

Research impact case study

The impact of adult literacy and numeracy research based on the 1970 British Cohort Study



Centre for Longitudinal Studies

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Why this research is highly significant

Adult literacy and numeracy research by Professor John Bynner and Dr Samantha Parsons of London's Institute of Education has provided important insights for government policy-makers, educationists and health officials – not only in the UK but around the world. Their 18-year programme of work using the 1958 and 1970 birth cohort study datasets has helped to shape the thinking of international organisations, business and skills bodies, local authorities, think tanks and charities. It is also now being used in Masters-level teacher education and in training materials for vocational education practitioners as far afield as Australia.

This case study focuses on information collected when the 1970 British Cohort Study (BCS70) members were aged 34. The researchers' analyses of longitudinal data collected prior to and when the cohort had reached age 34 highlighted the hardships experienced by many adults with the lowest levels of literacy and numeracy. Their much-cited research¹ has added considerable weight to the argument that numeracy and literacy support can help to protect disadvantaged adults from poverty, ill health and marginalisation.

Bynner and Parsons have also demonstrated how low-skilled parents unwittingly transfer disadvantage from one generation to the next. Their research has consequently underlined the value of family literacy programmes and early years' initiatives such as Sure Start and the government-sponsored Early Intervention Foundation, established in 2013.

Why the researchers analysed BCS70 data

The 1970 British Cohort Study (BCS70) is one of the best sources of information that we have about the role of literacy and numeracy² in adult

¹ Bynner and Parsons' analyses of the BCS70 data are also widely cited in academic literature but this case study focuses on their impact on policy and practice.

² In the context of this research, a numerate person is someone who can deal competently with tables and graphs as well as numbers.

lives spanning the last decade of the previous century and the beginning of the present one. The cohort represents the first generation to have experienced the full force of the technological and globalising transformations of the labour market that marked the beginning of the post-industrial era in which we now live. The study is following 17,000 people born in England, Scotland and Wales in a single week in 1970 and has gathered a huge amount of data about them since their births. This evidence base has made it possible to identify, by means of statistical analysis, the ways in which literacy and numeracy levels are associated with individual outcomes in numerous areas of life, including employment and health, taking account of their prior circumstances. The study has enabled researchers³ to examine cohort members' literacy and numeracy skills at various ages and to compare their performance with their children's reading and mathematics ability.

Since the BCS70 birth survey, there have been eight follow-up surveys – at ages 5, 10, 16, 26, 30, 34, 38 and 42. The age 34 survey, which has been the focus of much of Bynner and Parsons' most recent research, measured the literacy and numeracy skills of 9,665 cohort members. The children of half these cohort members also had their reading and mathematics development assessed as part of the age 34 survey.

An earlier survey – at age 21 – assessed the literacy and numeracy levels of 1,623 cohort members⁴, and 1,352 of them completed some of the same assessment items in the age 34 survey. Measures of cognitive development, including literacy and numeracy attainment, were also collected during their childhood years.

Policy background

Up until the mid-1990s, adult basic skills education was not seen as a priority by the British government. The International Adult Literacy Survey in 1996 brought an end to that

³ Bynner and Parsons are by no means the only researchers who have used the BCS70 literacy and numeracy data but they have carried out more analyses of the cohort's skills than any other research team.

⁴ This was a representative 10 per cent sample of the cohort.

complacency by revealing worryingly low levels of literacy and numeracy in the UK in comparison with other developed nations. The resulting investigation by Sir Claus Moser's working group, of which John Bynner was a member, drew on evidence collected by Bynner and Parsons for the Basic Skills Agency. This had been produced from longitudinal research conducted during the 1990s and early 2000s using both BCS70 and the National Child Development Study (NCDS), which is following the cohort born 12 years earlier.⁵ The Moser report (1999)⁶ made the case for launching, in 2001, Skills for Life⁷, a major government initiative to tackle the literacy, language and numeracy needs of the country's adults.

The National Research and Development Centre for Adult Literacy and Numeracy (NRDC) was established as part of the Skills for Life strategy – and it was the NRDC that helped to ensure that the value of longitudinal cohort studies for literacy and numeracy research was fully recognised⁸. It provided the extra funding for literacy and numeracy assessments involving the whole BCS70 sample at age 34. These assessments were conducted as part of a follow-up survey funded by the Economic and Social Research Council. The European Social Fund also made additional funding available to allow the reading and mathematical skills of cohort members' children to be assessed.

