

SHARPENING THINKING SKILLS

Case-study: Science and religion

(* especially relevant to Chapters 3, 8 & 10)

Case study 1: Teaching truth claims

When approaching truth claims about the world it is important that we consider each of these on their own merits and not on the 'popular' views. Science does not claim itself to be 'the Truth' in an absolute sense but rather a search for meaning and pattern in the data. One of the main problems is that much of school science is rooted in 19th century scientific understanding going over scientific developments of yesteryear, ideas which are accepted and which, at the normal level are quite adequate to describe the world in which we live. Thus this is presented as 'fact' or 'truth' and words such as verifiable (or sometimes falsifiable) are used.

Science has itself moved on from this idea, and the idea of falsifiability (Popper) is no longer held out to be a necessary condition of a theory being true. Scientists are willing to accept that there must sometimes be "leaps of faith" where an idea, even if it is not mathematically provable, can and should be trusted. Newton and optics, and Einstein and quantum mechanics, are examples that might be considered with pupils.

Scientific thinking progresses by means of models that make sense of the data. Models can be developed further as new data comes to light but there may come a time when a particular model is rejected and a new model found to have greater explanatory power. Thus, electricity in science used to be likened to a water pump when this analogy is now considered to be unhelpful for a number of reasons. At this point a 'paradigm shift' (Kuhn) may take place after a struggle between two or more scientific communities.

Just as it is important to out-grow simplistic science, so it is important to out-grow simplistic religion. To say, for example, as some feminists do, "Christianity's not for me because Christians worship a male God" shows deep misunderstanding.. When God is addressed as "Our Father" as in the basic Christian prayer, it does NOT mean that God is a man with children. It means that God is LIKE a loving parent. What does the metaphor of Father mean?

Here is a possible threefold meaning for Christians:

- a) God is our Father in that God is responsible for the fact we have life and for the potential as persons which is ours. God is our Creator.
- b) God is our Father in that God provides for us, helping us grow from potentiality to maturity as spiritual beings. God is our Teacher.
- c) God is our Father in that God saves us, taking all the brokenness of relationship and thus enabling us to attain communion with God in free and loving cooperation. God is our Saviour.

* The Jewish people, and the early followers of Jesus, lived in a patriarchal society. We today need to use other metaphors as well to convey what they intended by "Father", metaphors such as God is Our Mother, to signify the intention behind the metaphor of Father. But we must appreciate that they ARE metaphors and not literal, physical descriptions. The important point is to preserve the sense of what is meant by fatherhood in a way that does not make anyone feel excluded.

Some practical suggestions

1. One way to approach the use of metaphor in religion is to use the highly metaphorical language of the Song of Songs and ask the students to sketch the woman that is described in Chapter 4 of this part of the scripture. This is not a 'real' woman and this can lead into discussion about the nature of the ways that religion uses models to describe the nature of the divine. So 'God is like the wind' or 'a great power' or even 'Our Father' can be seen as models and metaphors for a deeper reality.

Here is how one Christian understood metaphor:

"Take not, O Lord, our literal sense. Lord, in Thy great
Unbroken speech our limping metaphor translate."
C.S. Lewis.

2. It is also very important to realise that a truth claim is much more than an opinion. Justified or informed opinion that has been tested and verified is very different from the "I think" that is heard in many classrooms. Consider the criteria for evaluating a belief that you can find in chapter 8 (Figure 8.5 p.145) and think about how you might apply these to both scientific and religious truth claims. Which of these criteria are more applicable to the scientific realm and which to the theological? Is there overlap?

Some scientific and religious truth claims you might 'test' are:

1. There is a God
2. God created the universe
3. There is evil in the world
4. The universe runs by a system of mathematical laws
5. Beings develop, by random mutation, to more sophisticated being

Case Study II: All of the matter?

One of the vexing questions for both science and philosophy is that of the 'person in the machine'. Who is the 'us' whom we picture 'driving' ourselves? Are we more than the sum of our constituent parts? The idea that we can be reduced to the parts that make us is one that science is struggling with, with the ideas around complex systems, where the whole is more than the parts, and which philosophy also struggles with.

A way to begin this is to look at the reduction of two things. First consider a painting. If you 'deconstruct' the painting back into the palette or the tubes counting the amount of each colour and make a list of this, what have you 'lost' about the painting in its finished form? What is the difference between the finished painting and its 'ingredients'? In the same way consider the chemicals that make up a human being and ask are we more than this collection of chemicals?

Pupils could consider what a human-being is:

An organic computer?

A selfish gene?

A person capable of emotions (and what are they)?

A 'trousered ape'?

A machine programmed by evolution?

An image of God?

A non-materials spirit in a material body?

They should consider to what extent these ideas are compatible and to what account they are incompatible with each other.

Pupils could tick using the table below and this can be debated in the class.

Strongly agree/ Agree/ Disagree/ Strongly disagree/ Don't understand.

- A A computer made of meat and gooey bits
- B A machine for making more DNA
- C A person capable of feeling love and hate
- D An ape, with grand ideas about itself
- E A machine manufactured and programmed by evolution
- F An image of God
- G A non-material spirit encased in a material body

Thinking in/out of the box

The following are a series of quotations from some contemporary thinkers. List which ones you think are reductionist in character and those that are not.

