"** conveys much of that blend of large understanding, but at the same time, the critical application: "We develop and use conceptual understanding, exploring knowledge across a range of disciplines. We engage with issues and ideas that have local and global significance." It adds that, as **"thinkers"**, "We use critical and creative thinking skills to analyse and take responsible action on complex problems."

Before I leave TOK, I'd like to offer a few thoughts on holding the balance between the lofty overview and the grounded reality. ***I offer four main suggestions on teaching a version of Theory of Knowledge which is engaged with the world, while always maintaining the double vision:***

1. Choose examples from real life situations with close attention to the tactic of "exemplifying".
2. Deal significantly with perspectives.
3. Stress awareness and skills of critical thinking as the connection between ways of knowing and the methodologies of areas of knowledge.
4. If you deal directly with current public debates, stress the transferable skills.

If you have other ways of thinking of this "double vision" or other ways of achieving it, I welcome your comments on the ideas I share here.

1. Choose examples from real life situations with close attention to the tactic of "exemplifying".

We want to emphasize concepts in TOK – to consider what flows from adopting particular definitions, for instance, and to consider conceptual complexities, implications, and applications. One of the best ways to clarify a concept, of course, is to illustrate it with an example or two, and in the process maintain that TOK balance between the general overview and the particular application.

Ultimately, the example doesn't matter in itself, but the tactic of exemplifying does give us plenty of opportunity to select examples that contribute further to student education in accordance with IB values. Here, I'll draw on a ready source, this blog – with some delight in playing meta-reference – to give examples of giving such examples.

a. Choose examples that challenge prejudices in ways human beings are often categorized

Almost all the TOK *ways of knowing* converge in examining the way we categorize the world, with the pre-rational intuitions of *confirmation bias* influencing sense perception, memory, emotion, language and other TOK ways of knowing. How we classify is central to our course – central to the relationship between concepts and language, the interaction between the general and the particular, and the whole issue of bias. We have a world of examples from which to draw!

Every subject has its classifications that illustrate the interplay of the general and the particular – such as classifications of bacteria, atoms, stars, literary forms, periods of history, components of the human mind, or (in TOK) ways of knowing and areas of knowledge.

It seems to me that we'd waste an educational opportunity, though, if we didn't also tackle socially relevant categorizations of race, gender, (dis)ability, class, or nationality, to name just a few – even though in TOK we're not discussing these topics for their own sake but for the concepts they illustrate. I'll pick out a few here:

Race/ethnic group

- "Classification and implications: Who is black, or indigenous, or Jewish?" June 17, 2015.
- "'Passing' as black: classification and social implications." June 14, 2015.
- "'Who's an Indian now?': concept, definition, and a significant ruling." April 25, 2016.

Gender

- "Is that woman really a man? Tidy categories, messy world." September 15, 2016.

Neurodiversity and (dis)ability

- "Getting it wrong, getting it right, and generating knowledge questions: 'The Forgotten History of Autism.'" August 9, 2016.
- "Signed language, symbolism, and reflections on inclusion." November 20, 2017.

Refugees

- "World Refugee Day: What do our categories leave out?" June 20, 2015.
- "Refugees and risk: Can TOK encourage a more thoughtful approach?" November 23, 2015.

b. Choose examples from different parts of the world.

Although there is a lot of value in choosing local examples instantly relevant to our students' lives, there are parts of the course where we can readily expand their often-limited horizons. I'll pick out a couple of posts on history which, I think, catch the controversies of the discipline better by doing some country-hopping. I'll also pick out one on the arts, which are *much better* treated in TOK when given international breadth rather than a narrowly contemporary European focus!

- "History: writing the past, drafting the future" (February 26, 2018) touches on Canada, Poland, and Australia.
- "'Comfort' and discomfort: history and the shadows of the past", January 17, 2018. While our news media have served us an array of examples in North America and Europe of historic statues and monuments being torn down, I would make sure, as a Canadian, to extend the cultural range with examples such as this one from South Korea involving Japan.

