

# Research Briefing

July 2023

**Number Confidence - The Gender Divide**



## All too often women face negative stereotypes suggesting that they are not 'good with numbers'. Our research shows that women tend to have lower number confidence than men and this has far reaching consequences that must be addressed.

Low numeracy, whether low numeracy skills and/or number confidence, can have wide-ranging negative effects on work and personal life. For some women, this means not engaging with jobs or learning that involve some kind of maths assessment or component, which in practice blocks their entry to many careers and whole sectors of employment.

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<sup>1</sup>, which was published in April 2023. This briefing paper specifically focuses on insights from the report on women's number confidence and the role this has played in their work and learning journeys, which in turn has profound implications for supporting social mobility.

### Summary of findings

#### In all areas of our work we see:

- a consistent number confidence gender gap, with women displaying a much lower level of confidence as compared to men.
- A consistent number skills gender gap where women score on average lower than men in numeracy skills assessments.

#### The Number Confidence and Social Mobility report findings were:

- Women report having more negative maths experiences at school than men. In turn, this is linked to lower levels of number confidence.
- Women feel they have faced more career challenges than men resulting from a lack of a maths qualification, particularly in terms of their earnings.
- Women are particularly likely to improve their number confidence and skills whilst using the National Numeracy Challenge.
- The National Numeracy Challenge is potentially a useful tool to help redress the gender divide in number confidence and skills.

### Our recommendations

- Women and girls need to feel inspired and included in numeracy at every stage of the lifelong learning journey.
- There must be open acknowledgement and increased awareness of the gender barriers and a positive culture around maths should be supported by an expanded evidence base of what would make maths work for women and girls.
- Government should ensure this evidence is taken into account in future education plans for both children and adults.

#### More specifically, we need to work with...

- Individuals, both women and girls, to build number confidence.
- Educators and educational settings, from the early years right through to adult learning.
- Parents, carers and families, in order to support confidence building and positive attitudes towards numbers and maths at home.

#### In order to develop...

- An increased awareness of the number confidence gender gap and its implications not just for education but for jobs, careers and future generations.
- Targeted strategies and interventions at all stages of the education journey to address the gap and prevent its emergence in the future.

## What's going on with women's number confidence?

Numerous academic studies show that there is no gender component to maths ability.<sup>ii</sup> Despite this, women consistently report that they are less number confident than men. Gender norms are pervasive and can emerge early in life. Male students tend to be more confident about their STEM<sup>iii</sup> abilities even though females generally outperform males in maths and science subjects at GCSE.<sup>iv</sup>

**More women than men describe themselves as 'not a numbers person' and women are more likely to say that maths and numbers make them feel anxious.<sup>v</sup>**

### Why is this important?

Lacking number confidence affects aspirations and limits educational and career choices. The single greatest factor associated with successfully improving numeracy skills is having a growth mindset or, in other words, the belief that doing so is possible.<sup>vi</sup> Lacking number confidence can prevent women from accessing learning and discourage women from applying for jobs in key sectors of the UK economy, e.g. financial services.<sup>vii</sup>

Whilst number confidence is only one of many factors associated with workplace gender inequality in the UK, the figures are stark. We need to address the fact that:

# 18%

- men earn, on average, 18% more than women per hour - for every pound that the average man earns, the average woman earns 82p.
- women are more likely to work in lower-paid sectors of the economy, whereas men tend to work in
- higher-paid sectors.
- even in higher-paid industries, women tend to work in lower-paid occupations.<sup>viii</sup>

Another area of concern is the significant impact parental experiences and abilities have on their children's learning. Research suggests that two-thirds of mums in England lack confidence in maths and are concerned about their ability to help their children with maths learning. Within a family, mums are most likely to help their children with maths homework, but two-fifths say they feel anxious doing so due to a lack of confidence in the subject.<sup>ix</sup> Women's relative lack of number confidence and higher levels of maths anxiety is therefore often likely to be transferred onto future generations.

