

OXFORD IB DIPLOMA PROGRAMME



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THEORY OF KNOWLEDGE

COURSE COMPANION

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OXFORD

2. Gaining Knowledge

There is no such thing as “knowledge” lying around in the world waiting for us to notice it, pick it up, classify it by colour, or to weigh it, measure it, and cut it neatly into slices. Knowledge is not a concrete substance but an abstract concept that we construct ourselves, personally and socially, throughout the whole of our lives. It takes the shape that we give it in all parts of the world, across all memory. Think about it for a moment!

- Imagine yourself to be a warrior riding with Genghis Khan across central Asia in the thirteenth century.
- Imagine yourself to be a contemporary coffee farmer on the slopes of the Andes in Colombia.
- Imagine yourself to be a Christian monk or nun of the ninth century in western Europe.
- Imagine yourself to be an Ethiopian runner in training for competition at the next Olympics.
- Imagine yourself to be an acclaimed musician in northern India playing traditional rāgas.

What might you consider important to know in each of these contexts? How do you think you would gain the knowledge? How much would you be taught by others, and how? And how much would you add of your own?

The vast range of knowledge gained across centuries around the world is staggering, with much of it specific to the context in which it was gained. To a

large extent it is the characteristics of that context that shape what knowledge the people need who live there. And it is the social context that influences, then, what is considered important for the next generation to learn.

Education and knowledge

What should that next generation learn? How should the society direct the thoughts and talents of its children and young adults? An educational system, a method of passing on knowledge in a conscious and planned way, always has goals.

Should the education aim to give children a broad sense of their history, cultural traditions, and place in the world? Or should it aim to teach practical skills relevant to the historical moment in the society, perhaps technological facility and marketing? What balance should be given to valuing tradition and valuing innovation, as the school reflects its surrounding society? What kind of people do different school systems want to develop?

Your IB studies

One of the contributors to your current knowledge is, of course, the International Baccalaureate Organization. As an educational organization with consciously developed goals, it articulates them clearly and publicly. No system of education is

Walking to school: same world, different worlds



Kyoto, Japan



Jabalia, Gaza

Discussion Activity

Education in social context

- To what extent is education in your own part of the world available to all children, as their right? To what age? Is the kind of education or its quality affected by a child's gender, class, or family's economic position? What social factors seem to you to affect education in your society?
- "In addition to their academic goals, national school systems aim to cultivate civic responsibility and pride in heritage." Do you agree with this statement? In what ways might a school encourage its students to take pride in their country or become good citizens of their communities? What is the ideal of the "good citizen" that is fostered in your own school system, and how?
- How would you distinguish between education and indoctrination? Are you aware of any particular examples in history or in the world today of education being strongly influenced by propaganda?

neutral, since all are embedded in a perspective on what is good for students, good for the society, or good for the world. The IB is remarkable, though, in the extent to which it has declared its goals consciously and worked to develop a curriculum to fulfill them:

The International Baccalaureate Organization aims to develop inquiring, knowledgeable, and caring young people who help to create a better and more peaceful world through intercultural understanding and respect.

To this end the organization works with schools, governments, and international organizations to develop challenging programmes of international education and rigorous assessment.

These programmes encourage students across the world to become active, compassionate, and lifelong learners who understand that other people, with their differences, can also be right.¹

This articulation of goals is complemented by the IB learner profile, a copy of which is included in the first pages of this book. It opens with a declaration of the guiding values and goals of the programme, as it introduces the characteristics the IB aims to develop in you.

The aim of all IB programmes is to develop internationally minded people who, recognizing their common humanity and shared guardianship of the planet, help to create a better and more peaceful world.

What fundamental values can you pick out of the mission statement and IB learner profile? Are there recognizable ethical principles? It should be clear that these statements of values are embedded in a perspective on what an ideal education should be. The benefit sought is not only for students but also, through you, for the communities and the world of which you are a part.

In theory of knowledge, we want you to be aware of what you are learning, including the framing values around knowledge you are gaining. We hope that you share the IB goals and even feel inspired by them. We hope too that you will be an active participant, reflective and critical, in your own growing knowledge.

What knowledge are you gaining?

But what is this knowledge that you are gaining through your IB Diploma Programme studies?

It would seem that those things we call "knowledge" do not come all in the same size, colour, and flavour, metaphorically speaking. The word "know" sometimes seems extremely elastic. It stretches to cover kinds of learning that, on reflection, do not seem to have a great deal in common.

