The VIRTUE Project - a New Way of Teaching

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Abstract

The VIRTUE project is a co-operation between the universities in Maryland (U.S.A.), Bergen (Norway) and Göteborg (Sweden). VIRTUE stands for Virtual University Education. The project is funded by the Wallenberg Foundation (a total of 5 million USD for five years). Detailed information on the project can be found at the web address http://www.umbi.umd.edu/virtue/

The Swedish part of VIRTUE is joined by a similar project directly targeted to teachers and classes. This latter project is funded by the National Agency for Education, Sweden (25,000 USD for one year).

The VIRTUE project includes science projects (Scientific Committee), curricula development for graduate and undergraduate students (Curricula Committee), further education of teachers and classroom exercises for students (Public Outreach Committee).

During the spring of 1999 teachers from all three countries met in Maryland to discuss a common marine project, suitable for students at the upper middle and high school levels. They agreed to start with biofilm and bio-fouling. Acrylic discs (or CD discs) are submerged into the water at different locations and will be left there for a number of weeks. During this time environmental factors will be measured. As the discs are brought back to the laboratory the amount of biofilm/fouling is studied. In Maryland the Scitech Centre has since before a web site dedicated to a biofilm and a biodiversity project (http://www.virtue.uib.no/magazine/UPDATES/biofilm.html). This site will be extended and used for the VIRTUE project.

Making environmental observations in different parts of the world also means that you must have a common method for measuring the parameters and a common protocol to fill in. We have therefore investigated the resources of the participating schools have and found that parameters like salinity, temperature, pH and visibility depth can be measured quite easy.

In the autumn of 1999 students in all three countries will start to use the discs. They will share and discuss their findings with each other by means of Internet, e-mail and videoconferences.

The project is unique in its multi-disciplinary approach. Students will assess the information they collect (what is growing on the discs and why, what are the differences between different geographical locations etc.) using skills and knowledge from several

disciplines, including biology, chemistry, physics, mathematics, geography, and English (for Swedish and Norwegian students). The Norwegian Vannprogrammet (the Water Program) will be responsible for helping to co-ordinate the responses by building a dedicated database for the project. They have ten years of experience of web based databases used by schools.

Project participants are especially interested in using distance education technology to create a virtual international classroom in which the results of actual research can be used in science education. Coastal seas are a rich source of such authentic material that can be shared by students and teachers in schools around the world. We describe here a pilot project for this new way of teaching.