

VISION

Looking at the future of learning

issue 01_2005_free



Is the future of learning playful?

Could computer games help to transform the way we learn?

futurelab

Education for 14-19 year-olds

an interview with Mary Curnock Cook, Qualifications and Curriculum Authority

What part can mobile technology play in education?

Could open source software help to bring technology into education?

About Futurelab

Futurelab is helping to transform the way people learn. We're using new and emerging technologies and ideas to create rich learning resources that are involving, interactive and imaginative.

The UK has a wealth of expertise in the education, technology and creative sectors that could contribute to improvements in the quality and use of digital learning resources. Futurelab mobilises collaboration between these groups through the following activities:

- Support for new learning technologies, turning ideas into working prototypes.
www.futurelab.org.uk/your_ideas
- Learning research programme that evaluates the impact of technology on learning and teaching, and publishes the learning outcomes of new educational prototypes.
www.futurelab.org.uk/research
- Literature reviews that offer a route map through the vast body of research into education and technology.
www.futurelab.org.uk/research/lit_reviews.htm
- Bi-annual conferences that explore emerging themes and share ideas across a diverse range of audiences.
www.futurelab.org.uk/events
- Industry membership scheme offering networking opportunities and exclusive access to our project and research developments ahead of the crowd.
www.futurelab.org.uk/about_us/industry.htm

Getting involved

Whether you are a software developer or programmer, web designer, film maker, teacher, educational researcher or part of a government agency, we invite you to help us to accelerate educational innovation.

We would like to hear from you

If you would like to discuss any of the issues raised in this magazine, suggest topics for future editions, or subscribe to receive future issues or further copies of this issue, then e-mail: vision@futurelab.org.uk.

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Welcome to

VISION

What if... Could we... How would it work if...?

These simple questions are the building blocks for innovation and form the core of this new magazine produced by Futurelab. Designed to provoke, stimulate and challenge, this bi-annual magazine offers possible visions of the future of learning with digital technologies.

What would an education system look like that genuinely placed young people's needs, interests and aspirations at its heart? In particular, how can we make learning appealing to teenagers? What role might mobile technologies play in supporting new approaches to teaching and learning? Could we use features of computer games to support young people in the development of such vital skills as resilience and resourcefulness? What software is already out there in the wider world that can be adapted to better assist learning? And what implications does all of this have on assessment?

These are just some of the questions that are addressed in this launch edition, where a balanced mix of contributors set out their vision for innovative learning environments. We hope that you will find it a surprising, refreshing and inspiring read. As always, Futurelab welcomes your feedback as well as suggestions as to what you would like to see in future editions of Vision. We look forward to hearing from you.

Annika Small

Managing Director | Futurelab





EA Games



EA Games

Could computer games help to transform the way we learn?

Keri Facer, Director of Learning Research at Futurelab, asks:

Is the future of learning playful?

Can we imagine a time when, instead of reading about city planning in geography textbooks, children play Sim City? When, instead of sitting in a language lab, they play online games in Spanish with children from other countries? When, instead of GCSEs, A-levels or NVQs, a child can claim that having reached the 'boss' level of a computer game is evidence enough of skills and understanding?

GAMES ARE "THE MOST POWERFUL LEARNING TECHNOLOGY OF OUR AGE"

Henry Jenkins, Professor of Education at MIT

There are some who argue that this is precisely what children are already doing when they play computer games – developing skills and understanding far beyond that acquired in the classroom. And not only that – loving it, paying for it, and doing it to the exclusion of a whole range of other activities. This, say commentators, is the 'gaming generation' and, unless formal education catches up, it will, in the words of Professor of Education at MIT Henry Jenkins, miss out on exploiting "the most powerful learning technology of our age".

For the last few years there has been a huge explosion of interest in the potential use of computer games as learning tools, much of this driven by research into children playing games in the home. This research counters the arguments that games are mindless fun, antisocial and damaging to traditional skills such as literacy. In contrast, there's now a huge amount of evidence to suggest that computer gaming is profoundly social and that it stimulates literacy; in the games themselves, in the production of 'fanfiction' (stories, poetry, novels, songs etc written by fans of a particular series), and in reading the marketing material that accompanies games. Most significantly, this research has discovered what children have known for a very long time – that games are hard and that, in fact, this difficulty is what makes for a good game. Far from being mindless, games require a significant number of skills – not just hand-eye coordination, but the management of complex variables, interpersonal communication, literacy and problem-solving, to name but a few.

So what has all this to do with formal education? Well, it is being taken seriously in the UK. Charles Clark, when Minister for Education, chaired a games summit which brought together leading games industry figures to explore the potential for games in education. The British Educational Communications and Technology Agency (Becta) also figures with its mailing list, which is a lively and sometimes heated arena for debate and the sharing of stories about current uses of games in education. At the same time, there are huge numbers of projects in schools and universities that are creating and using games for learning. These fall into three different camps: using mainstream games in school; creating 'educational' games (with both new and existing software); and the potentially very exciting new approach of pulling games to pieces and using them as a tool for young people to create new games or films themselves.



EA Games



EA Games



EA Games

On familiar territory

The first camp includes the Nottingham E-Games League, a very successful project which aims to encourage young people to learn using gaming competitions. Another example is in Kent where junior school children have been using a specially adapted version of Sim City to learn about environmental and transport issues through redesigning their home town. The Department for Education and Skills (DfES) and Becta have both funded projects to pilot games use in schools. While many of these projects are a result of collaborations between schools and researchers or games companies, there are also some new websites springing up such as a site that offers advice and resources to teachers wishing to explore this area on their own, the gamelearning.net site.



DoomEd



Racing Academy

The development game

There's also a huge amount of interest in the design of 'real' games for learning, not least because the developer who creates the first global-selling 'serious game' is likely to make a lot of money! By this I don't mean the sort of embarrassing 'edutainment' games that start 'Player one, you are about to enter Armageddon... But first, spell Armageddon'. Instead, I'm referring to games that are based on reliable real-world models where learning is seamlessly integrated into the game.

These games have the graphics qualities and engagement of mainstream games, but are designed to achieve specific educational goals. One example is DoomEd, which has modified an existing game to create a 'first-person-shooter' in which the player navigates around the London underground during the second world war killing aliens, the twist being that they need to understand radiation and chemistry in order to overcome dangerous obstacles. Other games of this type include a reworking of the Civilisation game in the US to teach history, and a reworking of The Sims to teach languages.

THE DEVELOPER WHO CREATES THE FIRST GLOBAL-SELLING 'SERIOUS GAME' IS LIKELY TO MAKE A LOT OF MONEY!

Then there are games that are being created completely from scratch. These include Futurelab's own Astroversity, a space rescue mission that gets children to collaborate in order to rescue victims after a disaster in a space station. Racing Academy too brings gaming to education by enabling players to design their own cars using real engineering principles and then race them against each other.

New thinking

So far, so predictable – games are powerful learning tools so let's bring them into schools or design them to meet specific learning goals. However, a whole different approach is emerging that sees the technology on which games are built being used to enable children to create their own games, stories and dramas.

CAN YOU IMAGINE CITIZENSHIP TAUGHT THROUGH GRAND THEFT AUTO?