- "Art is dialogue about difficult subjects." June 25, 2018.

c. Choose examples that imply values.

Some examples give a broader education as a side effect, buried in an indirect way simply in the stories that they use. I'll pick out two that use my husband Theo's cartoons with a narrative element relevant to current issues in the media.

- "'Those experts!': cartoon, class discussion activity". December 4, 2017. The discussion questions that accompany the cartoon are open ones, but the cartoon story itself mocks those who willfully and arrogantly reject knowledge. Which side are we on – knowledge or ignorance?
- "Biases, fallacies, argument: 'Would you argue with a T-rex?" April 9, 2018. Clearly, the point of this exercise is to ask students to identify cognitive biases and logical fallacies, with a little story about dinosaurs on two islands simply providing material. However, as I comment in the accompanying analysis, there's an ethical dimension about compassion and obligation to others that could be raised – or, as I prefer, just left implicit.

2. Deal significantly with perspectives.

If there is any one thing I hope I've contributed to Theory of Knowledge through my book and my blog, it's a more analytical understanding of perspectives than I've seen prevalent elsewhere in TOK. I fully embrace these aims of our TOK course, that we should encourage our students to:

- "develop an awareness of how knowledge is constructed, critically examined, evaluated and renewed, by communities and individuals
- encourage an interest in the diversity of ways of thinking and ways of living of individuals and communities, and an awareness of personal and ideological assumptions, including participants' own"

I've also been influenced by ideas from conflict resolution – particularly the encouragement to examine and try to understand what lies behind other points of view.

Again and again, I've put forth the view that **"perspectives" are more than simply opinions** – that the concept of perspectives is a larger one, and that it holds together:

- Assumptions
- Values
- Selected information and knowledge claims
- Accepted processes of validating knowledge claims (often involving the judgment of groups with status among those who hold the perspective)
- Implications of accepting the perspective, in terms of further thought and action

In our academic areas of knowledge, I consider scientific theories or dominant historical interpretations, for instance, to be the perspectives of the field. In religious and indigenous knowledge, I consider the religion or the cultural worldview to provide the perspective. Similarly, I see political and economic points of view as held within a perspective that involves a whole body of beliefs. To me, a "perspective" is much more than a random opinion, since even seemly independent opinions so often emerge from a package of beliefs.

To me, it seems that TOK is ideally placed to examine how perspectives work to shape knowledge and, in the process, encourage our students to be "open-minded" in the terms of the IB learner profile:

> "They understand and appreciate their own cultures and personal histories, and are open to the perspectives, values and traditions of other individuals and communities. They are accustomed to seeking and evaluating a range of points of view, and are willing to grow from the experience."

It's hard to pick out any particular blog post to illustrate a whole approach – and my book would be handier here – but I'll choose a few that I've written on Indigenous Knowledge:

- "Controversy in the Canada Day Party: analyzing perspectives for understanding". July 10, 2017. I particularly recommend this post because it treats some important general issues in analyzing perspectives.
- "Indigenous enoughness: Perspectives are more complex than they seem." February 12, 2015. This post is less generally useful than the one above, but does offer some thoughts.
- "That event in the past: what do we make it signify in the present?" October 9, 2017. The indigenous perspective is treated here as one in a succession on the same historical event, the doomed Franklin Expedition.
- "Indigenous Knowledge: not a separable area of knowledge". July 24, 2017. The first point in this post is explicitly about shifting perspectives, but the other points are also relevant.

3. Stress awareness and skills of critical thinking as the connection between ways of knowing and the methodologies of areas of knowledge.

Examining how we build knowledge is central to our course. The ways of knowing, examined with awareness and used critically, feed into the methodologies of the areas of knowledge. Conversely, as the practitioners of different disciplines encounter problems and refine their methodologies, they feed what they've learned back into general public understanding of critical thinking, as seen in the articles, blogs and podcasts of a community concerned with knowledge. Recognition of *confirmation* bias, for instance, has crossed academic and popular lines.

