



## NICOLE KOBIE DISCOVERS HOW OPEN-SOURCE SOFTWARE IS CHANGING BRITISH SCHOOLS

**S**chool ICT lessons are often criticised for teaching pupils little more than how to open and close a Word document. In some schools, however, you won't even find Word installed on the PCs.

Open-source software is filtering through the British education system, helping schools cut licensing costs, better equip ageing hardware and – perhaps most importantly – broadening pupils' minds to software beyond the Microsoft universe.

From operating systems to virtual learning environments, there are high-quality open-source alternatives running in classrooms across the country. Now, with more pressure than ever on education budgets, is the time right for an open-source revolution in our schools?

### Spreading the word

Open-source software has been slowly seeping into schools over the past five years. In 2005, Becta, the now defunct ICT advisory board, issued a report claiming that the cost savings alone made open source "worth serious consideration" for schools.

However, it took another three years before Becta recommended open source officially. It rolled out its latest – and final – framework in

2008, recommending its first ever open-source integrator, Sirius. That framework was intended to advise schools until 2012, a period over which UK educators were expected to spend £80 million on software licences and services.

Will the intervening spending cuts lead to a spike in open-source software in schools? Becta originally set up the Open Source Schools community, and Alan Bell, from its steering group, said educators were faced with a lot of confusion following the General Election, the spending review and Becta's demise.

"Now that it's no longer a rumour and it's an actuality that there's no money, I'd guess people are looking more at open source – and that's everywhere, not just in education."

Saving on licences isn't the only benefit: avoiding commercial software can also reduce compliance costs, because schools no longer need to audit software licences on every PC.

While balancing budgets is important, do students lose out by being taught software they're less likely to come across in the workforce? "That has been a concern in the past, but it's much less of a concern now," Bell said.

"When I was at school, I didn't use Microsoft Word, I used WordPerfect and some other things. Whatever you use at school, the technology landscape will have changed by the time you get out.

"Schools are there for teaching and learning, they're not there for training and instruction. Doing a training course in Microsoft Word isn't the same as learning how to put documents together in a word processor. I've heard some teachers arguing that actually not using the most popular tool is more educationally beneficial."

### The killer applications

While switching to open source may sound a challenge, many schools already use free, alternative software in their classrooms. "It tends to be bits and pieces, using applications such as Audacity in music classrooms and Inkscape for design and technology," said Bell.

"As well as saving money, it's being able to do things that you wouldn't otherwise be able to afford – for example, you could roll out Inkscape to 30 machines, but you wouldn't be able to afford the cost of rolling out Adobe Illustrator to 30 machines.

"With applications such as Audacity, Inkscape and Blender, you can just carry out a standard desktop install and roll them out everywhere, and let students use them at home too," he said.

Switching from Microsoft Word to OpenOffice (or even LibreOffice, the newly formed breakaway project) is perhaps the most obvious route for schools looking to cut costs on licensing software – it's well known, easy to use and free. Aaron Wilson, the assistant networks manager for schools at Cornwall Council, said saving costs was the main reason behind Stithians Primary School and Weeth Primary School switching to OpenOffice, but the quality of the software made it possible for both schools to do so.

"The resemblance and workings of OpenOffice applications in later versions compared to its licensed rivals are so close that children and teaching staff alike have no problem using the software," Wilson said.

Alex Worton is the business manager of Ilford Grammar School in Essex, which has been using OpenOffice for several years, both in classrooms and on staff PCs. "OpenOffice currently provides the best price-performance point for us," he said.







"We don't wish to be at the mercy of our internet connection for cloud applications such as Google Docs, and the cost of some commercial suites such as Microsoft Office isn't justified by the marginal benefit over OpenOffice."

"Since OpenOffice is free at the point of taking, students and parents can download and use it at home without having to pay licence fees, and it has cross-platform support for Windows, Apple Macintosh and Linux."

Bell agreed, noting that Chesham

High School in Buckinghamshire moved from Microsoft Word to OpenOffice to make it easier for students to do their homework. "The school has explicitly moved to OpenOffice for the student machines, so they can legally use the same software at home as they do at school. Every student was given a USB stick with all the applications used at school, so they can access them at home as well," he said.

Once schools dip their toes in the water with OpenOffice, they often find

it opens doors for other open-source experiments. "Once schools, children and teaching staff have a positive experience with a new piece of software or hardware, they're then happier, more confident and more likely to try to implement more new technologies into the classroom," Wilson noted.

