

How to think critically: some TOK skills

We hope you will learn better how to:

- recognize different perspectives and analyse them, first to understand them, and then to evaluate their claims to knowledge. This skill gives a better understanding of debates in academic and public spheres and prepares you to deal with conflicting ideas.
- classify and compare concepts: to draw distinctions and see ideas in relationship. This skill illuminates how categories and terminology affect academic discussion or social and political debate.
- identify common errors of thinking, so that you can avoid making them yourself and prevent being misled by poor arguments. This skill is immediately applicable to everyday life. It also highlights why different areas of knowledge take care to develop their methodologies.
- distinguish between different types of knowledge claims in the world around you and generate good knowledge questions. These skills are basic to any critical inquiry.

- evaluate different sources of information for their perspectives, credibility, and contribution to knowledge and understanding. This skill is important for doing research, reading media, or accepting advice in any area of life.
- make broad connections between ways of knowing, areas of knowledge, and knowledge as a whole. This skill is an unusual one for a course to teach, since most courses specialize. Whatever you choose to do in your studies and your life, you benefit from a more holistic overview.

All of the thinking skills listed above are applicable to academic disciplines and almost all parts of life. They work together for one final, much broader application, which is how to:

- apply critical thinking to situations or events in the world to understand them better and see where you can make a positive contribution.

understood to be there even if it is not spelled out when you make an assertion.

Of the twenty statements that we shuffled into groups earlier, many of them are in this category. They have in common the essential features of a knowledge claim:

1. First, the knowledge claim is expressed in language. Gestures, photographs, music – all of these communicate between people. However, with language (or mathematical statements) we move our ideas into a more public zone to share them with other people in words, terms with definitions. We are entering the zone of exchange between personal and shared knowledge.
2. Second, the knowledge claim above regarding Spain's victory at the World Cup is phrased as a statement, It is not a question: it's not "Who won the World Cup in 2010?" It is not an exclamation: it's not "What a triumph for Spain in the 2010 World Cup!" It is an assertion: "(I know that) Spain won the World Cup in 2010."

3. Third, the knowledge claim is presented as being true, even if it is highly questionable or turns out to be false. "South Africa won the 2010 World Cup", though false, is still a knowledge claim.
4. Fourth, knowledge claims are not solely information or factual statements. They include any assertions that are being presented as true, including opinions and beliefs of all kinds. If someone or some group is saying that they know, then they are making a knowledge claim.

A glance at the knowledge claims that figure among our original twenty statements, though, certainly raises a lot more questions. They do indeed have these features in common, but you might be more struck by their differences.

Kinds of knowledge claims

How, then, are we going to group the knowledge claims made by each of these twenty statements? We want to recognize differences that actually matter in knowledge and that take us somewhere

in our future thought. Below are the categories we created ourselves, but others are surely possible.

I know that I am wearing a blue shirt and holding a cup of hot coffee.

Statements of personal observation

are assertions of what we know through our senses – what we see and hear, for instance. Observational statements can be checked. You can look again to see

the colour of your shirt or ask someone else to confirm. “Yes, it’s blue!” “It’s a fact.”

As we will discuss later, saying, “It’s a fact!” or “It’s true!” may be a bit more complicated than it first appears.

I know that empanadas are delicious.

I know that my girlfriend Maria is very, very beautiful.

To say that something is delicious or someone is beautiful is a **statement of values, or a value judgment.**

Whether something is virtuous or evil, important or trivial, hot or cold,

interesting or boring is a matter of the values of the onlooker(s). The scale is qualitative and subjective. “It’s hot today” is a value judgment; someone in the Caribbean is likely to have a different “scale” for what is hot from someone in Iceland. Even if hundreds of people agree that it is a hot day, it is still a value judgment. Value judgments are opinions that cannot be proved true or false, even though in many cases we can put forward persuasive reasons for agreeing or disagreeing.

Some value judgments can move from opinion to fact if the scale of judgment changes to one that is quantifiable and objective. “The temperature is 42 degrees Celsius (106.6 degrees Fahrenheit)”: this is a statement of observation of the reading on the thermometer, using an established scale of measurement.

These next three statements are also **statements of observation**, but

not the personal observation of the speaker.

They are shared knowledge based on observations made by others – many others – and

then on the records they

made and passed on. They are statements of fact, though the three statements have different sorts of facts.

I know that atoms have protons and electrons.

I know that Spain won the FIFA World Cup in 2010.