For example, researchers at the Institute of Education have teamed up with Immersive Education to explore how to use games software to enable school children to write their own computer games. Other researchers are taking this 'games engines as tools for learning' approach in an entirely different direction - by turning them into tools for creating stories and narratives. Examples include Ghostwriter and Adventure Author (which have come out of Edinburgh University) that allow children to create non-linear narratives using computer games as authoring tools.

But digital culture is, as often happens, moving ahead of researchers in this area. A new phenomenon, Machinima ('machines meet cinema'), is emerging in which players arrange to meet up in massively multiplayer games environments. In these game worlds, each player takes on a role and they are 'filmed' (recording the view on the screen) by one of the players known as the director, improvising in that role. The director then downloads these performances and uses editing software to create a 'film'. By combining the high-graphics qualities of the game environment, with improvisation by players and editing software, these films are increasingly sophisticated, often involving players working in different continents and time zones.



Not necessarily child's play

So, with all this effort and activity from developers, teachers and researchers, it's clear that there will be some role for games in learning in the future. It's worth, however, considering a few enormous elephants in the corner that are often overlooked in the drive to highlight the potential benefits of gaming for learning.

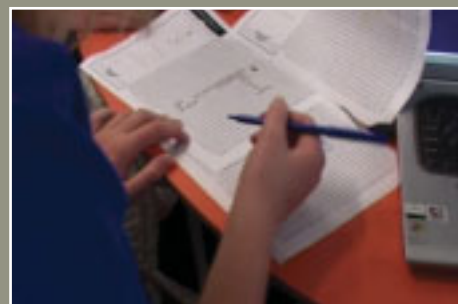
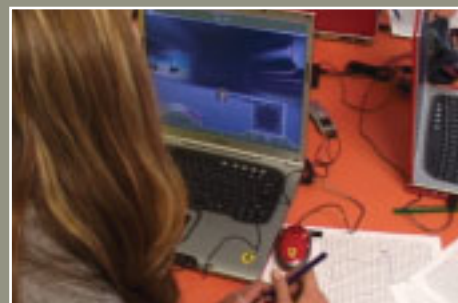
First – the 'violence' debate. Now, while the view that one game and one game alone will turn a child into a violent killer is widely discredited, there is a case for acknowledging that a large majority of games are violent. There's no point ignoring this fact, and the continuing over-emphasis in education on 'acceptable' simulation games just sidesteps the issue. Many children are playing 'first-person-shooter' games that require them to learn a whole range of less than socially constructive skills and, if we argue that games are powerful learning environments, then we need to acknowledge that they're likely to be helping children to learn not only 'city planning skills', but also attack strategies. If we're interested in the role of games for learning then we need to address this issue. There is a case for arguing that games containing violence could form a basis for activities in schools – can you imagine citizenship taught through Grand Theft Auto? At the same time, there are many who believe that computer games are still in the 'keystone cops' phase of development and that, like movies, they'll grow out of it. However, the simple fact is that we all need to continue pressing the games industry into more creative and diverse ways of portraying the world.

WOULD BRINGING GAMES INTO THE CLASSROOM LEAD YOUNG PEOPLE TO TURN TO NOVELS AND LETTER-WRITING IN REBELLION?

A second elephant in the corner is the question of what 'exactly' children are learning through games play and how this chimes with the current priorities of the education system. If games are to play a significant role in schools, we need to develop strategies for not only understanding how to teach with these tools, but also how to undertake assessment with them. In other words, frameworks that allow children, teachers and parents to be able to identify and value the skills and understanding developed through games play.

But perhaps the biggest elephant of all is the question of how young people themselves will respond to the introduction of their popular culture into the classroom. Let's face it – there's nothing worse than your dad trying to 'get with the kids' when you're a teenager. It's like seeing your least favourite uncle 'disco dancing' to the Libertines – somehow it's all wrong. Would bringing games into the classroom lead young people to turn to novels and letter-writing in rebellion?

It strikes me that, to some extent, with all our interest in the 'technology' of games, we might just be missing the point. Games offer young people real challenges and difficult problems. But they also offer the responsibility for overcoming them as well as new worlds to explore and new identities to adopt. At a time when we increasingly keep children in their bedrooms for fear of allowing them onto the streets, ban all school trips for fear of getting sued, and attempt to remove all risk, responsibility and challenge from their lives, perhaps the most important thing we can learn from children's love affair with computer games is that we need to create the opportunities for them to take on real challenges and risks in a world where they have some responsibility. But that might be a lot harder to achieve in the short term than bringing games into school...



Talk into action

Racing Academy

Imagine if you could take the enthusiasm for Formula 1 and Gran Turismo and use it to teach science and engineering to teenagers. That's what Futurelab and partner Lateral Visions were thinking when they developed this massively multiplayer car racing and vehicle engineering simulation, which allows students to engineer and race realistic virtual models of cars.

www.futurelab.org.uk/showcase/show.htm



DoomEd

A shoot-em-up game which follows that familiar format, but with a difference. Instead of killing human beings, players shoot aliens and have to solve scientific problems to move to the next level and, ultimately, to succeed. DoomEd is a joint research and development project between DESQ and the University of Wolverhampton.

www.desq.co.uk/doomed



Useful links

- Website with resources and advice for teachers:
www.gamelearning.net
- Reviews of games and learning:
www.futurelab.org.uk/research/lit_reviews.htm
and
www.lsda.org.uk/files/PDF/1529.pdf
- The Making Games Project:
www.ccsonline.org.uk/mediacentre/Research_Projects/making_games.html
- Machinima:
www.machinima.com

Literature Review in Games and Learning

Published in 2004, this review is intended as an introduction to thinking about the role of computer games in supporting children's learning. It highlights the key areas of research in the field, in particular the increasing interest in pleasurable learning, learning through doing and learning through collaboration, that games seem to offer.

Go to www.futurelab.org.uk/research/lit_reviews.htm to order a hard copy, or to view or download the document for FREE.



Fixaxis Games

Civilisation

What do others say?

Just as media education now encourages children to make their own video, radio, websites and advertisements, we need to help them to design as well as play games. In this way, children can become creative producers in their own right.

Dr Andrew Burn, Senior Lecturer at the Institute of Education

We agree that it would be nice to capture the interest and enthusiasm in commercial video games and use it in education, but our enthusiasm is tempered by the thought that effective large-scale educational video games will ideally demonstrate economic justification, be designed from the ground up, have verifiable learning, be built in partnership and, most importantly, require innovative thinking.

Richard Smithies, Head of Serious Games at Blitz Games

The most important aspects of games which need to be applied to learning are the motivational ones - the desire to stay in that world, to explore, to progress to the next level, to try stuff out. I haven't come across that many creations yet with a learning intent that truly plug into this compelling energy.

Adam Gee, Commissioning Editor - Interactive at Channel 4-Education

The immersive qualities of videogaming have for some time attracted many educationalists who see it as a potentially formidable tool in education, especially counteracting 'short attention span syndrome' often attributed to young people. Finding bold and workable applications and surmounting negative stereotypes associated with computer games and technophobia among older people and teachers are the challenges.

Fred Hasson, CEO of TIGA (The Independent Games Developers Association)

One of the most powerful benefits of enabling children to create their own computer games is the development of audience awareness skills. When children watch their friends play a game which they have just created, they become aware of problems in their design. They then reflect on their game, revise it, and start to see it from the perspective of a player.