Removing the barriers to higher skilled and higher paid jobs that exist due to poor numeracy, or an aversion to roles perceived to involve numeracy tasks, could therefore have a significant role to play in helping women:

- reach their potential in work and learning, and in turn help their children to do similarly.
- achieve wage parity and representation in higher-paid, higher-status roles.
- support a more equitable and productive economy.

**What we found**

We surveyed

**1,025** people

and spoke in-depth to 24 of them between July and October 2022. Just over half of those taking the survey were women.

Compared to men, women in our sample:

- were less likely to possess a Level 2 maths qualification, e.g. a Maths GCSE at 4/C or above (68% compared to 75%).
- had worse maths experiences whilst at school (Figure 1) and this was true regardless of their age.
- had experienced marked impacts on their careers from a lack of maths qualification, particularly on their earnings and career choices (Figure 2)
- were more likely to have started using the Challenge principally to support their work and learning ambitions (21% compared to 13% of men).

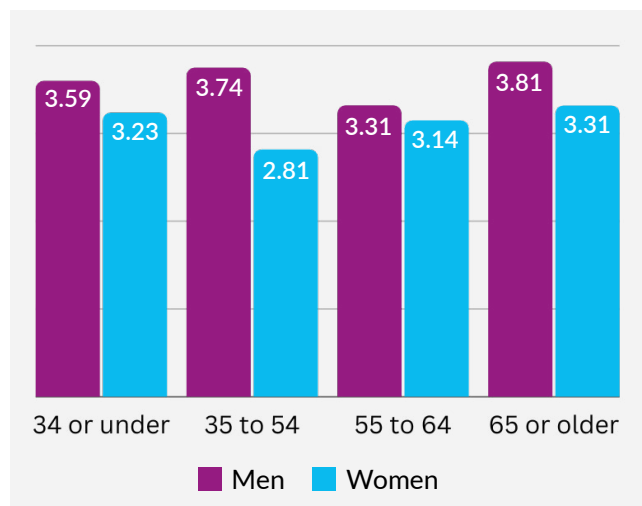
The National Numeracy Challenge is particularly good at supporting women. One of the dominant factors predicting whether someone improved their number confidence and skills whilst using the National Numeracy Challenge was their gender.<sup>X</sup>

Since using the Challenge (Figure 3) compared to men, women:

- were more likely to feel that their number confidence had improved
- were more likely to feel that their number skills had improved (and to actually have improved their maths skills<sup>X1</sup>).

