



EA Games



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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.



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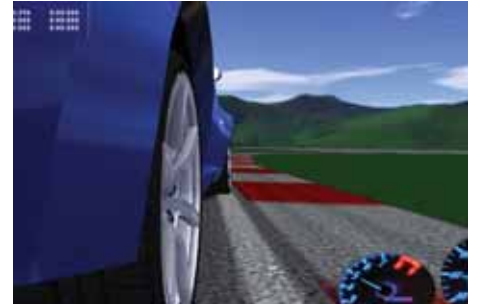
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On familiar territory

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.



Fireaxis Games

Civilisation

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.lsd.org.uk/files/PDF/1529.pdf
- The Making Games Project:
www.ccsnline.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.

Article taken from issue 2 of VISION available from www.futurelab.org.uk/viewpoint/vision.htm



Francis 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