We ask you to plunge in now. We ask you to give full attention to an activity that, on the surface, is merely an exercise in sorting – blue goes with blue, orange with orange, and so forth. However, if you look closely, you are likely to find that categorizing is not quite so easy, and maybe that

¹ "Mission and Strategy" International Baccalaureate Organization, <http://www.ibo.org/mission/>, accessed 27 May 2012.

Discussion Activity

Twenty statements: how many kinds of knowledge?

Below are twenty statements. All of them are about knowing. Can you group them, finding features in common that allow them to be sorted into kinds of knowledge that they represent? On looking at them closely, you may discover more than one system of classification that works to cluster similar statements.

To communicate how you have grouped them, use whatever means works best for you – a diagram, a table, a colour code, or another way of your own. You may want to use 20 squares of paper with the statement numbers on them to shuffle into appropriate piles. Be prepared to communicate your system of classification to your classmates.

- 1 I know my closest friends.
- 2 I know how to solve problems between my friends.
- 3 I know that Brazil's economy is stronger than Argentina's.
- 4 I know that God created the world.
- 5 I know my home city of Buenos Aires really well.
- 6 I know that my girlfriend Maria is very, very beautiful.
- 7 I know how to play football, or soccer as some call it.
- 8 I know how to solve problems at my level in mathematics.

- 9 I know this feeling I get when I see Maria, as if the whole world is suddenly coming awake.
- 10 I know that Argentina was discovered by a Spanish explorer in the early sixteenth century.
- 11 I know that Spain won the FIFA World Cup in 2010.
- 12 I know that I cannot fully explain my love of playing football.
- 13 I know that a right triangle has a 90° angle.
- 14 I know that atoms have protons and electrons.
- 15 I know that tomorrow morning the sun will rise.
- 16 I know that I'm going to die someday.
- 17 I know that if I tease my sister her cheeks will turn red.
- 18 I know that empanadas are delicious.
- 19 I know that I am wearing a blue shirt and holding a cup of hot coffee.
- 20 I know when to stop arguing about something.

If you are comparing classification schemes in class, you may discover that classmates have come up with ideas that did not even cross your mind. What criteria did others use for grouping statements? In what ways are their systems similar to yours, or different?

What other languages are spoken within your class group? Do any of these languages use the word “know” in a way that would affect the classification you have done here?

the difficulties are what make it interesting. The activity is “Twenty statements: how many kinds of knowledge?” Please do it before moving on in this chapter.

Categorizing knowledge

Dealing with abstract ideas certainly hands us a challenge. If we do not name our concepts, we cannot speak about them to each other. We even struggle to think about them clearly in our own minds. But when we *do* sort our thoughts and

categorize our concepts in language, what extensive communication we open with each other!

We hope that sorting twenty knowledge statements has not paralysed your mind entirely, and that you were able to think and talk with others about your own thoughts. Doing so has a very practical purpose in laying the groundwork for a lot of good future discussions.

Dealing with those same statements, we are going to offer you categories that we use ourselves, categories that we have found extremely useful.

The first distinction we draw is between personal knowledge and shared knowledge. The second is between different kinds of knowledge. If you and your classmates had other ways of grouping the statement, please do keep a note of them. They will almost certainly prove relevant later on.

First distinction: personal knowledge, shared knowledge

This is our first distinction – between personal knowledge and shared knowledge. All of the twenty statements are personal knowledge because they start “I know...”. We can conclude, at least, that they are personal knowledge for the first person speaker, the “I”. Unless you love playing football and eating empanadas, and come from Buenos Aires, you will have to use a bit of imagination to be able to put yourself in his place.

Some part of his personal knowledge will always remain only his own, unshared: “I know that I can never fully explain,” our footballer says of his own love of playing his sport. His own experience, personally lived, cannot be completely communicated. We might also recognize (or think we recognize) the feeling he gets on seeing his girlfriend: “I know this feeling I get when I see Maria, as if the whole world is suddenly coming awake.” Although we can recognize something common to the human experience and so call it “being in love”, we cannot feel the emotion as he feels it himself.

On the other side of the same coin, even our personal experiences are, to an extent, shared. Although our Argentinian possesses personal knowledge of his friends (Maria, Jorge, Adriana, Carlos, Ignacio) and

his home city (Buenos Aires), most of us also know our friends and home region. And all of us, when not in denial (or members of a strange cult), might also share the recognition of mortality: “I know that some day I will die.” This shared component makes it possible for us to use language meaningfully to communicate with each other and to build our knowledge together of the human experience.

