

Knowledge as a Map

Knowledge can take many forms

The Subject guide starts with a metaphor of knowledge as a map (page 16). A map is a simplified picture of some aspect of the world designed to solve a particular problem. We use ordinary maps to find our way on the earth's surface. But taking the metaphor further we could think of the natural sciences as mapping how the material world works, or the human sciences being a map of our human interactions with the world. Maps represent only some aspects of the world – think what it would be like to map every single aspect of the world perfectly accurately (the Argentinian writer Jorge Luis Borges explores the absurdity of this idea in his short story *Of Exactitude in Science* in the collection *A Universal History of Infamy* p.131). The power of maps is precisely this, that they are a simplification so allow us to gain **understanding** of the complexities of the world.

How well a map solves the problem it was designed for depends on a number of factors including how accurately it pictures the world and how appropriately the map is tailored to its task. The London Underground map would not be so useful for navigating the streets of the city above ground even though it is an accurate representation of the topology of the underground rail system it is simply not appropriate for the road system. An underground map from 1912 would not be useful for navigating the present day system, it is an appropriate form of knowledge but not accurate these days. It is more appropriate to talk of the accuracy and appropriateness of the map than its truth. All maps by definition are false in that they are necessarily simplified.

Similarly it makes more sense to speak of knowledge, in a TOK context, as being accurate and appropriate to its task rather than to dwell on its truth. Treating knowledge in this way will allow a greater variety of aspects of human life to receive a TOK treatment than was previously the case. Examples of knowledge that could be discussed in TOK:

- Valency of different chemical elements (map: electron shells)
- Projectile motion (map: Newtonian mechanics)
- Varieties of pea plants (map: model of dominant and recessive genes)
- Distribution of prime numbers (map: Euler and Mersenne's work on primes)
- Inflation in macroeconomics (map: model of long run aggregate supply curve or alternatively the quantity theory of money)
- Causes of the first world war (map: Historical understanding of the complex web of treaties binding the major players before the first world war)
- Aspergers syndrome (map: DSM IV characterization and possible understandings from the biological perspective in psychology)
- Power and effectiveness of Achebe's *Things Fall Apart* (map: textual analysis models or post-colonial literary models)
- Effectiveness of Mozart's *Requiem* (map: harmonic and melodic analysis or Schenkerian analysis)
- Effectiveness of Munch *The Scream* (map: composition and palette analysis)
- Knowing whether to lie to a friend to stop save him being hurt (map: moral map)
- Driving to work (map: internalized street map)

- Knowing a friend (map: internalized picture – reading her thoughts – theory of mind)
- Knowing how to make a chocolate cake (map: recipe)
- Playing a jazz piano solo (map: internalized harmonic, melodic and rhythmic systems)
- Playing in a hockey match (map: internalized reading of the game, learned hockey skills)
- Composing a theme tune for a TV serial (map: internalized understanding of rules of orchestration and the conventions adopted by TV music)
- Trying to find the car keys (map: internalized map of recent past)

While this map metaphor works better in some cases than others the main idea is that knowledge is some sort of simplified representation of some aspects of reality designed to do real work, that accuracy and appropriateness are important aspects of knowledge and that different tasks might require different types of knowledge.

We can make a distinction between shared and personal knowledge

The subject Guide makes a broad distinction between personal and shared knowledge (page 17). These correspond to the forms of the verb 'to know'. Personal knowledge corresponds to 'I know' while shared knowledge corresponds to 'we know'. TOK is concerned with both types although more attention might be usefully given to shared knowledge since this type predominates in the IB Diploma programme.

Shared Knowledge

Shared knowledge is assembled by a group of people. Most of the subject disciplines studied in the diploma programme are good examples of shared knowledge. Here are some more examples:

- Chemistry is shared knowledge. It is a vast discipline built up over the last few centuries by a large number of people working together. Individual chemists can contribute to this knowledge base by performing experiments (although these days the experiments are usually too complex to be undertaken by individuals). The results of this research is then written in the form of research papers and presented to peers to review. If there is enough corroboration of the results according to standards set by the Chemistry community they are accepted and become part of the corpus of Chemistry knowledge. This knowledge is passed on through technical articles written in specialist Chemistry journals.
- Information technology is also shared knowledge. The Subject Guide mentions how it is almost certainly impossible for a single individual to know how to construct a computer from scratch (page 17). The task of building and delivering a computer to your home is a group effort involving literally thousands of people cooperating worldwide. It draws heavily upon the lessons of the past. Knowledge about building computers is being refined continuously based on learning from past experience. This past experience is carefully documented in the relevant academic fields: electronic engineering, materials science, software design and so on.