

Can computer games improve the ability to study?

January 11 2016



Computer-based games can have a beneficial effect on learning, according to ground-breaking new research from the University of Bristol. The brain-imaging study shows that – contrary to popular belief – technological game-playing can involve brain activity that positively supports learning. The research, with students at Bristol, is linked to a bigger classroom study which will involve 10,000 secondary school

pupils across the UK – and for which participants are currently being recruited.

It may also provide a new perspective on concerns that some children spend too much time playing computer games – including those highlighted in an Action for Children survey of parents earlier this week.

Led by Professor Paul Howard-Jones, educational neuroscientist and presenter of Channel 4's series *The Secret Life Of 4, 5 and 6 Year Olds*, the Bristol University study and associated classroom project are being launched at the Association for Science Education annual conference on Friday January 8.

The research team will show for the first time how the 'gamification' of learning can reduce the activity of a particular brain network which is responsible for mind wandering.

When students tried to study by simply reading notes and looking at example questions, this Default Mode Network was strongly activated. The additional [brain activity](#) disappeared when study became a competitive game - and learning increased.

Professor Howard-Jones says that with careful design, the finding can help to revolutionise the way children learn in the classroom.

He said: "Technology has a reputation for doing bad stuff to children's brains but it's important that we don't demonise it. This is evidence that computer games can be good for learning if we are careful about how we design and develop them," he says. "For the first time we can actually see what [learning](#) through games does in the brain."

The 24 student volunteers in the study experienced three types of study session while having their brain scanned. One session was punctuated by

conventional exemplar questions, another by multiple choice quiz questions and the other comprised a computer-based game in which participants competed with each other to answer the questions in return for escalating points paid out (if they were lucky) by a wheel of fortune. The [brain](#) imaging experiment showed how they concentrated and learned better when studying as part of a game.

The related classroom project (led by University of Bristol and Manchester Metropolitan University) is one of 6 in a £6 million research scheme launched by the Wellcome Trust and the Education Endowment Foundation (EEF) in January 2014. This scheme aims to develop, evaluate and communicate the impact of education interventions grounded in neuroscience research.

More information: Paul A. Howard-Jones et al. Gamification of Learning Deactivates the Default Mode Network, *Frontiers in Psychology* (2016). [DOI: 10.3389/fpsyg.2015.01891](https://doi.org/10.3389/fpsyg.2015.01891)

Provided by University of Bristol

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