Some of the personal knowledge possessed by our empanada-eating Argentinian, moreover, is more particular knowledge that is shared with plenty of other people. Whose knowledge is it? In the case of empanadas, the knowledge is culturally shared; it extends across South America to include a huge number of families within cultural communities knowing how “delicious” are the empanadas made in their own special way. But the secret is out! This particular form of cultural knowledge has spread around the world to make its welcome entrance into many a community’s meals. Could this be intercultural sharing at its finest?

Some of the other personal knowledge in the twenty statements actually *depends* on being shared. It is possible to imagine just one mother making a particular recipe and one son devouring it, but not just one person playing a team sport. Knowing how to play football depends on agreed rules, teams, and socially organized competitive games. Our Argentinian friend has his knowledge of the ball and the field, yes, but this knowledge is also shared with a considerable proportion of the world’s population. Whose knowledge is it? Think for a moment about all of those football players and their fans, of all those people who are involved worldwide in organizing local matches or the World Cup. Imagine them to be a “community” – a community of people sharing a particular kind of knowledge.

Some of our Argentinian friend’s other knowledge is probably spread even more widely, if you take into account generations in the past: “I know that a right triangle has a 90° angle” or “I know how to solve problems at my level in mathematics.” Who has shared this knowledge? What is the nature of the large and loose “community” that holds this particular kind of knowledge? For almost all of us, we possess conventionalized mathematical knowledge only because it has been taught to us within our educational systems. But the community of knowledge we thereby enter goes back thousands of years.



“I know that empanadas are delicious.” How did you categorize this knowledge claim yourself? Is being delicious a fact? How would you put this statement to the test?

Some knowledge, though, is not taught to us in this way and never reaches us in any other way, either. Millions of people might share it, but we are not in that number. Considering the vast extent of the world's knowledge, we have to accept that we will encounter only a small part of it in all our lives. Most of it lies beyond any possibility that we will ever incorporate it into our personal knowledge and be able to say, "I know....".

The personal meets the shared: the zone of exchange

To think of personal knowledge and shared knowledge as two isolated categories would be to ignore the vitality and creativity that is generated as they meet.

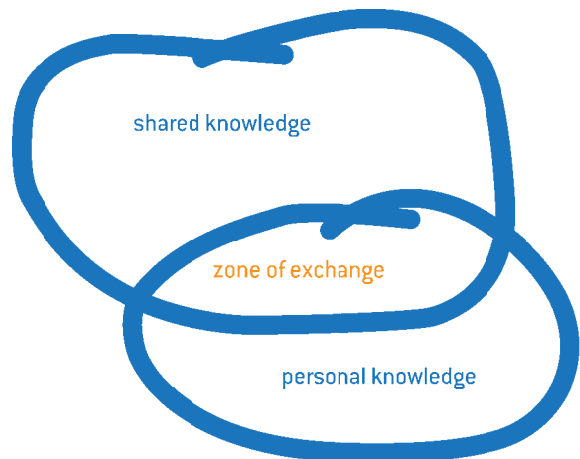
It is *exchange* between the shared and the personal that stimulates questioning and exploration, debate and testing, and active acceptance or rejection. As others give us their knowledge, we do not, if we are active thinkers, simply accept it and passively join those who share it already. We want to understand why this knowledge has persuaded so many other people and why it would be reasonable to accept it ourselves.



Here, in the contact zone between shared knowledge and personal knowledge, we think and question. Why should we believe what others tell us? How do we know it is true? Is there another way of thinking about what we are taught? We wonder and ask questions, consider answers, examine different perspectives, and investigate further. Our own conclusions may end up being the same as those taught to us by parents, community leaders, or textbooks, but in engaging our own minds, we have made the conclusions our own.

But we might not accept the conclusions. Here in the exchange zone, new possibilities are being created. Fresh minds encounter the knowledge shared by different knowledge communities: cultural communities, faith communities, professional communities, recreational communities, generational communities (teenagers, seniors), communities of scientists or historians.

Fresh minds, with their personal ways of thinking, question and engage, and sometimes change forever the knowledge that they were given. Robert Boyle establishing a relationship between the pressure and the volume of a gas, James Joyce adventuring with language, mythology, and popular culture in writing the novel *Ulysses*, or Steve Jobs pushing the limits of computer technology, all drew on shared knowledge in their fields. However, they not only added to it but changed and revitalized it with their contributions. This dynamic interaction between shared and personal knowledge pushes the development of any field.



