National Numeracy
Getting on with numbers

Research Briefing

July 2023

Fit for Work: Number Confidence and Social Mobility

Low numeracy skills and confidence is holding UK PLC back. That the UK has low numeracy levels compared with other countries exacts a significant cost to the national economy of up to £25 billion a year. It damages individual prospects and prosperity too, being linked to greater negative career impact across earnings, career choices and progression.

Our research shows that low number confidence starts early in life and limits learning opportunities and career choices, throwing up a significant, lifelong barrier to social mobility.

For example, one in four people has been put off from applying for a new job which listed 'using numbers and data' as a requirement.[i]

Number confidence and skills are intrinsically linked – people need to believe in their ability to improve their maths skills, in order to begin trying to do so. Supporting adults and children to develop this belief and to be confident using numbers and maths is a powerful tool in improving access to employment and career prospects for all, facilitating social mobility by helping people to realise their economic potential.

National Numeracy actively supports people to improve their number confidence and skills, not least through the National Numeracy Challenge online tool. In 2022, over 1,000 users of this tool were surveyed as part of our 'Number Confidence and Social Mobility' research report.[ii]

This briefing paper focuses on insights from the report about the role number confidence plays in getting into work and on at work, and resultant implications for supporting social mobility.

Summary of findings

- Negative experiences of learning maths whilst at school are linked to lower maths attainment, and to being out of work later in life.
- The number skills needed in the workplace are not always a good match to those taught in schools.
- Those with both low, or no, maths qualifications **and** low maths confidence have observed greater effect on their earnings, career progression, career choices, job hunting and job performance than their more 'maths confident' counterparts.
- Becoming more number confident is an important precursor to feeling able to take steps to get on at work and building numeracy skills.
- The National Numeracy Challenge is an effective tool in supporting people without existing maths qualifications, and those not currently working, to develop their number confidence.

Our recommendations

Employers should:

- Acknowledge the crucial role numeracy plays in being successful in any job.
- Support employees to build their number confidence, as well as their numeracy skills.

Policymakers should:

- Ensure that the maths we learn in schools is contextualised and relatable to the maths we need at work, whatever the job.
- Ensure that all young people leave education with the number confidence to secure employment, continue to develop their skills and build sustainable careers.
- Acknowledge that improving number confidence is a powerful precursor to improving numeracy skills.
- Ensure that appropriate confidence-building support is available to adults with low numeracy, both in and out of work.
- Embed the National Numeracy Challenge, and other engagement and confidence-building resources, into adult education, employment and skills-building programmes in order to scale up a proven, cost-effective method of improving numeracy.

Numeracy, work and social mobility – what's going on?

As many as 24 million adults (58% of working-age adults in the UK) have low numeracy skills. Annually this affects the country's productivity to the tune of £25 billion.

Individuals also pay the price. It is estimated that 16 million workers have low numeracy skills, and they earn an average of £1,600 a year less than they could if they had a basic level of numeracy.[iii]

Adults with lower numeracy skills:

- Often get stuck in a 'skills trap'. They enter the labour market in a less favourable position and, as a result, receive fewer development opportunities limiting their future career prospects.[iv]
- Have more difficulties than other adults in getting jobs and staying in them – their careers are frequently marked by casual unskilled work and unemployment.[v]
- Are more likely to come from lower socio-economic backgrounds (e.g. have been eligible to receive free school meals, have parents with no qualifications or who have claimed unemployment benefits) and have poorer health.[vi]
- Are more likely to live in poorer areas. Amongst today's students, those from the poorest postcodes are almost twice as likely to fail their Maths GCSE as those from the wealthiest postcodes.[vii]

Why is this important?

"Good numeracy is the best protection against unemployment, low wages and poor health"
Andreas Schleicher – Director for Education and Skills, Organization for Economic Co-operation and Development (OECD)

Low number confidence limits aspirations and choices and can do so from an early age. Poor early experiences of maths learning can lead to a strong emotional reaction to being asked to use numbers, interfering with how people engage with number-related tasks[viii] and even cause maths anxiety. This emotional side to number confidence is unrelated to intelligence or ability.[ix]

People who say they do not need or use mathematics tend to think only about school maths – the number skills they use in their work go unrecognised.[x] In practice, workplace numeracy incorporates a range of day-to-day skills (e.g. measurement, calculations, interpretations) as well as the personal confidence to use maths in appropriate situations.[xi]

Traditionally, improving numeracy has often focussed exclusively on the education system and the workforce of the future. This does little to support social mobility amongst adults already in work – all 16 million of them with low numeracy.

