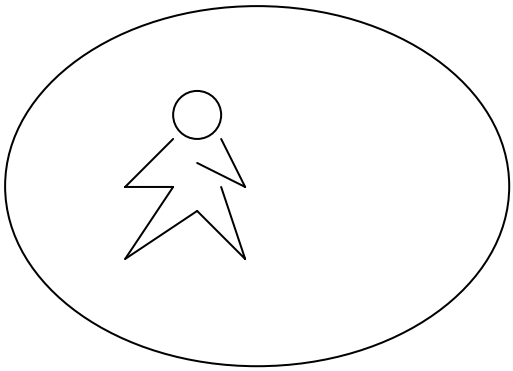
AN ATLAS OF CONCEPTUAL MAPS:

Linking Cognitive Processing with learning and the development of identity

- making sense of our thinking -

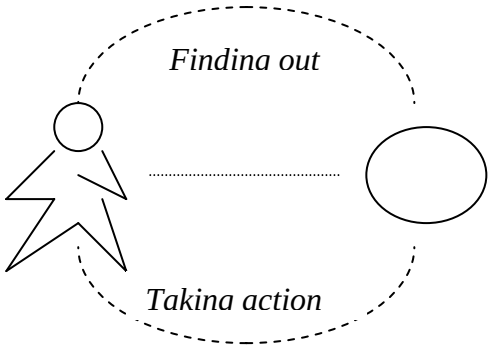
By Professor Richard Bawden

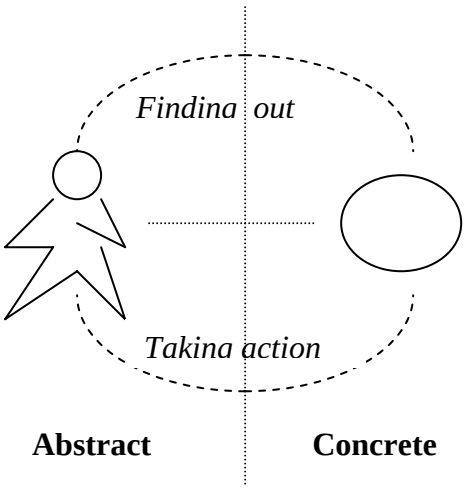


Here I am in the midst of a complicated, complex and ever-changing world, trying to make 'sense' out of it (and out of what I perceive to be happening in it) in order to lead the sort of life that I want t o live. (What Socrates referred to as the "*considered life*").

Because it is so complex, however, and because things are changing so fast around me, I prefer to deal with it in small bits (rather than with the world as a whole) and so I typically break my world down into particular issues' or 'circumstances' or 'problems' or 'experiences' in order 'to deal with it'

As a process of 'dealing with it' – I combine two processes: *finding out* and *taking action*.



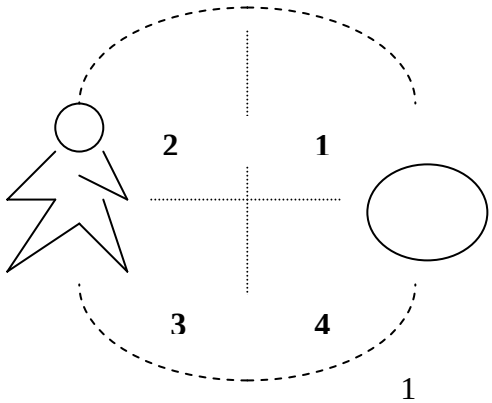


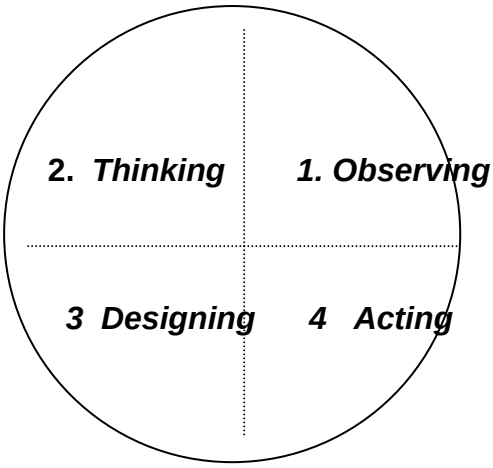
This combination of 'finding out' and 'taking action' can be seen as *cognitive processing*: Using the mind to make sense out what is happening (to make meaning as it were) and to put this meaning into action.

Furthermore, in addition to these two cognitive processes, I also engage with two different modalities: The *concrete* and the *abstract*.

Putting all of this together I can say that the way I make sense out of my reality, and take action to change it, involves four different cognitive activities:

1. *finding out* in the **concrete**,
2. *finding out* in the **abstract**,
3. *taking action* in the **abstract,** and
4. *taking action* in the **concrete**.





