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## Research and Library Service Briefing Note

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# The Relationship Between Home Internet Access and Educational Attainment in Children

## 1 Examining the evidence base

In 2001, an OECD report noted the correlation between home computer availability and higher educational achievement among children and young people<sup>1</sup>.

However, Fuch and Woessmann subsequently argued that it is deceptive to view this conclusion in isolation. They assert that previous studies on this subject have tended to use a predominantly bivariate methodology, focusing on a straightforward examination of the correlation between computer use at home and higher school attainment. By contrast, their multivariate study took into account a wider range of variables, including parental education, parents' work status and occupation, number of books at home and GDP per capita of the country studied. Their study produced the conclusion that once we examine variation in family background and school characteristics, 'the relationship

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<sup>1</sup> Organisation for Economic Co-operation and Development (OECD). 2001. *Knowledge and Skills for Life: First Results from the OECD Programme for International Student Assessment (PISA) 2000*. Paris: OECD: p118.

gets negative for home computers and insignificant for school computers<sup>2</sup>. Wirth and Klieme have used survey evidence to suggest that computers at home tend to be mainly used as toys,<sup>3</sup> and this may be a stronger factor where the quality and frequency of parental supervision of computer use is low.

However, Fuch and Woessmann acknowledge that, in general terms, children who read email and webpages at home do appear to achieve better results in maths and reading than children who do not. They state that:

*'...the effect of computers at home on student achievement depends on the specific uses to which the computers are taken. The mere availability of computers at home may in the first instance serve children as devices to play computer games. This distracts them from learning, and thus affects their educational performance negatively. But if computers are instead used for other means than gaming, namely for communicating by email, accessing information on the internet and using educational software, this may compensate, at least partly, for the negative effects induced by computer availability at home and help to advance children's knowledge in math and reading.'*<sup>4</sup>

A similar study by Schmitt and Wadsworth examined the British education system in particular. Here, the authors concluded that there is a statistically significant relationship between households owning computers and higher GCSE results<sup>5</sup>. They argue that even taking into account a variety of household characteristics correlated with computer ownership and educational outcomes, there is support for the view that computer ownership is associated with improved educational achievement. They outline an important nuance though that computer ownership does not appear to affect the probability that children 'get' any GCSEs, but rather that it appears to have a positive association with the GCSE levels achieved. In other words, computers cannot redeem a child (and household) who would otherwise have achieved no passes to a point where they will achieve some, rather, if a child is in a position to achieve some GCSEs, having a computer at home may help them enhance their achievement.

Given the lack of longitudinal studies which could show the benefits, or otherwise, of home internet access over a long period, it is difficult to be completely clear on the relationship between home internet access and educational attainment. However, a number of studies provide support for the idea that as long as the computer is used in an at least partly educational manner, real benefits can be seen. An intensive, qualitative study of 17 schools of varied level and socio-economic background across England found that pupils who use ICT at home show a greater capacity to learn

<sup>2</sup> Fuchs, T & Woessmann, L. 2004. 'Computers and student learning: bivariate and multivariate evidence in the availability and use of computers at home and at school'. *CESifo Working Paper*: No 1321: p1.

<sup>3</sup> Wirth, J & Klieme, E. 2003. 'Computernutzung', in Deutsches PISA-Konsortium (ed) *PISA 2000: Ein differenzierter Blick auf die Länder der Bundesrepublik Deutschland*: 195–209. Opladen: Leske & Budrich.

<sup>4</sup> Fuchs, T & Woessmann, L. 2004. 'Computers and student learning: bivariate and multivariate evidence in the availability and use of computers at home and at school'. *CESifo Working Paper*: No 1321: p15.

<sup>5</sup> Schmitt, J & Wadsworth, J. 2004. 'Is there an impact of household computer ownership on children's educational attainment in Britain?'. *Centre for Economic Performance Discussion Paper*. No 625.

independently and tend to be more motivated in their studies<sup>6</sup>. Interviews with parents, carers and children indicated that,

*'...homework was started sooner and completed more quickly, but was neater, of better quality as it met the child's expectations more, that research use was high, and that what had been set for homework could be checked on the school web-site.'*

74 out of 78 secondary school pupils in this study indicated that they felt ICT was helping with homework<sup>7</sup>.