I won't pick out individual blog posts here but instead recommend that you have a look at the structure of my Theory of Knowledge book: several chapters on ways of knowing are followed by inter-chapters that deal with using them consciously and critically. Even if you don't have my book or want to structure classes in this way, it's important to trace ways of knowing into their roles in the methodologies of the areas of knowledge. Doing so demands becoming aware and critical regarding the ways in which knowledge is constructed.

4. If you deal directly with current public debates, stress the transferable skills.

As I've been arguing, we teachers can make choices that serve the aims of Theory of Knowledge but at the same time support other broad educational goals of the International Baccalaureate. Indeed, some of the goals of the IB profile can scarcely be distinguished from the goals of our course: we are to encourage IB student to develop "conceptual understanding" and "critical and creative thinking skills." But how directly should we, in our TOK classrooms, "engage with issues and ideas that have local and global significance"?

When we directly treat public issues and debates, we get the advantage in class of demonstrating the relevance of the skills we're teaching, and we also get the energy buzz of treating Hot Topics. As we give our students practice in applying their skills to knowledge claims and perspectives in the media and politics, social controversy can feed our course, even as our course illuminates social controversy. This kind of engagement is potently appealing.

However, if we're not careful, it can all go horribly wrong. The maelstrom of public opinion can whirl with such velocity that class discussions can get sucked down into the vortex! It can be difficult – and essential – to keep an emphasis on an *analytical and not merely descriptive approach* to perspectives. Moreover, we want to safeguard the quality of student communication and not import fractious confrontations into our class context!

To me, a huge test of the value of any class is offered by the question, **"How much of this lesson is TRANSFERABLE?"** Does it develop conceptual understanding in a way that will be relevant another time to a related topic? Does it develop thinking skills that are applicable to the next case, and the next, and the next? When considering public issues in TOK, we're never out to *deliver information*. We're always out to help students develop ways to *evaluate information* – and good lessons contribute to a cumulative effect.

I'll pick out here just one incident on which I blogged a couple of years ago to illustrate what I mean by the transferable skills that emerge from giving a TOK treatment to a particular controversy, one with both local and global implications. Many other controversial situations can be treated similarly:

- "Burkini controversy: TOK activity in analyzing perspectives." August 30, 2016.

TOK and the media: double vision and transferable skills

Almost inevitably, Theory of Knowledge discussions on the knowledge claims that circulate in everyday life will lead, to some extent at least, into a critique of the media. But there, too, we have to keep our sights on the major overview knowledge questions as we apply our thinking to the day's hot topics. We have to hang on to that TOK ***double vision!***

Calling a report "fake news", for instance, uses the buzz words of the present. But what we care about, as we skirt the partisan yelling, are larger questions such as these: "How does the definition we give to 'fake news' affect the way we think and talk about it?" OR "What are the characteristics of a reliable source of knowledge for news of the world?" OR "How do the cognitive biases of intuition affect what we accept as true in the media?"

If you care about media analysis – or rather, in TOK, about analysis of the flow of knowledge claims through the media! – you might find the following posts useful in nudging your own thoughts.

- "'Fake news': updating TOK critique." February 12, 2018. This post links back to others I also list here.
- "TOK and 'fake news': 3 tips, 2 downloads, and 3 resources." March 27, 2017.

- "Consuming the news: Is knowing harder than dieting?" (about the terror news cycle) June 19, 2017.
- "Facts matter after all: rejecting the 'backfire effect'." March 12, 2018.
- "'Deepfakes' and TOK: more trouble ahead for critical thinking?" August 27, 2018.
- "Red lines and 'complex moral duality': TOK and ethics of witnessing." April 26, 2017. By Theo Dombrowski.
- "(Dis)trusting statistics: a one-page guide." March 26, 2018.