I know that Argentina was discovered by a Spanish explorer in the early sixteenth century.

These next three statements are *based* on statements of observation.

They are not themselves

observations, but take

general patterns established

through observation and reasoning

and extrapolate from

them. The first two are **predictions**: they

apply observations of the past to the future, in expectation that regular patterns observed over time will continue.

I know that tomorrow morning the sun will rise.

I know that I'm going to die someday.

I know that if I tease my sister her cheeks will turn red.

The third is a general **hypothetical statement**: it is based on past observation and places two actions in a causal relationship. If one happens then so does the other. Do you think that this particular “if/then” relationship is likely to stay constant over time? Will the Argentinian lad be able to get away with pestering his sister forever? What will it take to prove this statement false?

An assertion of spiritual belief is a

metaphysical statement – a statement about the nature of reality beyond the material world, such as claims about the nature of time, the soul, or God. These claims differ from observational claims in that

they cannot be tested with sense perception and

I know that God created the world.

Discussion Activity

Playing with knowledge claims

1 Claims and categories

Cut a piece of paper into six pieces. On each one write one knowledge claim, without identifying its category. Make sure you have at least three categories covered, with duplications permitted. The categories are: statement of observation, value judgment, prediction, hypothetical statement, metaphysical statement, and definition.

Then work in pairs within a group of four. Pairing up with a classmate, exchange papers. Identify the category of your partner's claims while he or she does the same to yours. Check the results with your partner. If you do not agree, wait until the other pair has finished and submit your disagreement to them for further judgment.

Be warned that we often phrase our knowledge claims as a blend of these categories and that words can often be understood in different ways, so that some disagreement is to be expected. The conclusion you reach is less important than identifying the reasons for categorizing as you do, and the difficulties in doing so.

2 Cards and categories

Divide your class into groups of three to five people, each with a pack of cards. In your group, place the cards face down and take turns pulling out a card. If you pull a spade, you must give a definition, if a club an observational claim, if a heart a value judgment, and if a diamond a metaphysical claim. If others think that you have given a claim that is not an example of the category pulled, they must help you to reformulate it until it is. Do two quick rounds.

demonstrated to others. We cannot do the God lab: we cannot use litmus paper or a chemical reaction to demonstrate the existence and characteristics of a Supreme Being. We cannot weigh the soul or calculate the trajectory of reincarnation. The very absurdity of the idea underlines the nature of these claims: they are "meta" – meaning "beyond" – the physical.

This statement about a right triangle is a **definition**, which places ideas in relationship with each other using language. The 90° angle is the characteristic that makes the triangle a right triangle. It is not a statement of observation – even though every right triangle you observe will have a 90° angle. But then, how could it possibly not have one? If it didn't, it wouldn't be a right triangle.

Clearly, what we know is expressed in a huge variety of knowledge statements from all of our areas of knowledge and all other areas of our lives.

The public nature of a claim allows it to be questioned, tested, supported, refuted, or reformulated. It allows it to be published and archived, and used by others in their own work. Individual claims feed into whole bodies of

interconnected claims, and enable us to develop together our shared knowledge.

Knowledge questions

Inquiry is the very life of knowledge. Without our curiosity and questioning, our wondering and dreaming, we would have little knowledge at all. Without creatively imagining other ways of expressing, doing and making things which question what we already have, how could we generate our works of art, attempt to run our societies better, improve our methods of investigation, or invent technology? Without trying to figure things out – examining them and testing our ideas in pursuit of truth – we would not have the understanding of the world that we possess or the methodologies for learning more.

In aiming that its students be inquirers, the IB is wishing them a fine life, with active minds and the pleasures of chasing interesting ideas: "They develop their natural curiosity. They acquire the skills necessary to conduct inquiry and research and show independence in learning. They actively enjoy learning and this love of learning will be sustained throughout their lives." What a life-enriching wish for your future!



When we direct our spirit of inquiry towards the very idea of what we know, we end up asking the most fundamentally structural questions of all: *knowledge questions*. These are questions about knowledge itself and the methods by which we create it. In TOK, we ask questions centrally about “ways of knowing” and the methods by which they yield personal and shared knowledge.

These questions do not come with answers already implied. Instead, they are *open*. They invite different ways of exploring the ideas they raise and different lines of investigation and argument in posing possible answers. They do not come with their answers implied, but open up varying perspectives.

