

Experiment on using new technology for student presentations

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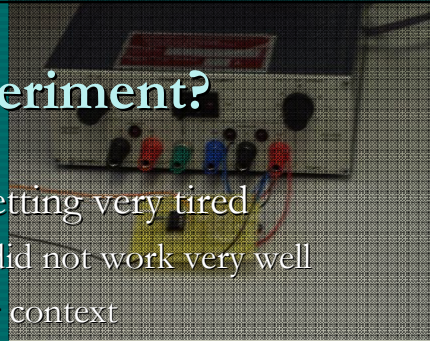
School of Engineering and Electronics

Acknowledgements

- Tom Bruce and Steve Warrington – proposed original idea for workshops
- Guillermo Rein – my accomplice in the workshops themselves
- Daniela Gachago – provoked discussion on application of the technology
- Jon Jack – for the photos to make the presentation interesting!

Why an experiment?

- Engineering 1 has been getting very tired
 - In particular, laboratories did not work very well
 - Missing much of the wider context
- The teaching studio at KB was installed
 - A golden opportunity to start something new
- Electronics and Mechanical Engineering agreed to pilot a new workshop scheme



We aimed to achieve...

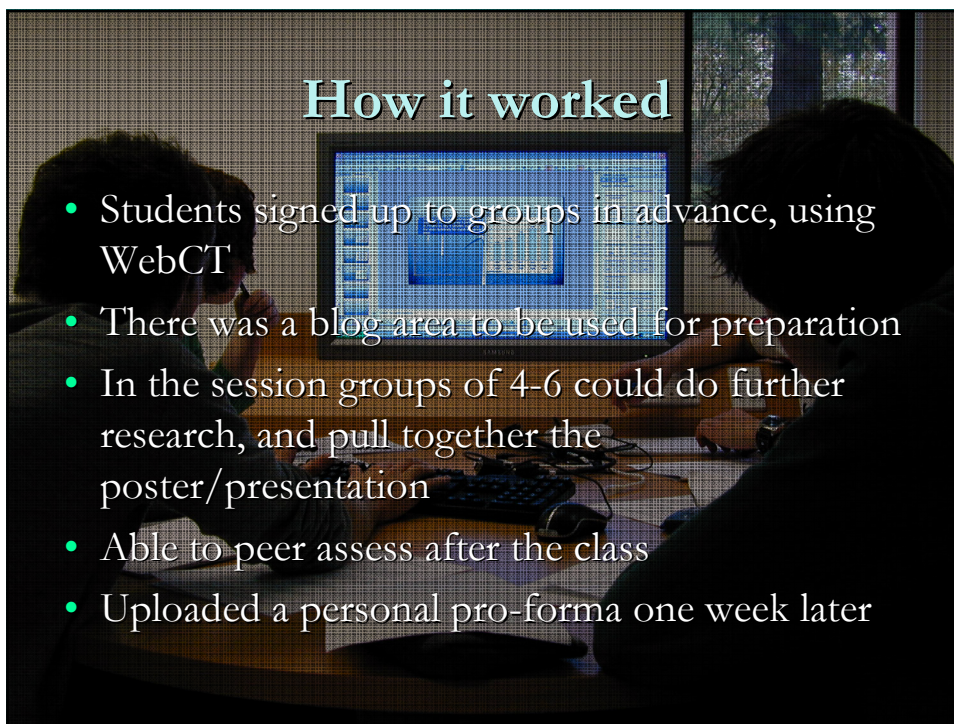
- A wider understanding of Engineering in society
 - Required by accrediting bodies
 - Important for Engineers
 - Not perceived as vital by majority of students
- Emphasising the importance of teamwork
- Developing communication skills





What we did

- Workshop 1:
 - Theme: Sustainable energy
 - Task: Develop a 5 minute presentation
 - Selected groups presented and were rated by class
- Workshop 2:
 - Theme: Society and Ethics
 - Task: Create a poster
 - Groups peer assessed four other posters



How it worked

- Students signed up to groups in advance, using WebCT
- There was a blog area to be used for preparation
- In the session groups of 4-6 could do further research, and pull together the poster/presentation
- Able to peer assess after the class
- Uploaded a personal pro-forma one week later

Mass Transport

The Efficiency, Attractiveness and Environmental Friendliness

Wave Power

Energy from the sea

March Janczyk, David Oswald, Simon Currie,
Kevin McIlwaine, Frances Radford, Fraser Smith

Centralised Power Distribution

Why is it necessary?