Conclusion

And whew! I didn't mean to write so much on this topic. I care a lot about holding that double vision in TOK – the general *knowledge question's* high level overview and the *particular topic's* grounded relevance to gaining knowledge. I truly believe what I said earlier – that if we can get it right, we could be guiding our students toward conceptual understanding and transferable skills of critical thinking that will benefit them and others for the rest of their lives. We hope our students will be thoughtfully engaged participants in their social contexts of the future, making a positive contribution to wherever they find themselves in the world.

November 5, 2018

Engaging TOK with the world . . . but softly

This week, I want to add a couple of ideas, just lightly, to what I said last week. I was presenting an argument back then, feeling the urgency of TOK's goal to engage critically with the world. In a more mellow mood today, I'm recommending much "softer" class materials, with a gentler touch that leaves educational goals implied.

After all, students surely learn more than we teach. Along with our explicit messages – the focused questions, the concepts we're developing, the analytical tools we're practising – we're also communicating attitudes and values. We don't have to spell out *everything*. By choosing materials and focusing examples with a bit of resonance, we can teach indirectly, giving support to both TOK and the broader IB.

I've come across a few resources recently that I'd like to share with you. Both of the first two following come from the same source. Are you familiar with Aeon? If not, you might want to bookmark the magazine online since so many of its articles are likely to interest TOK teachers.

For TOK language

First, I really liked this 8-minute video, which takes us right into a third grade classroom for deaf and hard-of-hearing children: A View from the Window" by US director Chris Filippone and the Iranian director Azar Kafaei. It doesn't present issues. It doesn't do any analysis. It simply shows the children in class and at play, doing what children do.

In treating language as a way of knowing in TOK, I think it's useful to emphasize the concept of symbolic abstraction from the world by including signed language. Since most students I've taught have had little exposure to seeing signed language in action, I'd use this video just as opening background – to give a human context to the topic, and a sympathetic one.

For indigenous knowledge

I linked in my last post to some analytical treatments of indigenous perspectives. But I like this 4-minute video from the National Film Board of Canada, presented on Aeon, for a completely different approach – simply as an introduction to indigenous people, whose knowledge can't be discussed in a vacuum. It's called "Mobilize", by Caroline Monnet. Aeon describes it as "frenetic" – and it really does speed along. It has a really good sound track, too, from an Inuk artist.

I'll add here a post I did a couple of years ago on engaging students imaginatively and emotionally in the indigenous experience, and on giving them a sense of people and faces: "The human beings behind knowledge: some resources for Indigenous Knowledge". January 25, 2016.

For appreciating and enjoying knowledge – with an "oooo" and an "aaaaa"

I like moments in class of sharing some sense of delight or amazement in the human achievement of knowledge. I'll pick out two posts I've done in the past that encourage more passive pleasure in the embedded videos than active analysis of them, but still, I think, give support to the "love of learning" referred to in the IB learner profile.

- "Newest technology + oldest subject matter = new knowledge (and it's amazing)". February 3, 2015. https://educationblog.oup.com/theory-of-knowledge/newest-technology-oldest-subject-matter-new-knowledge-and-its-amazing. The video in this post gives a very gentle approach to its astronomical subject matter and, while it would be possible to pull out several knowledge questions, I'd be content to use its 3 ½ minutes in class just to share an appreciative moment.
- "A TOK class for exam month: mathematics, nature, art, technology…and peaceful contemplation of beauty." May 14, 2018. https://educationblog.oup.com/theory-of-knowledge/a-tok-class-for-exam-month-mathematics-nature-art-technologyand-peaceful-contemplation-of-beauty This one has explicit TOK content in its treatment of mathematics, but I recommend using primarily for a "soft" class of gentle reflection.

The "side-effect" of these resources, in my mind, is an implicit affirmation of what I take as a basic tenet of our course, that knowledge is fascinating and valuable. I'm not sure that this is spelled out anywhere. I'm not sure it has to be.