Key findings

This case study documents the impact of four studies based on the BCS70 data that Bynner and Parsons produced between 2005 and 2008 (see information panel 1). Their research found

⁵ This earlier research was based on 10% samples of the BCS70 (1991) and NCDS (1995) cohorts.

⁶ *A fresh start – improving literacy and numeracy*, London, Department for Education and Employment.

⁷ Skills for Life introduced new qualifications and professional standards for language, literacy and numeracy teachers, a core curriculum, and national targets for the number of adults the strategy aimed to reach and the number of formal qualifications to be gained.

⁸ The NRDC is based at the Institute of Education, University of London www.nrdc.org.uk. The Centre was initially established in 2002 by the UK government. It is now an independent centre for adult literacy, numeracy and English for Speakers of Other Languages.

a strong relationship between very low basic skills and other negative outcomes in adult life, such as

Selected research reports based on the 1970 British Cohort Study

Parsons, S. and Bynner, J. (2005) Does numeracy matter more? London: National Research and Development Centre for Adult Literacy and Numeracy.

Bynner, J. and Parsons, S. (2006) New light on literacy and numeracy: Results of the literacy and numeracy assessment in the age 34 follow-up of the 1970 British Cohort Study (BCS70). London: National Research and Development Centre for Adult Literacy and Numeracy.

Parsons, S. and Bynner, J. (2007) Illuminating disadvantage: Profiling the experiences of adults with entry level literacy or numeracy over the lifecourse. London: National Research and Development Centre for Adult Literacy and Numeracy.

Parsons, S. and Bynner, J. (2008) New light on adult literacy and numeracy in Scotland: Evidence from the 2004 survey of the 1970 British Cohort Study (BCS70). Scotland: The Scottish Government.

poor labour-market experiences and prospects, low income, ill-health and lack of social and political participation.

Does numeracy matter more? (2005)

This study by Bynner and Parsons uses data collected from the 10 per cent sample of the BCS70 cohort on which the age 21 survey was based. The aim was to test more rigorously the findings of an earlier study of numeracy based on NCDS data to find out whether poor numeracy at age 21 was a problem in its own right. It found that:

- By age 30, men and women with poor numeracy were more than twice as likely to be unemployed as those with competent numeracy.
- Men with poor numeracy (irrespective of their literacy standard) were also more at

risk of depression; and had little interest in politics.

- Low numeracy levels had an even greater negative effect for women. Bynner and Parsons surmised that this is because numeracy skills are needed in modern jobs that appeal to many young women, such as managing accounts or using ICT equipment for administration.
- Numeracy skills decline if they are not used and practised in employment. This creates a vicious circle: poor numeracy leads to limited employment, which leads to declining numeracy, which makes it harder to obtain and stay in employment.

New light on literacy and numeracy (2006)

This study analyses data gathered from the age 34 literacy and numeracy assessment. It investigates the relationship of a range of outcomes for men and women at that age (for example, health and employment) to their literacy and numeracy levels. The researchers compare performance in the age 34 assessments with cohort members' age 21 scores. They also measure the intergenerational transfer of skills, comparing the reading and mathematics scores of cohort members' children with their parents' age 34 skills levels. The study found that:

- There is a strong relationship between poor basic skills and disadvantage in adulthood – particularly for adults whose literacy and numeracy skills are at Entry Level 2 (the standard expected of 7 to 9-year-olds – **see information panel 2**) or below.⁹
- The Entry Level 2 and below group appeared exceptionally disadvantaged – socially and economically. Their self-reported health and mental wellbeing were also poorer and they were less likely to vote than people with higher skills levels.
- The disadvantages they faced could also be experienced by their children, as their

literacy and numeracy levels were also relatively poor, on average.

- More men said they had difficulties with spelling and handwriting, whereas more women reported problems with arithmetical operations such as multiplication and division.
- Men with poor skills tended to lead a solitary and childless life in their mid-30s. Women with the same low skills levels were also more likely to be without a partner but more typically were parents, often with large families.
- Once people come to recognise that they have poor skills they often want to improve them. Greater efforts should therefore be made to stimulate self-awareness of literacy and numeracy difficulties, and to offer provision that matches adult learners' needs.

