



CAMBRIDGE ASSESSMENT

Research summary – A brief review of employers' views on numeracy

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1 Background: Key reports

A review of recent literature identified four key reports which explore employer views on mathematics or numeracy skills among employees. The annual Education and Skills Survey ([CBI/Pearson, 2012](#)) aims to provide an authoritative snapshot of current trends and employer opinion on education and skills issues, measuring the scale of employers' activity on training and development, their involvement in the education system and their perspectives on the actions that are needed to boost the skills of existing and future employees. The biennial Employer Skills Survey ([UKCES, 2012a](#)) aims to provide a key data source on employer demand for investment and skills, and covers topics such as skill-related recruitment difficulties, skills gaps, training investment and work-readiness of education-leavers. In 2011 the Advisory Committee on Mathematics Education (ACME) produced a pair of reports outlining the UK's mathematical needs ([ACME, 2011](#)) to provide an evidence base for future policy decisions about the national provision of mathematics. In 2010 the Confederation of British Industry (CBI) produced a report which outlined the key business priorities for numeracy and mathematics in the UK ([CBI, 2010](#)). For the purposes of this document the content of these four reports has been reviewed in relation to three research questions.

1.1 Question 1: Mathematical knowledge and skills required by employers

Across all four key reports there was consensus that employers in the UK require basic numeracy skills among their employees, even those in non-numeric professions. It appears, however, that the employer demand for numeracy skills is not being matched by the skills in the workforce, with the CBI/Pearson (2012) and UKCES (2012a) surveys highlighting the extent of this shortfall among both school-leavers and other employees.

Firstly, focusing upon school-leavers, 30% of the CBI/Pearson employers reported that they are unhappy with the levels of numeracy of school-leavers in the 16–19 age group, and 45% wanted more to be done in schools and colleges to strengthen numeracy among 14–19 year olds. Of those employers in the UKCES survey who had recruited school-leavers in the previous two to three years, 4% reported a lack of literacy or numeracy skills among 16-year-old school-leavers, 3% among 17- and 18-year-old school-leavers and 2% among 17- and 18-year-old FE college-leavers.

Looking more widely at all employees, 55% of the CBI/Pearson employers expressed a concern about the basic numeracy skills of some employees in their current workforce. The UKCES employers also expressed similar concerns, but again, not quite to the same extent: only 15% of 'skills gaps' reported were connected to a lack of numeracy skills. Some UKCES employers also reported that shortfalls in numeracy skills were resulting in vacancies which were proving difficult to fill due to a shortage of applicants with the appropriate skills, qualifications or experience.

The CBI (2010, p. 5) report the following mathematics skills and abilities as constituting "functional numeracy in the workplace":

- Mental arithmetic without using a calculator
- The ability to interpret and respond to quantitative data

- Calculation of a percentage and interpretation of its significance
- The ability to work comfortably with fractions, decimals and ratios
- Awareness of different measures and the ability to convert between them
- Instinct to pause and check potentially rogue results and calculation errors
- Basic understanding of odds and probabilities.

Notably, both the CBI (2010) and ACME (2011) reports repeatedly emphasise that it is not simply the acquisition of the core skills and abilities that is necessary, but the ability to confidently apply these in the workplace context.

The CBI (2010) and ACME (2011) both pose possible solutions which may help to overcome employee problems with applying mathematical skills. The CBI suggests that businesses should provide schools and colleges with “examples of how maths is used in the workplace and support teachers with practical examples of applied uses of maths” (p. 6). ACME believes that it is the level of study of mathematics that requires attention, emphasising the importance of people having studied mathematics at a higher level than they will actually use in order to provide them with the “confidence and versatility to use mathematics in the many unfamiliar situations that occur at work” (p. 1).

1.2 Question 2: Qualifications which employers consider to be evidence of good numeracy

Employers in the CBI/Pearson (2012) survey were asked to report which qualifications best equip school- and college-leavers with working skills. The qualification most commonly selected as equipping school- and college-leavers with the numeracy skills needed at work was five GCSE grades of A* to C, including mathematics and English (56%), followed by a STEM A Level (25%), a general A Level (15%) and, lastly, vocational qualifications (5%) (p.26).

Although employers appear to consider GCSEs to be good evidence of numeracy skills, ACME (2011, p. 1) raised a concern about “the two year gap for most young people between the end of GCSE and the start of university or employment, during which the large majority do not do mathematics”. Similarly, the CBI (2010, p. 4) suggests that “all young people should be expected to continue some form of maths or numeracy education after 16, whatever education or training route they pursue”. The CBI recommended that: students with a GCSE grade of B and above should study AS Level Mathematics; those with a C should study AS Mathematics or a functional skills course; those not achieving A* to C at GCSE or Functional Skills Mathematics Level 2 should follow a course to help them to do so.

1.3 Question 3: Training provided by employers for employees with poor numeracy skills

Employers in the CBI/Pearson (2012) survey were directly asked if they had provided any remedial numeracy training to employees in the past year (January/February 2011 to December 2011/January 2012). Eighteen per cent of employers reported that they had provided remedial numeracy training to school or college leavers, 5% to graduates and 13% to other adult employees (p. 35). Unfortunately the detailed nature of this training was not reported. Although several of the CBI/Pearson employers provided remedial numeracy training, almost a third (31%) believed that it is important to raise standards in schools to reduce the need for remedial training (of any kind, not only numeracy) of young employees (p. 23).

2 References

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