Edward Painter, Mark Mackenzie,
Robbie Baxter, Marisa Herreros,
Robert Hicks.

Improving Energy Production Supply and Use



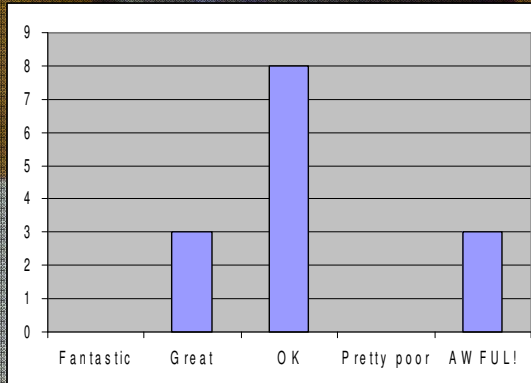
Kenneth Archbold, Douglas Lang,
David Reid, Graham Morris,
Richard Smith

Feedback on Workshop 1

- Using clickers, students peer assessed the presenting groups, using one clicker per group
- Some groups really discussed, the majority had a very cursory discussion and responded quickly
- Only some students used WebCT to peer assess other presentations

Feedback question in class

- At the end of the session, we ran a quick clicker question
 - “What did you think of this workshop?”
- The feedback was poor on the first time
- It improved as we improved the introduction



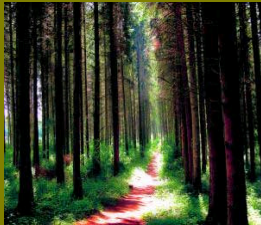
Counteracting Carbon Carnage

Brian Armstrong, Calum Costello, Lachlan Golder, Daniel Maxton, Nigel Simpson

Introduction

Carbon offsetting is a method for reducing an individual's impact on the environment by neutralising their carbon emissions through various schemes.

Although carbon offsetting is similar to carbon trading there are no fixed rules governing it as yet enforced. However Defra have drafted a "code of best practice" to improve confidence in it.



Methods Of Carbon Offsetting

- Reforestation
- Investing in renewable energy
- Improving energy efficiency
- Methane collection and combustion

Advantages

- It raises public awareness on rising CO₂ levels
- Money from carbon offsetting can be invested in clean technologies to aid in the reduction of global warming
- Money spent on buying credits can be used to teach developing countries about the use of biofuels and other renewable sources such as
- Industries are able to continue production without compromising their current operations
- 'Green tags' (a form of carbon credit) go towards cleaner energy

Disadvantages

- Does not encourage people to cut down on emissions
- Not a direct solution for climate change
- Only reduces CO₂ in localised areas
- Developing countries might suffer by not having enough power
- More expensive for general public to use due to economies of scale

Conclusion

Although carbon offsetting has its benefits it is not a true solution to climate change.

It raises awareness of the climate change issue with the public. It also helps fund development of greener technologies with higher energy efficiencies and development of renewable energy. But this does not reduce carbon emissions in itself.



References

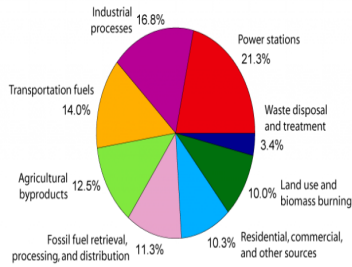
- http://www.defra.gov.uk/environment/climatechange/uk_carbonoffset/index.htm
- <http://www.carbontrust.co.uk/>
- <http://www.carbonfootprint.com>

Making a Global Warming Policy

Causes of Global Warming

- Caused Greenhouse gases such as CO₂, Methane and water vapour.
- CO₂ produced by oil, gas and coal power station, vehicles, air transport and deforestation.

Annual Greenhouse Gas Emissions by Sector



Effects of Global Warming

- Increase of temperature on the earth by about 3° to 5° C, which will lead to sea levels increasing by at least 25m by the year 2100.
- The increase in sea levels will have devastating effects on most low lying countries.
- Many species will be made extinct due to the temperature increase and loss of habitat.

How can Engineers Help?

Engineers can encourage for research and development to be included in a global policy in order to increase efficiency and reduced pollution in greenhouse gas emission. e.g. more research can be done to make cars and power stations cleaner and more efficient.

