

Research Briefing

November 2023

**Indivisible: the role confidence plays in
number skill**



Our research shows that number confidence is crucial to unlocking number skills improvement. In addition, we see that a confidence-based approach to numbers can have major impact, far beyond mere skills improvement.

The correlation between number confidence and number skills is so strong, in fact, that number confidence is the single best predictor of number skills.ⁱ Having a growth mindset is also key. The belief that maths ability is fixed is often the biggest barrier to improvement.ⁱⁱ

Poor numeracy (including levels of skillⁱⁱⁱ and confidence^{iv}) is widespread but largely hidden. This inevitably impacts on education outcomes and qualifications, career choices and progression, and ultimately prosperity, social mobility and community cohesion.

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.^v

This briefing paper focuses on insights from the report around the role number confidence plays in improving people's number skills, and the implications for supporting social mobility.

Summary of findings

- Negative experience of learning maths is linked to lower number confidence.
- Lower number confidence is linked to greater negative career impact (earnings, career choices and progression).
- The dominant predictor of an increase in number confidence is being motivated to improve maths to support work and/or learning ambitions.
- People who improved their number confidence with the National Numeracy Challenge are more likely to have taken positive next steps in their working lives^{vi}, compared to those whose confidence has not improved.

- There are additional knock-on effects from gaining number confidence, such as feeling ready to consider other learning, as well as adopting a more positive approach to work and life in general.

Our recommendations

Employers should:

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

Policymakers should:

- Acknowledge that improving number confidence is a powerful precursor to improving number skills.
- Ensure that appropriate confidence-building support is available to adults with low numeracy.
- Embed the National Numeracy Challenge, and other confidence-building resources, into adult education, employment and skills-building programmes in order to scale up a proven, cost-effective method of improving numeracy.
- Ensure that all young people develop confidence with numbers from an early age and leave education with the number confidence they need for everyday life. This should be achieved by:
 - Ensuring that the maths we learn in schools is contextualised and relatable to the maths we need throughout our lives.
 - Providing support to build the number confidence of educators and support workers in educational settings, from the early years right through to adult learning.
 - Providing support to parents, carers and families, in order to support confidence building and positive attitudes towards numbers and maths at home.

Number Confidence and Social Mobility - what's going on?

At school, many people develop a perception that they are unable to work with numbers. It's a perception that can be hard to shake off. This matters because having a negative past experience and association with numbers works against people's desire and capacity to engage not just with numbers, but with further numeracy-related learning.^{vii}

Developing low number confidence early in life can mean that people never feel able to gain the maths qualifications or skills they need to enter or progress in their career of choice.

The UK could have as many as 24 million working-age adults with low numeracy skills, affecting the type of jobs available to them, and effectively blocking access to higher-paid sectors and professions.^{viii}

Increasingly, workers need good numeracy skills to adapt to a changing jobs market (e.g. the growth in information and service sectors).^{ix} Even relatively low levels of basic skills in numeracy and literacy attract a wage premium, and economies with higher-skilled workforces tend to have higher rates of economic growth.^x The application of the type of maths that people are taught at school to a variety of jobs, however, can be unclear to both employers and employees.^{xi}

People often take for granted the kind of practical maths tasks that they accomplish every day (e.g. taking measurements or making calculations), underestimating their true maths abilities.^{xii}

The core essentials of numeracy, which National Numeracy calls 'being numerate', do not rely on using abstract mathematical techniques, but centre on common skills such as reasoning, problem-solving and decision-making. Many adults fail to recognise what they can do with numbers and cannot see past their view of themselves as unsuccessful maths learners.

Why is this important?

Changing people's perceptions about their numeracy potential is critical to them feeling able and willing to develop their numeracy skills. National Numeracy has long advocated a dual definition of numeracy, which includes both confidence and skills, to reflect this.

Despite what many people think, people's maths skills are not 'set' or limited to what they were able to achieve academically whilst at school; whatever a person's starting point they can improve.ⁱⁱⁱ

We know that whilst people with low maths skills and confidence are less likely to take up training offers, those that do progress just as fast as more self-confident learners.^{xiii}

Improving number confidence boosts people's belief that they can get a qualification, find a job, or get on at work. Reflecting this, maths interventions which address confidence as an integral element (like the National Numeracy Challenge) are likely to be far more effective.^{xiv}

Overcoming a lack of number confidence and understanding what contributes to low confidence levels is therefore important to help:

- people reach their potential in work and learning
- raise numeracy standards across the UK
- support a prosperous economy.

What we found

We surveyed

1,025 people

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

They confirmed that many of them had developed negative perceptions of their number skills at school which stayed with them throughout life, limiting their confidence to use numbers in daily life.

Individuals with poor experience of school maths lessons were more likely to have low number confidence and less likely to have a Level 2 maths qualification.

People felt that not having a Level 2 maths qualification had impacted negatively on their careers in many ways, particularly their career choices and job-hunting success.

The effects on people with lower number confidence^{xv} are particularly marked (Figure 1).

Using the National Numeracy Challenge is linked to people improving their number skills and enhancing their number confidence - 38% of users improved their number confidence and over 70% demonstrably improved their number skills.

Individuals without a Level 2 maths qualification were particularly likely to feel more number confident having used the National Numeracy Challenge, as were those who had a negative experience of learning maths whilst at school.

The dominant predictor of whether someone had increased their number confidence was being motivated to improve maths to support work and/or learning ambitions.