Illuminating disadvantage (2007)

In this further analysis of data from the age 34 study the researchers compare the life outcomes for people with very low literacy and numeracy levels (particularly Entry Level 2 and below) and those with higher skills. This research showed that:

- The 'trajectory of disadvantage' begins early and is characterised by poor family circumstances, limited educational achievement and low aspirations. But it is by no means inevitable, given the motivation to improve their skills, e.g. for economic or family reasons, and the existence of learning opportunities to do so.
- There are strong geographic differences in numeracy performance across Britain, with particularly poor performances in Wales.
- There is a strong association between parental interest in cohort members' schooling when they were aged 10 and their future numeracy skills.

⁹ For further information, see information panel on adult skills standards.

New light on adult literacy and numeracy in Scotland (2008)

This study focused on the 891 BCS70 survey participants living in Scotland in 2004. Among its key conclusions are:

- Men and women in Scotland were less likely than BCS70 members in England and Wales to report that they had difficulties with literacy or numeracy or to have attended classes to help them improve these skills.
- Nevertheless, low levels of literacy and numeracy were a particular problem in the Central Belt of Scotland.

The studies' impact

England

The importance of Bynner and Parsons' findings for policy-makers has been confirmed by Barry Brooks, former Head of the Skills for Life Strategy Unit at the Department for Education and Skills (DfES). "Their work has had direct and indirect impact on policies both here and internationally," he said. "I first introduced their findings to Bill Rammell, when he was Skills Minister at the DfES. They were immediately latched onto as important."¹⁰

Brooks was the senior civil servant responsible for developing and implementing the national strategy for improving the literacy, language and numeracy skills of young people and adults. He contributed to two White Papers published in 2005 -- '14-19 Education and Skills' and 'Skills: Getting on in Business, getting on at work' -- and says that Bynner and Parsons also left their imprint on both documents. He believes that their BCS70-based research also influenced the last Labour government's World Class Skills policies.

Brooks was particularly struck by the "really powerful" finding (*New light on literacy and numeracy*) that disadvantage was especially acute among people with the poorest skills.

¹⁰ Comments in email correspondence between Barry Brooks and the Centre for Longitudinal Studies.

Adult skills standards

The national standards for adult literacy and numeracy in England's National Qualifications Framework are:

Level 2: GCSEs A*-C

Level 1: GCSEs D to G

Entry Level 3: standard expected of a 9 to 11-year-old

Entry Level 2: standard expected of a 7 to 9-year-old

Entry Level 1: standard expected of a 5 to 7-year-old

The government regards Level 1 literacy and Entry Level 3 numeracy as the standards required to be fully functional in the modern British economy. It has therefore focused its policy targets on helping adults to achieve these levels.

Other political influence

David Sherlock, Chief Inspector of Adult Learning, also helped to ensure that Bynner and Parsons' findings were considered at the highest political levels. His 2004-05 report¹¹ refers to their research and states:

"...real disadvantage is concentrated among those whose capabilities are at or below Entry Level 2. This is well below the working definition of literacy and numeracy officially used by Skills for Life, of Level 2, and below the level at which most of those who have benefited from the programme so far, are working. There appears to be a case for concentrating future efforts on this relatively small group of acutely disadvantaged people."

The significance of this key finding was recognised by John Hayes, the former Conservative skills minister. In 2006, he acknowledged that "children of parents with literacy skills below Entry Level 2 are demonstrably more likely to be poor, unemployed

¹¹ <http://dera.ioe.ac.uk/16348/9/Annual.pdf>

and in poor health when they, in turn, reach adulthood”¹².

Bynner and Parsons’ research has since been quoted in House of Commons debates¹³ and Select Committee hearings. *New light on literacy and numeracy* is also cited in two influential government-commissioned studies:

- **The Wolf Report** (2011) on vocational education
- **The Marmot Review** (2010) of health inequalities in England.