Discussion Activity

Personal knowledge or shared knowledge?

Please pause here and go back to those twenty statements to try to apply the distinction between personal knowledge and shared knowledge.

Since these categories do not exclude each other, see if you can arrange the statements across a

rough spectrum from the *most* personal to the *most* public and shared.

If you encounter problems, welcome them and discuss them with classmates. What is the nature of the problem? Remember that the purpose of this activity is not to arrive at tidy categories but to explore ways of thinking about knowledge.

Of all the possible classifications and schematizations of those twenty statements, though, why have we chosen this one between personal knowledge and shared knowledge to offer you? Because...it's useful. This distinction helps to focus on the creative process in all areas of knowledge. It also allows us to talk more easily about the ways in which we know, and the methods we use in order to construct our areas of knowledge. Finally, it provides a good way of reflecting on your own personal process of knowing as you recognize IB goals, set your own, and build your own understanding during your education.



1. Experiential knowledge: experience + reflection

Experiential knowledge depends on living in the world, having sensations and emotions, learning language and thinking (we will consider soon the “ways of knowing”, as we call them in TOK). It also involves our capacity to draw from past experiences to shape how we live new experiences. Experiential knowledge, as we are treating it here, has two components that we will try to disentangle: the component of direct experience and the component of reflection.

The component of direct experience includes our own encounters with the natural world, with people, and with all the artifacts and social systems around us that people have made. It is our raw and immediate contact with the things that happen in our lives. It requires our active involvement in doing: other people's descriptions, no matter how good they are, are not the same as actually singing, hiking, working as part of a team, grieving over loss, taking care of children, organizing an event, or feeling love for another person. Being *told about* something does give us knowledge, but *living it ourselves* gives us a different kind of knowledge.

In fact, direct experience itself is often equated with knowledge – a direct personal familiarity. This is individual and personal – it is the most basic form of personal knowledge. Others can share this experience with you by being there with you, but no one else lives it exactly as you do;

Second distinction: three kinds of knowledge

Our second classification of those twenty statements takes a different approach, so push the distinction between personal knowledge and shared knowledge to the back of your mind for the moment. In this second classification, we have divided those statements into three kinds: experiential knowledge (hiking the mountain path), skills (knowing how to use a map and compass), and knowledge claims (knowing that the lines on the map represent contours of the landscape or that the marked trail leads to the summit). They are deeply interconnected and interdependent, but have features of their own that are worth considering. Indeed, it would be difficult to talk about educational goals or critical thinking without this distinction.

your own immediate experience is unique. This lived contact with the world lies behind many of the twenty statements that we have been sorting into categories – the direct experiences of falling in love, watching the sun rise, or eating those delicious empanadas. It comes before them and provides the raw material for being able to say, “I know that empanadas are delicious.”

In this way, personal experience interacts with the other two categories of knowledge that we are considering here. Personal experience helps to develop skill (*knowing how* to do something): experience is crucial if you are to learn how to grow crops and run a farm, how to play the drums, how to work well with other people, or how to be effective professionally. Personal experience also provides understanding that you might formulate into language at some point to make knowledge claims (*knowing that* something is so): you might, for example, tell someone else that maintaining soil fertility requires crop rotation, from the knowledge that you have gained first-hand.

Personal experience especially contributes to your growing personal knowledge if accompanied by reflection. Noticing what you are experiencing and turning it over in your mind adds to the benefit you gain. Reflection involves not simply having

How shall I talk of the sea to the frog?

How shall I talk of the sea to the frog

If it has never left its pond?

How shall I talk of the frost to the bird of the Summerland

If it has never left the land of its birth?

How shall I talk of life with the sage

If he is a prisoner of his doctrine?

Chuang Tze (Zhuangzi) 3rd century BC

What is Chuang Tze suggesting about knowledge and experience?

experiences, but asking yourself what they mean to you and what you can learn from them. It involves being sufficiently aware that you are not simply receiving impressions, but instead guiding your own interpretations and responses.

With reflection, even experiences that were themselves distressing or hurtful can enrich your growing knowledge of yourself, your own capacities, and the world around you. “Why didn’t

Voices

Personal knowledge

Naja describes fruitlessly trying to convey to others, across a huge gap in experience, her own direct personal knowledge. Between the two years of her IB Diploma Programme, she did a year of volunteer work in an orphanage school in Uganda.