Dr Judy Robertson, Lecturer at Glasgow Caledonian University



DESQ

DoomEd



Short attention spans. Lack of motivation. Disinterest and apathy. These are the usual reproaches levelled at teenagers within the education system. But it is the job of the system to provide the 14-19s with the tools to succeed, as Mary Curnock Cook, Director of Qualifications and Skills at the Qualifications and Curriculum Authority (QCA), explained.

Only 50% of 16 year-olds are achieving the benchmark result of five GCSEs with grades A-C, with damaging consequences for their future employment, life choices and learning opportunities. "But that doesn't mean the other 50% are stupid," says Curnock Cook. "The real issue is that traditional education is not meeting their needs and motivating them to be at their best."

between the academic and the vocational – and for vocational learning to have the same kudos as the academic. If the mix is correct, both benefit." Everyone should emerge with a worthwhile qualification.

How to achieve this, especially in a system rooted in traditional values? "A composite diploma is very much on the cards," says Curnock Cook, enthusiasm shining through, "and will be piloted in 2008. We're entering partnership discussions now with both education policy-makers and business, in line with our remit from the Government." The goal is therefore to create a diploma with three cohesive paths – GCSEs and A-levels, vocational apprenticeships, and also – the area currently most noticeably absent – an in-between option which enables students to mix the two.

Revolution time: why it's all change for the 14-19s



According to Curnock Cook, when teenagers make their GCSE choices, many may be effectively making a negative decision. The subjects are sorted into unwieldy groups, which makes it virtually impossible to make a decision based on aptitudes and interests. Therefore, because teenagers feel their choices are limited, there is a temptation to grab a random selection of subjects which they are then stuck with.

"Having to specialise in only two or three subject areas at A-level is not right for all students," she says. "My daughter is about to take her GCSEs and is planning to choose three sciences for A-level. It is a shame that this means she will stop studying art, literature and languages altogether." The A-level system is, she feels, not always the right choice for preparing young adults for a future which is more likely to be diverse and varied than narrow and specialised.



"What they should be offered is a rounded package which targets their own strengths and ambitions, be they academic or vocational," says Curnock Cook. She is big on vocation, having left school at 16 and worked her way up. She came to the QCA from the British Institute of Innkeeping (BII), where she was Chief Executive. During her seven-year tenure from 1994 to 2001 the numbers of qualifications achieved in that field in the UK rose from 5,000 to 80,000 a year, and the BII's qualifications options were trimmed into a standardised portfolio that is of real value to employers.

"It's also essential to develop the diploma in tandem with employers," she says, "as they can provide the input that makes the qualification relevant to learners and also teaches them life skills such as research and teamwork. Young people will be highly motivated by learning skills that they know employers want."

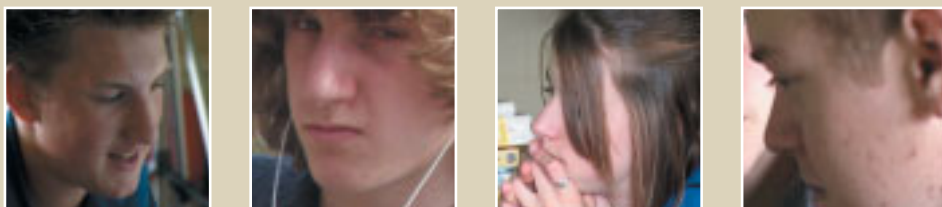


If defining the path is one side of the coin, then the other side must be to equip both teachers and students to work within the proposed new system and get the most out of it.

A EUROPEAN-STYLE DIPLOMA IS ON THE CARDS

"The Tomlinson report highlighted the need to strengthen the vocational offer to 14-19s," she says, referring to the report produced in November 2004 containing proposals to reform the 14-19 curriculum and qualifications. "We desperately need a link

"I think that digital technology has a huge role to play," says Curnock Cook, adding that it would be unthinkable to devise a whole new strategy for qualifications for 14-19 year-olds without making use of modern technology. "We are not about reinventing the quill pen!"



A system for e-assessment is already at planning stage and Curnock Cook hopes that, by 2009, all new qualifications will have an option for on-screen assessment, and all awarding bodies will be set up to accept and assess e-portfolios. "Can you imagine the time it will save?" she asks. "On a single date in June, 620,000 students sit down each year to take their English GCSE. That means an army of invigilators and markers, literally millions of pieces of paper... instead, we have a vision of a day when students can log in with a PIN number and do their exam when they are ready – and potentially get an almost instant result. They could also take trial exams online, which would highlight weaknesses or else boost confidence and motivation if they do well. We could all avoid this draining peak of stress and make the process far more enjoyable for everyone involved."

YOUNG PEOPLE WILL BE HIGHLY MOTIVATED BY LEARNING SKILLS THAT THEY KNOW EMPLOYERS WANT

E-learning also has vast implications for both students and teachers. "People say it's the thin end of the wedge, that you need a teacher in the classroom all the time," says Curnock Cook. "But the flip side is that the internet provides a virtually unlimited resource for teachers and students – far more than the biggest library you could conceive of. Technology can be used to make subjects come to life – for example, it is difficult to physically go on a field trip to see unusual rock strata on the other side of the world, but a video clip of the layers developing through history will do a lot more for students than a diagram in a text book."

As well as providing more varied and interesting resources, Mary makes the crucial point that teenagers are very digitally aware. "Technology is key to their environment, even to their sense of self and, when they come to school, it's as if they are being powered down," she says. "No wonder they lose interest."

Even in terms of monitoring students, technology has a role to play. "I'm amazed when I go to my daughter's open evenings and see teachers thumbing through mark books with ticks and crosses on," she says. "If results were recorded electronically, it would save hours of admin time. It would be far easier to analyse progress too – and mobile phones could be used to text reminders to students and for verbal assessments using voice recognition technology. I hope one day all teachers will embrace the possibilities."

Mary Curnock Cook is passionate about education, and passionate about expanding young people's choices. She is convinced that her vision will become reality. Welcome to the future of education.

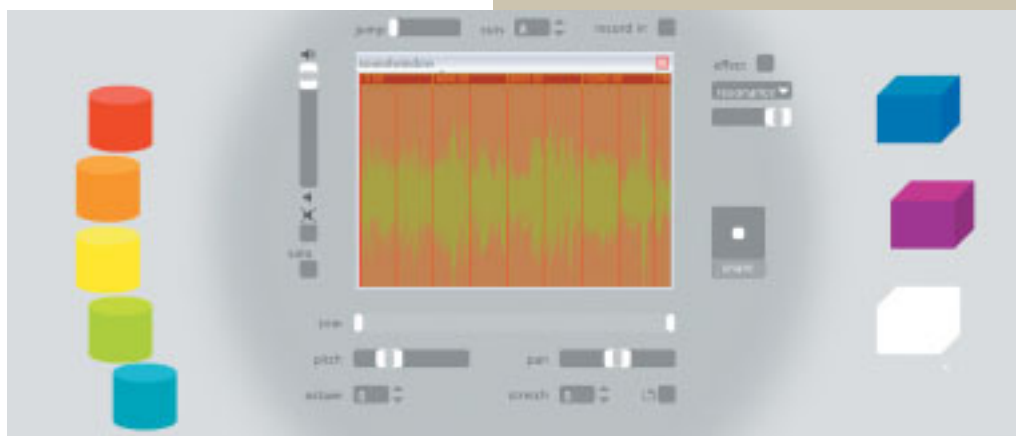
14-19

and Digital Technologies: A review of research and projects

The latest Futurelab literature review outlines the key issues in the 14-19 debate, reviews the evidence, and maps out a framework for creating a coherent strategy for the design and use of digital technologies for learning in this age group.

