

An introduction to ontology and epistemology for undergraduate students

This introductory guide to ontology and epistemology was produced in response to undergraduate students' concerns that these concepts were difficult to understand and that they were unsure about the relevance of them to their first attempts at research.

Many experienced colleagues might suggest that the approach here is too simple and the issues are more complex than I have represented them in this introductory guide. This would be a fair criticism, but I think it's better to start simply and grasp the essentials before problematising things.

Ontology and epistemology

Ontology and epistemology are, in essence, quite simple to understand.

One of my favourite philosophy books, 'Bluff your way in Philosophy' (out of print) refers to Willard van Orman Quine who "once observed that all the important questions of philosophy were asked regularly by four-year old children. They are:

1. 'What is there?' (ontology)
2. 'How do you know?' (epistemology)
3. 'Why should I?' (which might be construed as a question in ethics).

We aren't concerned here with ethics.

Ontology is the branch of philosophy which is concerned with being and with what exists. "It considers what types of things there are in the world and what 'parts' or 'substances' the world can be divided into." (McQueen and McQueen 2010: 151)

Epistemology is about theories of knowledge and how we come to have knowledge of things. As the 'table', 'brain' and 'mind' examples below suggest, our knowledge of some things is easier to attain and more reliable than others.

If we ask "Does God exist?" this is a question of ontology.

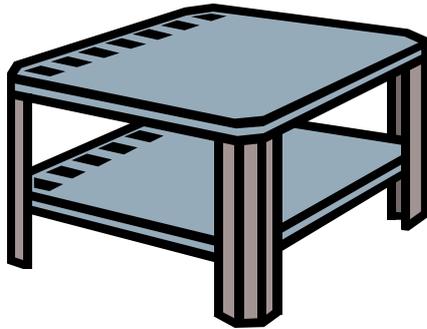
If we ask "How do we know if God exists?" this is an epistemological question.

A key question in research is the extent to which we can have secure and reliable knowledge of something or, indeed, anything.

Extract from 'The Story of Philosophy' by Bryan Magee

'Because philosophy is a quest for rational understanding of the most fundamental kind it raises important questions about the nature of understanding and hence of enquiry and knowledge. How are we to go about finding answers to all these questions of ours? Can we ever really know, in the sense of being sure of, anything? If so, what? And even if we do know, how will we be able to be sure that we know; in other words can we ever know that we know? Questions like this have themselves come to occupy a place near the centre of philosophy. Alongside questions about the world around us, the philosopher asks questions about the nature of human perception, experience, and understanding.

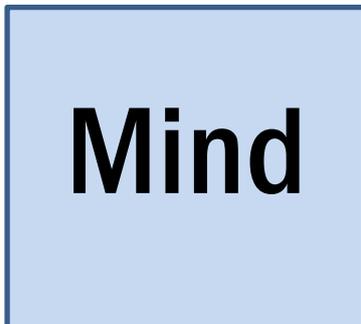
So, put at its most basic, philosophy has developed in such a way that two fundamental questions lie at its heart: the first is "What is the nature of whatever it is that exists?" And the second is "How, if at all, can we know?" Investigation into the first question, about what exists and the nature of existence, constitutes the branch of philosophy known as **ontology**. Investigation into the second question -about the nature of knowledge, and what, if anything, we can know- is called **epistemology**.' Magee (1998: 7. Emphasis added.)



A table. It exists as a physical object. We can easily have knowledge of it by seeing and touching. We can be quite specific about its properties; its size; colour and position. It continues to exist regardless of whether we, or anyone else, are observing it.



Brain. We know that brains exist. Even though we ourselves might not have seen a physical specimen, we can be certain about its existence as a physical object. We can have fairly certain knowledge about a brain's size, weight and structure. However, our knowledge of its working and development is incomplete and our speculations about these will be influenced by our scientific, psychological and neurophysiological knowledge and beliefs.



Mind. The concept of mind and the extent to which we can have knowledge of it is more problematic. It does not exist as a physical entity, although we can refer to it as if it did, as in 'make your mind up.' If it does exist we cannot be certain where it is located, although we generally consider it to be something to do with the brain. The mind could be regarded as much a theoretical concept - a mental construction - as it a fact.

