

Democs: a conversation card activity for teaching science and citizenship



Image courtesy of NEF

Karen Smith from NEF, the New Economics Foundation, London, UK, describes an approach to creating a safe space where students can discuss sensitive topics, like stem-cell research or genetically modified food. How can

students be encouraged to explore their values in relation to science topics, and to debate the ethics of science itself?

Democs (**DE**liberative **M**eetings **O**f **C**itizen**S**) is a conversation card activity developed by NEF^{w1}, with funding from the Wellcome Trust^{w2} and the UK Department of Trade and Industry^{w3}, to promote discussion of controversial topics in science. Each Democs kit is written on a specific topic and since there are no right or wrong answers, players are free to express their own opinions without having any prior knowledge of the topic. Players learn new information (written and checked by experts in the field), discuss the topic with other players, and can vote on

the policy options they would recommend to decision-makers.

Democs has been adapted for schools with the help of the Centre for Science Education at Sheffield Hallam University, UK^{w4}. From evaluation, it was clear that Democs could be a useful tool for learning in schools. It has the appeal of its game-like format and the informal way in which students learn about a topic, which motivates them to find out more once they have played.

However, there were a number of challenges. How would Democs fit best into the school timetable? What

age range would it suit most? How could we avoid overloading students with information? And how could preparation be made as simple as possible for teachers?

NEF, along with the Centre for Science Education and trained facilitators, worked hard to address these issues. A number of trials were run in UK schools, and at the British Association for the Advancement of Science's Festival of Science in 2005^{w5}. Further revisions were made to kits before a final version was released in 2006. Democs is a resource that can be a useful tool in cross-curricular activi-



Try Democs for yourself

For general information about Democs and Democs in schools, see: www.neweconomics.org/gen/democs.aspx

Democs resources are free to download from the NEF website: www.neweconomics.org/gen/democsdownload.aspx. In addition to the school kits, there are also kits on the topics of xenotransplantation, pre-implantation genetic diagnosis and over-the-counter genetic testing, suitable for older students/adults.

A Democs kit on nanotechnology for students aged 16 and above is available to download from the Wellcome Trust website: www.wellcome.ac.uk/knowledgecentre/education.

A CD-ROM with a short video on Democs, and interactive process charts for each school topic is available for £15. Boxed kits are also available to purchase. For more information please visit: www.neweconomics.org/gen/howtogetholdofdemocs.aspx

A variation of Democs called Decide has been translated into different languages, but has not been adapted for schools use. See: www.decide.org for more information.

Karen Smith has moved on from NEF since writing this article. To find out more about Democs, contact Perry Walker at the NEF on +44 (0)20 7820 6339 or email perry.walker@neweconomics.org

ties too, such as citizenship, English, geography and religious studies (for ages 13-16), and in general studies, philosophy, and personal, social and health education (PHSE) lessons (for ages 16 and above). Topics already available include vaccinations, climate change, animal experimentation, stem-cell research, genetically modified food and neuroscience.

Democs helps students reflect on controversial science topics and their impacts on society. They can develop their own opinions, share their views and appreciate others' standpoints. It also encourages students to influence decision-making. The votes from each Democs game are returned to NEF, collated and displayed on the NEF website. Soon teachers will be able to input their results online, and results can also be used to influence local or national decision-making.

Teachers have been quick to praise Democs:

"It makes students more comfortable sharing ideas. Sensitive issues can be made more comfortable. It feels safer."

"Fantastic approach to introducing discussion and information on ethical issues."

Teachers' comments after playing Democs at the East of England Science Learning Centre

"Democs clearly has a role in schools. It was a valuable experience in helping pupils develop conversational skills."

Head of Citizenship, secondary school, Oxfordshire, UK

And it's not just teachers who think Democs is a great way to encourage students to discuss such sensitive subjects:

"Everyone got to talk. Usually if I'm in something like this I won't normally say much – I'm a listener – but everyone got a chance to talk this time."

"It gave the information so anyone can take part in the conversation to a competent level, whereas if you were to bring it up outside of the game the conversation wouldn't have gone so well."

Young people in Peckham, London, UK, aged 15-19

Web references

- w1 - NEF (the New Economics Foundation) is an independent organisation that aims to improve quality of life by promoting innovative solutions that challenge mainstream thinking on economic, environment and social issues, putting people and the planet first: www.neweconomics.org
- w2 - The Wellcome Trust is the world's largest medical research charity funding research into human and animal health: www.wellcome.ac.uk
- w3 - UK Department of Trade and Industry: www.dti.gov.uk
- w4 - The Centre for Science Education at Sheffield Hallam University: <http://extra.shu.ac.uk/cse>
- w5 - The British Association for the Advancement of Science: www.the-ba



Biology teacher Shelley Goodman from Chelmsford College, UK, tested Democs for *Science in School*.

Finding teaching and learning methods that engage students is a challenge that all teachers face. Controversial issues are particularly difficult to teach, as the teacher must present all the information with a balanced view in a sensitive manner. The students must understand all the principles behind any issues before they can make their own informed opinions, rather than expressing beliefs based on sketchy knowledge or hearsay. An essential part of learning science involves learning how to evaluate information, question its validity and relate it to everyday life. Democs encourages the exploration of scientific ideas and considers the role of science in society, helping students to develop scientific literacy with a critical approach to reading scientific evidence and methods. Participants in Democs develop their communication and collaborative skills through group discussion and presentation.

Each pack includes a teachers' guide, topic cards, topic activity and follow-up activity. The pack provides the necessary background knowledge, a series of story cards that investigate the effect of the subject in question on different people, and a set of cards that outline the major issues with key questions to provoke discussion. Students are encouraged to vote at both the start and the end of the session, to compare how their views change once they are fully informed of the facts.

The teachers' guide for the vaccinations policy is very detailed, although it took awhile to understand all the steps involved. An outline lesson plan is included, suggesting that vaccinations policy should be

explored over four lessons, taking from one to two-and-a-half hours in total. The suggested timings are useful and very clear, but I feel that it would be hard to start the topic in a single lesson and would suggest a double lesson to begin with. Students are first introduced to the idea of a policy stance and policy-making and are given clear conversation guidelines, so that all students in a group of four to eight can contribute equally, followed by an initial vote on their policy stance. It is suggested that lesson two uses pair work to explore the background knowledge and then lesson three is used to unravel the issues and challenges involved. The students then take an informed vote and compare it with their initial vote. A final lesson is advised to consolidate learning and communication.

These kits could easily be used at GCSE (ages 14-16) and A-level (ages 16-18) to cover syllabus material, but they could also be used as extension work. Students could be encouraged to research further information using the Internet, press releases and journals such as *New Scientist* and *Nature*. This would improve their ability to find and evaluate relevant information and to express opinions and ideas. Students could present a short seminar to each other and then write up the topic, giving them valuable experience in both written and verbal communication skills. Overall, I believe that these packs give the teacher and student an unbiased view of a topic that may be difficult to teach, in a convenient and simple format.