Go to

www.futurelab.org.uk/research/lit_reviews.htm
to order a hard copy, or to view or download the document for FREE.



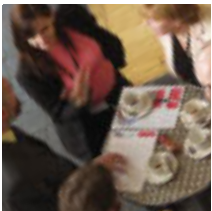
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Conference

14-19: Transitions, Technology and Learning – lessons learnt

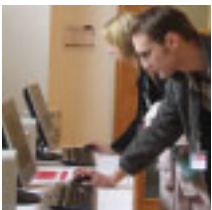
20-21 April 2005, Sheffield



The spring 2005 Futurelab conference aimed to identify the learning needs and aspirations amongst 14-19 year-olds, as well as share best practice in the design of digital technologies for use during this most politically charged period of development.



With presentations from the Universities of Oxford, Strathclyde and Leeds as well as Electronic Arts, mobileYouth and educational games innovators DESQ (to name a few), the conference demonstrated the commitment of many diverse organisations to develop and improve the provision of learning resources for teenagers. Some of the key messages that emerged were the importance of forging better links across formal and informal learning environments, the need for assessment that meets young people's personal aspirations and needs, and the centrality of creativity and collaboration to the entire process of learning. As we are now beginning to settle into the 21st century, the conference demonstrated that, at last, we are beginning to be able to offer young people the opportunities they need to be equipped for it.



What did the delegates think?

The classroom is not the only place where learning can take place. We might be talking about working collaboratively with young people on construction sites, for example, to develop, refine and understand what the potential is in embedding digital technologies in learning environments. But this is likely to be a long-term venture.

Geoff Hayward, Department of Education Studies,
University of Oxford

What's particularly clear when you look at digital video and games technologies is that there's a lot of language that's already been developed, and it's a language in which some 14-19 year-old students are fluent. If you can tap into that language and talk at that level then you've got a dialogue with these young people.

Jim Turner, International Centre for Digital Content (ICDC)

A radical change in young people's learning lives is going to take place.

Chris Davies, Department of Education Studies,
University of Oxford

I never cease to be amazed at young people's ingenuity in terms of taking the technology and using it. That's why I think it's important to bring children into the forefront of development of any technology - give it to them and let them create something out of it.

Josh Dhaliwal, Director, mobileYouth

I've been talking to people from the BBC, schools, games developers and learning technology producers - really interesting, stimulating environment, and that's why I come.

Karl Royle, University of Wolverhampton

Support for exceptionally creative young people

Ignite! is NESTA's Fellowship project for young people aged 10 to 21. Through distinctive and inspirational environments, it aims to stimulate young people's creativity and enhance their development.

If you know of a bright spark you'd like to ignite, go to www.nesta.org.uk/ignite

For further information on forthcoming Futurelab events, see www.futurelab.org.uk/events

THE WORLD IS FULL OF FANTASTIC CREATIVE IDEAS THAT ENHANCE OUR LIVES AS WELL AS CHALLENGE THE WAY WE THINK AND BEHAVE. THIS FEATURE HIGHLIGHTS SOME OF THE MOST EXCITING NEW DEVELOPMENTS THAT HAVE CAPTURED OUR IMAGINATION RECENTLY...

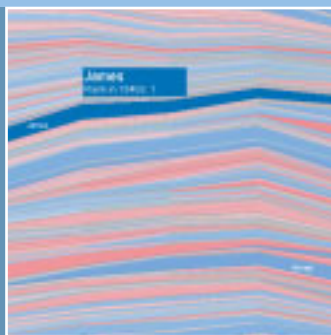
Getting creative



Getting intimate

Intimate Transactions is a new type of interactive installation that allows two people located in separate spaces to interact simultaneously using only their bodies. Imagine being able to actually sense and feel, rather than just hear and see, others located elsewhere – having an interactive ‘conversation’. Hands up those who remember Barbarella!

www.intimatetransactions.com



It's all in a name

Even though you've got nine months to decide, coming up with a name for your baby is always a trial. The Baby Name Wizard's NameVoyager, an interactive portrait of America's name choices, can help. You start with a 'sea' of nearly 5,000 names and, by typing in a letter, you can zoom in to focus on how that initial has been used over the past century. You can then type in a few more letters, or a name to see a timeline of each name, represented by a bar whose width reflects the name's changing popularity.

www.babynamewizard.com



Gaming gets real

Can You See Me Now? is a game that happens simultaneously online and on the streets. Players from anywhere in the world can play online in a virtual city against members of Blast Theory, a group of internationally renowned artists that make interactive performances and installations, who play the game on the streets of Sheffield. Tracked by satellites, Blast Theory's runners appear online on a map of the city. On the streets, hand-held computers showing the positions of online players guide the runners in tracking you down.

www.blasttheory.co.uk



3D inspiration for Stock Exchange

The Source is an eight-storey high kinetic sculpture in the London Stock Exchange. It is formed from a grid of cables reaching eight stories to the glass roof. Spheres mounted on each cable are free to move independently up and down its length, acting like animated pixels and so able to model any shape in three dimensions – a fluid, dynamic, three-dimensional 'television'.

www.greyworld.org



The future is orange

The Thomas Heatherwick Studio has designed the Hairy Sitooterie (a small building in which to 'sit oot') for a private sculpture garden. The futuristic building is a 2.4m cube, perforated with nearly 5,000 pre-drilled holes to receive 'hairs'. From the outside the 'hairs' raise the structure off the ground and internally they protrude to give texture that is reminiscent of tactile paving, forming support for benches in places. Sunlight is transmitted down the length of each tube and coloured acrylic caps on the end of each hair give the light an orange glow.

www.barnardsfarm.org



Playtime gets even more fun

The Scottish community school Auchterarder has transformed its playground to represent a cross-section of the forests, lochs, glens, towns, roads and mountains that can be seen if you move, as the crow flies, from the school to the Summer Isles off the coast of Scotland. Created by artist Gordon Young in collaboration with Why Not Associates, the graphic playground uses blocks of colour as codes for geographical categories, eg blue for the lochs and red for the roads.

www.whynotassociates.com



From involvement to engagement to improved learning



It is generally agreed that, in order to create effective and relevant educational technologies, developers need to involve those who are intended to use these resources – namely teachers and children.

This is widely accepted by most developers, and today learner involvement in design is increasingly seen as a common sense approach to avoiding the pitfalls of designing resources that learners and teachers can neither stand nor understand.

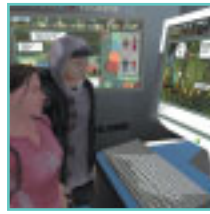
But, in order for the outcome to be viable from both an educational and a commercial perspective, developers need to do more than involve users simply to inform the interface design or to map the product onto the curriculum. They need to move beyond this if they are to develop tools that not only look good and engage children but, critically, also improve learning.