Ontology

Let's consider ontology in a little more detail. As we have already seen ontology is concerned with existence and what things exist in the world and how we categorise them.

For scientists, the question of ontology is, or might be, fairly straightforward because they are fairly certain about what exists. Physicists might be studying atoms; biologists might be studying genes. These exist independently of whether or not they are being studied. For social scientists and researchers in education the situation is different because they are studying human beings and their

actions, with all their unpredictable and idiosyncratic behaviour and the concepts and ideas which they invent.

The late Margaret Thatcher was a chemistry student and as such could be, to a great extent, certain about the existence of the things she was studying. She was equally famous for suggesting that there is no such thing as society. This was controversial because many of us like to think that there is such a thing as society, with all its connotations of caring, fellowship and mutual support. However, we could argue that Mrs. Thatcher was logically (or ontologically) correct because 'society' is an abstract noun; you can't see it or touch it or say "Look, there's a piece of society." The meanings of 'society' are variable and contested.

Essentially, there are two basic ontological positions. These are usually referred to as:

- objectivism
- constructionism

Objectivism

Bryman (2008: 19) states that:

"Objectivism is an ontological position that asserts that social phenomenon and their meanings have an existence that is independent of social actors. It implies that social phenomena and the categories that we use in everyday discourse have an existence that is independent or separate from actors [i.e. those who are part of the phenomena and/ or those studying the phenomena]."

Example Some people might argue that bad behaviour in schools is a reality and that all you have to do is count the examples of agreed definitions of bad behaviour (e.g. talking out of turn; out of seat; shouting). You can then observe and count them and decide whether behaviour is better or worse than it used to be.

Constructionism

Put simply, this position takes the view that things and meanings don't exist independently, rather human beings have to *construct* the meanings. Ontologically, it is the opposite position from objectivism.

Bryman (2008: 19) states:

*"Constructionism is an ontological position (often also referred to as **constructivism**) that asserts that social phenomena and their meanings are continually being accomplished by social actors. It implies that social phenomena and categories are not only produced through social interaction but that they are in a constant state of revision. In recent years, the term has also*

come to include the notion that researchers own accounts of the social world are constructions. In other words, the researcher always presents a specific version of social reality, rather than one that can be regarded as definitive. Knowledge is viewed as indeterminate. ...”

Example Some might argue that there is no agreed definition of what ‘bad behaviour’ in schools means and that the perceptions and understandings of behaviour have shifted over time. Thus, one teacher’s ‘difficult’ child might be another’s ‘lively and inquiring’ child.

Epistemology

Epistemology is the branch of philosophy (and of research) which is concerned with knowledge and how we can come to know things. Thomas (209: 87) says:

“If *ontology* is the study of what there is or exists in the social world, *epistemology* is the study of our knowledge of the world. How do we know about the world that we have defined ontologically? Epistemologists ask questions such as:

- What is knowledge and how do we know things?
- Are there different kinds of knowledge?
- Are there good procedures for discovering knowledge?”

Basically, there are two epistemological positions. These are usually referred to as:

- positivism
- interpretivism

Positivism

It’s probably too simplistic, and not entirely accurate, to suggest that positivism leads to us being positive about our research and its findings – but it helps our understanding a little.

Auguste Comte, the 19th century French philosopher (some would say the father of Sociology) believed that the scientific method was the most advanced and should be applied to the study of the social world and social sciences as it is in the natural world and natural sciences. Put simply, the positivist position is that social research should try, as far as possible, to emulate the methods of science. It’s worth quoting Thomas (2009: 74-5) at length here:

“We should therefore try to isolate variables, measure the ways that they varied, look at the relationships between the variables, develop hypotheses about these relationships, perhaps manipulate the variables for experimentation to test a hypothesis, and draw conclusions on the basis of these studies. In doing all of this - in following ‘scientific method’ -we should try to be as objective and as neutral as possible. We should watch from the outside as disinterested observers, trying not to ‘contaminate’ our findings in anyway. The worldview underpinning all

of this is sometimes called realism, namely the view that the world we perceive is straightforwardly the one that is “out there’. There is not much room for interpretation about it.”

