

Using debates to develop and assess critical reasoning abilities

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Introduction

The ability to construct evidence based arguments is an important and necessary skill in biosciences, health and other areas and arguably helps to define the concept of graduateness – the acquisition of a set of advanced transferable skills that are useful in any employment area. However, developing critical reasoning abilities progressively throughout a three year degree course is often implicitly rather than explicitly addressed. We often assume that our students understand that this is what we expect them to do when we direct them to the evidence base and this is not really good enough in a student centred ethos. Students have to know what they are meant to be learning and need to be able to self evaluate the extent of their learning. Learning outcomes need to be both explicit and transparent.

Deconstructing what is meant by critical reasoning is for me relatively straight forward; I want my students to observe the world around them, ask questions about what might be going on, consider possible answers and explanations and determine which ones, on the evidence available, seem most plausible. In other words, I want them to think things through before they express opinions. Critical reasoning is also central to reflective practice – it is about evaluating one's own reasoning to see how it holds up to new experiences and it is also about 'the ability to use language with clarity and discrimination' (Thomson 2002 p2).

Opportunities abound on science and health courses to confront radically opposite viewpoints as ethical dilemmas present themselves almost daily. Examples here include reproductive technologies, end of life decisions, ecological ethics and the nature of doctor/patient relationships. Many of these dilemmas are based on debating 'should we because we can' and provide a valuable learning opportunity for students to engage in critical examination of both sides of the argument; whilst raising their awareness of the social responsibility of scientists and the impact of scientific developments.

In the Faculty of Health here at Leeds Met, on our Health Sciences and Public Health courses we have a first year, first semester module, Concepts of Science and Health. This was designed to explore definitions and views of both of those terms and discuss moral and ethical frameworks that may help to evaluate and construct reasoned arguments around contested issues.

60% of the module assessment is for the production of a group report that sets out the arguments that either support or refute an ethical standpoint followed by a debate with their opposing group based on the written reports.

Module Structure

The first year cohort includes over 140 students studying Biomedical Sciences, Public Health and Complementary Therapies. Large group teaching sessions, though lecture theatre based, are very interactive and introduce moral philosophies that may help to inform discussions such as utilitarianism, deontology and the medical ethics of Beauchamp

and Childress. Moral and ethical dilemmas are presented as scenarios for debate and enthusiastic discussion is the norm in these sessions. I often find myself able to stand back and listen as students converse with each other throughout the room. Whilst it is not just the usual suspects that take part here, some students, for a variety of reasons are never going to feel able to contribute in this arena. These large group sessions are therefore supported by course cohort group tutorials. In these smaller tutorials the quality of the argument presented in the larger sessions is evaluated and further problems considered.

Module Assessment

For the assessment students are divided randomly – by alphabetical order - into groups typically of five students. Topics for debate are determined by the whole student cohort based on their current interests though each group is randomly allocated both the topic and whether they have either the ‘for’ or the ‘against’ argument to prepare. They may therefore find themselves having to uphold a position that they themselves do not presently support. Assessment criteria for the report, developed with the students in tutorials, focus on the quality of the arguments and the evidence used to support them.

Completed reports are swapped between opposing groups and they are asked to prepare a series of questions, typically four that they wish to pose based on issues arising from their reading and interpretation of the arguments in the report.

This year topics were:-

- Reproductive technologies/designer babies
- End of life decisions/euthanasia
- The treatment of lifestyle induced illnesses
- Drug companies
- Ecological ethics
- Animal rights

The Debate

The assessment criteria for the debate are developed with the students during the tutorials (when the procedure is also made clear to them) and typically include the necessity for everyone to contribute, though not necessarily equally and for debates to be reasoned and evidence based rather than purely emotive! Each criterion is marked on a scale of 1–5 to allow for mark allocation but additionally has space for feed forward comment.

The role of the tutor is to direct proceedings, time keep and retain order! The module tutor is present for all debates with a second tutor for moderation.

Opposing groups come together and ask their predetermined questions in order. After each question the opposing group completes their reply (one minute) and there is then the opportunity for open debate (three minutes). When all questions have been asked each group self evaluates their performance against each of the criteria and with marks allocated within 24 hours after tutor consultation.

Evaluation

Student evaluation of both the module and the assessment is extremely positive with many specifically commenting that their views were changed as a result.

The main drawback is that which is inherent in any largely self managed group work which is how to manage dysfunctional groups and the extent to which any allocated marks reflect an equitable contribution by all group members.

Whilst students can develop arguments in written assignments such as essays, being verbally challenged to provide the reasoning behind those arguments and to engage in

dialogue demands that they have to process information, reflect on it quickly and chose words carefully to formulate a response. Debates provide a useful learning opportunity and perhaps an exemplar for authentic assessment – developing and assessing skills needed in the real world of work and lifelong learning.

References

The Biosciences Subject Centre

<http://www.bioscience.heacademy.ac.uk/network/sigs/ethics/index.htm>

[Accessed July 2007]

Bond, A. (2005) *The use of debating in teaching ethics*

<http://www.bioscience.heacademy.ac.uk/events/reports/belfast05.htm#bond>

[Accessed July 2007]

Conference Report from 'Teaching Ethics to Bioscience Students: Challenges Old and New' 7th December 2005 Belfast Castle, Northern Ireland

Thomson, A. (2002) *Critical Reasoning – a practical introduction*. 2nd Ed London: Routledge