Mass Teaching of Bioethics

Practice in Developing Thinking and Analysis

Roger S Pearce
Division of Biology
University of Newcastle upon Tyne

The problem

Stage 3 and MSc students are examined on their ability to think and argue about bioethical issues.

But the class is large.

Was 20-30 initially, grew to 70-80 by winters 2005 & 2006; will be ~143 in winter 2007.

Thinking and arguing was practiced in a single substantial essay: the large numbers made it difficult to mark and provide feedback on a substantial essay in a timely manner.

Two possible solutions which I discounted:

- Make the module optional – the bench mark requirement for students to acquire familiarity and skills in this area suggests a module in this area should be compulsory.
- Get colleagues to help in tutorials – I would need to train many colleagues, as was done at Glasgow*, but this was not a possibility in the short- or medium-term.

*Roger Downie, Westminster meeting 2002, Leicester meeting 2004.

My solution

Mass sessions to practice thinking and writing of an argued case.

Students work in groups & write individual analyses within the session.

Purpose of talk

Inform you about this (in case you want to try).

Elicit suggestions for improvement or alternatives.

The module comprises two components running in parallel:

21 sessions in which different experts give 2-3 interactive sessions on their issue. (Unchanged)

Sessions to practice thinking and arguing. (New)

This talk concerns the latter.

Three 2h sessions to practice thinking and arguing:

Session structure:

- explanation of the session topic, organisation, procedures, and output (powerpoint and hand out)
- discussion of topic in groups (6-7 students/group)
- written argument (completed & submitted in session)

[~30 min, ~1 h, ~30 min]

Some points about the sessions:

- A few example ethical points are given so the students don't go into the topic cold.
- How the group discussions should proceed is prescribed (slide 10 and others).
- There are a few demonstrators (1-to-few staff or PG; they can help with the marking too).

Session topics:

1. Specific - eg concerning an individual or family (but others have a view):

   Sibling to provide a cure

2. Wider - affecting many eg concerning a technology:

   Golden rice

3. Completely general - fundamental questions

   eg should there be limits to what scientists can consider; determinism v free will; etc

Thinking involves organising facts and ideas as well as being analytical, logical and consistent.

So I provide tools, as follows.

Within discussion groups to help organise their thinking (inspired by de Bono's "Six Thinking Hats")

- Turns-each, no argument until its time, put gut feelings on the table first, then identify interested parties, then the facts including the gaps, then some lateral thinking (try to see it from another point of view), see if there is agreement and if so why and if not why not.

In a parallel lecture I have already illustrated a Eucleidian structure to an argument: proposition, assumptions, steps of argument, conclusion.

To dispute the conclusion one must either reject the assumptions or detect a flaw in the argument.

The ethical matrix (after Mepham)

	Well-being	Autonomy	Fairness
Interested party A			
Ip B			
Ip C			
etc			

The written product:

Based on what is in the student's head, done immediately following the discussion.

Students can argue whichever view they want regardless of the outcome of their group discussion.

The output: ~one side of writing; quality of thinking not quantity.

- The students get specific and also generic feedback.
- Generic feedback is important because it can illustrate alternative ways to tackle the issues raised by the topic set. Because the students have tackled this themselves, but possibly have considered only one approach, they learn more than by just seeing comments on their own work.
- For example, I can analyse the golden-rice topic to show how much of the explicit argument is about facts, to ask the question whether a technology (rather than the use of it by people) can be unethical, and to show the effect that answering this question one way or the other has on the complexity of the answers that can be generated.

So the students get practice under exam-like conditions with the incentive of a mark,

And the emphasis is on the key objective, the ethical and logical content not the presentation quality.

This approach gave more scope for practice and progression in ability to think and argue, and more scope for monitoring how this developed, than my previous system using a substantial essay as practice.

It has therefore avoided the numbers problem while, I claim, increasing the quality of the teaching and learning.

The advantages for me are that the work and hence the marking is spread over a longer time, the amount of time needed for marking is greatly reduced (~3 sides hand-written versus ~6 word-processed) and the job of marking can be shared with demonstrators.

This facilitates progression in what the students can achieve and helps me to identify students who need extra help earlier in the term.

Summary of talk:

Each session at different points during the module copes with a large number of students divided up into small discussion groups. Students get practice in achieving the intended learning outcomes of the module, they can seek help on the spot and myself and demonstrator(s) can monitor and contribute to their discussions and can give feedback on their written work.

The End!

…of the talk…

But more details and examples follow…….

In addition to the information in the talk, I outline to students more about these factors that they will include in their discussion

- Emotions: Your intuitive/“gut” feeling.
- “The interested parties”
- The facts.
- “Lateral” thinking
- Reasoned conclusion

The following slides elaborate……

Emotions: Your intuitive/“gut” feeling.

Take note of your feeling but ask yourself why you feel like that.

Includes the “irrational” component.

Includes the “Yuck!” factor.

“The interested parties”

Who takes the action, and who may be affected.

