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Attitudes Towards Maths

RESEARCH & APPROACH OVERVIEW

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Attitudes Towards Maths - Research and Approach Overview

Negative attitudes, rather than a lack of innate talent, are at the root of our numeracy crisis. In order for people individually – and the country as a whole – to improve and in turn benefit from raised levels of numeracy, our attitudes have to change.

It is culturally acceptable in the UK to be negative about maths, in a way that we don't talk about other life skills. We hear 'I can't do maths' so often it doesn't seem a strange thing to say (Kowsun, 2008). Maths is seen as the remit of 'mad scientists', 'nerdy' boys, and the socially inept (Epstein et al, 2010). We talk about maths as though it is a genetic gift possessed only by a rare few, and inaccessible to the general public.

Yet we all need maths, not just for school, but for everyday life, work, and opportunities – 'good numeracy is the best protection against unemployment, low wages and poor health' (Andreas Schleicher, OECD, 2013).

Causes of negativity

While the causes of such a negative culture around maths are numerous and complex, key aspects include

Bad experiences of maths: Students are often not confident in their understanding of basic concepts and they also don't see the everyday relevance or value of maths. Many have bad memories of school maths and this continues to influence how they feel about maths throughout their adult lives.

Source: Challenge Pilot participant data, 2013.

Maths anxiety: Maths makes some people feel anxious, leading them to avoid situations where they may have to use mathematics (Chinn, 2012).

A lack of support for adults: Many feel as though it's too late to improve and don't know where to go for support. Furthermore, numeracy often takes a back seat to literacy; it enjoys less attention and less support in adult learning and may seem less of a problem. Literacy is vitally important - but so too is numeracy.

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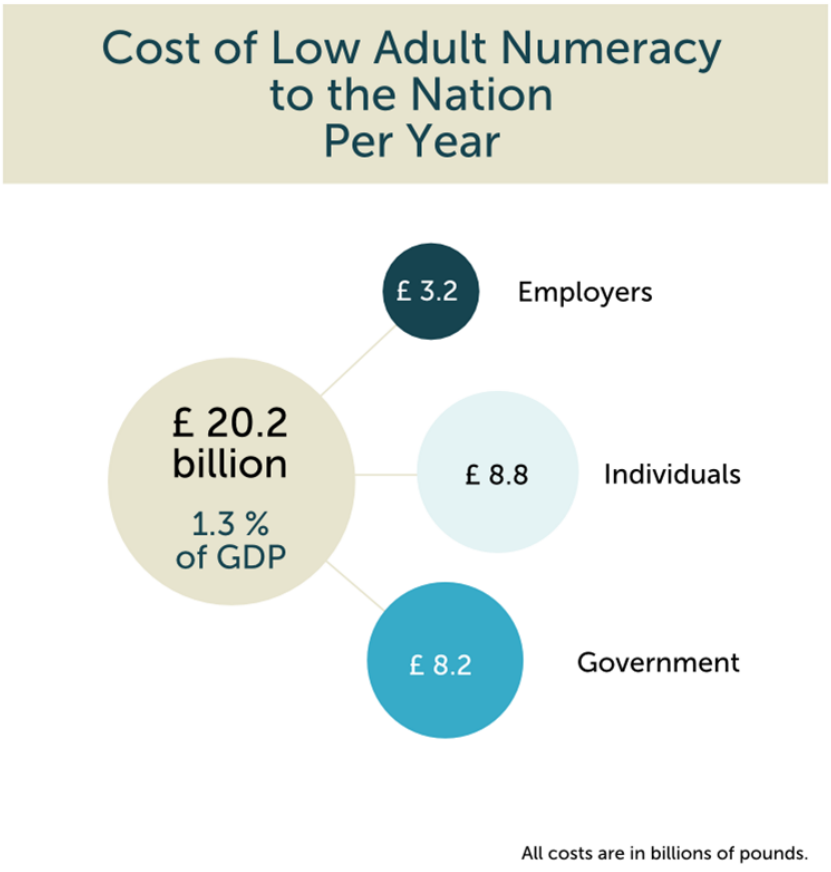
The impact of negativity towards maths

Negative attitudes towards maths are damaging, leading to disengagement, increased anxiety and a lack of confidence, and a reluctance to try to improve skills.

The impact of low numeracy significantly affects not only individuals' life chances, but also the UK economy and international competitiveness, especially in an increasingly technology centric society.

Unfortunately for millions of adults and children in the UK, 'I can't do maths' has become a self-fulfilling prophesy.



Source: Pro Bono Economics, 2014

What can be done to improve attitudes towards maths and numeracy?

If we can create a more positive and confident culture around maths and numeracy, we expect to see a positive impact on skills and attainment in the UK.

Our approach is mainly based on the 'mathematical resilience' work of UK academics Sue Johnston Wilder and Clare Lee. The construct of mathematical resilience stems from the concept of psychological resilience which represents a positive response to negative situations (Johnston-Wilder, 2013). There are three key dimensions:

- **Value:** believing that studying maths is worth it, and recognising the benefits of improving numeracy.

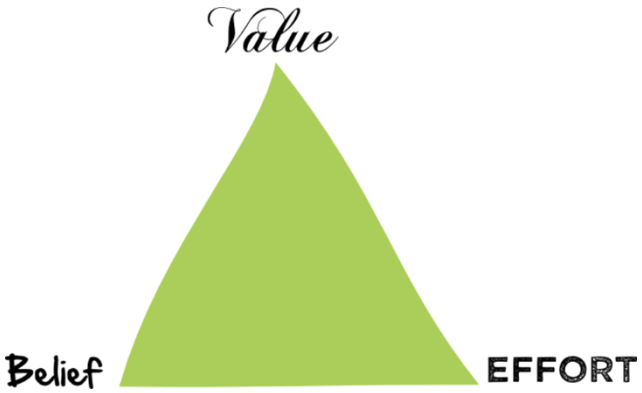
- **Belief or a 'Growth Mind-Set':** US professor of psychology Carol Dweck states that it is our mind-set, not abilities or talent, which lead to success (Dweck, 2008).

  In a fixed mind-set, people believe that their abilities can't change. In a growth mind-set, people believe that abilities can be developed through dedication and hard work. They seek to learn from mistakes and embrace challenges. They have a can-do attitude.

  To achieve growth, people must therefore believe that their maths abilities are not fixed, and feel confident that anyone can develop mathematical skill.

- **Effort:** Recognising that all learning takes effort – it is part of the learning process. Develop grit: passion and perseverance for long-term goals (Duckworth et al, 2007:1087). Understand and improve learning methods, ask for support when needed, and search for different ways to achieve goals (Briceno, 2012).

  People must believe that learning is challenging, but possible and worth it.



With mathematical resilience, students are motivated, confident, and persevere through negative situations.

Promoting value, belief/mind-set and effort is a part of all of our projects, and our overall aims as an organisation. We seek to measure and track attitudes to maths, improve positivity and confidence, and ultimately, transform numeracy for all.

Find out more: www.nationalnumeracy.org.uk/attitudes-to-maths

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