*Naja Hendriksen,
Greenland*

The children were really interested in where I came from, but how could I tell them about my country without mentioning snow? I have so much experience of snow and

so many words for it in my language, since it is so much part of daily life for the Inuit. But how could I explain snow when they have no experience of it at all? It’s on the top of distant mountains in Uganda, but the children had never seen it.

I could have taken them to a local shop where there was a freezer and shown them the ice and frost, but that still wouldn’t have given them the experience of snow. I tried to explain in English. Later, a little girl in the class looked up at a cloud and called to me, ‘Look, Madam. Snow!’

Voices

Respecting knowledge

Respect for knowledge is a Buddhist principle, and in Bhutan we are deeply affected by Buddhism in all we do. In Dzongka, our language, one form of “knowledge” is gained through schooling. Education is valued. Just as an example, I would never knowingly step on or step over a book, because it holds learning.



*Yeshey Lhaden,
Bhutan*

The other form of “knowledge” is gained through experience. The older person has seen more of life and has more wisdom. Most highly respected is the wisdom gained by lamas. Some lamas go on solitary retreats for as long as three years, talking with no one and not washing or cutting their hair. They come back wearing just old rags and are detached from the superficial world. They gain control of emotions, thoughts, and actions so they can advise us on how we can live a virtuous life. They are on the pathway to enlightenment.

I act more quickly?” you might ask yourself. “Why didn’t I see that emergency coming?” Or else, “I was upset to watch her treat him with so little respect. Should I have spoken up? What would be the best way of handling the situation?” As you think back over an event, you prepare yourself to act more effectively another time.

Our own experience provides us with the raw material, and then our own reflections on it shape it in our own way. Not only do no two people have the same experience in exactly the same way, but different people certainly appear to have different responses to experiences they have lived. (Did you hear the joke about the optimist and the pessimist?)

Yet does reflection always *follow* the experience? As we encounter more and more situations in our lives, the new experience may change the earlier reflection, and that reflection in turn affects the next experience. Experience and reflection seem less and less to resemble a chronological sequence as we add layers upon layers to our lives, extending experiences, forgetting experiences, and renewing or changing our reflections and memories.

As we process our experience, perhaps silently talking with ourselves or mulling over the meaning of something we have just noticed, we may then use it to form our statements of

“I know...”, the personal knowledge of our previous classification. Personal knowledge, put into words, loses something of the actual experience itself. Nevertheless, awareness of the personal experience and some sense of its meaning allow us to articulate what we have concluded, as in statements from our batch of twenty: “I know that if I tease my sister her cheeks will turn red.” Or, with personal experience of loss extended by shared knowledge and realizations of its implications, we might acknowledge, “I know that I’m going to die someday.” And yet, despite our loss, “tomorrow the sun will rise” and our life carries on.

Critical reflection

Some people seem *not* to learn from past experience, and make the same mistakes over and over again in their lives. “That experience was wasted on her,” observers say. “She’s learned nothing.” Although there may be an abundance of other explanations for lack of learning, there is one sadly simple one: maybe she was not paying attention at the time and was not reflective then or afterwards. What a loss!

When we deliberately take on experiences in order to learn from them, the quality of the knowledge gained is much improved by reflection on how we planned, took part, and learned. The experience itself will pass, but the thoughts remain, and

Discussion Activity

Experiential knowledge: experience + reflection

Gather your own ideas in response to the questions below, and prepare to share your thoughts with others in your class.

1. In what areas of your life do you think that most of your knowledge is experiential knowledge? To what extent is experiential knowledge part of your learning in school?
2. Do people always learn from their experiences? If not, why not?
3. If you are looking for someone to talk to about a problem you are having, do you take into account whether someone has “been there” and might know what you are talking about? Can you find an example? Do you think experience tends to give greater understanding and empathy, and perhaps relevant expertise and authority? Does it ever seem instead to *block* understanding?
4. Is your own personal experience, even if it is unique to you, gained entirely as an individual? As you have grown up, has it been guided or mentored by family or others in your community? Has your own experience been lived at least in part through taking into account the perspectives of others?
5. Do you ever go looking for kinds of experience, with an idea in advance about what they are likely to give you (e.g. service projects, travel, leadership roles)? Do you place yourself in situations where you have to find out what strengths you have inside?
6. Why do job applications ask for past job experience?

ideally strengthen for the future the habit of reflection.