Because each of these four activities can be seen to generate *knowledge*, the notion of *cognitive processing* can be interpreted as a process of *learning* – which I can defensibly define as the transformation of experiences into knowledge and knowledgeable action. The four activities now become:

1. *Observing*
2. *Thinking*
3. *Designing* (or planning), and
4. *Acting*

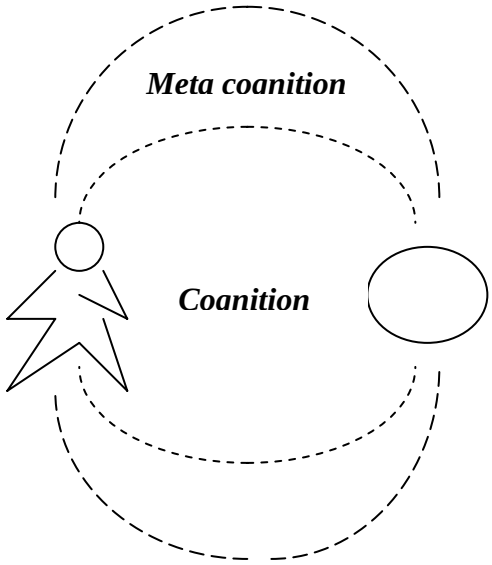
From this it follows that learning is a continuous process of development through which we human beings are constantly trying to better adapt to the world around us (and to adapt that world to our own needs) through the ever-recurring process of transforming our experiences (in and of that world) into knowledge which we use as the basis for our (knowledgeable) actions (in and to the world, to ourselves, and to the relationships between ourselves and our world.

We learn (in order to) to change and we change the way we learn so that we can better learn to change!

In essence, as learning human beings, we are permanently committed throughout life, to sustaining developing relationships between ourselves (as we see ourselves – our ***identities*** as it were) and the ever-changing circumstances of our lives.

A vital aspect of this matter of *cognitive processing* is that we can 'do it at different levels: In this manner, for instance, we can *cognitively process* the way by which we *cognitively process*..

With some effort we can therefore engage in *meta cognitive processing* (level two) that enables us to explore and indeed adapt, our (level one) *cognitive processing* abilities



Following our earlier logic, we can, through engagement with *meta cognition*,

1. Find out about finding out in the concrete
2. Find out about finding out in the abstract
3. Take action to change the way we take action in the abstract
4. Take action to change the way we take action in the concrete.

And now, changing our language from *cognitive processing* to *learning* once again, we can now see how this logic can directly relate to the process of *learning to learn* (or *meta-learning*) as the basis for changing how we go about our learning

1. We can learn about how we go about our observing in the concrete
2. We can learn about how we think in the abstract
3. We can learn about how we go about our designing (planning) in the abstract, and
4. We can learn about the way we go about taking action in the concrete.

From this we could argue that

:

- The basic *aim of education* is to help people learn how to deal with the world about them (as the cognitive processing of their experiences)
- The basic *purpose of such education* is the continual development of one's own identity in an ever-changing world
- The basic *focus of education* is to learn how to learn , and
- The basic *challenge of education* is to develop strategies and pedagogical practices that allow learners to gain competencies (and have the opportunities to express these) in cognitive processing of their experiences., and the cognitive processing of their cognitive processing

BUT WAIT, THERE IS MORE

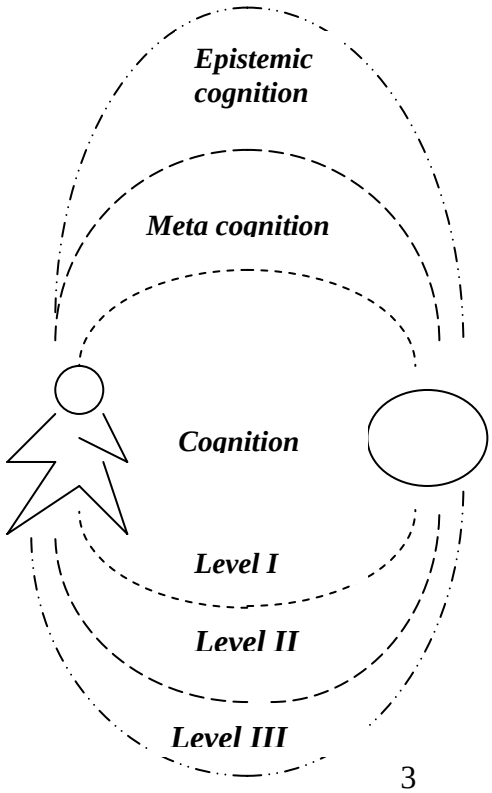
The quality of our learning (of our abilities to knowledgeably adapt to the world about us and to adapt that world to meet our own ends) is not just a function of the process by which we learn (our cognitive processing) and the process by which we amend the way we learn (our meta cognitive processing),.but also to a number of issues to do with the view that we hold of the world as it expresses our deepest held beliefs and values.