Should a policy be unified or not?

• Many countries are in different stages of development and because of this it is unfair to have one global policy. E.g. England has already gone through a period of industrial revolution and countries like China are just starting it, and so would be unfair for them to meet the same emission standards as us.

• However if the policy was unified it would be far more effective as every country would have to meet the same pollution standards.

• One policy in practice at the moment is the **Kyoto Protocol**. Most of the world's countries eventually agreed to the Protocol, but some nations including the US and Australia choose not to agree with it.

Can all countries be fairly represented in policy making?

• Global superpowers are likely to have far more say in the making of a policy. This could lead to the policy favouring the richer more developed countries.

• An ideal policy should incorporate all countries ideas. This could be done by having an independent body and having a representative for all countries.



Conclusion

Global warming is a real threat which needs to be addressed. This can only really be achieved if everyone works together and so a global warming policy needs to be unified for it to be effective. Engineers can do their part to help in this.

References

- <http://timeforchange.org/cause-and-effect-for-global-warming>
- http://blogs.princeton.edu/eqn/images/bigstockphoto_Global_Warming_217540.jpg
- http://unfccc.int/kyoto_protocol/items/2830.php
- www.lorien1973.com/.../02/poor-polar-bears.jpg

How green are we really?

Alistair Blincow, Michael Brawley, Michael Bryce, Amar Duggal, Andrew Peet, Donald Stewart

Is change needed?

60% of rubbish that ends up in land fill could be recycled

Up to 50% of rubbish in the average dust bin could be composted.

Sustainable Living

We can make our lifestyles more sustainable by:

- Recycling more.
- Using the minimum energy possible.
- Growing our own food.
- Using more sustainable transport.

How 'green' is it?

- Energy saving light bulbs are 80% more energy efficient than their tungsten-filament predecessors.

- Recycling in the UK already saves the equivalent in green house gas emissions of taking 3.5million cars off the road [4]

How cost effective is it?

- It costs an average of £17 for recycling collection costs, per year, per household. [1]

- 40,000 jobs created just to recycle 30% of waste, saving £50 million [2]

- With better wall insulation the average house could save £200 per year on its annual energy bill.

- 70% less energy required to recycle paper compared with making it from raw materials.

- 9 / 10 people would recycle more if it was made easier, or more convenient.

- Tax rebates could be introduced to encourage people to recycle.

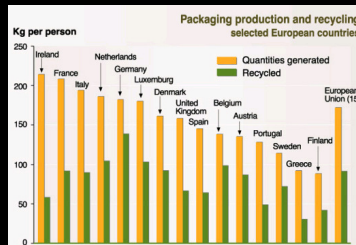
Conclusions

People are unwilling to change because of the time and effort involved. In the UK only 27% of our waste whereas our European neighbours who recycle up to 50%. However this attitude would be changed if people realised the possible financial savings.

Government intervention could potentially increase incentives to recycle. Further promotion of recycling techniques and advantages would also make the public more aware.

References

- [1] www.defra.gov.uk/environment/statistics/waste/ki/wrkf16.htm
- [2] Waste Watch (1999), Jobs from Waste, employment opportunities, London
- [3] www.recycling-guide.org.uk
- [4] www.defra.gov.uk/environment/waste/about/index.htm
- [5] www.newscientist.com/blog/environment/labels/recycling.html



[5] Packaging production and recycling selected European countries

Feedback on Workshop 2

- The peer assessment, based on paper, was quite in-depth
- Most groups filled in the comments box with some helpful feedback, albeit very short in some cases
- Students were very enthusiastic and animated during this session

Anecdotal evidence

- We did not formally survey the class after the second workshop
- Informal feedback was quite encouraging – students said they had enjoyed the session, and had learned something from it



Reflection

- Months afterwards one student indicated that they didn't like the workshop as they saw it as a "Google-ing" exercise
- The pro-forma was not terribly successful as the information was quite bland
- The blogs were very under-used
- So...next year we are planning to require the pro-forma *before* the workshops to ensure preparation in advance

Reflection 2

- Having only selected groups present during workshop 1 is not ideal as there is insufficient time to get all to present
 - One solution might be to reduce the number of groups in a workshop session
- The ordering of the workshops should probably be reversed – the poster may be more straightforward than the presentation