What we found

We surveyed

1,025 people

between July and October 2022 and spoke in-depth to 24 of them.

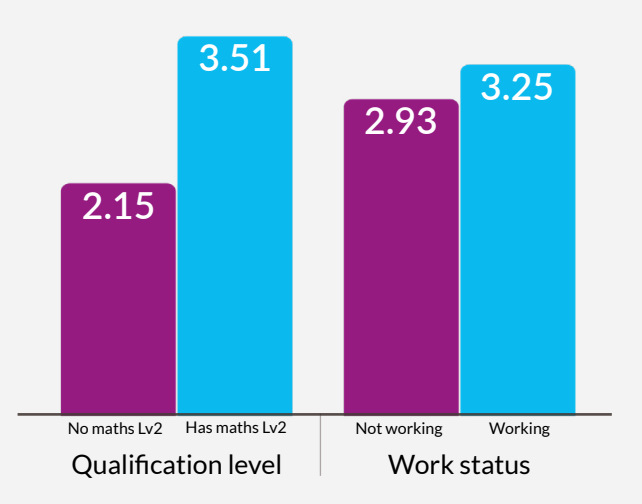
Compared to other people, those without a Level 2 maths qualification (e.g. a GCSE at 4/C or above) and those currently not working:

- Gave lower average ratings to their maths experiences whilst at school (Figure 1 shows the average rating people gave out of five).
- Had lower number confidence when first taking the National Numeracy Challenge (Figure 2 shows a higher % of people with low number confidence don't have Level 2 maths and are not working).

Using the National Numeracy Challenge has helped many of these people to improve their number confidence. It is particularly good at helping people:

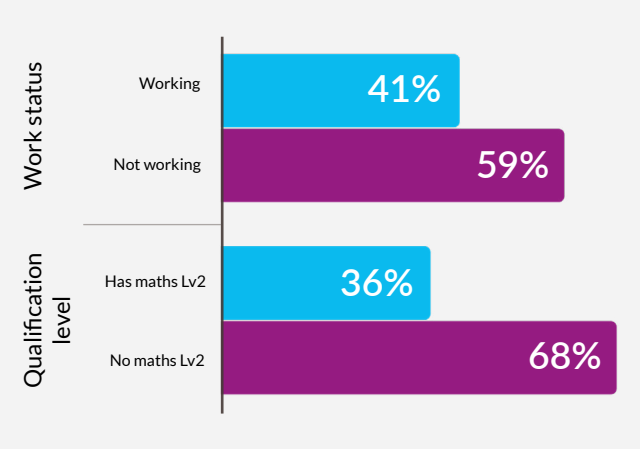
- Without a Level 2 maths qualification and those not currently working to improve their number confidence.
- Who are looking to improve their work and learning situation.
- Who had a negative experience of maths whilst at school.

Figure 1: Rating of maths lessons whilst at school (mean out of 5)



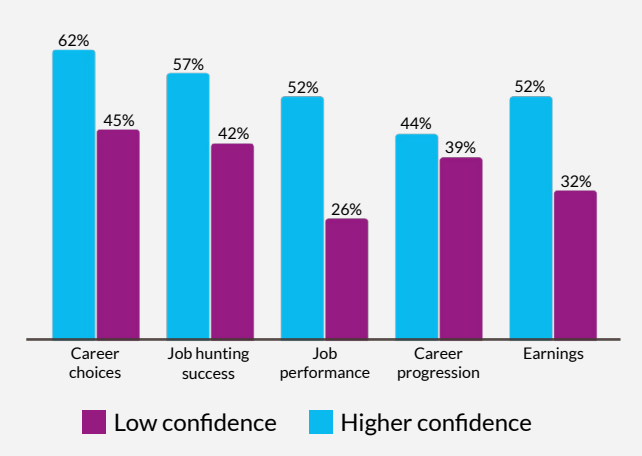
National Numeracy Challenge research panel survey September 2022. Base: 225 without and 727 with a Lv2, 481 working and 92 not working.

Figure 2: Levels of low number confidence (% with low number confidence)



National Numeracy Challenge research panel survey September 2022. Base: 225 without and 727 with a Lv2, 481 working and 92 not working.

Figure 3: Career impacts from not having a Lv2 maths by number confidence



National Numeracy Challenge research panel survey September 2022. Base: 81 low confidence and 38 higher confidence respondents without a Lv2 maths qualification - % indicating that their lives had been impacted to at least some degree in each career area.

Conclusions

Low numeracy affects around half the UK's working age population, resulting in economic consequences for individuals and the economy.

