

## Science and Environmental Education

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At the beginning of the 20<sup>th</sup> century, the major threat to human life was disease – the average life expectancy in the UK was 45. At the beginning of the 21<sup>st</sup> century, the average life-expectancy is 75, an astonishing change in 100 years which is primarily due to advances in science, medicine and technology. However, with increased life expectancy comes a greater population and that, coupled with a demand for increased quality of life, has resulted in a major environmental crisis. Although science and technology will provide some solutions, without an educated population prepared to change the way that they live and work, the prospects for the future of the planet look grim.

Current models of science education have failed to deliver an adequately educated population willing and able to take appropriate action at an individual or a societal level. Data from the *Relevance of Science Education* (ROSE) study indicates that in many countries, science in schools is not as popular as other subjects in the curriculum (Sjøberg & Schreiner, 2005). Science education doesn't present an accurate view of how science works; children don't identify with being a scientist, and, by the time children are 14, their minds about their career choice may be made up. The evidence points to a conclusion that science education needs to change to reflect students' needs and to produce not just the required numbers of scientists and engineers but also a scientifically literate society.

So, we need a different science education but where does environmental education fit in? Does environmental education need to become Education for Sustainable Development (ESD)? Or does the answer lie in educating people about Indigenous Knowledge Systems? William Scott and I have written that 'environmental education offers a conceptual richness that challenges current thinking in science education' because of its multi-disciplinary origins and traditions' (Dillon & Scott, 2002: 1112). Annette Gough is also quite clear about the way forward: 'Science education needs EE to reassert itself in the curriculum by making science seem appropriate to a wider range of students and making it more culturally and socially relevant' (Gough, 2002: 1210). Arguing for mutuality, Gough also argues that 'EE needs science education to underpin the achievement of its objectives and to provide it with a legitimate space in the curriculum to meet its goals because they are very unlikely to be achieved from the margins.' In terms of what science and environmental education might offer, William Scott and I have argued that:

we should focus on helping learners deal with the sheer complexity and splendour of the environment as well as looking to use the local environment as a vehicle for developing understanding of the more mundane aspects of the science curriculum" (Dillon & Scott, 2002: 1112)

van Weelie & Wals (2002: 1154) suggest the way forward lies in:

Recognising the different political, symbolic and scientific uses of [sustainable use, sustainability, sustainable development and even nature conservation] and making a critical assessment of their strengths and weaknesses, and of their knowledge and value claims in different contexts, could be an important learning goal of environmental education.

Finally, we see a need to 'shift from seeing 'environment' as a focus for the consideration of science concepts to seeing a science education as one which, properly, seeks to help students understand environmental issues in the context of their lives, and their lives in the context of environmental issues' (Dillon & Scott: 1112). Our argument was, and still is, that 'our identities are only artificially separated from our environment' (p. 1112). Without an adequate science and environmental education, tomorrow's citizens will be unable to appreciate their relationship with the environment and, as a result, might not make choices that will lead to a sustainable future.

### **References**

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