Similarly, Kent and Facer have shown through a questionnaire study and a series of qualitative home visits in the south-west of England that home access to computers can create a more independent and exploratory approach to learning. They recommend the enhancement of 'home-school link strategies' so that children can extend their school social contexts and develop a collaborative approach to learning with friends<sup>8</sup>.

The crucial variable here is how children use their computers at home. A 2005 study for the Department for Education and Skills (DfES) noted a statistically significant, positive association between pupils' home use of information and communications technology (ICT) for educational purposes and improved attainment in national tests, while use of ICT for leisure activities was associated with decreases in attainment<sup>9</sup>. Some have argued that this distinction is of particular concern for low income households where children may be more likely to work unsupervised<sup>10</sup>. As the 2005 DfES study concludes:

*'...provision of ICT hardware is insufficient. In education, teacher training and pedagogy, parental support and a flexible and creative approach to curriculum materials is also needed. Hence, while personalisation of learning is plausible, it clearly needs the right context to succeed.'*<sup>11</sup>

For this reason, the Home Access Taskforce (see below) recommended that:

*'...any intervention must deliver a programme of support for learners and their families, schools and local authorities to ensure that the opportunities of exploiting home access to technology are achieved'*<sup>12</sup>.

<sup>6</sup> Passey, D, Rogers, C, Machell, J & McHugh, G. 2004. *The Motivational Effect of ICT on Pupils*. London: Department for Education and Skills.

<sup>7</sup> Passey, D, Rogers, C, Machell, J & McHugh, G. 2004. *The Motivational Effect of ICT on Pupils*. London: Department for Education and Skills: p22.

<sup>8</sup> Kent, N & Facer, K. 2004. 'Different worlds? A comparison of young people's home and school ICT use'. *Journal of Computer Assisted Learning Special Issue*. 20 (6): pp440-455.

<sup>9</sup> Valentine, G, Marsh, J & Pattie, C. 2005. *Children and Young People's Home Use of ICT for Educational Purposes: The Impact on Attainment at Key Stages 1-4*. London: Department for Educational and Skills.

<sup>10</sup> Bradbrook, G, Alvi, I, Fisher, J & Lloyd, H. 2008. *Meeting their Potential: the Role of Education and Technology in Overcoming Disadvantage and Disaffection in Young People*. Coventry: Becta.

<sup>11</sup> Valentine, G, Marsh, J & Pattie, C. 2005. *Children and Young People's Home Use of ICT for Educational Purposes: The Impact on Attainment at Key Stages 1-4*. London: Department for Educational and Skills: p89.

<sup>12</sup> Home Access Taskforce. January 2008. *Extending Opportunity. Final Report of the Minister's Taskforce on Home Access to Technology*. Coventry: BECTA: p44.

Such support may come in the form of access to their school's website or Virtual Learning Environment from home, the setting of 'electronic' homework by teachers, and the provision of specialist learning software such as maths computer programs.

## 2 Home Access Taskforce

In January 2007, a 'Home Access Taskforce' was announced by Jim Knight, Minister of State for Schools and Learners. The Taskforce was charged with considering and advising on ways in which home access to technology could be delivered for all school-aged children in England. The resulting report asserted that:

'...strong evidence exists for the potential educational, economic and wider benefits of home access to technology'.<sup>13</sup>

It also found that, while ISP costs are falling, they will not do so quickly enough to prevent a widening gap between high achievers in higher income households, and lower achievement in low income households. Citing 'market failure', the report stated that there was 'a compelling business case for Government investment in support of widening opportunities to home access'.