Early experiences with maths play an important role in developing number confidence and skill from childhood through to adulthood. Encouragement to engage positively with numeracy from a young age is therefore vital in helping to help prevent the development of an anti-maths mindset.

Among the findings of our research was the observation that individuals with both low, or no, maths qualifications and low maths confidence have observed greater effects from a lack of a Level 2 maths on their earnings, career progression, career choices, job hunting and job performance than their more 'maths confident' counterparts.

Number confidence therefore, along with skill, needs to be addressed if we are to improve people's confidence in applying for jobs and also their progression prospects whilst in those roles.

In their own words

Our in-depth interviews with users of the National Numeracy Challenge illustrate:

The impacts of low number confidence:

> "I gave up on maths at school. Only later in life you realise you use maths all the time.

> "I deal with figures on a daily basis. Sometimes I get them very wrong. A lot of the time I fake it till I make it. And that's how I live my life.

> "You spend your life avoiding things. I used to really like playing darts. But I couldn't add up, so I stopped playing. And that affected my confidence.

Social mobility in action:

> "If I came across a job that needed maths skills, I'd be more confident applying now, knowing that I'd be able to tackle the maths.

> "Maths is only thing holding me back. If I get that sorted, then there'll be so many more things that I could do. I've been doing the same job for 20 years, but there's nothing on paper to show I'm capable, confident and competent to do the job.

> "The first time I used the Challenge, I was like: 'well, I'm rubbish'. But I stayed with the site and started at Level 1, which I passed in July. Now I'm working on Level 2.

> "We aim to get everybody we teach to a Level 2 and into work. The National Numeracy Challenge is a part of that journey, it's a very useful gateway into Level 2. (Adult skills tutor)

About National Numeracy

National Numeracy is an independent charity dedicated to helping people feel confident with numbers and using everyday maths. Our mission is to empower children and adults in the UK to get on with numbers so they can fulfil their potential at work, home and school. Our work improves how people understand and work with numbers in everyday life, sparking better opportunities and brighter futures.

www.nationalnumeracy.org.uk

About Capital One

Capital One (Europe) plc is a full spectrum monoline credit card provider with 4 million customers and over 25 years of experience in lending, including to people who may be new to credit or have had issues with credit in the past - helping millions of people access mainstream financial services, build a positive credit history, and develop financial well-being and resilience. Capital One Financial Corporation (COEP's parent company) is still founder-led, employing over 50,000 people globally and is a full service bank and Fortune 100 company in the United States.

References

i. Poll of 2007 adults aged 16-75 by Ipsos Mori on behalf of National Numeracy. All interviews were conducted online between 5th and 9th April 2019. Data weighted to reflect the national population profile.
ii. Number Confidence and Social Mobility: A National Numeracy Research Report https://www.nationalnumeracy.org.uk/sites/default/files/2023-04/Number%20Confidence%20and%20Social%20Mobility_National%20Numeracy_April2023.pdf
iii. Counting on the recovery: the role for numeracy skills in 'levelling up' the UK. 2021. Pro Bono Economics
iv. Burdett, K. and E. Smith (2002), "The low-skilled trap", European Economic Review, Vol. 46, pp. 1439-1451.
v. Bynner, J., McIntosh, S., Vignoles, A., Dearden, L., Reed, H. and Van Reenen, J., 2001. Improving adult basic skills: Benefits to the individual and to society. DfEE research brief, (251).
vi. Carpentieri, Litster and Frumkin (2009); Adult numeracy: a review of research, National Research and Development Centre for adult literacy and numeracy
vii. https://www.teachfirst.org.uk/press-release/New-investigation-into-GCSE-subjects-reveals-the-stark-extent-that-disadvantaged-pupils-are-being-left-behind
viii. Kenny Skagerlund, Thérèse Lind, Camilla Strömbäck, Gustav Tinghög, Daniel Västfjäll, Financial literacy and the role of numeracy–How individuals' attitude and affinity with numbers influence financial literacy, Journal of Behavioral and Experimental Economics, Volume 74, 2018, Pages 18-25
ix. https://www.cam.ac.uk/research/news/report-examines-origins-and-nature-of-maths-anxiety
x. Wedege (2004) 'Adults' resistance to learn in school versus adults' competences in work: The case of mathematics', paper presented at the Workplace Learning Conference, Copenhagen, 2004
xi. Marr, B. and Hagston, J., 2007. Thinking Beyond Numbers: Learning Numeracy for the Future Workplace. An Adult Literacy National Project Report. National Centre for Vocational Education Research Ltd. PO Box 8288, Stational Arcade, Adelaide, SA 5000, Australia.