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The Intergenerational Transfer of Numeracy Skills

This research paper investigated the relationship between the numeracy skills of parents and those of their children, through secondary analysis of data from the 1970 British Cohort Study.

Key words: numeracy; British Cohort Studies; BCS70; intergenerational; basic skills; skills transfer

Key findings

Our results suggest that strategies to improve parents' skills may have a wider impact on the whole family, making the findings of interest to policymakers and those working in adult and family learning.

The main finding of this study is:

- When parents have better numeracy, their children tend to have better numeracy, even when controlling for a range of potentially confounding factors. In other words, if two parents have the same income, occupational status, qualifications, etc., and one parent has a higher numeracy level, his or her child is likely to have better numeracy.

Furthermore:

- This intergeneration numeracy effect was observed for pre-school and school-aged children.
- The relationship between the numeracy skills of fathers and their children is slightly stronger than between mothers and children. This was especially the case for school-age children.
- Mothers' numeracy skills had more impact on daughters than sons, and fathers' skills have more impact on sons than daughters.

National Research and Development Centre
for adult literacy and numeracy

- There was significant variation in the numeracy levels of adults in the sample with no or low qualifications, suggesting that numeracy is developed through a range of activities, not just education.

What we did

This research was undertaken in 2013 by the IOE's **National Research and Development Centre for Adult Literacy and Numeracy (NRDC)** as part of a suite of numeracy studies commissioned by the National institute for Adult and Continuing Education (NIACE). It belongs with wider bodies of research on the intergenerational transmission of educational advantage and disadvantage and of cognitive skills.

The aim of this study was to examine the links between the numeracy skills of parents and their children. In doing so, this research focused on an underexplored area; to date considerably more research has examined the impact of parental/family literacy practices.

This paper builds on previous NRDC research by De Coulon et al. (2008) exploring the relationship between parents' basic skills and children's cognitive outcomes. Both studies use data from the 1970 British Cohort Study (BCS70), which follows in rich detail the lives of more than 17,000 individuals born in a single week in April, 1970.

How we did it

The adult subjects of our analysis were 2,246 members of BCS70. All were randomly selected into a 'Parent and Child Survey' subsample in 2004 and all had at least one child aged between 3 and 16. 1,226 of these children (aged 3-5) completed an Early Number Concepts assessment, and 2,240 (aged 6-16) completed a Number Skills assessment, giving a total of 3,466 children to include in analysis. The adults took a computer-based numeracy assessment consisting of 17 multiple choice questions.

Our analysis investigated the relationship between parent and child numeracy scores using multiple linear regression analysis (the relationship between two factors, controlling for others). Models included not only parental numeracy scores, but also other parental characteristics that might influence children's scores, including socio-economic factors, such as household income, and home/parenting factors, such as frequency of parent-child reading. We also controlled for parents' cognitive abilities, using scores from cognitive testing on cohort members when they were five.

Implications and further information

This research paper underscores the need for longitudinal research into this area, in order not only to better understand the circumstances of skills transfer, but also to inform effective policy change.

The research report 'The intergenerational transfer of numeracy skills' is available from the National Numeracy website.

Research cited in this briefing is available from the NRDC website at: De Coulon et al. (2008)

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