TEACHING ETHICS IN A CLASSROOM OR LECTURE THEATRE SETTING

Ethics can be defined as:

- The branch of philosophy dealing with values relating to human conduct, with respect to the rightness and wrongness of certain actions and to the goodness and badness of the motives and ends of such actions.
- the moral fitness of a decision or course of action
- the rules of conduct or behaviour of a particular group, profession, or individual

The UK national curriculum for science in secondary schools[1] requires students to understand a number of key concepts that underpin the study of science and how science works. This includes the applications and implications of science, specifically:

- Explore how the creative application of scientific ideas can bring about technological developments and consequent changes in the way people think and behave.
- Exam the ethical and moral implications of using and applying science.

> *"Scientists, individuals and society need to think about the balance between the advantages and disadvantages of new developments before making decisions (e.g. examining issues relating to selective breeding and genetic engineering of plants and animals, to the production of potentially hazardous chemicals, and to the use of nuclear energy). The way scientific developments are achieved can also raise ethical and moral issues, for example experiments on animals to produce drugs that may prolong human life."*

Similarly, in Higher Education, the UK Quality Assurance Agency (QAA) Biosciences Benchmark statement requires students

> *"To be confronted by some of the scientific, moral and ethical questions raised by their study discipline, to consider viewpoints other than their own, and to engage in critical assessment and intellectual argument"*

Therefore, we should not be just providing students with knowledge of individual ethical issues within their discipline but training them to think ethically, be able to recognise ethical issues as and when they arise and address these accordingly. This will require them to consider views other than their own, to weigh up the harms and benefits from different perspectives and to come to a considered, informed decision. This cannot be achieved using didactic approaches and therefore the following are teaching strategies, we have successfully used to encourage ethical discussion within classroom or lecture theatre settings.

Debate

The class should be divided into 4-6 groups (4-6 students per group), with each group allocated a particular perspective spanning the spectrum of public opinion (e.g. for animal experimentation: scientists supporting, patients and clinicians, those promoting animal welfare, animal rights activists). Each group prepares a short presentation (7-10 min) and provides the opposing groups with a summary of the main points of their presentation so the latter can pre-prepare questions. In the debate, one member of each group delivers their groups presentation. After, all

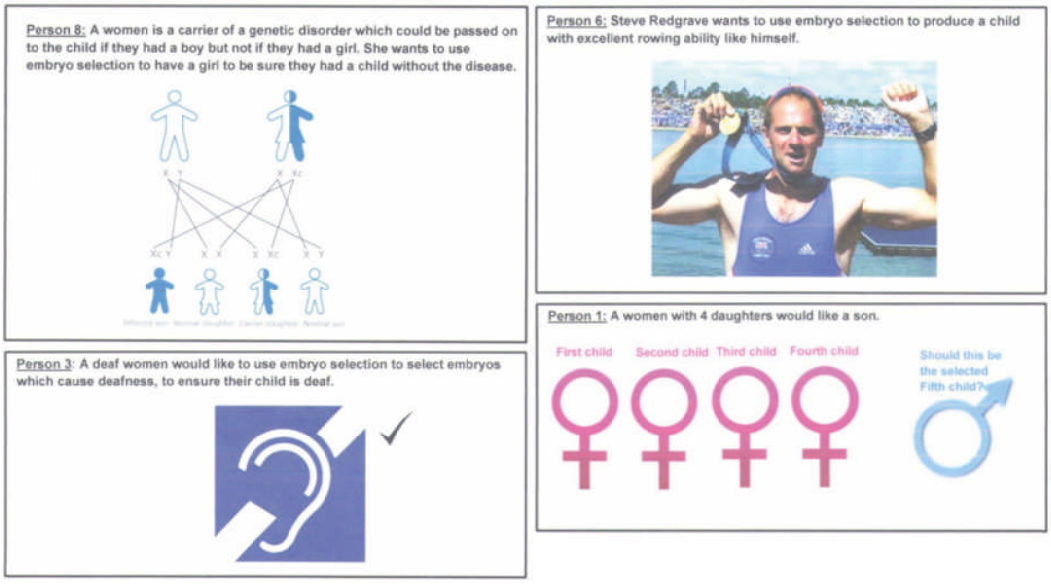
groups have delivered their presentations, staying in their allocated role or perspective, each group has 15-20 minutes to answer questions posed by opposing groups; they must answer the questions posed and not respond by asking a question back. This format allows the issues to be explored from multiple perspectives without the debate degenerating into a free-for-all. The session can be assessed by allocating marks for the presentation (quality of delivery and development of arguments); how well the group answered questions posed to them and number/quality of questions they asked as a group

Facilitated debate

The class is divided into groups of 4-8, ideally with each group seated around separate tables. The class is shown a video case study which is paused at intervals, for students to discuss, within their small groups, a question posed which addresses a particular issue or perspective within the case study (see http://www.fbs.leeds.ac.uk/performance2012/EducationalResources.php for examples). Following these small group discussions, a raconteur from each group reports their group's opinions to the class as a whole in a plenary session. The case study is then re-started until the next question and so on. After one or more case study have been shown and discussed (as above), the session can be brought together by asking questions to the class which put the case studies into a wider context within Society. The benefit of this particular method is that it enables students to voice what might be a controversial opinion in the comfort of a small group, it is reported to the class as a whole as the groups rather than an individual's opinion.