Interpretivism

As the above quote suggests, there is not much room for interpretation in positivism. As the name implies, this is not the case with interpretivism.

Interpretivism accepts that the world is constantly changing and that meanings are shifting and contested. We have to accept that there is no objective, pre-existing truth ‘out here’ waiting to be discovered; meanings are constructed, not objective. It is not appropriate, therefore, to employ the methods of the natural sciences. In contrast to his description of positivism (above), Thomas (2009: 75) talks of the methods of interpretivism thus:

“The main point about interpretivism is that we are interested in people and the way that they interrelate - what they think and how they form ideas about the world; how their worlds are constructed. Given that this is the case we have to look closely at what people are doing by using our own selves, our own knowledge of the world as people. We have to immerse ourselves in the research contexts in which we are interested - for example talking to people in depth, attending to every nuance of their behaviour, every clue to the meanings that they are investing in something. ... The key is *understanding*. What understandings do the people we are talking to have about the world, and how can we in turn understand these.”

What does all this mean for our research?

Hopefully, it should be clear by now that ontology and epistemology are not difficult philosophical concepts that we have to grapple with just to write a section in our research project. They are the key and primary issues in any research which underpin everything else that we do.

Paradigms

It has become fashionable to discuss paradigms in research; it’s probably not necessary to do so, but that’s the way it is with fashion.

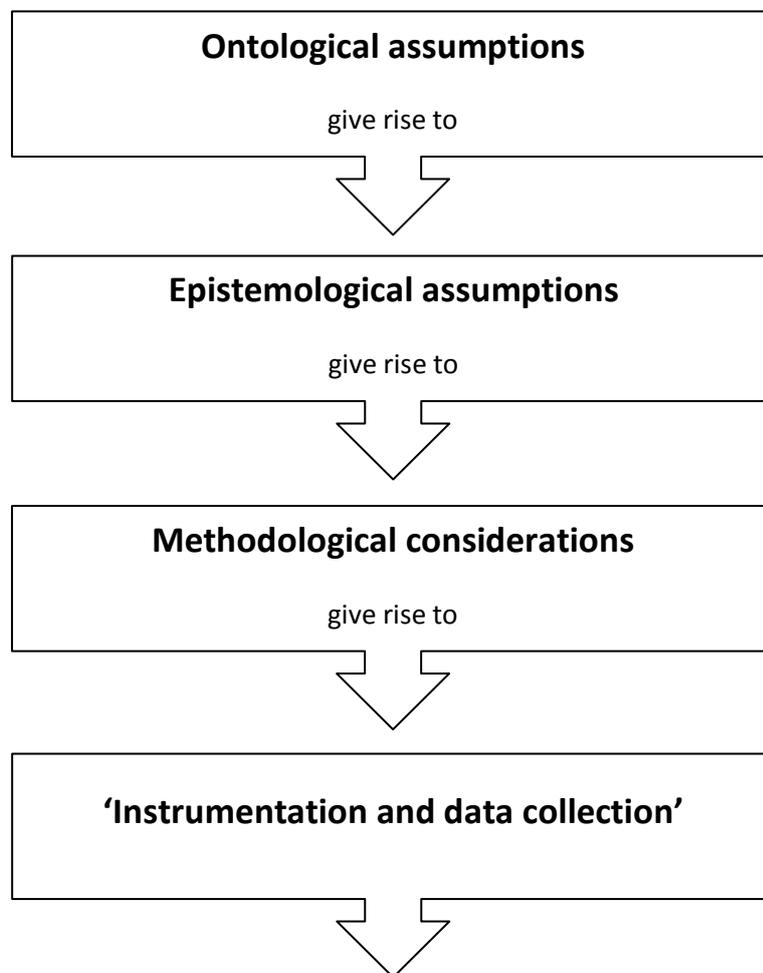
Our current use of the word paradigm comes from Thomas S. Kuhn’s book *The Structure of Scientific Revolutions* (1970). For Kuhn, a paradigm is a framework which covers the ways and models of thinking and working within a particular scientific field. The point is that paradigms shift and change.