IF CHILDREN ARE ONLY INVOLVED IN 'USING' TECHNOLOGY AND NOT 'SHAPING' IT, WE ARE EFFECTIVELY TEACHING THEM HOW TO READ BUT NOT HOW TO WRITE

The challenge here is to involve children in the conceptual stages of the design process in order to identify the real cognitive and social challenges in learning from their perspective, and then to develop, through iterative stages, resources that allow them to improve their learning in these areas. This is not user testing – it goes much further than that. This approach of 'children as co-designers' also relies on involving teachers to evaluate how tools will be used in context, thereby leading to effective learning environments.

Crucially, this offers an opportunity for children to shape their own and their peers' learning experiences, and for teachers to identify challenges that meet their students' needs. However, in practice, this approach of learner-centred design is persistently under-used for many reasons including tight schedules and budgets, meaning that developers often miss the chance to create a product that is exactly what its audience wants and needs.

In addition, we should not forget that children have a right to be involved in and inform things that matter to them. This includes their own learning. Involving children in co-designing the tools that will be used in education is one key way of respecting this right. At the same time, we need to recognise that involvement in the design process is also an educational right in terms of understanding where technology comes from. If children are only involved in 'using' technology and not 'shaping' it, we are effectively teaching them how to read but not how to write.



What techniques are available for involving users?

The approach most suitable to any given technology will be dependent upon a number of factors. However the following table provides a brief summary of two approaches currently in use.

APPROACH	HOW DOES IT WORK	COMMON TECHNIQUES
informant design	where users are seen as experts or 'native informants', informing designers of key issues related to their experience	<ul style="list-style-type: none"> • observation • user panels • user focus groups • user trials • low-tech prototypes
children as co-designers	users working as a core part of a design team to identify ways of improving the environments in which they learn or work through the development of digital resources	users integrated as equal partners of the design and development team

Viewed at a basic level, techniques such as these can provide valuable, almost instant feedback to identify features that require revision as well as those that are well received. By getting learners involved in the development of a new technology, developers are able to refine their product to best meet the needs of their audiences by, for example, developing the best method of displaying information, trialling the layout of the interface and testing the possibility of students working in a virtual and real environment.

More importantly, though, these trials ensure that new tools are developed that not only engage children but improve their learning. Users are involved in co-designing effective new learning environments which ensures that developers produce tools that are not only commercially but also educationally successful. There's no denying that this approach is a scheduling and budgetary challenge for developers but there's little doubt that increased investment of time and resources at this stage will pay off in terms of customer response and take-up.

Handbook on 'Designing educational technologies with users'

Published in 2004, this handbook is intended to act as a 'matchmaker' between developers and users, and as a guide to the processes by which these groups might work together to create more effective and more relevant educational resources. It also provides examples of how the theory of 'children as co-designers' is being put into practice.

Go to

www.futurelab.org.uk/research/handbooks.htm
to view or download a free copy.



The future of mobile technology: learning 'on the run'?



Mobile technology has transformed our lives in ways that might have seemed unimaginable only 15 years ago. There are now more than 60 million mobile phones in use in the UK (one for every man, woman and child), and they are no longer used just to make phone calls. Eighty-three million text messages are sent every day, and sales of cameraphones now outstrip those of ordinary phones.

As the size of mobile phones decreases, so their processing power increases. Most industry analysts expect that the line between a smartphone and a hand-held device, such as a PDA, will become more and more blurred until it disappears altogether. At the same time, the introduction of 3G networks – the mobile version of broadband, offering high-speed, continuous access – has made it possible to browse the web or hold a video-conference from a mobile phone. The potential offered by these developments is huge, particularly in education. So, what can we expect to see happening in the next five years in the world of mobile technology?

ONE IN THREE CHILDREN AGED BETWEEN 5 AND 9 OWNS A MOBILE PHONE

Some idea can be gained from Korea and Japan, which both have a highly developed mobile market. The devices themselves are more sophisticated – cameraphones have already been embraced with enthusiasm, and a TV phone has recently arrived on the market – but the services on offer are richer too. "The variety of content and the access to the web has much deeper market penetration in Japan and Korea than in the countries in Western Europe," says Mike Short, Vice President of Research and Development for O2 and chairman of the Mobile Data Association. This is largely down to NTT DoCoMo's hugely popular iMode service. Launched four years ago, iMode was the world's first 3G service and enables users to send e-mails, surf the internet, check the news and play games, all while 'on the move'.

Mobile phones are used in Asia in strikingly innovative ways. In Japan, there have been stories of schoolgirls writing messages on scraps of paper, photographing them with their phones and then e-mailing them to friends. In Korea the third biggest national newspaper, Oh My News, gets most of its content from citizens who e-mail text stories or photos from their mobiles.

Only a few steps behind, the UK seems to have developed an insatiable appetite for mobile technology. Mobile phones are replaced on average every 18 months, and a recent report from the consultancy mobileYouth found that one in three children aged between 5 and 9 owns a mobile phone: the average age of first phone ownership is now 8.

So what developments can we expect in the mobile market in the next few years? "Most mobile phones will become PDAs in effect. We would expect by 2009 that most devices coming on the market will have one megabyte per second access, 50 gigabytes of memory and a much larger colour screen as well as removable memory and interactive capabilities," says Short. These devices will also be enabled with Bluetooth, a short-range wireless technology, which means that users will be able to synchronise their phones with other devices such as PCs.



The combination of powerful personal computers and high-speed access to the internet has already begun to transform the way many schools approach teaching and learning. Martin Owen, Director of Learning at Futurelab, is confident that mobile phones will have the same impact: "The notion that you've got this tool which can be a camera, a cinecamera, a television, a computer and a calculator as well as something you use for talking to other people in your pocket all the time means that you're armed with a very powerful learning tool."

Mobile phones are already being used in education, but so far the uses have been fairly modest. "We already see some education authorities sending truant 'text alerts' to parents. It's also used for notification of lesson and classroom changes, as well as to relay information about health visitors coming in," says Short. In Higher Education, says John Traxler, Research Fellow for Teaching and Learning at the University of Wolverhampton, text messaging has been used in several small-scale projects, for example, to inform students that a lecture has been cancelled or that library books are overdue.

THE MOST REVOLUTIONARY ASPECT OF MOBILE TECHNOLOGY IS PERHAPS THAT IT ADDRESSES THE PROBLEM OF SOCIAL INCLUSION

This kind of usage represents only a fraction of what mobile technology can achieve in education, says Traxler, who believes that one of the most important qualities a mobile phone can offer is its context-awareness: "You can have a far more personal spontaneous informal learning experience that can be situated somewhere more relevant than in a classroom. Rather than talking about flora and fauna by looking at slides, you can actually get out there and do natural history, and all the material you need can be with you while you're in that environment."

Short agrees, pointing out that once camera phones are more commonplace, they can have a useful part to play too. Students could, he suggests, make notes and take photographs on field trips and then file their reports using those pictures and notes. One of the useful aspects of having a powerful processing device with you is that you can avoid duplicating your effort, says Traxler, who suggests that students could make notes on a mobile device and synchronise it with a PC or server, or enter data and process it immediately to see the results.

A mobile phone also increases the possibilities for informal learning that is not tied to a particular physical location – students can stay in touch with their tutors and with each other while they're away from the classroom. As Owen argues, people are already comfortable with using phones for discussion, and so a discussion that can be enriched with other media makes the phone an "important collaborative learning tool". The most revolutionary aspect of mobile technology is perhaps that it addresses the problem of social inclusion – many young people who wouldn't go near a university or who don't own a computer do own a mobile phone. "Mobile learning is an easy way in for e-learning," says Traxler. "Working on a small unthreatening device and working up to a larger more powerful computer eases people back into formal learning."