References to their research also appear in many government publications. For example:

Government policy documents

Supporting analysis for ‘Skills for Growth: The national skills strategy’ (2010)¹⁴

This Department for Business, Innovation, Universities and Skills publication sets out the evidence that “informed the development” of the 2009 National Skills Strategy. The 2010 report makes two references to *New light on literacy and numeracy* and underscores its conclusion that:

“Those who improved their skills as adults were more likely to have voted and were less likely to be disengaged from the democratic process.”

The impact of parental involvement on children’s education (2008)¹⁵

Published by the Department for Children, Schools and Families, this report draws together evidence on the effects of parental involvement on children’s education. It states that Bynner and Parsons:

¹² John Hayes, then Shadow Minister for Vocational Education and Lifelong Learning, made this comment in an article for *Talisman*, the Adult Learning Inspectorate’s magazine, in November 2006. See longer extract from this article in the Appendix to this case study.

¹³ For example, Robin Walker, Conservative MP for Worcester, referred to their work during a House of Commons debate in October 2013. See Appendix.

¹⁴ <http://www.bis.gov.uk/assets/biscore/economics-and-statistics/docs/10-604-bis-economics-paper-04>

¹⁵ <http://webarchive.nationalarchives.gov.uk/20130401151715/https://www.education.gov.uk/publications/standard/Childrenandfamilies/Page10/DCSF-00924-2008>

“indicated that children of parents with the poorest grasp of literacy and numeracy are at a substantial disadvantage in relation to their own reading and maths development compared to children who have parents with good literacy/numeracy.”

Skilled for Health: The national strategy for integrating health and learning skills (2006)¹⁶

This report by the Department of Health and the Department for Education and Skills includes the following references to Does numeracy matter more?

“What are the impacts of LLN [language, literacy and numeracy] skills needs on people’s health? We know that people with less well established LLN skills generally experience much poorer health.”

“...women with poor numeracy skills are more likely to suffer depression, be unemployed and report poor health.”

Scotland

The Scottish Government said that the study it commissioned from Parsons and Bynner -- *New light on adult literacy and numeracy in Scotland* (2008) -- had offered “valuable insights” for policy-makers, educationists, health service providers and employers¹⁷.

The Department for Work and Pensions (DWP) later stated that this research had helped to provide the rationale for Scotland’s continuing drive to improve adult literacy and numeracy. This DWP report, ***UK National Report on Strategies for Social Protection and Social Inclusion (2008-2010)***¹⁸, says that the research:

“showed the effects of the intergenerational impact of poor literacy and numeracy...The response to this evidence is a call to action and the Skills for Scotland strategy focuses on improving the literacy and numeracy skills and

¹⁶ <http://rwp.excellencegateway.org.uk/resource/Skilled+for+Health%3A+Making+the+case+--+Booklet/pdf/>

¹⁷ Report on Scotland’s Adult Literacy and Numeracy Strategy 2007/2008 <http://www.scotland.gov.uk/Publications/2008/09/03100049/1>

¹⁸ <http://www.dwp.gov.uk/docs/nationalactionplanc2a4.pdf>

practices of the adult population. £51 million of new resources were invested over five years (2001-6), with a further £37.1 million from 2006-8 – by far the biggest initiative in the field for over 20 years. 15,000 learners were engaged in literacy programmes across Scotland in 2001 and more than 137,000 learners were supported by 2006. The target is to support 200,000 adult learners by 2008.”

Wales

Several Welsh government documents draw attention to Bynner and Parsons’ research (see Appendix to this case study). Their work is also used in the **Masters in Educational Practice** programme for new teachers that Wales introduced in 2012.

International influence

European Commission

Their research is cited more than a dozen times in an important European Commission study, **Final report: EU high level group of experts on literacy** (2012)¹⁹. The Commission responded to this report by earmarking €3 million to establish a European Policy Network of National Literacy Organisations. This 28-country network has been asked to gather and analyse policy information, and exchange good practices, to reduce the number of people with low literacy skills by 2020.

New Zealand

One of several government reports that refer to Bynner and Parsons’ research is **International workforce literacy review: England** (2007)²⁰, commissioned by the Department of Labour. It lists their key findings before concluding:

“The BCS70 study is a salutary reminder that the biggest impact of poor basic skills is at the lowest levels.”