Reflection also needs to be consciously critical of the conclusions we reach, since our own experience can be very powerful in persuading us wrongly. One or two encounters with frustrating situations or people, for example, can make us jump to conclusions or make unfounded generalizations: “It’s always like that. Let me tell you what happened to me.” A single accidental correlation, experienced ourselves, may block us from questioning our causal conclusion: “Well, all I know is that as soon as I started wearing that bracelet, my symptoms just disappeared.”

Soon in this TOK course we will be thinking about our ways of knowing and how to use them critically. Things are not always as they appear to be and our own perspectives influence our interpretations. Still, watching out for errors in thinking can improve tremendously the quality of our reflections on our experiences.

Experience and reflection in the IB

In all of your IB courses, you are learning through experience to some extent. Even those courses that are most academic and text-based have

personal experience in the process of gaining knowledge and applying it in different forms in different subjects.

It is in the core of the IB Diploma Programme, though, that you will find the strongest element of experiential learning: in creativity, action, service (CAS). The CAS programme requires you to take on experiences of quality for your own growth, and to reflect on them thoughtfully.

In the core of the IB Diploma Programme, along with CAS, you also find theory of knowledge. This course will help you develop your skills of critical reflection on CAS and on all the other experiences of knowing you will encounter in your life.

2. Knowing how: skills of thinking and acting

This category of knowledge (knowing how to do something) interconnects with the other two. To a large extent, it is *experience* that helps us learn a skill, to the point that truly possessing a skill could be argued to require experience. It could readily be argued, too, that the development of a skill is a subcategory of “experience and reflection”. Here, we are suggesting that it overlaps but adds

Discussion Activity

In what ways does the IB encourage experiential learning?

Gather your own ideas in response to the questions below, and prepare to share your thoughts with others in your class.

1. Think of each of your IB courses in turn and identify the experiential component. Do you find yourself, through experience, becoming more familiar with methods of inquiry and more confident using concepts and skills? Can you give examples?
2. Think about your own experiences in CAS and try to pick out just one incident or moment of realization that you could describe to your class as significant in your own learning. As you and your classmates describe these moments, do you find any common features emerging?
3. According to the IB learner profile, learners are risk-takers: “They approach unfamiliar situations and uncertainty with courage and forethought, and have the independence of spirit to explore new roles, ideas and strategies.” Can you see places in your own CAS programme where you have tried something new that extended your capacities in any way? Can you describe it?
4. Experiential learning, reflected upon and articulated, yields personal knowledge. Has the experiential knowledge that you have gained also been shared knowledge? Has any experience of collaboration or teamwork, or of working under guidance, made you feel as though you were learning not only as an individual but, in a connected way, as part of a group? Can you give an example?

characteristics of its own. Remember that what we are doing here is not insisting that our three-part categorization is the only way of classifying the ideas. Instead, we’re offering a useful way to think about different features of knowledge.

It could be argued, too, that knowing how to do something, such as how to make empanadas, is equivalent to having the *information* you need to do each part step by step: “I know that first I go online to find a recipe. I know that next I get out a large bowl from the cupboard. I know that next I measure the flour into the bowl. I know that...”. Empanada makers of the world and recipe websites of the Internet, thank you for this shared knowledge!

However, have you ever tried to assemble furniture from a box following step-by-step instructions, or to learn a computer skill from a manual or a training video? “Yes, I know how to do it. It tells me how right here.” But do you *really* know how? If you can recall any moment of struggling to figure out what instructions mean, you will probably acknowledge that having a set of steps in the process for reference is not the same thing at all as actually being able to do it. Indeed, some of us (personal confession here!) can end up having the results – the assembled bunk bed or wheelbarrow, or the video edited in a movie

programme – without actually...quite...knowing how to do the same thing another time. It’s not until you reach the point of putting aside the instructions and being able to apply what you’ve learned that you can say (with triumph or with gentle modesty), “I know how.” You have a skill. You can apply it and demonstrate it.

When it comes to making empanadas, though, the demonstration might be intensely controversial. “Yes, maybe you’ve learned how to make empanadas. But you don’t know how to make them the delicious way my mum does!” Is it ever possible to pass such a test? “Knowing how” is almost always on some kind of scale of expertise and often evaluated by criteria that include an element of subjective impressions – and sometimes downright bias (don’t compete with anyone’s mother!). In major world competitions of skills, such as in playing the piano or doing gymnastics, the judges are experts and have criteria to guide them, but there can still be disagreement between members of a judging panel. Nevertheless, none of them at that level would dispute that the contestants *know how*. This kind of knowledge is often called “procedural knowledge” and stored, as we will consider later, in your “procedural memory”.