Need not just include humans. How far should we stretch this point?

1. Chickens!

Probably feel pain and probably experience fear.

Language barrier; try to interpret their responses.

2. Rare species of microbe in danger of extinction.

No pain and no fear, we think.

It has an “interest” in avoiding extinction.

The Relevant Facts

What is agreed as certain.

The gaps that need filling.

Statements that certain opinions are generally held or held by people significant for the issue (the opinion may or may not be correct).

Exclude the personal opinions of the discussants.

“Lateral” thinking

People often think in straight lines, or within a box.

Be imaginative, in order to see the issues from the point of view of “interested parties” with widely different concerns.

Reasoned conclusion

You must explain your conclusion.

This does not exclude emotions as a consideration.

You could comment on how the interested parties will be affected and whether you think that those effects should be acceptable.

Example instruction of how to proceed

Go through the components of the discussion session one at a time.

Each person must speak once on each point. Repetition of points is allowed by different contributors where it is appropriate (e.g. gut feeling but not in the facts round) and you can go round more than once if useful (e.g. in the fact round but not the gut feelings round).

Do not argue until the discussion round (but the note taker can ask for clarification).

You may repeat a round if it is helpful (e.g. if more facts may be brought out or more factual gaps identified).

The final round of discussion does allow arguments. (But do not argue against someone's gut feeling.) Argue politely and regard the purpose as a constructive one – not to prove someone wrong but to find the right answer.

(There are also instructions on chairing the discussion groups.)

Session 1 case to consider and report on

(after, by quite a long way, John Searle, Leicester bioethics meeting)

A child has a genetic disease that will kill her within a few years.

She can be cured by a bone marrow transplant but needs the best immunological match for success.

This can be provided by a genetically selected sibling.

The parents propose to produce one, and this will necessarily involve *in-vitro* fertilisation method (IVF).

Only some of the embryos produced will be returned to the mother. These will be selected for absence of the gene causing the disease, and for expected immunological match.

The child or children that result will have been produced to cure their elder sister.

Who are the interested parties, and on what basis do you identify them as such?

What else, apart from the above information, would you need to know and why?

Try to decide if this is moral or immoral. Explain your reasons.

Session 2: Golden Rice

Unlike other sessions, students are given information to look up beforehand.

The discussion groups meet during the session but, again unlike the other sessions, this leads into a debate.

Students then as usual write their argument in the last 25-30 min of the session.

Session 3

Ethics of Science

In this session different groups are allocated different questions and then contribute to a general discussion. Students then write on whichever question they like.

The questions are……

1. Science (and technology) creates problems such as pollution. Should there therefore be no more science?
2. Knowledge can be misused, some more than others. Should therefore some possible areas for research be out-of-bounds to science?
3. Science only provides a current “best-guess”, never certainty. Therefore it would be unethical to talk as though we are certain. How then should we, or can we, accurately convey to the public, knowledge of risks and possibilities (to do with food safety, health, technological possibilities, etc)?
4. Science gives a determinist account of the world. So free will cannot exist. Why then do we believe we can make ethical judgements about the application of science?

I make some comments on each to help them get started,

as follows….

1. Science (and technology) creates problems such as pollution. Should we therefore stop doing science?

Chemistry underpins many polluting industrial processes.

Is it possible to live and not gather knowledge?

2. Knowledge can be misused, some more than others. Should therefore some possible areas for research be out-of-bounds to science?

Should we/could we have avoided investigating nuclear properties of atoms?

Should we outlaw research in embryonic cell line therapy?

3. Science only provides a current “best-guess”, never certainty. Therefore it would be unethical to talk as though we are certain. How then should we, or can we, accurately convey to the public, knowledge of risks and possibilities (to do with food safety, health, technological possibilities, etc)?

Would it be unethical not to use your “best-guess” if that is all you have? If so, how do we know when we know enough for the best guess to be safe (given the infinity of time ahead, is the probability very low)?

Disproving hypotheses (an important part of the method for scientific advance) seems not to help?

4. Science gives a determinist account of the world. So free will cannot exist. Why then do we believe we can make ethical judgements about the application of science?

Humans can hold two logically incompatible ideas in their minds simultaneously and believe both (in the sense of each “working”, though possibly in different contexts).

Physicists accept that matter can be described as comprised of particles or waves – seemingly illogical but accepted by philosophers as well as physicists.

Do a mechanistic science and free will offer alternative models of the world, applicable in different circumstances?

Free will is clearly bounded (we cannot wish ourselves to Mars); does this not put it in the same system as the one described by science?

Some comments on the large flat space needed to run many small groups simultaneously.

In the absence of an ideal space consider what can be adapted, and if necessary argue your case for access and adaptation.

Large flat spaces are rare but many Universities have one large space for ceremonies such as graduation.

Consider large labs, though they are usually heavily used there could be gaps in the timetable for a few sessions.

A large lecture theatre is a possibility if the total number of students is not too large, if individual groups are of small size, and if there are enough rows to keep some clear so you can reach each group.