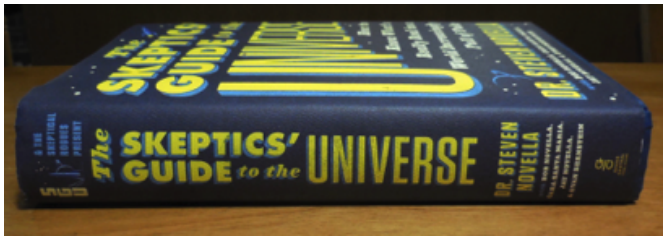
RESOURCES

Chris Filippone and Azar Kafaei, "A View from the Window." https://vimeo.com/285359780

Caroline Monnet, "Mobilize". National Film Board of Canada. https://vimeo.com/256666978

November 19, 2018

TOK Book Review: The Skeptics' Guide to the Universe: How to Know What's Really Real in a World Increasingly Full of Fake



Published just last month, this book stands out as an excellent resource on critical thinking for teachers of Theory of Knowledge. Do you already know neurologist and science educator Steven Novella? You may, like me, already be a fan of his keen analysis, clarity, and skill of combining vast knowledge with a light touch. He's now pulled together threads of critical commentary into a book I recommend most highly: ***The Skeptics' Guide to the Universe: How to Know What's Really Real in a World Increasingly Full of Fake.***

What does Dr. Novella mean by "skeptic"? In applying "skepticism", Dr.Novella presents an ideal of examining evidence critically, with an open mind and awareness of one's own fallibility, and with the goal of drawing the best-grounded conclusions possible at any given time. He is a scientist himself, an academic clinical neurologist at Yale University and both founder and Executive Editor of Science-Based Medicine. His NeuroLogica blog and Skeptics' Guide podcast discuss and model critical thinking.

Dr. Novella clearly gives support to our own educational aims in Theory of Knowledge. In his podcast, blog, and now his book, he treats topics that are essential to understand for teaching our course well.

Among the initial parts of "Section I: Core Concepts Every Skeptic Should Know" he includes the following topics, among others, under **"Metacognition"::**

- Memory Fallibility and False Memory Syndrome
- Fallibility of Perception
- Pareidolia
- Motivated Reasoning
- Arguments and Logical Fallacies
- Cognitive Biases and Heuristics
- Confirmation Bias
- Data Mining
- Coincidence

In the section **"Science and Pseudoscience"**, the book treats ten topics, among them being:

- Pseudoscience and the Demarcation Problem
- Denialism
- *P*-Hacking and Other Research Foibles
- Placebo Effects
- Anecdote

Other sections strikingly relevant to TOK are **"Skepticism and the Media"** and, in providing stories of scientific failures, **"Iconic Cautionary Tales from History"**.

But does Novella, with his co-authors, really give us a guide to the entire universe, as the extravagant title suggests? The title and retro look of the cover of his book, with the opening allusions to Douglas Adams *(Hitchhiker's Guide to the Galaxy)*, give a humorous entry to a serious subject that does range far – but stays within our world! Throughout, the book is wholly accessible. The chapter divisions and headings make it appealing to open at many points, so that it's possible to snack on short chapters. The writing is very clear, often even breezy. One of the captivating features, too, is the use of examples and real-life stories to illustrate points: the general ideas, interesting in themselves, gain an additional impetus to make us want to keep turning the page.

Finally, the conclusion of the book is worth taking to heart.

> "Remember, all the cognitive biases, flaws in memory and perception, heuristics, motivated reasoning, the Dunning-Kruger effect – it all applies to you, not just other people. Really let that sink in. These concepts are not weapons to attack other people and make yourself feel superior, they're the tools you need to minimize the bias, error, and nonsense clogging up your own brain." (p. 411)

He recommends being humble, nurturing, and courageous when interacting with other people and their views, and gives advice on creating positive exchanges, even in the often-harsh context of social media. As Novella places critical thinking within communication that aims for civility and understanding, I am won over completely. I was already a fan when I started reading the book, but I'm even more so as I lay it aside.