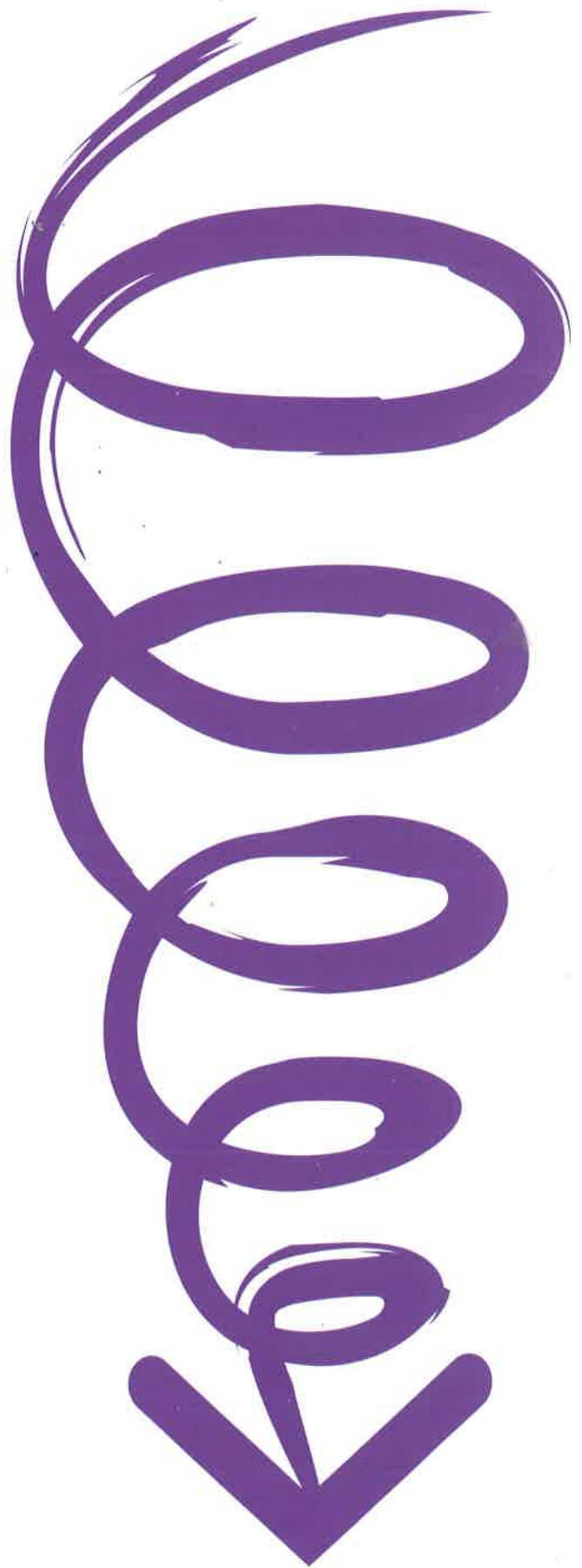
Knowledge questions are *general*. They are broad questions that can apply to many particular examples of knowledge. They deal with concepts, methods, or applications, for example. Their degree of broad generality can vary, with the overall question “How do I know?” taking on more focused forms as it is applied to knowledge of different kinds.

For the degree of generality of knowledge questions, it might be helpful to think of shifting slowly from the wide angle lens of a camera to the zoom lens, from general overview of knowledge to close-up detail. It might also be helpful to think in terms of circling out of the sky down to the earth, moving from vast overview towards more specific examination of particular knowledge. We will demonstrate with the example of moving in on knowledge in the human science of anthropology, from broad knowledge questions to narrower ones.

Knowledge questions, broad to narrow

Overview Circling 1. How do I know? This hugely general knowledge question floats above all of the other questions we apply in TOK at much lower levels of generality and abstraction.

Circling 2. Still in overview, the high-in-the-sky questioning starts to circle closer to earth as we apply it to areas of knowledge. Although still broad, the questions become narrower in their focus. They deal with the scope and application of the particular area of knowledge, perhaps, or its methodology. Typical questions at this level might include: What do we seek to know in the sciences? How do we gain the knowledge? How do we test it? Why do we accept or reject scientific knowledge claims? What do we mean by “uncertainty” in science? Are there ways of investigating that, ethically, we should not use?



In TOK, we use a “knowledge framework” to identify both our overview questions that apply to *all* areas of knowledge and the somewhat zoomed-closer questions that apply to *particular* areas of knowledge.

