Europe aims to add spice to the lab

An adventurous range of European Commission projects are aiming to stop the rot and encourage youngsters to study science

Roger Frost

In a strange way, it's heartening that the world is in desperate need of scientists. By 2010 the shortfall could be a million science-related posts. The fact ripples across Europe as a massive set of European Commission projects seek to avert the tide. The reasons for science's decline are much repeated: it needs an image change, it's too decontextualised and so on. Not by coincidence, this term UK schools will be teaching a new GCSE, and even some opting out to teach the IGCSE, so much is changing as we speak.

The plus point is that opportunities for anyone headed for a career in science now look pretty good. And more so that issues exist not just here, but on a scale that is Europe-wide. So when educators gathered at Cern, the international research centre in Geneva, this summer to showcase ways forward, computers, inevitably, were in full force in enthusing, modernising and most of all, taking part in far-off projects. Follow the links from Xplora, the European science teachers' portal, for a measure of what is happening and an array of resources created by colleagues.

Also at Cern were industry partners such as Siemens and Intel German, each taking a role in education projects. Siemens has created a multimedia series called Generation21 – with titles including water, hearing, light and Einstein – while Intel was taking on a massive teacher training exercise in the developing world.

One branch of endeavour provided a collection of real experiments that you can drive from a web page. The aim is to offer the reliability that often has science fall on its face. First up there's Millikan's oil drop experiment, where it is notoriously difficult to obtain more than a few results. Normal practice replaces the original, time-consuming experiment with pupils collecting dust from shelves – hardly an advert for physics. But the web version at Kaiserslauten University offers students the chance to combine their findings with hundreds of results obtained by others.

Look to the stars

A project by D-space uses several remote controlled telescopes. Such telescopes have long existed, though there's merit in bringing them together in one school-focused space. On offer is access to a network of robotic telescopes including the world's largest, belonging to Liverpool John Moores university and based at La Palma in the Canary Islands. Armed with knowledge of the heavens, you suggest a place that you want a telescope to record into the schedule. You fill in details like the date, check the weather forecast, and then "submit" the job to the telescope for consideration. When done, your pictures appear in an image library. The D-space project recently completed its pilot phase so there's more to come.

The Science on Stage festival might look like it's just for the showy types, but in this Europe-wide event teachers gather in numbers to present classroom party pieces to each other. They can apply for a grant to perform or browse to see what's been lauded previously. The last event, held at Cern, lives on in a web catalogue of videos and instructions. There's quite a range too – from how to build a spectroscope and make a DNA cocktail (using gin, pineapple and strawberries). And then there's making paper butterflies fly using static electricity or making a bazooka using a vacuum cleaner. Also, thanks to Dublin-based teacher Paul Nugent, there's a link to the Irish delegation's collection of puzzling stunts for physics lessons. It has plenty that gets lost in memory such as the reason why an orange will float in water but a peeled one will sink.

The "stellarium" shows you the constellations as they are today

For those adept with computers there's an Xplora disc with free open source software – some science and some general. One of the tools draws 3D chemistry models, another is a library of biomolecules and another is a neat 3D model of the solar system.

But the star of the set was arguably "stellarium", where you set your location on earth and see the constellations as they are today. It's jaw-dropping. If you move towards the south pole you'll see why Australians see a different set of stars to us. The general software includes Open Office, which is like Microsoft Office but free, plus many intriguing utilities for the geek-at-heart.

Faster internet speed has allowed us to show video on demand, such that Google Video has clips of lectures, shuttle launches, explosions and insane high school pranks with lots of science to creatively plunder. Hilarious or not, IT coordinators and local authorities have taken to blocking such sites for want of controlling teacher and pupil access to some of its more iffy content.

Which is a shame because, at its best, video on demand can help enrich science lessons. So it is good to see CISCI Cinema and Science, from Vienna University of Technology, which will assemble a collection of the internet and movies. Due to hit the net at the end of 2006, what's promised are clips from those lovely movies where the science is seriously amiss and where the public, typically most of us, watch credulously when skeletons walk and a man flies using willpower. Bringing culture into science is quite the way forward. No need to block this.