The dust jacket blurb directs the book toward an audience interested in navigating a world full of misinformation – and yes, I'll certainly be giving this book as a gift to interested friends. However, I think the book's ideal readers are teachers of the International Baccalaureate, especially those of us teaching Theory of Knowledge.

REFERENCE

Steven Novella with Bob Novella, Cara Santa Maria, Jay Novella, and Evan Bernstein. *The Skeptics' Guide to the Universe: How to Know What's Really Real in a World Increasingly Full of Fake.* Grand Central Publishing, New York, 2018.

December 3, 2018

Facts and feelings: knowing better by knowing ourselves

FACTS and **FEELINGS**: from what I read in today's paper, there seems to be little public will to distinguish between these two when firmly asserting knowledge claims. And from what I hear in science-based podcasts, our biased brains make it hard to do so even when we try. As Theory of Knowledge teachers, aiming for thinking critically and appreciating what it takes to *know*, we're tackling no lightweight project! We might seriously welcome resources that give us support. So today I'm recommending two I consider to be entertaining and helpful – a totally delightful book named *Factfulness* and a short video on why we can be so convinced we're right.

Factfulness: Hans Rosling

No surprise here! The first resource absolutely has to be the 2018 book by Hans Rosling, with Ola Rosling and Anna Rosling Rönnlund. He was working on this book up to his death in February 2017, even taking the manuscript into the hospital in his last days. Ola and Anna, family and co-authors, then took the book to its publication. Surely its full title is one that will prompt any teacher of Theory of Knowledge to snatch it up: ***Factfulness: Ten Reasons We're Wrong About the World – and Why Things Are Better Than You Think.***

You've almost certainly met Hans Rosling already – the Swedish professor of international health who made statistics comprehensible, visually, to an audience worldwide. He was an educator who argued that our beliefs about the world should be grounded in facts (data!), and reached an audience of millions as a compelling speaker and through the Gapminder Foundation. You may want to click back to the tribute I wrote on his death to this thinker I so admire: Thank you, Hans Rosling: numbers, facts, and the world.

> **"Just as I have urged you to look behind the statistics at the individual stories, I also urge you to look behind the individual stories at the statistics. The world cannot be understood without numbers. And it cannot be understood with numbers alone." Hans Rosling (128)**

The book, though, isn't just about **facts** – or our woeful ignorance of them. It's more relevant to our TOK course because it's also about the biases of our brains and habits of our minds that can stand in the way of evaluating information clearly. Rosling calls these "instincts" for how deeply entrenched they seem to be. Although I wouldn't use the term "instincts" myself, the ten he identifies give a very good entry into becoming aware and thinking more critically.

I'll spoil nothing for readers if I outline here, oh-so-briefly, the "ten reasons" of the title. They will show you why the book is so relevant to TOK. *But that's all.* An outline like this one leaves for your *own* reading the qualities that make it a pleasure to read: the stories taken from many parts of the world, the nuances of the discussion, and the inspiration to learn more, and *better*, about the world.

1. **the gap instinct:** We tend to think in polarities, dividing the world into rich and poor, developed and developing – and simplified thinking is reinforced by dramatic stories and ignorance. When distribution and averages are understood, with awareness of how comparisons are drawn, the data demonstrate spreads and gradations, not distinct groups with gaps between them. *For TOK? Understanding statistics, but also biased assumptions.*
2. **the negativity instinct:** We have an instinct "to notice the bad more than the good. There are three things going on here: the misremembering of the past; selective reporting by journalists and activists; and the feeling that as long as things are bad it's heartless to say they are getting better." (65). *For TOK? Understanding selection and emphasis in representing the world, as in the media.*