Amongst those whose number confidence had improved having used the National Numeracy Challenge:

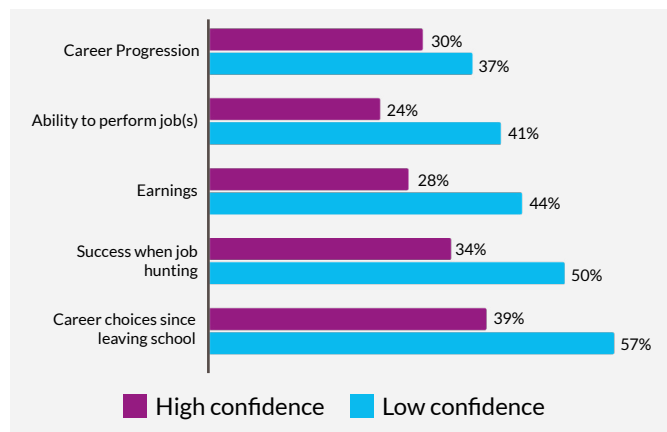
- people without a Level 2 maths qualification were more likely to start a Level 2 maths course and/or feel more equipped and likely to start one in future (Figure 2).
- working and self-employed people were more likely to have taken steps to get on at work and/or feel more likely or more equipped to do so in future (Figure 3).

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For some National Numeracy Challenge users, there were additional knock-on effects from them gaining number confidence. People described feeling more able and prepared to consider other learning and having raised their career aspirations.

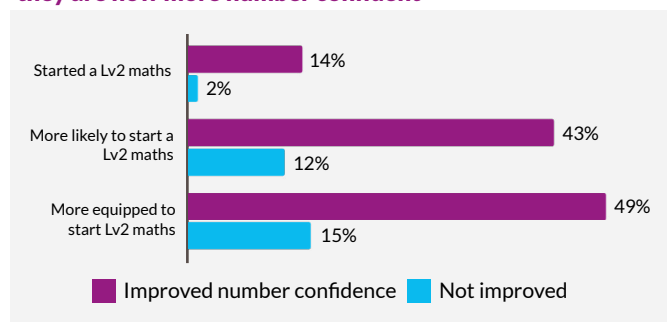
Some were also able to adopt a more positive approach to work and life in general having overcome the fears, and stigma, they associated with their lack of number skills.

Figure 1: Ways in which not having a Level 2 maths qualification has impacted people's working lives by their number confidence levels



National Numeracy Challenge research panel survey September 2022. Base: 225 individuals without Lv2 maths - % indicating that their lives had been impacted to at least some degree

Figure 2: How people feel about a Level 2 maths course having taken the National Numeracy Challenge by whether they are now more number confident



National Numeracy Challenge research panel survey September 2022. Base: all respondents without Lv2 maths (225 individuals)

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



National Numeracy Challenge research panel survey September 2022. Base: all respondents working or self-employed (416 individuals)

Conclusions

A lack of number confidence can dog people's working and personal lives with negative impacts on their aspirations, achievements, and earnings.

It is possible to support people in a positive way to improve their number confidence and to acknowledge and enhance their existing number skills.

Doing this will, in turn, lead to positive work, life and learning outcomes for individuals which ultimately benefit the whole economy.

Policy and practice must, however, acknowledge the vital role that number confidence plays and consider this when designing numeracy interventions.

In their own words – improving number confidence and beyond

We interviewed a range of people to explore how their lack of number confidence had affected them, and what it meant to them to feel more confident now. They told us:

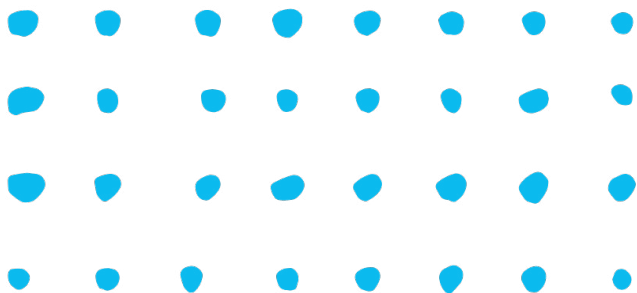
“ Before I took the National Numeracy Challenge, I had always felt that I was bad at maths because that was what I had been told throughout my schooling career. However, after taking the National Numeracy Challenge, I realised that I actually wasn't that bad at maths and that I had been massively underestimating my ability.

“ Because number work has been a huge barrier all my adult life, now that I've undertaken learning math with a positive outcome, I feel I can apply this learning and a new mindset to learning other subjects - I'm training to be a nurse now!

“ I think the Challenge definitely helped, because it got me thinking, and it got me using my brain, it got me taking myself a little bit out of my comfort zone, rather than just thinking, I know what I do in my job, so I don't need to develop myself any further. It made me realise there's always room to learn. I want to do another course now. I'm enjoying learning things.

“ I'm really proud of myself. It has helped me buy and sell stuff on eBay. If you want to give a discount to somebody, it comes in handy.

“ It's made me take more of an interest in working things out, like at the supermarket. I take the time to work out the price per litre or kilo . It has enabled me to make smarter choices and get the best prices.



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.

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- ii. National Numeracy. 2019. "[Building a numerate nation: confidence, belief and skills](#)"
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- xiii. Wolf, A., et al., (2008), "Adult learning in the workplace: creating formal provision with impact" Teaching and Learning Research Briefing, No. 59, London
- xiv. National Numeracy (2021) - [Putting Number Confidence to Work](#)
- xv. These are individuals with a below average initial number confidence score when first signing up to the National Numeracy Challenge.