"Stithians Primary School has now started using a range of other open-source software, used by staff and students on a daily basis."



## Wave goodbye to Windows?

There is, however, a big difference between using free desktop applications and switching to an open-source operating system. Tim Dalton, an ICT consultant at Wildern School in Southampton, wanted to find out if it was possible, so he's kicked off an Ubuntu pilot project.

For the trial, the technology department has dual-boot computers and another computer lab is being flipped to Ubuntu for Key Stage 3 students. A few teachers are also trying it out in their classrooms. "We're not providing training; the idea is they learn as they go," said Dalton. "Teachers need to feel confident trying things."

However, Dalton admits it's one thing experimenting with a new operating system on a classroom computer, and quite another doing it "stood in front of 30 students and not quite knowing how to do something".

Moving to Ubuntu or another open-source OS may not save some schools any money at all. This is especially true if they're signed up to Microsoft's Schools Agreement, under which schools pay per computer, regardless of whether or not Windows is installed on the PC, removing any financial incentive to move some or even all machines to a different system.

Wildern chose not to take part in the Microsoft agreement, but Ubuntu still doesn't look likely to save the school money. "To be honest, as we're working through the financial side, it doesn't look like there will be a massive difference unless we abandon the other operating systems altogether," Dalton said. He believes it's better to stick with a multi-OS environment at the moment.

"We've long had Macs in the school,



Some schools found that OpenOffice resembled proprietary software so closely that neither teachers nor students had trouble using it.

because we're trying to expose students to both operating systems," he said. "The main focus for me isn't so much about the cost saving but about the opportunities it offers. We've always wanted to teach 'ICT' rather than one specific platform, and offering Ubuntu takes us another step along this journey."

Even without this teaching philosophy, it would be difficult to switch to open source completely. "It's in some of the more specialist areas where we still have problems. The Adobe suite is one example – it's very good software," said Dalton.

Another area where it's difficult to make the switch is with school management software, which remains largely Windows-based, especially for finance and accounting.

However, in the longer term Dalton sees the OS becoming less important. "Where I think we're going is student-owned devices. Every child has a laptop or an iPad or whatever, and they bring it in for their lessons rather than going to IT suites."

The school already uses Google Apps and has a virtual learning environment, so much of

a student or staff member's day is spent on a web browser. "We're getting to the point where it wouldn't matter what the underlying operating system was," he said.

## In the Moodle

One of the major open-source successes of the education world is Moodle, a virtual learning environment used across the UK. The platform creates a secure, web-hosted site for students to receive their assignments, submit homework, and access quizzes and other learning tools. While there are proprietary, paid-for options such as Frog Learning and Blackboard, the open-source Moodle is winning installations.

Fans describe it as a flexible, fully featured platform that offers cost savings. "A major cost benefit is that there are no licence fees for the organisation, and this potentially results in quite a large saving," said Ray Lawrence, head of the consultancy firm HowToMoodle. "If schools have the expertise in-house, and the wherewithal to do it, they can be up and running for next to no additional cost. One of the great benefits of open source and Moodle is if you don't have the expertise in-house, you can contract it out to any supplier you want to. You're not tied into any vendor, which is a big cost – it allows more freedom."

However, because of deployment costs, Moodle isn't always less expensive upfront than its proprietary rivals. Ian Wild, a teacher and Moodle consultant, is in the middle of a roll-out at Nord Anglia Education, which runs independent English schools across Europe. "With Moodle and Frog, when we were looking at costings, there wasn't much difference between the two," he said. "When it came to making a choice, you



# Students make the choice themselves

Simon King is in charge of IT at Bishop Fox's secondary school in Taunton, Somerset. While it makes wide use of open source, King says it may never be able to completely make the switch.

The move started with the school's servers. "We reached a point where the

hardware and software on the Windows 2003 servers wasn't up to the job, and we had already lost one of the servers to total hardware failure," he said. After propping up the system with Debian, King spent a year talking to a dozen vendors, eventually deciding on ten physical servers running

Debian, with one set aside for the Ubuntu derivative Mythbuntu for the TV server.

Going with open source has cut maintenance time for servers and offers the flexibility to easily roll out new features, including various asset-management systems, Request Tracker helpdesk, and the



could have put a cigarette paper between them."