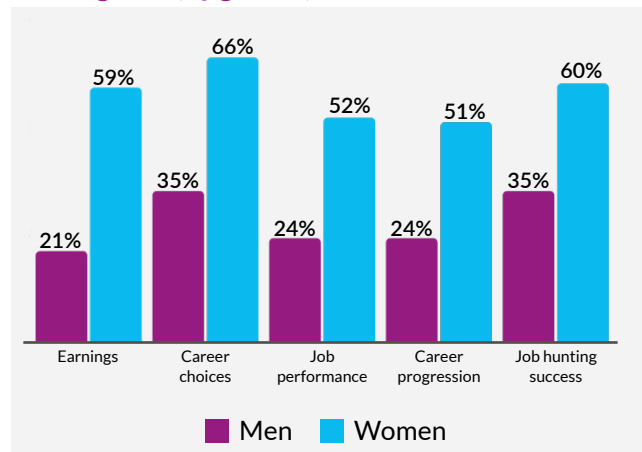


**Figure 1: Rating of school maths lessons - out of 5 (by gender and age)**



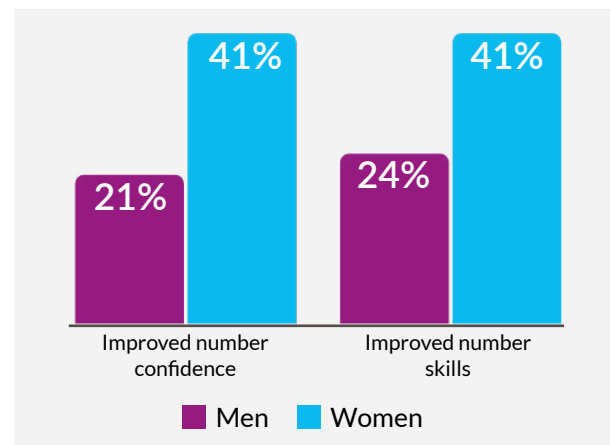
National Numeracy Challenge research panel survey September 2022. Ratings are out of 5, where 5 is the highest and 1 the lowest rating. Base: 515 women and 387 men

**Figure 2: Ways in which not having a Level 2 maths qualification has negatively impacted people's working lives (by gender)**



National Numeracy Challenge research panel survey September 2022. Base: working-age individuals without Lv2 maths - % indicating that their lives had been impacted to at least some degree (73 females and 34 males)

**Figure 3: Improvements to number confidence and skills because of taking the National Numeracy Challenge (by gender)**



National Numeracy Challenge research panel survey September 2022. Base: working-age individuals (288 female and 183 males) - % indicating that they had seen an improvement

### Conclusions

Whilst low number confidence affects the lives of many people in the UK, our research adds to an emerging evidence base showing that women are impacted the most.

Supporting women with low number confidence to believe that they can do maths is an important first step in encouraging them to improve their maths skills. This in turn will help them to see a broader range of options for their careers, and to pass this on to their children.

In tandem, we need to tackle the entrenched, but false, notion in society that women 'can't do maths' – they can, and they do. More women could believe in their maths ability if they were encouraged to do so, through the type of support provided by the National Numeracy Challenge.

The concept of number confidence, therefore, needs to take centre stage in how we bridge the gender divide when it comes to using numbers.

### In their own words

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

#### The pervasive negative impact that a lack of number confidence can have:

“ I left high school a number of years ago, and I didn't do very well at maths throughout... It's always been a problem for me. And I've always kind of got by, keeping under the radar, people not noticing that I'm terrible at maths.

“ I struggled with it at my primary school, it was awful. I just have terrible memories of maths teaching. I am fearful if people ask me, and it goes back to childhood.

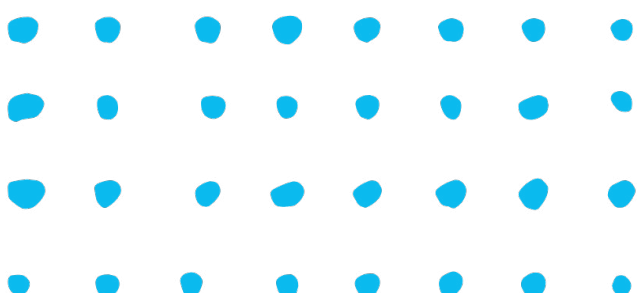
“ I think I've underachieved, and I could have done a lot better. But I held back because I thought I wasn't good at maths for whatever reason.

#### The benefits women see from improving their number confidence:

“ Taking the Challenge made me feel much better about myself, more confident, and that it could be an achievement, even for me, in my life, to get a GCSE. It doesn't feel totally impossible now.

“ Knowing that the website is there, and those examples are there if I came across a job that I thought 'I'm going to need maths skills', I'd be more confident applying for that job, knowing that I'd be able to tackle whatever it was.

“ It motivated me to do math and in turn, I could motivate my kids. I am in the process of making math visible to them in their daily life experiences.



## 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](http://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

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- ix. <https://wearethecity.com/two-thirds-of-mums-say-they-lack-maths-confidence/>
- x. Determined using a logistic regression model.
- xi. Determined by comparing subsequent tests that people take as part of the Challenge. Women's scores on these tests improved, on average, more than men