The Taskforce quoted DCSF's *Children's Plan*, published in 2007, which stated that:

*'There are significant educational benefits associated with having access to technology at home. This availability of technology gives learners greater choice about where, when and how they study. Research shows that this helps to motivate learners and improve attainment. We also know that learning technologies in the home can serve as a focal point for parents to become more actively involved in their child's education. This collaboration between learner and parent can further enhance a pupil's engagement and their achievement... At the moment, there are over a million children with no access to a computer in the home. These children are disproportionately from disadvantaged backgrounds, and their limited access to technology reinforces attainment gaps.'*<sup>14</sup>

The Taskforce report also stated that 35% of families did not have access to the internet at home<sup>15</sup>, though the 2010 Ofcom Communications Market Report suggests that this figure has fallen, with broadband coverage now reaching 71% of households<sup>16</sup>.

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<sup>13</sup> Home Access Taskforce. January 2008. *Extending Opportunity. Final Report of the Minister's Taskforce on Home Access to Technology*. Coventry: BECTA: p6.

<sup>14</sup> Department for Children, Schools and Families. 2007. *The Children's Plan. Building Brighter Futures*. London: DCSF: p77.

<sup>15</sup> Home Access Taskforce. January 2008. *Extending Opportunity. Final Report of the Minister's Taskforce on Home Access to Technology*. Coventry: BECTA: p6.

<sup>16</sup> Ofcom. 2010. Communications Market Report. <http://stakeholders.ofcom.org.uk/market-data-research/market-data/communications-market-reports/cmr10> Accessed 8.9.10.

### 3 UK Government policy

In September 2008 the then Labour government announced the 'Home Access' scheme, offering £700 vouchers to families on low incomes to purchase computers. In addition, the first 12 months' Internet Service Provider (ISP) fee would be paid to enable internet access. The scheme was rolled out to a series of pilot areas in the first instance.

The scheme drew a mixed, but generally positive, reaction from commentators<sup>17</sup>, with Christine Blower, acting general secretary of the National Union of Teachers, commenting that:

*'The government must be congratulated for trying to end the digital divide in education. Every youngster should have an equal start in life, and that includes equal access to the internet. If Web 2.0 is a fundamental part of lives then it must be made available to all. Students who rely on computers cannot be expected to go to the library or a friend's house for access.'*

However, Dr Neil Selwyn, senior lecturer in information technology at the Institute of Education, cautioned that:

*'Ensuring equality of opportunity in terms of accessing the internet does not ensure equalities of outcome. How will families be supported and encouraged to develop the skills, know-how and motivation required to make the best use of online resources and services?'*

#### **BECTA**

The British Educational Communications and Technology Agency (BECTA) was responsible for the administration of the Home Access scheme, providing access to the internet for families on a low income with children. Until the end of 2008-09, BECTA had distributed 12,000 grants to parents to enable them to buy computer equipment for their children. BECTA states that '90% of low income families in the pilot areas were assisted'<sup>18</sup>.

In January 2010, the scheme was rolled out England-wide. No figures are available yet for the take-up of the scheme across England.

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<sup>17</sup> Comments taken from: [epolitix.com](http://epolitix.com). 23.9.08. 'Government announces internet access scheme': <http://www.epolitix.com/latestnews/article-detail/newsarticle/government-announces-internet-access-scheme> Accessed 8.9.10.

<sup>18</sup> BECTA website. <http://about.becta.org.uk/display.cfm?page=2081> Accessed 7.9.10.

## 4 Home Access scheme and the future

On 24 May 2010, the coalition government announced that BECTA would close as part of cost-cutting measures<sup>19</sup>. However, they also stated that the home access scheme would continue until grants ran out at the end of June<sup>20</sup>. Further grant provision is being reviewed as part of the Spending Review in autumn 2010. The results of this review are expected on 20 October this year.

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<sup>19</sup> BBC News website. 'BECTA: Does it deserve to die?'

[http://www.bbc.co.uk/blogs/thereporters/rorycellanjoness/2010/05/becta\\_does\\_it\\_deserve\\_to\\_die.html](http://www.bbc.co.uk/blogs/thereporters/rorycellanjoness/2010/05/becta_does_it_deserve_to_die.html) Accessed 7.9.10.

<sup>20</sup> Computer Active website. 'Home Access scheme won't be cut this year promises Government'.

<http://www.computeractive.co.uk/computeractive/news/2263602/home-access-scheme-won-cut#ixzz0ypWjMECl> Accessed 7.9.10.