In the long term, however, the cost savings kick in. "Your new expenditure for the Moodle, like a new server or training, is put through as capital expenditure, which you can write off after a couple of years," Wild said.

"When you're buying in something such as Frog, you're paying a regular licence fee, so in the short term there isn't a lot of difference, but in the long term Moodle pays for itself."

The open-source, modular nature of Moodle makes it easy and cheap to add functionality, he noted. "That's the main benefit of Moodle, and of course that's the difference between having it open source and having a paid-for product. If you wanted to have something new in your paid-for product, you'd have to pay for it."

While the open-source community can happily tout Moodle as a home-grown success, many don't even realise it's free. "If you speak to the kids about it, they don't really care what it is, it's where they go to get their homework, or help from their teachers," said Wild. "People aren't that bothered about the fact that it's open source. They just want the right tool to do the job."

## Pre installation problems

Even if a school has an open-source expert in-house, switching isn't made easy by technology manufacturers. While many see open-source software as one way to get more life out of existing equipment, Bell said schools "generally just don't touch existing equipment".

That's because schools only start to consider open source alongside proprietary software when they're upgrading to a new system, according to Mark Taylor, CEO of Sirius – the only

open-source specialist to make Becta's framework. "It tends to be part and parcel of a new installation or an upgrade, or a school has got to the point where its licences have run out on a version of Windows and they're looking to upgrade, they've got budget for new hardware, and they just include an open-source option."

However, PC manufacturers rarely offer anything other than proprietary software on new equipment. "It's very difficult to find open source preinstalled. The hardware suppliers will claim it now and again for their marketing," said Taylor. He noted Dell will offer Linux-based hardware, and the company told us it offers workstations with Red Hat and netbooks with Ubuntu, but Taylor said such kit isn't always readily available. "From the mainstream providers, it's easy to get Windows 7 preinstalled, but for some reason they've made it more difficult to get Linux preinstalled in the UK."

The problem is exacerbated by schools' (perhaps understandable) reluctance to entrust their business to smaller suppliers, which might be more flexible with Linux installations.



**If an out-of-the-box Moodle system doesn't meet the needs of teachers, there are many other modules that can be added easily.**

"Schools tend to be conservative and go for the traditional, big hardware suppliers such as the Dells and HPs of the world."

As a result, schools wishing to go open source may have to buy equipment with Windows preinstalled, and then install Ubuntu or another OS in addition to it. While this is a pain, installing an open-source system is no longer any more difficult than installing Windows. "The skill level required for a modern Linux isn't that high. There's this idea that it needs some nerdy guy in the backroom, but this isn't true anymore."

## Time for a revolution?

With Moodle, OpenOffice and other desktop applications making inroads just as budgets are tightened, is open source set to take off in schools? Taylor isn't so sure. "It's hard to judge the growth of open source in schools. I don't think we're going to see open source displacing Microsoft in the next few months. It's doing well, but I would be hyping it if I said it was taking over the world."

The Government is also considering devolving spending powers from local authorities back to schools. Will that be good news for open source? "There will be less expertise in some schools, especially in the primaries because they're smaller entities, so they're more likely to play it safe. Currently, the perception is that playing it safe is to stick with what they already have. On the other hand, there are some schools that have been actively held back from open source by the centralised system."

"The likely outcome is that we're going to have a lot more variation, and I think you'll certainly see some schools doing some impressive things with open source," he added. ■

Moodle virtual learning environment – all of which are open-source software. "None of this has required permission, and the hardware requirements are so low that they don't impact on the existing services," he said.

For students, open-source applications arrived in the form of audio software Audacity, which they used to record their podcasts, followed by Firefox and OpenOffice. In addition to these applications, staff and students can pick and choose which other open-source tools they want to use.

"We install a number of additional tools from the Edubuntu project and encourage staff and students to let us know if they see something they're interested in from the software repository."

Despite such benefits, King says the school can't convert to open source entirely just yet. "Even now, we wouldn't yet make a complete switch. What is important is to use the best tools for the job," he said.

King's students aren't limited to one OS. When he started four years ago, the school

had four XP suites for its students. In addition to those, it now has two suites each of Ubuntu and Apple, as well as three trolleys of Ubuntu netbooks. "Giving students exposure to different IT systems, software and user interfaces makes them consider what they use and why they use it. They express their likes and dislikes, but are making choices based on actually using the software. All three systems are loved and hated in equal measure by different students and for different reasons," he said.