This view is supported by early research into mobile learning (or m-learning). A report by the Learning and Skills Development Agency (LSDA) into a three-year m-learning project in England, Italy and Sweden, funded by the European Commission, found that m-learning was good at reducing the formality of the learning experience, engaging reluctant learners and raising self-confidence. Similarly, Ultralab's eVIVA project, funded by the Qualifications and Curriculum Authority (QCA), enabled Key Stage 3 students to take part in assessments by answering pre-recorded questions over their phones. Researchers found that children taking part in the project improved their motivation and their self-esteem.



This democratisation of learning is perhaps what makes mobile phones so exciting. "Mobiles are in the vanguard of unlocking the digital archives," says Short, pointing out that museums, libraries and galleries own vast quantities of material that is often physically inaccessible but, once digitised, will be available to all. Students, meanwhile, will be able to access learning materials while sitting on a bus or standing in a queue, says Traxler: "If we can deliver anything to them in those situations it's making better use of their time, keeping them engaged in learning activities."

However, there are suggestions from some quarters that there may be a need for caution. The Stewart report, *Mobile Phones and Health*, which was updated in January 2005, advised that children should minimise their use of a mobile phone and that those under 10 shouldn't have one at all. Although this advice is being widely ignored by parents, it would be difficult for schools to introduce mobile learning to the curriculum while the warning still stands. In the meantime, development of m-learning is slowed by the fact that the mobile phone companies have an industry-wide agreement not to market their services to children – a stance that is even more difficult for them to reverse in light of the Stewart report. Indeed, would it be better for these companies and their considerable resources to be involved in, rather than frightened away from, the m-learning debate?

RATHER THAN TALKING ABOUT FLORA AND FAUNA BY LOOKING AT SLIDES, YOU CAN ACTUALLY GET OUT THERE AND DO NATURAL HISTORY

The advice will be reviewed regularly, however, and Owen is optimistic: "The radiation that comes from the technology is not what it was five years ago. The old-fashioned telephones caused much more radiation than the modern ones. Also there's been worldwide research into the impact of mobile telephones on health, and that's indicating that the risk is much less than might have been believed."

The other factors slowing down the adoption of m-learning include the cost of the technology, security of both the devices and networks and, most importantly, the lack of a standard technology. Students own a variety of models of mobile phones and PDAs, with differing functionality and screen size – a challenge not only for those designing educational materials for use on a mobile platform but also for the IT department that has to support those devices. Traxler agrees that early mobile learning projects have been hampered by just these difficulties.

None of these problems are impossible to resolve, however, and the pace of change suggests that mobiles will be used extensively in colleges and schools within the next five to ten years. "If we look at the world of mobile technology as it stands today, we could come to the wrong conclusions about how it can be used in education, because we're forgetting that these things move very rapidly," says Short. "One thing's for sure – it will look very different. But what it will look like nobody can be sure."

Talk into action

Mudlarking in Deptford

Enables young people to be involved in a participatory guided tour, exploring usually inaccessible regions. It involves users as co-designers of the tour, using mobile technologies to both initiate and respond to a scattering of located nodes in and around Deptford Creek.



Savannah

Where young children get to 'become' a lion for a day, embarking on a feline adventure in a virtual savannah. A strategy-based adventure game where a virtual space is mapped directly onto a real space, navigated using mobile hand-held devices.



www.futurelab.org.uk/showcase/show.htm

How mobile are young people?



mobileYouth, provider of market intelligence on children and mobile technologies, has recently released research that specifically looks at the number of young people in the UK who now have a mobile phone.

Josh Dhaliwal, Director of mobileYouth, talks about the findings...

"One of the startling statistics that has come out of that research is that there are now a million children under the age of 10 with a mobile phone. Possibly one of the more surprising things is the sheer rate of that increase. Only 21 months ago we were talking about there being half a million children in the UK with a mobile phone so, in that short time, we've seen that estimation double.

The research is all the more interesting because it comes in the light of recent Government-supported research (the Stewart report) which suggested, because of the potential health risks, that young people shouldn't have mobile phones or that parents shouldn't give their children mobile phones. So, in spite of this, our research shows that parents are acknowledging the fact that their children may be susceptible to some health risks, but it hasn't hindered uptake.

There are a lot of negative issues thrown up by the increasing use of mobile phones by young people and, while many were probably not foreseeable, what they shouldn't do is stop us looking for positives. It would be nice to see the same type of creative energy that goes into developing a 'life style technology' be applied to technologies to aid learning. But it needs to be more fun and more of a shared experience, and that's possibly where education is still somewhat blinkered."

Technology update

Here are just a few of the exciting innovations that are 'out there':

Mixed reality brings 'real life' experience



The future of video-conferencing could well be in full 3D, with real-life images of your colleagues - using 'mixed reality', a next-generation technology that allows virtual reality to be fused with the real world. It could also be used in many other applications including 3D gaming, where a player's real-

world view is overlaid with 3D computer graphics, text, video, audio and speech, with the help of head-mounted displays. Indeed, one of the projects on which the developers, the Mixed Reality Lab at the University of Singapore, are currently working is 'Human Pacman'. In this

advanced iteration of the popular classic game, players wear head-mounted displays that show cookies overlaid onto their real-life environment which disappear as they walk over them.

www.mixedrealitylab.org



Realistic robots

Research at the University of California, Davis has resulted in robots with realistic animal-like gestures and movements being developed for use in animal behaviour research and experimentation. Behavioural biologist Gail Patricelli studied the courtship rituals of satin bowerbirds using a stuffed, joystick-controlled robot bird, while a more advanced robot controlled by radio is being developed to monitor the mating signals of the sage grouse. Birds easily recognise the robots since their movement and the robot's jerky motions are so similar, but new research is focusing on the development of robots that can mimic a range of animals.



How do I look?

A super-realistic animation system that simulates the movements of a face, based on speech, is being developed at Cardiff University. It uses highly advanced software which is continually learning the facial dynamics associated with a speaker and applying this knowledge to synthesise realistic facial animations. The applications include a new sophistication in film, computer graphics and animation technology - not just for films and games, but also for educational, mobile telecommunications, advertising, information services and internet applications.

www.cardiff.ac.uk/newsevents/media/mediarel/march2005/mr050314.html



A revolution in gaming?

AGEIA Physics Technologies claim that gaming will never be the same with their new processor, known as PhysX, which is "the world's first Physics Processing Unit (PPU)". More powerful than processors currently on the market, this new product is said to bridge the gap between beautiful static worlds and responsive physical reality, and so could enable unlimited creative possibilities for game developers.

www.ageia.com/technology.html

Reason to be animated

There could soon be a 'new kid on the block', as far as animated characters are concerned. Endorphin is a new type of software that enables 3D characters to be completely interactive. They are programmed with 'adaptive behaviours' which enable them to essentially animate themselves. For example, if you move two football players close to each other, one will automatically tackle the other. The developers, NaturalMotion Ltd, claim that this software will enable animators to direct scenes in real-time in a way they have never been able to do before - changing parameters or behaviours to see the results instantly on screen in front of them.

www.naturalmotion.com/pages/products.htm

The next generation of mobile phones

Most operators have only recently launched full 3G (third generation) mobile phone services, but already attention is turning to improving data speeds with an upgrade called High Speed Downlink Packet Access (HSDPA), also known as 3.5G.