Thus, the explanations of science based on Newton gradually threw up anomalies which couldn't be explained under that paradigm and a new paradigm, based on quantum physics evolved.

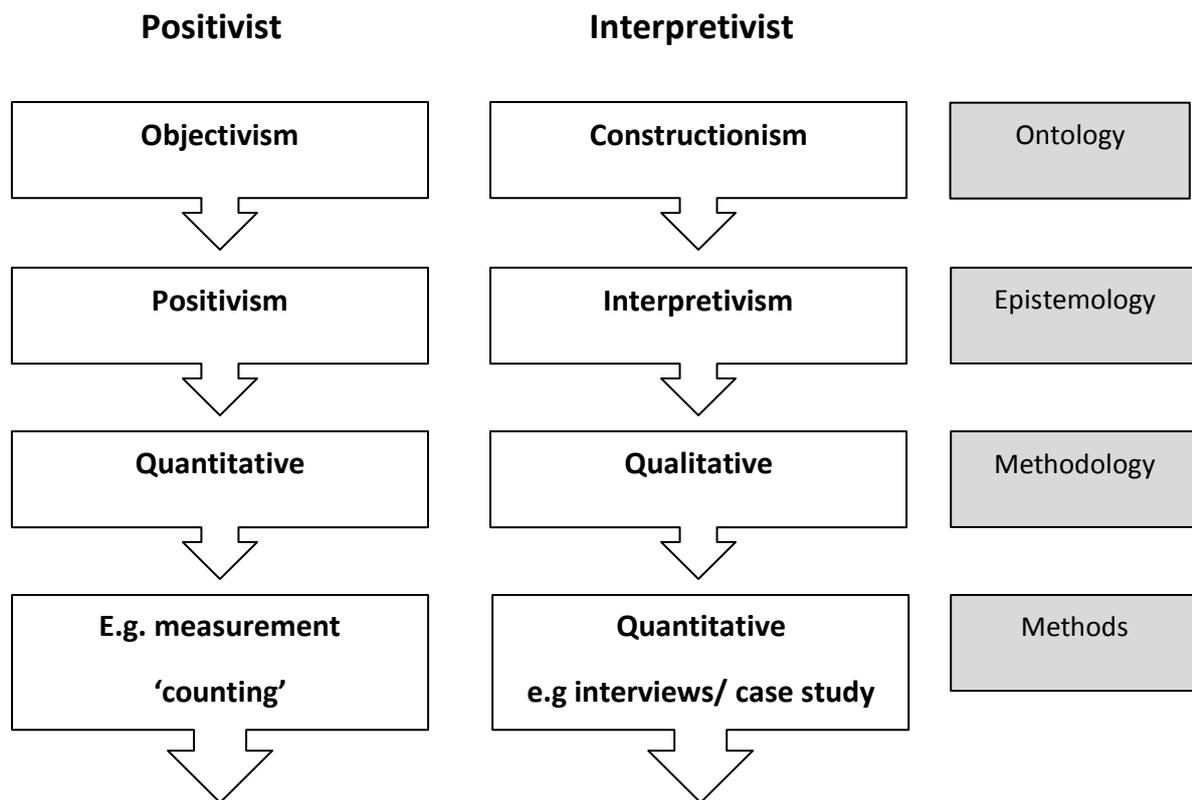
In terms of our own research in education and social sciences, we could basically talk of two paradigms in social research:

1. **The positivist paradigm** – including **objectivist** ontology and the **positivist** epistemology.
2. **The interpretivist paradigm** – including **constructionist** ontology and **interpretivist** epistemology

Cohen, et al (2011: 3) suggest that these paradigms give rise to ways of thinking about methods and data collection, thus,



A very simple view of the two paradigms could look like this:



Qualitative and quantitative

Quantitative research tends to be associated with numbers and producing charts and graphs; it tends to be about counting and measuring things.

Qualitative research tends not to include numbers. It uses words, thoughts and images to show things which aren't easily quantifiable.

As we can see above, quantitative research tends to be associated with the positivist paradigm; qualitative with the interpretivist paradigm.

However, it is important to remember that quantitative and qualitative are not incompatible; they can complement each other. Much research uses a mixed methods approach.

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