Weblinks

Science teachers' portal: www.xplora.org
CISCI Cinema and Science: www.cisci.net
Remote Lab: www.remote-lab.de/en
Science on Stage: www.cern.ch/sos
Robotic telescopes: www.discoveryspace.net
Network computing: www.gridcafe.web.cern.ch
Planet Science newsletter: www.planet-science.com
Google Video: www.video.google.com

Educ@guardian

19.09.06 Information and communications technology in education educationguardian.co.uk/learning

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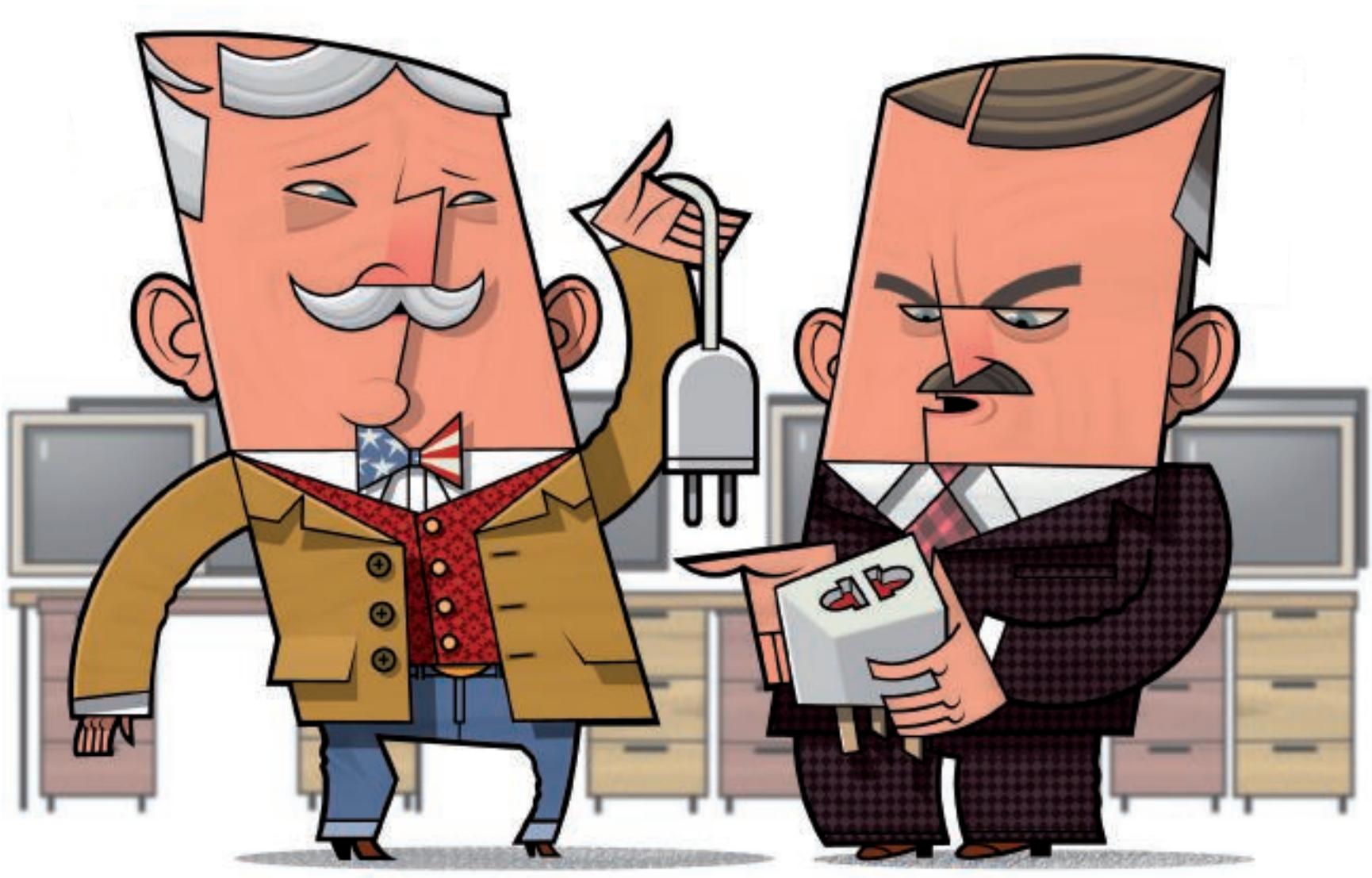

