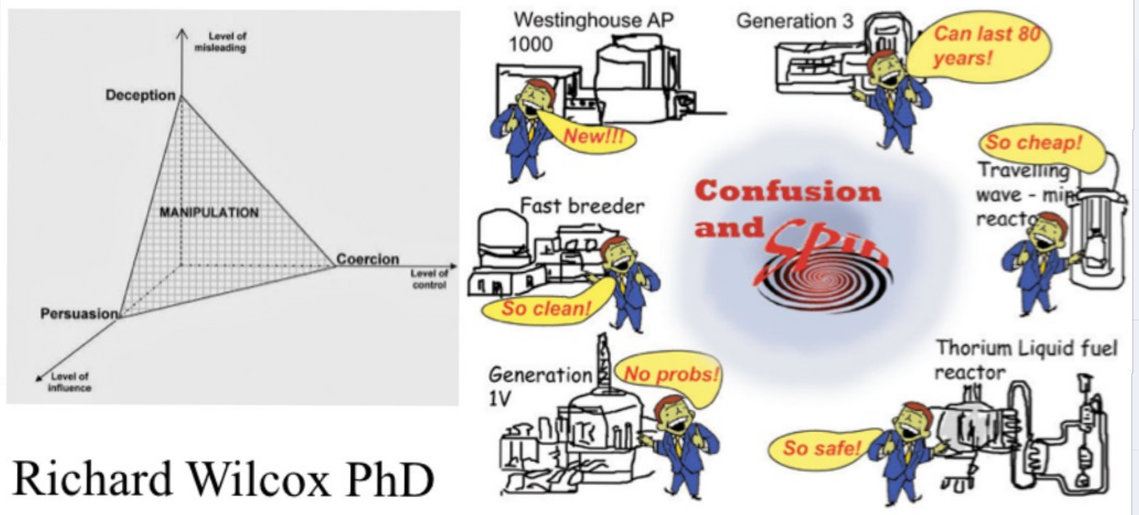
Teaching scientific relevance and critical discourse through discussion and presentation:

A case study of the Fukushima nuclear disaster



Richard Wilcox PhD

Environmental Education and English

* My goal is to inspire English language teachers to promote critical thinking

* Intermediate to advanced level students can benefit from advancing their understanding of scientific topics

* Through logical discourse, discussion and debate, students can create meaningful presentations in their areas of expertise or related areas of interest

* By creating discussion skits and academic slide presentations students can develop critical thinking skills, improve English language vocabulary and fluency and presentation skills

* There are a variety of data gathering and analysis methods which fall into two categories: qualitative and quantitative research

* I hold a PhD in Environmental Education and have been an English language teacher at university for 14 years and have taught content based language courses in the areas of environment, society and politics

* Environmental ethics has informed my pedagogy with science and engineering students by emphasizing student critical-thinking in selection of topic, source and analytical approach

Discussion & Presentation (DP)

* I have found success in advancing student scientific understanding and curiosity and language improvement by having students discussions, which culminate in presentations.

* In the age of dumbed-down educational standards ("Dumbing down," 2014) it is urgent that students in the hard sciences be able to satisfactorily explore ideas in their fields of expertise. Likewise, students in the social sciences and humanities can appreciate the natural sciences toward the goal of forging a democratic ideal in science, education and public policy.

* It is crucial that students not randomly select topics based on what they see in the media or by web browsing-- which is presented to the public with a specific agenda behind it --but employ critical thinking in their selection process followed by logical discourse with their peers in order to light upon a suitable topic.

* The DP Lesson Plan

1) introduction of theory in the form of a dvd, lecture or article presented by the instructor;
2) followed by group discussions (analysis);
3) student creation of a discussion "skit" or test;
4) group presentation (as a logical conclusion of the findings of the group discussion).

* Students download supplementary materials (Outline templates) from my blog in order to facilitate the process. Outlines for stages 3 and 4 include an explanation sheet, an example sheet and the Outline template sheet. Students also draw upon the research data base provided by the instructor at the blog

Case Study: Fukushima Nuclear Disaster

* An example of a student DP project would be a case study of the Fukushima nuclear disaster

* 311 proved to be a crash course for non-scientists in order to protect themselves and their families from the dangers of radiation, to understand the politics of nuclear power and the complexities of renewable energy options

* A useful approach for a DP project is the "pro and con" format with such a title as:

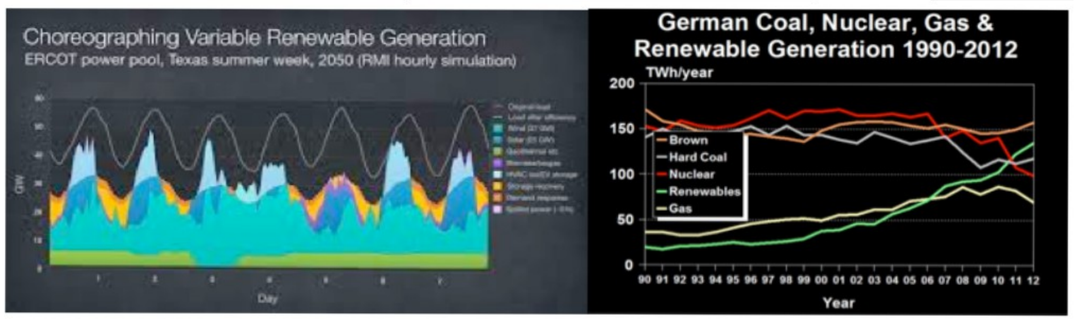
"Nuclear Power Versus Renewable Energy"

* The discussions, logical discourse, debate and presentation include elements of the pro and con positions with the conclusions reflecting the opinions of the presenters

* A conclusion might be reached that based on the potential of renewable energy to replace nuclear power that Japan should implement a transition to a non-nuclear powered future

* The conclusions students reach will be influenced by external forces regarding the nuclear debate: Namely, the role of the nuclear industry in influencing media, academia and government energy policy is witnessed by covert and overt censorship and blatant governmental threats to whistleblowers

* Newspaper comment sections on nuclear topics are filled with unidentified public relations experts who swarm to denounce anti-nuclear opinions. The "trolls" engage in a variety of invective, ad hominem and special pleading type tactics



Renewable energy is possible - Beware the trolls!

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"Sing loud for the sunshine, pray hard for the rain"
(Led Zeppelin, 1975)