Debate cards

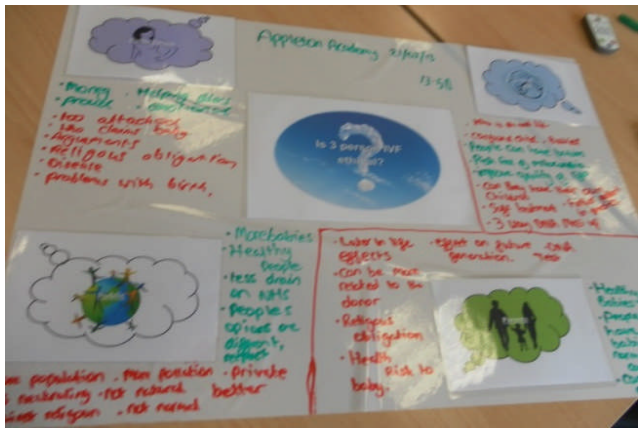
The class is divided into groups of 4-8, ideally with each group seated around separate tables. Each group is given a card which looks at a particular issue from a different perspective. In the example below, "*Designer Babies*", these could include a women who is a carrier of a genetic disorder which is passed through the male line and



therefore would like to select a female embryo or an athlete who would like to ensure that their offspring has the same athletic talent as themselves. Each group considers whether the proposed use on their card is acceptable

before each case is discussed in a plenary session, culminating a discussion of what are the boundaries to the use of the particular technique.
An alternative is to use the debate cards produced by the "I'm a scientist, Get me out of here" team which provide a series of cards on a topic, each with a separate character, a scientific fact and an issue/question for individual groups to discuss before consideration by the class as a whole (http://imascientist.org.uk/lessonplankits).

Harms versus benefits mind maps



The class is divided into groups of 4-8, with each group seated around separate tables. Groups are provided with flip-chart paper, large whiteboard or similar and two different coloured pens. For the issue under discussion, the teacher identifies up to six interested party's (e.g. for the use of drugs in sport: the athlete who use performance enhancing drugs; their coach; fellow (clean athletes); sports professional body; fans; sponsors). Groups divide their flip chart/white board into sections, one for each "interested party" and identify the harms and benefits of the issue under discussion for each interested party, writing the harms in one colour and the benefits in another in the section that party. After 15-20 minutes, the groups are rotated, with each group viewing and discussing a mind map generated by a different group. You could ask them to identify the most pertinent issue or point within the mind-map they are viewing. The session can be concluded by a plenary discussion of the main points raised or putting the session into a wider context.

Allocated viewpoints

Prior to the showing of a video case study, the class is divided up into 4-6 groups (e.g. front right, back left etc), with each group invited to view and consider the case study from the viewpoint of a particular interested party (e.g. genetic screening: the child whose embryo was screened; their parents; their brother or sister; the general public; leader of a religion). Following the showing of the case study, students within each allocated group discuss their thoughts, harms and benefits from the perspective of their allocated interested party with other students from the same group before individuals from each group are invited to present these to the class as a whole. The perspective of each "interested party" can be discussed in turn. This format is ideal for exploring and discussing a particular ethical issue or topic from multiple perspectives in a lecture theatre setting and/or with a large class (400+) as there is no limit to the number of interested parties or students allocated to a particular interest group.

Written case studies

Students are provided with a written case study which they read and then discuss with their neighbours within the class, identifying and considering the issues raised. These discussions are followed by a plenary discussion of the issues raised. The benefit of this format is that a properly written case studies allows the discussion of multiple supplementary issues (e.g. informed consent: how much is it acceptable to pay participants; what information should go into a subject information sheet; how should informed consent be obtained; vulnerable individuals etc). It is also a low-cost approach suitable for use in both small and large class sizes (10-80 students).

References

1. UK National Curriculum for science in secondary schools: http://www.education.gov.uk/schools/teachingandlearning/curriculum/secondary/b00198831/science
2. UK Higher Education Quality Assurance Agency Biosciences benchmark statement (2007) http://www.qaa.ac.uk/Publications/InformationAndGuidance/Pages/Subject-benchmark-statement-Biosciences.aspx