[W5] e-learning and disability: tales from the riverbank (and other non-classroom based learning environments)

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There are many reasons for using technology to support learning and teaching, in the sciences there is often excellent opportunities to further extend the technology into the non traditional learning environments that, whilst not unique, are more prevalent in the sciences, such as fieldwork and laboratory work. The diversity of these resources can range from a simulation demonstrating the working of a mass spectrometer to immersive ecological sampling in multiple dimensions. The range of technology involved is also staggering, some may be simple webpages, designed as an introduction to a 'real' field or lab exercise – whilst some may be highly interactive software programs written specifically or even technology designed to be worn and collect data.

Whilst the provision of these resources may well bring benefits there can be no doubt that in the initial stages of either development of a new resource or the implementation of an existing resource a cost will be incurred in both labour and finance. However, the technology, as well as benefiting learning and teaching, can have other roles such as improving the management of learning. It could be argued that the provision of technology in this way is a natural progression in the increase in interactivity previously identified by Kent *et al* (1997), trying to engage students in another form of communication in what is to all intents and purposes another environment. It may be, in the future, that as the Internet becomes more interactive, using Lonergan and Andresen's (1988) fieldwork definition, students spend time interacting and studying 'cyberspace' as a field course in its own right.

Disabled students in sciences often face specific problems of access to some of the non-classroom based activities that studying science entails. This area has already being touched upon in the GDN guide 'Issues in Providing Learning Support for Disabled Students Undertaking Fieldwork and Related Activities' (Healey *et al* 2001). Previously it has been suggested that the development of technology to replace this kind of activity can be detrimental to the sector. The development of technology-based replacements for use by disabled students not participating in lab or fieldwork, and with the same learning outcomes being met, may negate the need for 'real' activities (Phipps 2001).

In this workshop the aim is to discuss some of the key issues surrounding the approach of providing 'digital alternative representations of reality' (Stainfield *et al*, 2000) to support disabled students, widening the focus and bringing together the experience of other subjects using e-learning and identify what issues are most important both for students and the whole course. However, this is set against a background of standards and guidelines designed to support access to electronic or technology based material for disabled people. In addition standards are

being developed and applied to e-learning. The workshop will open with perspectives on disability from practitioners in the science education community and with perspectives on e-learning from disabled students before opening up to the discussion on digital alternatives and associated issues.

In addition the workshop will look at some of the ways that technology has been used effectively to support lab and fieldwork for disabled students and will include a live demonstration of low cost technology being used in a learning situation – from a riverbank and into Warwick University.

The workshop is supported by the Poster 'Digital Alternatives and Disability in Science Education' and delegates are encouraged to annotate the poster with their own comments, thoughts and ideas.

REFERENCES

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[W6] Introduction to problem-based learning

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Explore the benefits and processes of problem-based learning (PBL) and discuss routes to implementation on various scales.

This workshop will contain group activities and discussion, and is aimed at teaching staff and curriculum developers with little or no experience of PBL.