Harnessing the techniques, approaches and formats of computer games to make e-learning more appealing is the idea behind serious gaming. The idea is increasing in popularity in a number of disciplines and is even now being used for teaching certain IT skills, as Gary Flood explains.

A September 2008 US survey found 99 per cent of boys and 94 per cent of girls across the socio-economic spectrum play some kind of computer or video game. And if you think they are only playing games like ‘Guitar Hero’ or ‘Halo 3’ you’d be wrong; a hugely popular online game is ‘Darfur is Dying,’ where youngsters have to grapple with real life issues around war and poverty.

Games are allegedly ‘bigger than Hollywood’ – and it’s not hard to see why when you sample today’s offerings: the Wii platform’s ‘Endless Ocean,’ the online PlayStation 3 game ‘Little Big Planet’; or alien blasting with the Nintendo DS. It’s a long way from ‘Space Invaders.’

Fast forward a few years to when these kids are in your company. Will a paper manual or even today’s e-learning material work for them as a way to learn?

‘E-learning is so static – it’s tell and test, over and over again,’ says Chris Hillman, serious games veteran and Chief Executive of Corporate Gameplay, a firm that’s worked with companies such as Daimler-Chrysler, Shell and IBM. ‘It’s such an uninspiring way of teaching. Games are so much better for anyone under 30.’

Welcome to the world of serious gaming: the idea that we should be using the techniques, approaches and formats of the entertainment media our children have grown up with to make the most impact when delivering learning and education.

‘Games have some great ways of drawing you in and then, in effect, solving problem after problem,’ adds Jude Ower, MD of serious games consultancy Digital 2.0. ‘A computer game can easily result in 200 to 300 hours of commitment to master.’

Kevin Corti, CEO of learning technology specialist, PIXELearning, adds: ‘The Doom sort of shoot ‘em up isn’t appropriate for the corporate environment, but similar immersive techniques are, very much. You are propelling the learner into places they haven’t “been” before and see how they cope. It’s also a way to make you practice, not regurgitate – not “what is sales?” but “let’s see you sell!”

Granted, this is very early days. But there are clear signs that this could be ‘e-learning 2.0,’ in the sense of the next big thing in learning and development. Many in learning and
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Jerry Bush, Cisco Group

devlopment have worried for some time how much lasting impact taking an e-learning course actually has – or even if it gets completed.

A form of teaching that forces people to solve a puzzle before continuing may be the answer. Certainly, the US military is said to be putting time and money into seeing how a game scenario can help make better soldiers out of recruits, among other applications of this notion.

But will it be for all of us and all sorts of skills? The work so far is clearly more in the context of soft skills work, not hard/practical skills. In the former, we are already starting to see serious games being used in the corporate environment as a way to teach things like better data security techniques, understanding of compliance and many other examples.

‘The corporate world, especially in the US, sees value in this as a way to get people to work through business processes,’ says David Burden of Daden, a virtual worlds consultancy.

‘This is where the environment gives no hints as to the answer and the player has to go through the role, such as being a customer care representative.’

Take The Micro-Enterprise Acceleration Institute, an international, not-for-profit organisation sponsored by HP that encourages access and knowledge of IT and basic business skills to entrepreneurs in the developing world.

‘A serious game provides a very safe environment for beginners to try things out that would be quite risky if it was their own real businesses,’ says its Swiss-based CEO Jelena Godjevac. ‘It also presents them with a choice of many different scenarios for the students to test themselves in.’

Corporate Gameplay is a firm that has worked with financial services clients in the US where getting an 80 per cent score in an online game entitled them to say they were certificated in a particular bit of compliance, says Hillman, who has also worked with corporates on ways of using games to manage cultural change and recruitment.

Relevant for IT skills?

Which is all great – but is this stuff relevant as yet for the IT professional and the teaching of IT skills? There are some suggestive straws in the wind that there’s no reason we couldn’t use things like serious games to do at least some of this training – but it’s not a technique that will work in every context.

The probable IT industry leader in terms of taking serious games, well, seriously, is Cisco. Its Cisco Learning Network has a games arcade where delegates for the Cisco Certified Network Associate and Cisco Certified Entry Networking Technician certifications can play games to learn about topics such as subnet troubleshooting, unified communications and how to build a storage area network through gaming. All this started with a simple – and genuinely informative – maths game to teach you how to start thinking in binary, written by Jerry Bush, Programme Manager at the technology company’s Learning At Cisco Group.

‘When you watch people play the game it’s clear they are usually both having fun as well as genuinely starting to do decimal-binary conversion,’ he says. ‘You’re seeing cognitive skill development and 50 problems being solved in five minutes.’

Cisco is convinced it can use a games approach to make a good chunk of its certification curriculum more accessible to learners – Bush thinks, perhaps astonishingly, around 50 per cent already is (see box for links to its Mindshare game, in particular).