Discussion Activity

Knowing how: suggested class activity

To students: Identify one thing that you know how to do that can be demonstrated in under two minutes and could possibly be taught in not much more (taught at least to a recognizable level). The skills should be something easy and enjoyable to bring into class: juggling, playing a simple melody on a recorder, singing a short song in another language, a dance step, a shortcut in a mathematical problem, a handy method of organizing time, a trick of manipulating photographs on a laptop computer, whistling, a card trick, a way of putting on a cultural garment, a culturally appropriate way of giving greetings or conducting a ceremony that is unfamiliar to most in the class, and so on. (It's possible that two or three students might want to work together to demonstrate some kinds of skills.) When you have thought of something that you could demonstrate and teach, write down your proposal and hand it in to your teacher.

To the teacher: Take in the proposals in advance of the class in which you will do the activity. With your awareness of how much class time is available, select three or four of the proposals to be put into action and give the students advance warning to prepare to demonstrate and teach the skills. Depending on the nature of the skill, it could be taught either to one or two other individuals in front of the class or to the entire class. Ideally, your selection will showcase skills of quite different sorts.

On the day you have scheduled this, arrange the classroom for the demonstrations – and enjoy the results. When the students have finished and been applauded, it is time to move into discussion provoked by the skills demonstrated. You will probably want to run through the other proposals as well so that all of the possible skills can come into the discussion.

Is knowing how to do something essentially different from knowing information?

How are skills learned? To what extent does the learning depend on the kind of skill? What different ways of teaching and learning can you identify for the skills demonstrated in your class?

To what extent is the skill the thing that can be demonstrated? To what extent is it also the understanding on the part of the person possessing the skill? In knowing how to do something, is there often an experiential understanding, or an attitude, or an emotional component involved?

Can you state precisely in language what your skill is? Is it “to run fast”, “play hard”, or “make an excellent cup of tea”? Or is there a dimension of the skill that is difficult to put into language?

Of the skills demonstrated in class and the others proposed, what ones seem to fit into a larger body of knowledge? Do they contribute to areas of knowledge or social skills, or skills for public competition?

What skills are you learning in your IB subjects? In what ways do you have to demonstrate them to get credit for your courses? In what ways do you expect to apply them in the future after your IB studies?





Transferable skills

"If I know how to make empanadas, surely I know how to make pancakes or breads." "If I know how to make many different dishes, surely I know how to cook."

What kind of skill is implied by these confident declarations? What examples of transferable skills can you find in your different courses and CAS, such as doing research, keeping careful records, and drawing graphs?

At this point, does this category of skills-based knowledge seem to you to include a rag-tag assortment of skills? In our twenty statements, there are three that are phrased as personal "how-to" knowledge, yet they represent entirely different kinds of skills. Each skill here would be learned,

experienced, demonstrated, and evaluated in quite different ways:

I know how to solve problems between my friends.

I know how to play football, or soccer as some call it.

I know how to solve problems at my level in mathematics.

Our range of possible skills is so great that we are likely to put the above statements in completely different categories of abilities.

Psychologist Howard Gardner has gone so far as to theorize that human beings actually have "multiple intelligences". In 1983 he proposed seven distinct kinds of intelligence and has since then accepted an eighth and considered two more. Although his theory has been criticized on several grounds, the categories that he developed were a serious attempt to come to grips with the many different forms of human ability:

1. linguistic intelligence (language)
2. logical/mathematical intelligence
3. musical/rhythmic intelligence
4. bodily/kinesthetic intelligence
5. spatial intelligence
6. intrapersonal intelligence (understanding oneself)

Learning how

What skills are involved in what the girls are demonstrating here? To what extent does almost all learning in school involve background social skills and facility with language? These skills have been associated with forms of intelligence.



Sana'a, Yemen



Florida (Valle), Colombia

7. interpersonal intelligence (understanding others)
8. naturalistic intelligence (relating to nature, classifying natural forms).