1. *"We are survival machines-robot vehicles blindly programmed to preserve the selfish molecules known as genes. This is a truth which still fills me with astonishment."* R Dawkins.

2. *"Given the dissimilarities between conscious experiences and brain states, reductionism has a problem. How can things which seem to be so different be the same? This problem becomes acute once one accepts that conscious contents include not just ephemeral "thoughts", but entire phenomenal worlds."* Max Velmans.

3. *"The Astonishing Hypothesis is that 'you', your joys and your sorrows, your memories and your ambitions, your sense of personal identity and free will, are in fact no more than the behaviour of a vast assembly of nerve cells and their associated molecules. As Lewis Carroll's Alice might have phrased it: 'You're nothing but a pack of neurons.'"* Francis Crick.

4. *“According to materialists, we can (in principle!) account for every mental phenomenon using the same physical laws and raw materials that suffice to explain radioactivity, photosynthesis, reproduction, nutrition and growth.”*

Daniel Dennett.

5. *“Why not take the development of the human intellect as a probable counter- example to the law that natural selection explains everything, instead of forcing it under the law with improbable speculations unsupported by evidence?”* Thomas Nagel.

6. *“The principal activity of the brain, that of sustaining a sense of consciousness through a lifetime, is open to explanation rooted in its physical structure and its chemical activity.”* Peter Atkins.

What does it mean for the ways in which we live out our lives dependent on which of the descriptions of ourselves we chose from the above list (or others from the students own choosing?).

Case Study 3: What is an explanation?

For both scientists and religious people explanations are an essential tool to describe the world in which we live, and our world-view (not the same thing). Students need to consider the complexity and subtlety of the explanations that science and religion use and consider how they are the same and how they are different. They deepen their awareness of how scientists choose and accept a 'best or most suitable explanation' and they further reflect on how the explanations we accept influence our attitudes and world views and are influenced by them in turn. They consider the conclusion that the uses made of explanation made by science and by religion may be mutually supportive (rather than in conflict)

In schools we are familiar with the idea of 'subjects' that look at human experience, the world or reality from different points of view. For example sound might be studied in Physics, Music and RE or light in Physics, Art and RE but each of these subjects will explain sound or light in very different ways.

Key Questions

- Are there different types of evidence needed for scientific and religious explanations?
- How do different subjects deal with ideas such as 'music' or 'light'? Does the way in which they deal with these concepts change their essential nature?
- Can something be true in scientific terms and false in religious terms and vice-versa?

When a question is asked there are a number of potential answers that can be given. The answers might be technological, practical, emotional or theological. We need to know the intention of the questioner, and the context, in order to choose which explanation(s) to give.

Types of questions, and types of explanations, are irrevocably linked. Misunderstand the purpose of the question, and an inappropriate or confusing explanation may be given. Similarly, ask someone with no relevant knowledge or experience to give an answer, and what you get is likely to be confused and misinformed. This does not necessarily make either of the above explanations invalid. The types of explanation are not in competition with each other. Both are equally worthy, in their own context.

Science and religion usually concern themselves with different types of explanations. They operate in different contexts and tend to ask different types of question.

Scientific explanations typically try to show that particular events, like the flight of an arrow, fit in with general patterns or scientific laws (sometimes called covering-laws) – in this case, the laws of motion. For physical explanations we look to physics and chemistry. For explanations of the forms and development of living matter we go to biology. For explanations of human intention we use psychology.

For explanations of meaning and purpose, however, we must look elsewhere. Science does not concern itself with these, for statements about meaning and purpose are metaphysical rather than scientific. If a scientist proposes, for example, that the universe has become as it is through unaided natural processes, and has no meaning, then he or she is making a metaphysical statement that interprets what we know from science but is strictly outside the realm of science itself.

All metaphysical explanations look to what lies *beyond* the natural, observable world, although often incorporating, and taking into account, scientific theories. Religious explanations are metaphysical.

Both scientific and religious explanations share a common aim – to attempt to explain a diversity of events and observable entities by pointing to a simpler, more unified theory, source or cause. The kinds of explanations they offer are not usually competing for the same territory. Hence it is perfectly reasonable for a religious person to talk about God creating all things, and to explain the development of this creation in cosmological and evolutionary terms. These may be compatible explanations, not contradictory ones

Further help on model and metaphor

1. The Zen saying: "A finger pointing at the moon is not the moon itself."

2. I.A.Richard's definition of metaphor:

"In the simplest formulation, when we use a metaphor we have two thoughts of different things active together and supported by a single word, or phrase, whose meaning is a resultant of their interaction."

3. Matthew Black notes that a metaphor is like a screen or filter through which something can be seen in a fresh light and as such the metaphor has the "power to inform and enlighten". A literal paraphrase would fail "to give the insight that the metaphor did".

4. I.T.Ramsey, a former Bishop of Durham and a scientist spoke of "model" as a way of talking about God: "A theological model is a way of understanding what has been objectively disclosed in a cosmic disclosure". Theological models are not representational picture models but "disclosure-models" which point towards an insight into the nature of reality but which in themselves are inadequate.

5. The theologian John Baillie summarised the meaning of the metaphor of God as Father like this: "At the centre of the Universe there is that which is more like a father's loving heart than like anything else we know."