The Cisco example is at the moment a relative rarity in the IT industry. But the onset of virtual spaces such as those available through Second Life can change that. People are beginning to experiment with virtual worlds as a way to manage cultural change and recruitment.

But it’s not necessarily all good news. ‘A serious game’ (other terms you may hear include ‘immersive learning’ and ‘simulation’) means the use of computer game technologies and approaches for primarily non-entertainment purposes. The environment can be either a kind of virtual ‘Second Life’ style world one moves around in with an avatar to a more role player game (RPG) context to something much more ‘2D’. If you think of games like ‘Grand Theft Auto’ (Rockstar Games), Flight Simulor (Microsoft) and the Nintendo DS Brain Age puzzle game, you’re in the right ball park.

Serious games practitioners say there are three main reasons their form of training may be appropriate:

1. If the consequences of ‘failure’ are high if a learner gets something wrong in the real world (e.g. we’d prefer a pilot to mess up on a flight simulator rather than over the Atlantic).

2. The training material that needs to be delivered is dull. Presenting say compliance or regulatory information this way may be more fun and stimulating and thus get a better response. A good example here is PlayGen’s ‘Floodsim’ game – which is basically 500 pages of disaster handling policy in an online game format. Which would you prefer to tackle first?

3. Generation Y (the 16-25 year old age group) who have grown up with technology are very comfortable with this sort of approach and may increasingly come to expect this is the way they will get information – even in the workplace.
pedagogy field, though you can also develop your ITIL skills through an interactive game based on the Apollo 13 spacecraft disaster (see box), and PlayGen offers a data security game, which illustrates the consequences of failing to keep data secure. The hands-on simulation includes going undercover to assess a company’s security arrangements and detect poor practices.

‘Teaching someone how to program better this way would be quite convoluted,’ worries Burden. ‘What would you make 3D and visible? A data structure you’d walk through or something? It’s a possible application, sure, but not one that’s been really tried yet.’

Mary Beth Haggerty is a senior industry manager in the games unit of 3D software and visualisation specialist Autodesk, which has a range of products used to make both regular computer games and virtual worlds/serious games more believable.

Safe mistakes
‘I don’t know of any serious examples yet of using a game to help you be a better programmer, and a lot of the current focus is on allowing people to make mistakes “safely” and of “experiencing it before it’s real”.

‘But if the aim of the training is to engage, make the material more fun, stimulate the learner, then there’s absolutely no reason this stuff couldn’t be applied there and there’s also already interest in K through 12 [primary and secondary school] applications in the US, for instance for maths. There are all sorts of ways to learn and this is a very promising addition.’

The message seems clear, though, that there’s no inherent reason why at least some of the computer science curriculum couldn’t be made more fun for students and learners using this approach. And this may one day end up changing the way we deliver IT training itself, potentially. The mainstream IT training market is aware of serious games – but it’s obviously a long way, for the reasons above, from there to people being trained to be better Java programmers in this fashion just yet.

‘Games are an innovative addition to the IT training market; they can make learning fun and sometimes IT needs a bit of fun.’ says Karen Whittaker, Marketing Director of Fast Lane.

‘People learn in different ways – some by doing, some by reading, some by listening to others – and using combinations of these methods can give the best results. Games can incorporate all these methods to enable the player to have fun whilst gaining knowledge.’

So to sum up, what is the intelligent way to think about serious gaming? Jill Wade is Director of Learning Services at The Consulting Consortium, a specialist City regulatory compliance consultancy that’s been using serious games to train internal staff on data security issues and which plans to start offering similar products to its own clients.

For Wade, the writing is on the wall; the training community needs to wake up and smell the coffee here and start ‘playing’ with the concept – which she is convinced is for all of us, not just teens or Generation Y.

‘E-learning hasn’t been delivering what it needed to do for us,’ she says. ‘Serious gaming and immersive learning is a great way to make serious but possibly dull things we need to train people in really exciting and engaging. Bringing the art of play into the world of learning is a great move, I think, and I also think it isn’t just teenagers who are on social networking sites or bang up to speed with technology, so this could work for many of us.

‘We can’t stand still in training and I am convinced this approach should be our next big area of focus as an industry.’

Which leaves us to say – have fun!

Tools Serious games

A number of the companies mentioned in the article have demo sections on their sites where you can do some serious gaming:

- www.itilsurvival.com/Apollo13ITIL.html
- www.playgen.co.uk
- www.corporategameplay.com
- www.daden.co.uk
- www.digital2point0.com
- www.pixelearning.com
- www.knowledge-city.net
- www.get-it-city.net
- https://cisco.hosted.jivesoftware.com/docs/DOC-2608

Other sites worth looking at for a more high-level view of the field include:

- www.seriousgamesinstitute.co.uk
- http://seriousgamesource.com