Circling 3. These questions, although high in the sky, begin to loop closer to earth with application to particular areas, where the differences emerge as well as the similarities. For example, we might ask: How do we know in the human sciences as compared with the natural sciences? How does the methodology change as the subject matter changes – as we investigate human beings rather than the natural world?

Circling 4. Then, spiraling earthward and moving closer to the details of knowledge, we can ask close-up questions of more particular disciplines within the human sciences, such as: How do we know in anthropology as compared with economics? How does the specific subject matter affect the methods of investigation that are possible or appropriate?

Circling 5. Looping lower, moving earthward, we can ask increasingly detailed questions about more particular theories and methods of investigation of anthropology: what characterizes the method of participant observation? What are its goals and advantages in gaining knowledge? What difficulties must be overcome?

A dizzying trip from general overview to particular subject! We have circled over knowledge as a whole, moved in on the sciences, then in on the human sciences, then in on anthropology, and then in on its internal methods of gaining knowledge.

Circling 6. Stop. When we come almost to earth with the method of participant observation, we are into the subject matter of anthropology. Here we stop. Here we turn over the questioning to the anthropologists. They ask questions with considerable overlap with TOK – overlapping at least from the point where their own field started to come into view in our spiraling descent. However, as they build and examine knowledge in their own area they give attention not only to the characteristics of anthropology as knowledge, but also to the actual knowledge *content* – the specific knowledge claims of the field and the specific research that supports them. Meanwhile, we in TOK leave the further up-close exploration in their capable hands! The knowledge content of any one subject remains relevant for TOK primarily for

providing illustration and examples of how the whole process of knowing works.

Knowledge questions, narrow to broad

To get used to circling widely in the sky with TOK, you might want to start close to the ground instead and move upward, moving from particular examples to more general questions. To do so, you can take any knowledge claim that catches your curiosity and start thinking about all the different features of its knowledge. As examples here, we'll take three of our familiar twenty statements.

CLOSE-UP QUESTIONS:

What evidence or other justification (reasons for belief) is available for the date of discovery? How do we know this discovery even happened?

BROADER

QUESTIONS: From whose perspective was Argentina “discovered”?

Was anyone already there who might have a different perspective?

BROADEST QUESTIONS: How do perspectives influence interpretations in history?

What is the nature of evidence in history? How do we know what happened in the past?

Further knowledge questions arise when we start to look at the *assumptions* behind the claim. First, we see assumptions embedded in the perspective that Argentina was “discovered”, as if no one had known before that it was there. Second, we can recognize the perspective of the speaker as he looks back into the past. In naming the discovered land “Argentina”, he is thinking in terms of a country that only later came into being.

It is possible to trace further *assumptions* behind the wording: the way we measure time in centuries, for instance, involves a way of numbering that is assumed to be known in the knowledge claim; the way we name countries “Spain” or “Argentina” is also assumed. In some contexts, our naming and numbering systems would be relevant to examine, so it is a matter of judgment to select what questions are worth asking at a given time.



I know that Argentina was discovered by a Spanish explorer in the early sixteenth century.

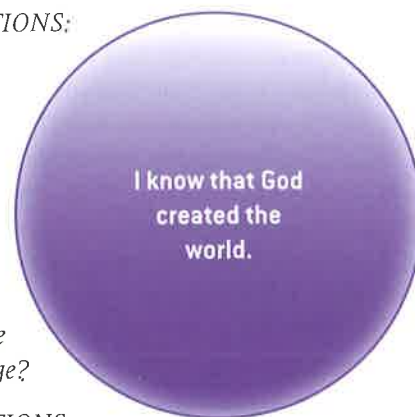


Further knowledge questions arise with the *implications* of this particular knowledge claim. The implications of a knowledge claim are what follows from accepting it. If we accept a certain claim, what else do we open the door to accepting? Claiming a date of discovery, for instance, is one way of establishing ownership of land (and, in research, of ideas). In the case of this particular knowledge claim, its role in possessing and colonizing the New World is immensely significant. Although it is possible to understand all the *words* in this knowledge claim with no familiarity whatsoever with the history of South America,

it would be hard to understand its full *meaning* without an idea of the implications for that history.

CLOSE-UP QUESTIONS:

What justifications (reasons for belief) can be put forward for knowledge of an invisible supernatural being? Is this knowledge claim personal knowledge or shared knowledge?



BROADER QUESTIONS:

What justifications can be given for metaphysical knowledge claims? Can such knowledge claims be tested? What is the role of definition in examining knowledge claims? What is faith, and what is its role in the acceptance or rejection of knowledge claims?

