Learning and Teaching Scotland

Press Release

COMPUTER GAMES BOOST MATHS ATTAINMENT

A PIONEERING study into the benefit of using computer games to improve learning has found they can boost maths attainment.

Learning and Teaching Scotland, the main organisation for the development of the curriculum and for exploring the use of ICT in education, carried out an analysis of the effect of Nintendo's Brain Training from Dr Kawashima on pupils' maths ability.

It found a daily dose of the computer game improved pupils' attainment in maths and their concentration and behaviour levels. The findings were revealed today (Thursday 25 September) at The Scottish Learning Festival.

More than 600 pupils and 32 schools across the country were involved in the project, which began in April.

The research project was carried out after a small study involving three classes in June 2007 found significant increases in pupil's maths test scores and the time it took to complete it.

LTS, HMIe and the University of Dundee joined together to undertake the study on a wider scale to see if the results were replicated.

The pupils were initially given a maths test before using Brain Training from Dr Kawashima on the Nintendo DS for 20 minutes at the start of each day for nine weeks or continuing their class as normal. The game featured challenges including reading tests, problem-solving exercises and memory puzzles designed to exercise the brain while the control group continued their lessons in a more traditional manner.

When they were tested again at the end of the nine weeks the results found all groups involved had improved their scores but those using the game improved by a further 50% from 78 to 83 out of 100. The time taken to complete the tests also dropped by five minutes from 18.5 minutes to 13.5 minutes with the improvement of the games group more than twice as much as the control classes.

Less able children were also more likely to improve than the highest attainers and almost all pupils had an increased perception of their own ability. The study also found that it made no difference if the children had the game at home, pointing to the relevance of using it within an educational context, and there was no difference in ability between girls or boys.

There was also a notable improvement in absence and lateness in some classes involved with the project, pupil's interpersonal relationships also improved and they were more inclined to take responsibility for management and ownership of the tasks involved such as distribution and collection of the consoles. There was also a slight, but statistically significant, improvement in attitude towards school by those in the games group.

Derek Robertson, LTS's National Adviser for Emerging Technologies and Learning, said the results offered the first academic and independent evidence that this type of computer game can impact on attainment when used within an educational context.

He said: 'This was a rigorous academic study which offers us clear evidence for the first time that targeted and informed use of the game can have real impact on pupil's attainment.

"Computer games help flatten out the hierarchy that exists in schools – they are in the domain of the learner as opposed to the domain of the school and the added likelihood of learner place in their own learning being decided for them. This intervention encouraged all children to engage and get success in a different contextual framework; one in which they don't know their place.

"It shows teachers needn't be afraid to use technology in the classroom. They are paramount to delivering confident and successful learners but good resources, such as these, are one way of engaging and inspiring children within dynamic and culturally relevant contexts which have real benefits to their learning – Curriculum for Excellence in action.

"I hope these results inspire teachers to continue to embrace technology and to reflect on how they can use non-traditional ICT in their classrooms."

David Miller, of the School of Education, Social Work and Community Education at the University of Dundee said the report showed learning games can be attributed to the use of a games console in the classroom.

He said: "This was an interesting and exciting project. We feel two things are particularly important for those with an interest in Scottish education. The first is that even the control group children showed measurable improvements in performance; this reflects very well on hard-working Scottish class teachers. The second point is important when thinking about the implications of our finding, because of the research design, we can feel confident that these findings are likely to be typical of what we can realistically expect across the board in Scotland."

LTS's Scottish Centre for Games and Learning explores the range of games technologies available, looking at how they can have a positive influence on education. It offers teachers and others involved in education the opportunity to get hands-on access to resources and to discuss the place of games in their class, school or local authority.

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Notes for Editors:

1. LTS is the main organisation for the development and support of the curriculum in Scotland including exploring, promoting and developing new technology in education.

2. More information on games-based learning and interviews with the pupils and teachers involved in the initial project can be found at www.LTScotland.org.uk/ictineducation/gamesbasedlearning

3. Images are available on request.

4. Schools who took part in the study were:

Western Isles - Stornoway Primary School, Laxdale Primary School, Tong Primary School, Back Primary School

Dundee - Charleston Primary School, St Clement's Primary School, Fintry Primary School, Lochee Primary School

East Ayrshire - Hillhead Primary School, Patna Primary School, Bellefield Primary School, New Farm Primary School

Aberdeenshire - Tarves Primary School, Strichen Primary School, Monquhitter Primary School, Kinellar Primary School, Kellands Primary School, Hill of Banchory Primary School, Drumoak Primary School, Central Primary School, Banff Primary School, Aberchirder Primary School Stuartfield Primary School, Strathburn Primary School, St Combs Primary School, South Park Primary School, Mintlaw Primary School, Longside Primary School, Fyvie Primary School, Fraserburgh North Primary School, Bervie Primary School, Alehousewells Primary School and Nursery