New software brings science to life for young people

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The use of new technology is helping students to become real 'science investigators'. Researchers funded by the Economic and Social Research Council (ESRC) and the Engineering and Physical Sciences Research Council (EPSRC) have developed a software toolkit that shows how such an approach sparks and sustains students' interest in science.

"Science can be hard to sell to young people as a subject for further education or as a career," says Professor Mike Sharples from Nottingham University who co-led the project. "But science shapes the world we live in. Today, people need the analytical tools to understand it and to see through the bad science propagated in the media."

The project shows that the nQuire software engages children's interest more effectively than traditional science lessons where teachers often dispense science facts from a classroom desk. By using mobile computing devices, the software allows students to go out and set up their own projects. They can both find and analyse the data and reach their own conclusions based on hypotheses which they have chosen themselves.

"The software is a high-tech twist on the traditional lesson plan - guiding pupils through planning scientific experiments, collecting and analysing data and discussing the results," says Professor Eileen Scanlon, co-leader of the project from the Open University. "After using the programme, we found that students were better able to grasp the principles underpinning sound scientific practice."

School children in Nottingham and Milton Keynes used portable netbooks with built-in cameras, location sensors and voice recorders, as well as data probes for measuring atmospheric conditions. They went out into the playground, a local nature reserve and around their homes to gather data. Their netbooks were wirelessly linked together and their data readings of light, wind and temperature were updated to a central database, enabling the sharing and analysing of their findings back in class.

The software covers three key topics of the new science curriculum - Myself, My Environment and My Community and requires the students to reason about the natural sciences as a complex system and to explore how others relate to the world around them. The programme also allows teachers to select and modify the scripts and to monitor and guide the students' activities. Projects using nQuire can also be taken home, helping integrate home and school learning and engage parents in the work.

The project showed how the programme not only had a positive effect on learning outcomes, but also led to sustained enjoyment of science lessons and a small but genuine improvement in pupils' understanding of the scientific process. Professor Sharples suggests that by supporting a process of enquiry, the software helps students develop an analytic attitude towards their lives. It encourages them to ask questions and to look for deeper reasons.

"Our study shows that this method of personal enquiry helps children develop the skills needed to understand the impact of science on everyday life and make better personal decisions about their own health, diet and their impact on the environment."

Provided by Economic & Social Research Council