Australia

Bynner and Parsons’ work is cited in a range of documents published by government and business bodies. It is also highlighted in

Numeracy (2011)²¹, a resource for practitioners involved in Australia’s workplace literacy programme.

Local government

England’s local authorities have also made extensive use of their research. For example, Sandwell’s **Strategy for the improvement of Skills for Life 2008–2011** states:

“The 1958 and 1970 British birth cohort studies are amongst the best sources of information that we have about the role of literacy and numeracy in adult lives... [*Illuminating disadvantage*] demonstrates the strong relationship between poor basic skills and a number of disadvantaged outcomes in adult life ... The antidote must be education in whatever form it can be offered to adults in the community, in the classroom and in the workplace.”

Think tanks and charities

KPMG

A 2008 report by KPMG draws heavily from Bynner and Parsons’ research. **The long term costs of numeracy difficulties**²² uses data in *Does numeracy matter more?* to estimate the costs of poor numeracy. Its authors calculated that failure to master basic numeracy skills cost the country up to £2.4 billion a year -- and left individuals up to £763 million a year poorer.

National Literacy Trust:

Bynner and Parsons’ findings influenced the National Literacy Trust **Words for Life programme**, which shows parents how to support children’s language and literacy development. *Illuminating disadvantage* had noted how these adults were less likely to have been read to as children and were at age 34 less likely to read to their own children.

¹⁹ http://ec.europa.eu/education/policy/school/doc/literacy-report_en.pdf

²⁰ <http://www.dol.govt.nz/publication-view.asp?ID=263>

²¹ <http://wellpractitioners.com.au/wp-content/uploads/2011/12/Numeracy-resource.pdf>

²² <http://www.nationalnumeracy.org.uk/resources/14/index.html>

Pathways to impact

Influential advocates

Barry Brooks, the former Head of the Skills for Life Unit, played a crucial role in ensuring that Bynner and Parsons' research influenced policy and practice.

He attended a meeting at London's Institute of Education in 2005 at which John Bynner presented some of the early findings of *New light on literacy and numeracy*. He then not only passed these findings on to the Skills Minister but asked the researchers to conduct a further analysis of the age 34 BCS70 data (*Illuminating disadvantage*).

Brooks also promoted their work around the world. "I have used their data and findings in presentations, seminars and workshops in Detroit, Pretoria, Manama, Malta and Vancouver, as well as the UK," he said.

David Sherlock, former Chief Inspector of Adult Learning, and Alan Tuckett, former Director of the National Institute of Adult Continuing Education, were among the other important advocates of the researchers' work.

Media

Alan Tuckett wrote a number of newspaper articles which referred to Bynner and Parsons' research. This carried their findings to a much wider audience. In one of these articles²³, he argued that their research underlined why funding must be targeted at adults with the lowest skills levels:

"Higher education matters, too, and needs investment," he wrote. "But not at the expense of the chance for adults to change their lives on their own terms. The time has come, now, to secure a new settlement for adult learning across the piece, and to give it time to flourish."

²³ "A new dark age for adult learners?", TES, July 1, 2005 <http://www.tes.co.uk/teaching-resource/A-new-dark-age-for-adult-learners-2113457/>

Think tanks and charities

The researchers' findings have been highlighted by high-profile think tanks, education organisations and charities, which can exert influence on government thinking.

Publications

Bynner and Parsons produced accessible summaries of their research, which were published in booklet form by the National Research and Development Centre for Adult Literacy and Numeracy. These booklets were then distributed at major conferences attended by policy-makers and adult literacy and numeracy practitioners.

Conference presentations

The researchers also spoke about their findings at several conferences, such as the Department for Education and Skills' annual research conferences.

"A new dark age for adult learners?", TES, July 1, 2005 <http://www.tes.co.uk/teaching-resource/A-new-dark-age-for-adult-learners-2113457/>

A more comprehensive list of the organisations and individuals that have been influenced by Bynner and Parsons' BCS70-based adult literacy and numeracy research is provided in the Appendix to this case study

BCS70

The 1970 British Cohort Study is managed by the Centre for Longitudinal Studies at the Institute of Education, London, and is funded by the Economic and Social Research Council.

Further information about the study is available from the CLS website www.cls.ioe.ac.uk

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