ILLUSTRATION: DAVID LYTTLETON; ABOVE: ANNA GORDON

Why one size could soon fit all

Ambitious plans to standardise technology in schools, making information much easier to share, are being criticised by some for following a US blueprint. **Julie Nightingale** reports

Transferring children's records between schools is set to become a much smoother process under moves currently being hammered out by Becta to standardardise the technology involved

The easy flow of information between schools, local authorities and other agencies is the backbone of the government's Every Child Matters agenda. Yet because schools use a variety of software packages to capture their data, transferring it from one system to another can be fraught with difficulties.

One common point at which problems occur is when children switch from primary to secondary: the primary forwards children's records to the new school only for it to arrive as unreadable gobbledegook because their information management system uses different software.

Now Becta, the government's education technology agency, is preparing a new set of standards which, once they are in place, should eradicate such frustrations.

The standards will govern interoperability of all IT systems – how they communicate and work together. They will define, for example, in what format a child's address, assessment data, attendance records and so on should be recorded and the level of detail required. Every company will have to adhere to the same standard so all of their packages should work together with no sticking points.

Besides enabling the sharing of information between schools and with local authorities and other agencies (known as "vertical interoperability" in tech-speak), standardisation will make it easier for the different components of schools' own IT set-up – virtual learning environment (VLE), information management, library, attendance, assessment - to communicate with each other and share files without the need to re-enter or reformat the information to suit different software (horizontal interoperability).

Overall, the standards should release staff from the tedious tasks of re-entering and reformatting data to suit different bits of software and free them up for more productive work.

Becta plans to base the standards on a US model, the Schools Interoperative Framework (Sif), with some modifications for the UK. It is working with technology specialists Sims and Serco and other partners to test the standards with a group of schools in Birmingham.

There is some dissent in the ranks, however. The IT companies involved all agree that creating standards is a good thing (there are none at present). But some are worried that Becta's approach could end up costing them – and therefore schools – more money.

> 'Becta seems to be saying that the route of ticking the boxes of technology standards is the best way forward'

Phil Neal, director of Sims, the leading provider of information management systems to schools in the UK, is unhappy with Becta's decision to adopt the US model, arguing that it will not match the ways schools' IT has evolved here.

"In the US systems grew up for different tasks so they would have one system for pupil records and another for attendance and another for assessment," he says. "As a result schools ended up having to input and maintain separate databases for a wide range of functions. In the UK, systems have been integrated almost from the start."

Neal is also unconvinced that Sif can be implemented without major cost and disruption. Based on figures from the US, Becta is predicting it will cost suppliers "tens of thousands of pounds" to make the necessary

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News in brief

Readership survey

Software up for grabs

Readers who complete our questionnaire on the back page of this supplement could win their local primary or secondary school £500 worth of Channel 4 Learning software in a prize draw. We would like to gather readers' views on how Educ@ guardian can add to its comprehensive coverage of new technology in education during the past eight years. Look out for changes in the next few months.

Resources on the web

National grid replaced

The quiet demise of the National Grid for Learning (NGFL) has gone unnoticed by many, writes Irene Krechowiecka. A Google link search reveals that 7,910 sites still have links to www.ngfl.gov.uk, among them the DfES standards site and the QCA.

But follow these through and you'll discover the NGFL portal closed back in April as part of Becta's drive to "improve its offer to teachers by rationalising the number of different services it provides for schools and teaching staff". You'll also find a link to a Becta Content Search page, http://contentsearch.becta.org.uk, which replaces the NGFL site's function as a repository for links to quality-assured educational websites. »2

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