It is therefore vital that we engage with a third level of cognitive processing that gains us access to the details of our own 'worldviews' and to those of others.

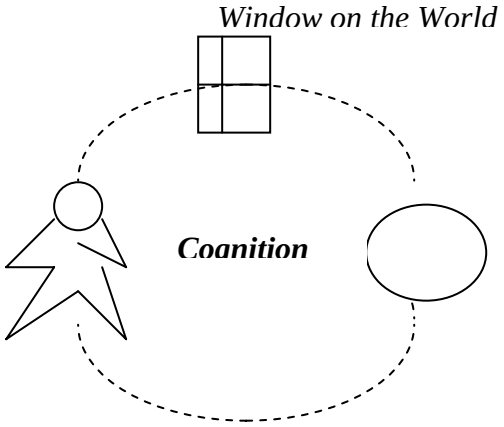
This is the domain of e*pistemic* (level three) cognitive processing.

In the *language of learning*, we can now talk of *epistemic learning* as that level of learning that enables us to explore (and adapt) our:

- Beliefs about the nature of nature or reality (our ontologies)
- Beliefs about the nature of knowing and knowledge (our epistemologies) and
- Beliefs about the nature of human nature and of the role of values (and ethics) in that (our axiologies).



Reverting to our simple (Level One) model for a moment we can argue that we never approach 'finding out' about our concrete experiences in the world from a neutral position but - as a function of the particular worldview that we hold - we always bring a particular perspective to bear on to our cognitive processing that reflects our (usually tacit) ontological, epistemological, and axiological assumptions.



We can illustrate this idea of 'worldview intervention' by super-imposing a 'window on the world' between ourselves and the experiences in the world that we are trying to make sense out of (as a prelude to taking action to address).

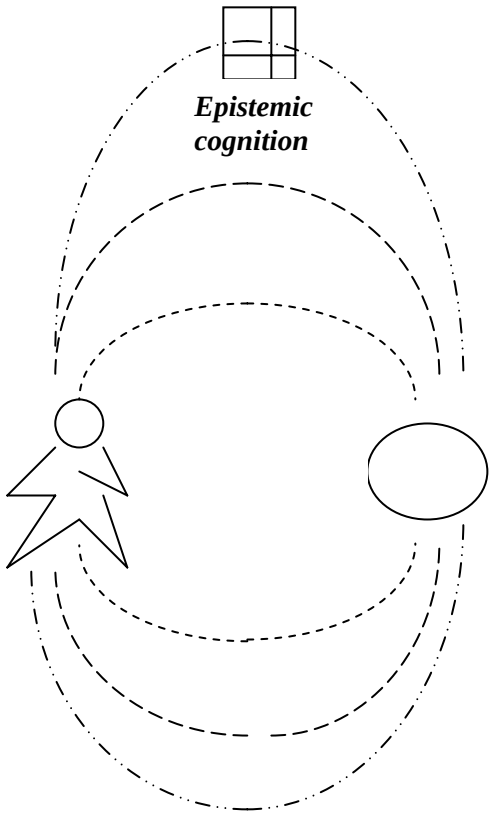
As we observe and as we think and design, we do so from a particular perspective of beliefs (sometimes called a 'mindset' or a 'mental framework' or 'mental model' or even 'paradigm'.

We learn about the nature of worldviews (of our profound beliefs and values) through engaging in epistemic learning – i.e. through focussing on epistemic cognitive processing.

This is probably the most difficult *level of learning* to access (for most people are not even conscious that they have a worldview, let alone be aware of its nature and specific characteristics)

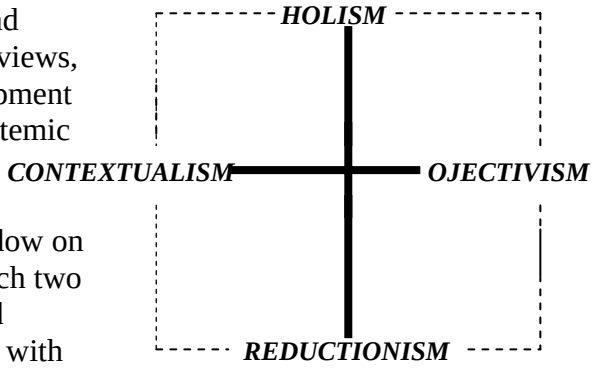
However, constructivism, systems thinking, and 'futures' are all key '*epistemic issues'*. Thus epistemic issues are totally central to the whole idea of *essential learnings.*

To be concerned with *identity* for instance, is to be centrally concerned with epistemic issues to do with beliefs and values and how these change in every individual through both intrinsic and extrinsic transactions



A crucial issue here is the argument - backed by very considerable research over the years – that our epistemic status can be explicitly developed to enable us to deal with ever increasing complexity through ever more complex perspectives.