You might want to read further on these forms of intelligence. You could look at the additional intelligences Gardner has considered in subsequent decades, and critical reactions to the distinctions he drew. Some theorists contend that these multiple intelligences cannot be established or refuted by evidence, so are not to be accepted as scientific. Some insist that all intelligences are aspects of a single integrated intelligence. While psychologists research and debate, many educationalists have accepted the concept of multiple intelligences as usefully directing attention to differences in the ways that students learn. Here, we accept these eight intelligences as a non-rigorous identification of human abilities, in all of which it is possible for individuals to be highly skilled.

Although for some skills we need only observation and practice, for many others we benefit from deliberate teaching. We take music lessons to learn how to play an instrument, or follow the advice of a coach to learn how to play a sport more effectively. To develop skills of thinking critically, we also gain from deliberate attention to goals and practice in achieving them.

In this book, you will be given abundant opportunity to develop your thinking skills, particularly as listed in the box “How to think critically: some TOK skills”. If you develop these skills successfully, you will be making them part of your own personal knowledge. You will also be able to see more clearly how the shared knowledge of different disciplines is constructed.

In the end, though, all thinking skills are useless unless they are applied. You have to think critically *about something*. And this brings us to our third and last kind of knowledge, the knowledge claim.

3. Knowing that...: knowledge claims

In this last kind of knowledge, we are concerned with statements we have accepted. Knowledge claims are what we know – or, rather, what we say we know.

What we say we know includes assertions of many different kinds. Much of it is information or factual report: you know that you are reading this book, that theory of knowledge is a subject

in the International Baccalaureate Diploma Programme, that the word “football” indicates different sports in the United States and England, that water boils at 100° centigrade at sea level, that the Statue of Liberty in New York City was a gift from France, that the pyramids of the ancient pharaohs are in Egypt, that taxonomy is the classification of living things, that molten rock flows out of volcanoes. For many questions on examination papers, you are expected to be able to state what you know and will be graded on whether you are factually accurate.

Much of what we say we know extends beyond factual information into our statements of values and other declarations of beliefs. You might say that sunsets are beautiful, that winning the Nobel Prize is admirable, that deliberately hurting other people is deplorable: all these statements are statements of values. You might also say that you know that there is (or is not) a Supreme Being, that after death we go (or do not go) to an afterlife, or that there is (or is not) a purpose for life: all of these statements are statements of metaphysical beliefs.

Certainly, we will never say anything at all about a lot of things we know. Much of what you know you will never put into words, even though you could. For one thing, it may be too personal to share. Even living in an era of electronic social media with the split-second impulse to tell all, most of us retain a sense of what is personal and private, and we prefer to keep some knowledge to ourselves.

Moreover, you may not want to say that you know something simply because it is trivial and irrelevant to any concerns or questions you might have. It is entirely possible, for example, that you know very well that the window is open or that the table in the corner is dusty, but these bits of knowledge are not likely to loom large in your mind. If you did choose to communicate this knowledge to others, they would probably not consider you to be a fascinating conversationalist.

However, when you do choose to put into words what you know, you are taking that giant step into the third kind of knowledge we treat here: the knowledge claim. You are asserting that you know something: “I know that Spain won the FIFA World Cup in 2010.” “I know that God has created the world.” Rarely are you likely to express the “I know that” part. However, it is implicit, it is

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

Discussion Activity**“Knowledge claims”**

The term “knowledge claim” is not a familiar expression to many people. A “claim” sounds in many contexts like an official procedure, such as when someone submits a claim to be reimbursed from a budget for an expense. It might even sound legal, such as when people face claims against them in court or when different groups are laying claim to a piece of land. In a TOK context, we use the expression when someone is laying claim to knowing. That is, whenever we say we know something, or make assertions that something is true, then we are making “knowledge claims”.

Knowledge claims put what we know into the zone of exchange between people and groups. Because ideas are stated in language, they can be examined and discussed, questioned, evaluated, refuted, or published and passed on. Knowledge claims enable us to learn from each other and build our shared knowledge.

Activity

Look closely at the photograph taken in Venice, Italy during Carnival, when people in costume parade in the streets. Simply prepare five statements about what you see in the photo. You can describe what you see, interpret any of the behaviour you see pictured, give your own opinions, or provide background explanation if you can. If you are looking at the photo with classmates, tell them what you think and listen to what they think.

Bravo! You have just made and exchanged knowledge claims!

Note that photographs, whatever they show, are not themselves knowledge claims; knowledge claims are what you put into words as what you *say* you know.



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

Statements of personal observation

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

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!