3. **the straight-line instinct:** We tend to think in straight lines as we project a present rate into the future, neglecting other possibilities such as doubling (as in an epidemic), S-bends as a situation rises then plateaus, humps as a high point is passed, or curving slides as the rate drops. We thereby distort our predictions. *For TOK? Recognizing assumptions, visualizing statistics.*
4. **the fear instinct:** Frightening things get our attention in our own lives and the media, but they are not necessarily the most dangerous in posing risk. "Our natural fears of violence, captivity, and contamination make us systematically overestimate these risks." *For TOK? Attention filters on sense perception, influence of intuition and emotion on reasoning.*
5. **the size instinct:** A single number can seem impressive, but can be misleading unless it is compared with some other relevant number (e.g. other places, other times) or divided by it (e.g. per person) to see things in proportion. *For TOK? Numbers and the world/statistics, perspectives and argument.*
6. **the generalization instinct:** "The gap instinct divides the world into 'us' and 'them', and the generalization instinct makes 'us' think of 'them' as all the same." We need to question our categories: look for differences within groups; look for similarities and differences across groups; beware of "the majority" and the huge range the term encompasses. (165). *For TOK? Excellent treatment of the pitfalls in generalizing, in inductive reasoning.*
7. **the destiny instinct:** Slow change is not no change. "Cultures, nations, religions, and people are not rocks. They are in constant transformation." (170). Africa is not "destined" to be poor nor Europe rich! We need to keep track of gradual improvements, update our knowledge, and recognize cultural change. *For TOK? Excellent treatment of the assumptions and biases built into perspectives on the world.*
8. **the single perspective instinct:** It is better to look at problems from different perspectives to understand and find solutions. *For TOK? Central to our course: the influence of perspectives on what we claim to know.*
9. **the blame instinct:** We tend to simplify causes by blaming individuals, groups, experts, media. We should look for causes, not villains, and look for systems of interacting causes, not individuals. *For TOK? Complexities in the search for causes and explanations.*
10. **the urgency instinct:** "Data must be used to tell the truth, not to call to action, no matter how noble the intentions…. Urgency is one of the worst distorters of our worldview." (236). We should take a breath, insist on the data, beware of fortune-tellers, and be wary of dramatic action. *For TOK? The influence of emotion on reaching conclusions, the importance of reason.*

    "I don't tell you not to worry. I tell you to worry about the right things….. Be less stressed by the imaginary problems of an overdramatic world, and more alert to the real problems and how to solve them." Hans Rosling (241)

Ultimately, what I love about Hans Rosling's book is its insistence on the importance of ***learning*** – resisting our human biases and continually updating with facts our understanding of the world. This is also what makes it a perfect book for a teacher of IB Theory of Knowledge. It reinforces our aims as we teach our course, and does so with captivating stories of the world and reflections upon a more hopeful version of it than we usually encounter.

And I'll just add that my own hardcover copy of *Factfulness* is special to me for a personal reason. It was a gift to me on a recent significant birthday from dear friends, who clearly know me well.

Facts and Feelings: Motivated Reasoning

The second resource I recommend is smaller, lighter, and narrower in focus than Hans Rosling's book: it's already packaged into an 11-minute video for class delivery at a level suitable for Theory of Knowledge students, and it's free. Yet what these two resources have in common is a treatment of **facts** and f**eelings,** and the need to be aware of both in order to think critically.

The video is a TED talk by Julia Galef, host of the Rationally Speaking podcast. In it, she treats **motivated reasoning** in a way that's instantly accessible to students. She uses a metaphor (soldier mindset vs scout mindset) to establish her contrasts and a story (the Dreyfus affair in France over 100 years ago) to illustrate them. She is arguing for becoming more aware of our own motivations and responses in order to make better judgments. What I find most interesting,

though, is that she argues not for more logic and analysis but instead for an *emotional shift* – a shift away from feeling defensive or tribal (soldier mindset) and toward *feeling the value* of being curious, open, and personally grounded enough to be willing to be wrong (scout mindset). Recognizing ***facts*** thus depends on recognizing ***feelings***.

The video makes a good introduction to basic biases in evaluating evidence – those facts of the world that Rosling vigorously defends with data. Galef focuses on motivated reasoning, but it would be easy in TOK to expand a little more on her presentation to recognize at least three intersecting biases. In my mind, they really cluster together.