We can introduce a very simple model here to illustrate the nature and significance (a) of different worldviews, and (b) the notion of their development as an expression of changing epistemic states.



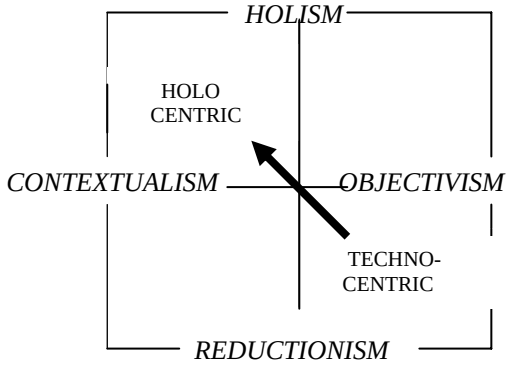
In the model to the right, the 'window on the world' reflects a matrix in which two polar ontologies (holism and reductionism) are interconnected with two polar epistemologies (objectivism and contextualism).

Holism is the belief that whole entities have properties that are different from the sums of their parts (and therefore cannot be known from a study of them).
Reductionism, on the other is the opposite belief – that whole entities are never more than the sum of their parts (and can therefore be known through a study of their parts).

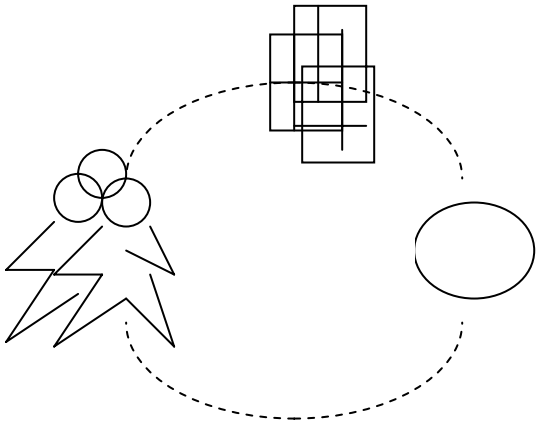
Most research on *Intellectual and Moral Development* that includes epistemic dimensions, supports the proposition that the epistemic development that occurs in adults (and could occur at a younger age under suitable pedagogies) reflects a shift from reductionism/objectivism (what we might call a *technocentric* worldview) to holism/contextualism (or a *holocentric* worldview)

This has huge significance:

- For the embrace of constructivist perspectives on *Learning and Learners*,
- For 'value based' education and pedagogies,
- For 'critical education' and 'appreciative inquiries', and
- For the interpretation and adoption of systemic ways of thinking.



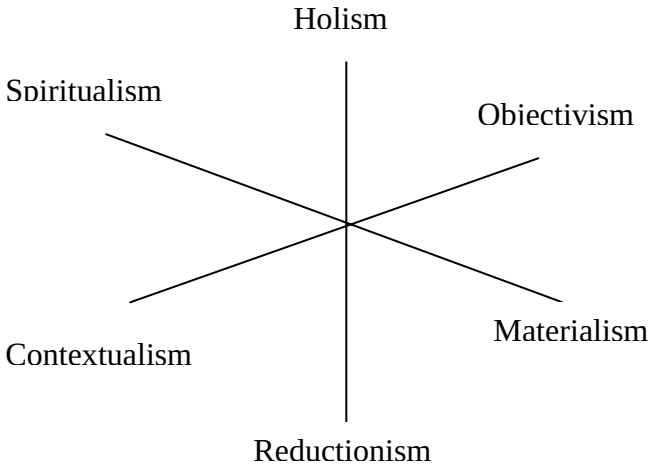
Windows on the World



Different people viewing the same event or exploring the same situation together will often bring different 'worldviews' to bear in that process, without necessarily knowing that they are doing this. This can be the source of considerable tension – especially when it leads to differences with respect to differing interpretations of what is happening and/or different ideas about how the situation can be improved.

And this is especially so when differences in worldviews reflect different value positions (axiologies): such as materialism on the one hand and spiritualism on the other: or individualism versus communitarianism etc

This introduces a third dimension into the idea of a worldview: With axiologies joining ontologies and epistemologies.



While it is such complexity that makes epistemic learning so inherently difficult, it is an essential domain for learners to learn how to explore. Our epistemic states are major determinants of our identities.

We are what we believe and what we value!!

Different worldviews reflect profoundly different value and belief assumptions between individuals that have been adopted through cultural influences, the education to which they have been exposed, the particular events that they have experienced in their lives etc.

They can also reflect different stages of epistemic development.