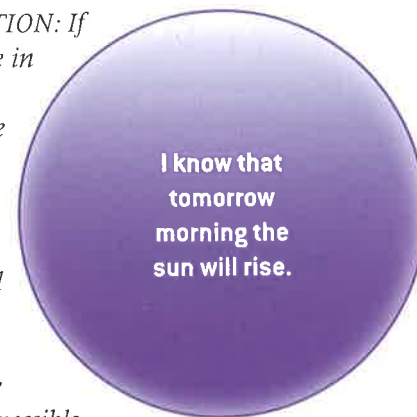
BROADEST QUESTION: *What is the difference between knowledge and belief?*

As in the previous example from history, this one can hardly be grasped without raising further questions about the *assumptions* that lie behind it and the *implications* that follow from accepting it. In many parts of our lives, our individual knowledge claims are set within bodies of interconnected knowledge claims that collectively reinforce each other in our minds.

The most obvious *assumption* in this particular case is the existence of God, as it is a prior condition for His creating the world. The *implications* in this particular example are extensive, as they form the basis for an entire religious worldview.

CLOSE-UP QUESTION: *If the sun always rose in the past, can we be sure that it will rise in the future?*

BROADER QUESTIONS: *How much observational evidence do we need to consider a generalization to be well founded? Is it possible for a generalization to be so well*



justified that there is no longer any doubt? If a general pattern has been firmly established in the past, can we predict the future with certainty?

The major *assumption* that lies behind this knowledge claim is perhaps less obvious to us than in the previous two examples simply because it is so broadly shared. We observe numerous regular patterns in the world, and incorporate them into our understanding of how the world around us works. We have good reason to expect that they will continue, because we have so much evidence that they have existed for so long. However, in projecting into the future we are still making an assumption – that these patterns will not change.

The *implications* of accepting this knowledge claim are numerous as we look to the future. We plan our lives in expectation that tomorrow will come, and that the laws of nature will not change overnight. We apply for courses and jobs, plan

weddings, and note appointments in our calendars. We make decisions about present choices in the light of our expectations of the future. We certainly hope that the sun will rise tomorrow!

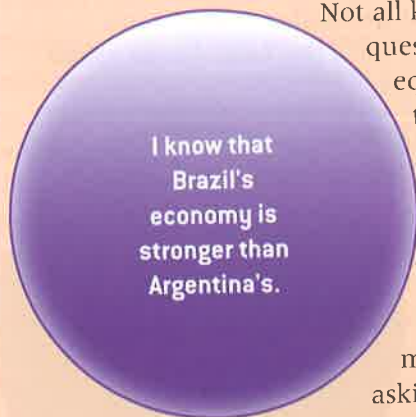
But how do we know if the knowledge claims are true?

How do we know if a claim is true? This knowledge question is daunting and intriguing in the complexities it opens up. The twenty knowledge claims that we have played with in this chapter are very direct and simple. Yet even such simple statements take us into knowledge in such different forms that the question “Is it true?” can take us down a number of paths. They can be tricky underfoot at points, but have been signposted by others who have already ventured this way. They offer, at points, some big smiles and excellent views! Take a break, and then join us for the next chapter!

Discussion Activity

Do it yourself! What knowledge questions will you ask?

What knowledge questions will you ask about each of the knowledge claims below? What broader knowledge questions will you ask about them? Remember that the broadest high-in-the-sky question of all is “How do I know?” but that you don’t have to fly quite that high!



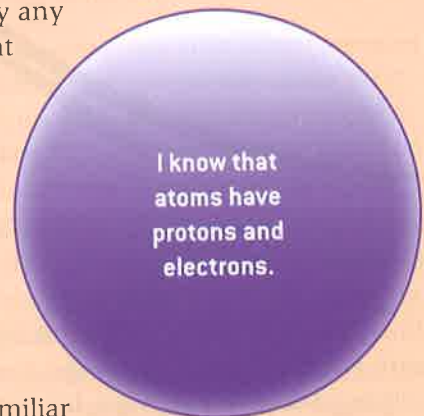
Not all knowledge questions are equally relevant to all examples, so discard ones that do not lead you into an inquiry on the nature of knowledge. You might consider asking about any of the following: how

we interpret the language to determine what is meant by the knowledge claim, how the knowledge is gained, what justifications can

be offered in support, whether it is viewed differently from different perspectives, how it is either confirmed or rejected, whether it seems to be set within a particular perspective, and whether it is recognizably a kind of knowledge that comes with characteristic questions.