3.5G has a theoretical maximum data rate of 14.4Mbps (Megabits per second), but the first handsets will be limited to 3.6Mbps which still compares favourably with the 384Kbps offered by current 3G networks. It is likely to be included in laptop data cards and then voice-enabled PDAs before finally being included in handsets, which will need to overcome battery life and heat problems to use this technology.

Ultimately, the technologies used are less important than the applications and services that they enable and at what price. 3.5G, which is expected to be widely available in 2007, should help provide the service that the hype surrounding 3G originally promised, moving us closer to high speed data access. Whether HSDPA can compete with other emerging technologies on performance and price remains to be seen.

www.techworld.com/files/whitepapers/NokiaHSPA.pdf

Networked wherever YOU are

Human Area Networks (HANs), the idea of using the human body as a networking medium to link people and electronic devices, is not new and several prototypes have already been demonstrated. However NTT, the Japanese telecoms company, intends to introduce products using the concept next year. The company's Human Area Network uses RedTacton transceivers to send and receive weak electrical fields on the surface of the body – these use optical sensors to pick up changes in the electrical field.

The company envisages using the technology for short-range secure communications as an alternative to existing solutions such as Bluetooth. If this comes to fruition, we could see those equipped with this new technology exchanging data simply by shaking hands. NTT is looking at shrinking the technology so that it can also be integrated into mobile phones.

www.ntt.co.jp/news/news05e/0502/050218.html



OPEN SOURCE:

a chance for technology in education?



You know where you are when buying computer hardware. You pay out some cash, and you get a little box of tricks. Software, though, is entirely different. Usually, you're not even buying a thing, merely the right to use that thing.

What's more, the rights you're granted are restricted. Thanks to intellectual property laws, the software's inner workings are not to be disclosed or meddled with; you get what you're given, and you like it. And if you don't like it, tough luck.

Software is released under some kind of licence. It may be a very restrictive one that governs precisely how many people may use the software, or how many computers it can be installed upon, or even a date by which the product will cease working and has to be upgraded. As soon as you click 'OK' or 'Next', you've agreed to these rules - whether you read them thoroughly or not.

But other licences exist that are the exact opposite. They may still impose restrictions of sorts, but the boundaries are much further apart. Under these open licences, computer users have the right to peer inside the software, see how it works, and best of all: re-write it to better suit their needs.

This is the central attraction of FLOSS (Free, Libre and Open Source Software). The product you install on your computer is not necessarily what you are forced to use. If there's something about it you'd like to change, you are free to do so.

The second attractive feature of FLOSS is that, in many cases, the software is free. You can use it, tinker with it, and redistribute your tinkered version under the same licence. That's what the open source movement is all about.



And it is a 'movement'. No-one is in charge of open source. No-one provides an advertising budget, there's no press officer or CEO. The people involved are often interested individuals, spending their spare time in front of a computer to help create software that will benefit everyone. This is simultaneously a great strength, and a problematic weakness. For FLOSS to succeed against the global branding and advertising budgets of the big software corporations, it is dependent upon the goodwill of those involved in the movement.

Why does this matter to schools? Well, there's the simple fact of the cost saving involved. Because FLOSS tends to be free, there's an obvious benefit in no longer having to pay licence fees for dozens of computers. But the savings extend further than that.

USERS HAVE THE RIGHT TO PEER INSIDE THE SOFTWARE, SEE HOW IT WORKS, AND BEST OF ALL-RE-WRITE IT TO BETTER SUIT THEIR NEEDS

"Software licences typically account for a small proportion of the cost of ICT provision," says Richard Rothwell, Head of ICT at Handsworth Grammar School in Birmingham, and one of the UK's experts on educational use of FLOSS. "A third of the budget is eaten up by formal support services. Supporting open source is much easier and cheaper than supporting proprietary software, so there's a huge saving to be made."

In May 2005, the British Educational Communications and Technology Agency (Becta) released a landmark report highlighting the potential benefits of using FLOSS.

Headteachers, lacking training and support, are too often lured by low set-up costs for ICT solutions. Only later do they find that up to 60% of their annual ICT budget will have to be spent on maintaining and upgrading these proprietary systems. Using FLOSS, support costs are halved and hardware needs replacing far less often.

Despite their appeal, the cost savings are not what Rothwell and many other FLOSS supporters see as its biggest strength. The best thing about it, they say, is the ability to change the way software works, and share those changes with others.

Richard Rothwell again: "Imagine you have ten schools trying to put together a learning resource for French lessons. They could spend ten grand each on a commercial product that might do what they want. Or, they could club together and spend two grand collectively, for some bespoke software that does exactly what they need. If that is then released under an open source licence for the rest of the community, it helps even more schools, which can amend and change it for their needs and re-release it."

HEADTEACHERS ARE TOO OFTEN LURED BY LOW SET-UP COSTS FOR ICT SOLUTIONS - ONLY LATER DO THEY FIND THAT UP TO 60% OF THEIR ANNUAL ICT BUDGET WILL HAVE TO BE SPENT ON MAINTAINING THESE PROPRIETARY SYSTEMS

So, we have software that is cheaper to buy, cheaper and easier to support, and gives old hardware a new lease of life. Why isn't everyone using it already?

There are lots of reasons, according to Seb Bacon of Jamkit, a company that develops websites for charities. One is inertia. "Although they could be saving money they usually can't be bothered. A bit like why people don't switch banks or mortgages," he says.

But there are all sorts of other reasons. Lack of understanding, fear of the unknown, concern that there will be too much to learn.

The true cost of commercial software is often hidden by the cost of buying new hardware, since it is usually provided as part of the package, Bacon adds. What's more, hardware

tends to be optimised for use with proprietary software, which makes adapting it to a FLOSS environment more challenging.

"A school with 50 computers can quickly and easily see how much money they're saving. Furthermore they are likely to have a less frequent replacement policy than an individual. Indeed, the savings per computer when running a large network could be as high as £700," he explains.

Overcoming inertia requires teamwork from the FLOSS community. Teresa Dillon, a Learning Researcher at Futurelab, sees the outward presentation of FLOSS as one of the primary difficulties. "Even within the open source community, there are differences of opinion. Consequently there is a greater need for the FLOSS community to effectively communicate the knowledge and understanding it has gained and work in closer collaboration at all levels with policy makers and educators, and vice-versa."

This could take time. Remember, no-one is really in charge. In the meantime, it is down to educational professionals like Richard Rothwell to make the best case they can. Enthusiastic teachers with a keen interest in open source are at the forefront of the movement in the UK - their efforts can inspire others to make similarly informed choices.

Seb Bacon is all in favour: "Effective lobbying needs persuasive arguments. This means working with enthusiastic teachers to set up working proofs-of-concept that can demonstrate the benefits in action, and to highlight the areas that need further investment."

Which is precisely what Richard Rothwell, in his capacity as Chairman of Schoolforge-UK, is trying to bring about. It is a volunteer project that aims to bring some clarity to the FLOSS argument. It's trying to make the same case for open source in schools that a professional (and properly-funded) commercial organisation might make.