1. **motivated reasoning:** As she explains, we seek and interpret evidence in a way that supports our fears or desires, and we are motivated to endorse claims that reinforce what we want. If information we're given contradicts our beliefs, we experience uncomfortable "cognitive dissonance", a sense of friction or conflict. We can resolve the conflict by changing our beliefs or by rejecting the information that contradicts them – but are inclined to discard the information regardless of how well grounded it may be. If we hold a belief with an emotional investment, we want to defend it and shoot down the enemy belief, position, or ideology that is in conflict with our own.
2. **confirmation bias:** Galef does not treat the closely related cognitive bias known as confirmation bias, which inclines us to notice and accept evidence that supports our beliefs and not notice evidence that does not. Confirmation bias works more unconsciously than motivated reasoning, more like a filter constantly screening what we see or recognize. We notice primarily what fits our expectations – and thereby have our assumptions and prejudices confirmed.

If we have our beliefs continuously confirmed by our cognitive biases, and if emotional investment in them gives us motivation to reject counter-evidence and differing views, then we really do have problems when it comes to thinking critically! But let me add just one more difficulty, equally part of being human.

3. **fundamental attribution bias:** It's not always easy to see from other people's points of view, and maybe we don't even want to try if the point of view opposes our own. This cognitive bias is our tendency to *attribute to ourselves* the best of motives and *attribute to our opponents*…well, certainly not the best! Are they just stupid? Or are they deliberately lying? Or are they even conspiring to cover up the truth? How else could they think such a thing that is (from our point of view) so obviously wrong?

Although Julia Galef is dealing only with the first of this trio in this video, you'll readily see why I group them together for a major means of countering them. She urges us to try to be open and curious – not to block out opposing views, and certainly not to react with defensive hostility. This advice certainly fits what we aim for in TOK as we explore the effect of different perspectives on what we claim to know.

Facts, feelings, and TOK

In selecting these two resources to recommend today, I confess that I'm not thinking *only* of material for planning classes. I'm thinking of the continuing education we need ourselves as teachers, and the encouragement we deserve in this educational task we've taken on. At some moments and in some contexts, it feels particularly challenging to lead students to think critically and understand careful methodologies of building knowledge! Any boost we can get from good resources is welcome! For ourselves rather than just for our students, I'll close with some comments from Hans Rosling – not for the *facts* he gives, but for the *feelings* that frame them.

> "Most important of all, we should be teaching our children humility and curiosity.
>
> "Being humble, here, means being aware of how difficult your instincts can make it to get the facts right. It means being realistic about the extent of your knowledge. It means being happy to say 'I don't know.' It also means, when you do have an opinion, being prepared to change it when you discover new facts. It is quite relaxing being humble, because it means you can stop feeling pressured to

have a view about everything, and stop feeling you must be ready to defend your views all the time.

"Being curious means being open to new information and actively seeking it out. It means embracing facts that don't fit your worldview and trying to understand their implications. It means letting your mistakes trigger curiosity instead of embarrassment. 'How on earth could I be so wrong about that fact? What can I learn from that mistake? Those people are not stupid, so why are they using that solution?' It is quite exciting being curious, because it means you are always discovering something interesting." (249)

Humble and open, curious and active in seeking knowledge: this sounds to me a fine recipe for maximum enjoyment in learning and knowing. I think I'll leave Hans Rosling the last word!

RESOURCES

Julia Galef, "Why you think you're right -- even if you're wrong", TED. August 8, 2016. https://www.youtube.com/watch?v=w4RLfVxTGH4

Hans Rosling with Ola Rosling and Anna Rosling Rönnlund, Factfulness: Ten Reasons We're Wrong About the World – and Why Things Are Better Than You Think. Flatiron Books, New York, 2018.

HAPPY NEW YEAR! I leave you here as I retire from blogging and Theory of Knowledge. I wish all TOK teachers as much pleasure in the course as I've found myself.

Eileen