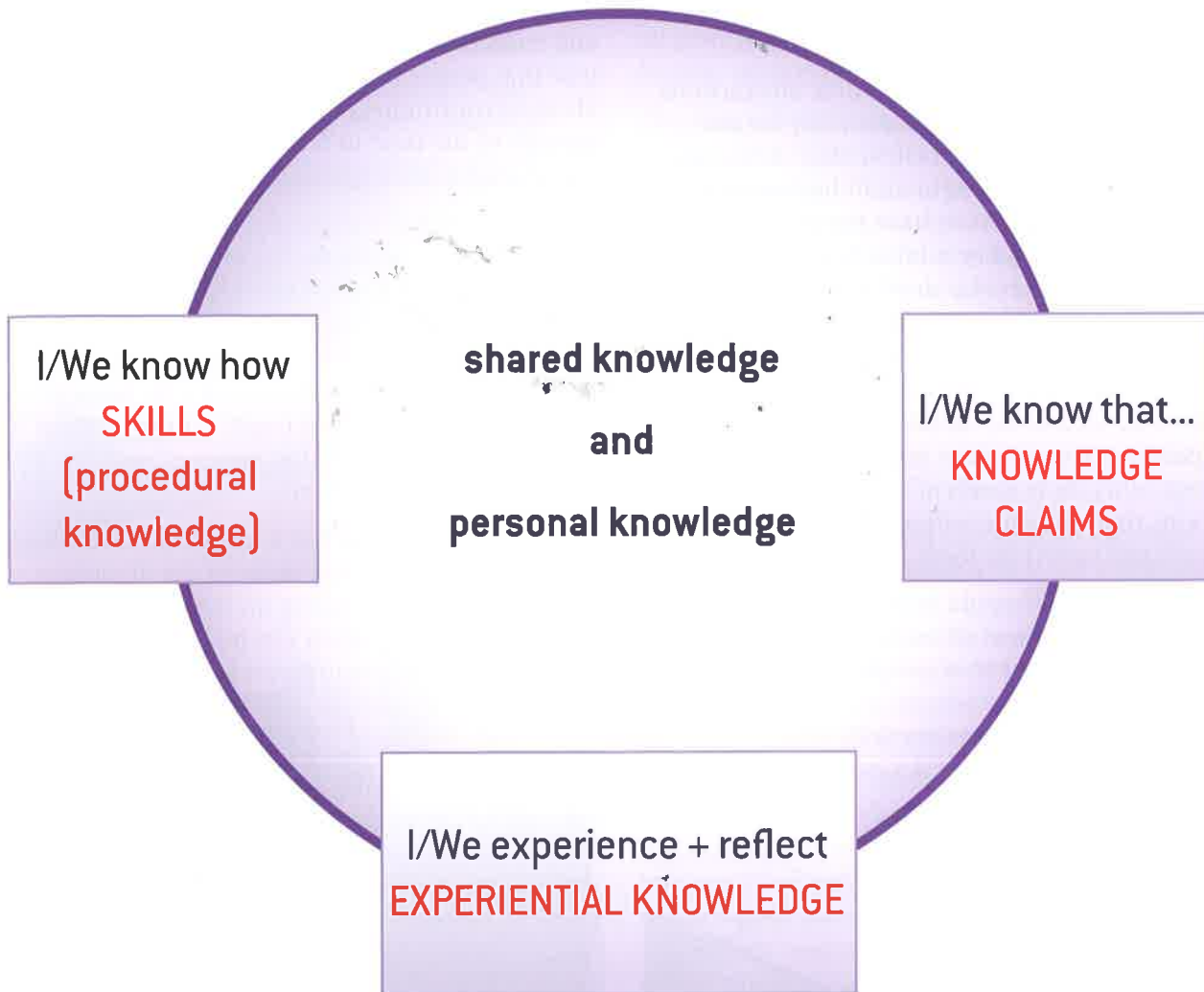
- Can you identify any assumptions that lie behind the knowledge claim? Can you identify any implications that come with accepting it?

The knowledge claims we give you here are familiar to you from your twenty statements. However, you and your classmates might prefer to substitute different ones that you take from the day’s media or your course textbooks.



“How do we know?”

Kinds of knowledge



Naming our concepts and diagramming them in relation to each other help us draw distinctions useful in thinking and talking about knowledge. In reality, however, the three kinds of knowledge represented around the perimeter are interacting constantly, as are our shared knowledge and personal knowledge overall.