ENTHUSIASTIC TEACHERS WITH A KEEN INTEREST IN OPEN SOURCE ARE AT THE FOREFRONT OF THE MOVEMENT IN THE UK

Teresa Dillon is confident about the outcome: "Look at Denmark, where the government has made it policy to get schools using open source software. There's also been big strides made in Africa. It's going to be interesting to watch what happens over the next ten years."

Outcomes from open source workshop

In December 2004, Futurelab held a one-day internal workshop which aimed to gain an in-depth understanding of the implications of Free and Libre Open Source Software (FLOSS) for education. Invited speakers were selected from across Europe to present and discuss their view on FLOSS for learning.

One thing was clear: that we need to build a bridge between the FLOSS and proprietary software communities, although many other important points were raised at this workshop.

To read an overview of the workshop, see www.futurelab.org.uk/viewpoint/art48.htm

Further sources of information

- British Educational Communication Technology Agency, comprehensive case study on the cost-effectiveness and benefits of FLOSS for schools: www.becta.org.uk/corporate/press_out.cfm?id=4681
- Demos, report on the future on the potential of FLOSS focusing on licensing issues, methodologies and implications: www.demos.co.uk/catalogue/wideopen
- FLOSS forum in Europe: www.ossite.org
- Open Source Initiative (OSI), non-profit corporation dedicated to managing and promoting the open source definition: www.opensource.org
- Schoolforge-UK, volunteers leading the way: www.schoolforge.org.uk
- Schooltool, developing open source school administration software: www.schooltool.org
- Open Source Consortium, beginnings of cohesion? www.opensourceconsortium.org

Events

World Conference on Computers in Education

4-7 July 2005

University of Stellenbosch, Cape Town, South Africa
www.sbs.co.za/wcce2005

WCCE 2005 will explore the use of Information and Communication Technologies in education and the teaching of informatics. It will be a conference for everyone involved in education and training with an interest in learning more about the potential for ICT in education. WCCE 2005 will be of interest to both beginners and experienced practitioners who wish to update their knowledge and skills, and will deal with innovative ideas and pilot experiments as well as large-scale projects and national policies.

2005 International Research and UK Education Conference

7-9 July 2005

Sheffield Hallam University, UK
www.data.org.uk

The Design and Technology Association (DATA)'s annual conference presents an ideal opportunity for design and technology educationalists to meet, present their work and network in the inspiring environment of one of the UK's leading universities. The conference covers both international research and UK education.

The DialogPlus Toolkit for Learning Activity Designers

14 July 2005

University of Southampton, UK
www.alt.ac.uk/events.php

This hands-on workshop will introduce the online toolkit developed as part of the DialogPlus project, to guide and support teachers as they create, modify and share learning activities and resources.

SIGGRAPH 2005

31 July - 4 August 2005

Los Angeles Convention Center, USA
www.siggraph.org/s2005

This 32nd International Conference on Computer Graphics and Interactive Techniques is all about experiencing astounding images and learning how they were created. At SIGGRAPH you can interact with tomorrow's digital systems and meet the leading international innovators in computer graphics and interactive techniques, sharing their knowledge.

Edinburgh Interactive Entertainment Festival

11-12 August 2005

Edinburgh International Conference Centre, UK
www.eief.co.uk

EIEF celebrates the cultural power of the trade and creative industries, showcasing evolution, convergence and the impact of interactive entertainment on popular culture. This event attracts guests and speakers from the TV, film, music and telecoms industries, working together to shape the future of interactive entertainment.

Exploring the Frontiers of e-Learning

6-8 September 2005

University of Manchester, UK
www.alt.ac.uk/altc2005

This 12th International Conference of the Association for Learning Technology (ALT) is for established practitioners and researchers from all sectors involved in e-learning, as well as for those interested in benefiting from introducing technologies at all levels of education.

SETT 2005

21-22 September 2005

SECC, Glasgow, UK
www.ltscotland.org.uk/sett

The Scottish Learning Festival (SETT) show is a national education event held annually in Scotland to encourage and extend the effective use of Information and Communications Technology (ICT) in education. This year's event has evolved to meet the needs of all educational professionals, not just ICT enthusiasts. The programme includes keynotes, spotlight sessions and dedicated pathways that reflect the needs of a diverse educational audience.

Education Northern Ireland (ENI) 2005

13-14 October 2005

The Kings Hall, Belfast, UK
www.eni.org.uk

In the light of the Burns and Costello reports, Northern Ireland is arguably facing the biggest change for many years in its school system, curriculum and assessment processes - at all levels. ENI 2005 will be the largest free educational resources show and professional development opportunity in the area, and will focus on these changes and what educational resources and equipment will be needed.

mLearn 2005

25-28 October 2005

BoE Conference Centre, Cape Town, South Africa
www.mlearn.org.za

This 4th World Conference on Mobile Learning, titled 'Mobile Technology: The Future of Learning in Your Hands', is a key research and networking event for researchers, strategists, educators, technologists and practitioners from all over the world.

Serious Games Summit

31 October - 1 November 2005

Crystal Gateway Marriott, Washington DC, USA
www.seriousgamesummit.com

The number of non-entertainment games under development is rapidly increasing. As a result, an entirely new market has emerged: serious games. This second annual gathering will investigate not just the why, but the how of developing games for non-entertainment purposes.

Futurelab Autumn Conference

2-3 November 2005

Coventry University Technology Park, UK
www.futurelab.org.uk/events/index.htm

The autumn 2005 Futurelab conference will address the future of science education. By bringing together people from a range of diverse disciplines including the educational, creative media and technology sectors, Futurelab conferences offer a unique opportunity for those interested in transforming the learning environment to exchange ideas and information. Indeed this latest conference will have even more of a focus on 'the audience as experts' than previous conferences, with delegates being given the opportunity to take the lead in setting the agenda through active workshops and debates.

SERA 2005

24-26 November 2005

Royal George Hotel, Perth, UK
www.sera.ac.uk

The Scottish Educational Research Association (SERA) annual conference provides a forum for the educational research community. For those who are specifically interested in educational research, either as an active researcher or as someone who feels that research has a role to play in the development of policy or practice.

Online Educa Berlin

30 November - 2 December 2005

Hotel InterContinental, Berlin, Germany
www.online-educa.com/en

Meeting the networking needs of the international e-learning and distance education communities, this annual conference is a key networking event for strategists and practitioners from all over the world, attracting over 1,700 participants from more than 66 countries. If you would like to know more about the world of e-learning, or if you are responsible for, or involved in e-learning strategy, implementation or management, then you may be interested in this event.

INTERLEARN 2005

1-2 December 2005

Finlandia Hall, Helsinki, Finland
www.interlearn.info

Titled 'Multidisciplinary Approaches to Learning', this conference is arranged by the Life as Learning research programme (LEARN) of the Academy of Finland. It aims to gather together cross-disciplinary European researchers on learning with the intention to accomplish broader and deeper cooperation.

BETT 2006

11-14 January 2006

Olympia, London, UK
www.bettshow.co.uk

BETT is widely accepted as the world's leading educational ICT event, with over 600 leading educational suppliers and over 27,000 visitors. Embedding ICT is at the heart of the Government's new five-year strategy for children and learning, and BETT 2006 is a must for those wishing to keep abreast of the issues and the products relating to ICT in education.

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