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# Information & digital literacy in the context of engineering apprentices a case study

*Helen Moore, Faculty Librarian  
University of Sheffield*





The context



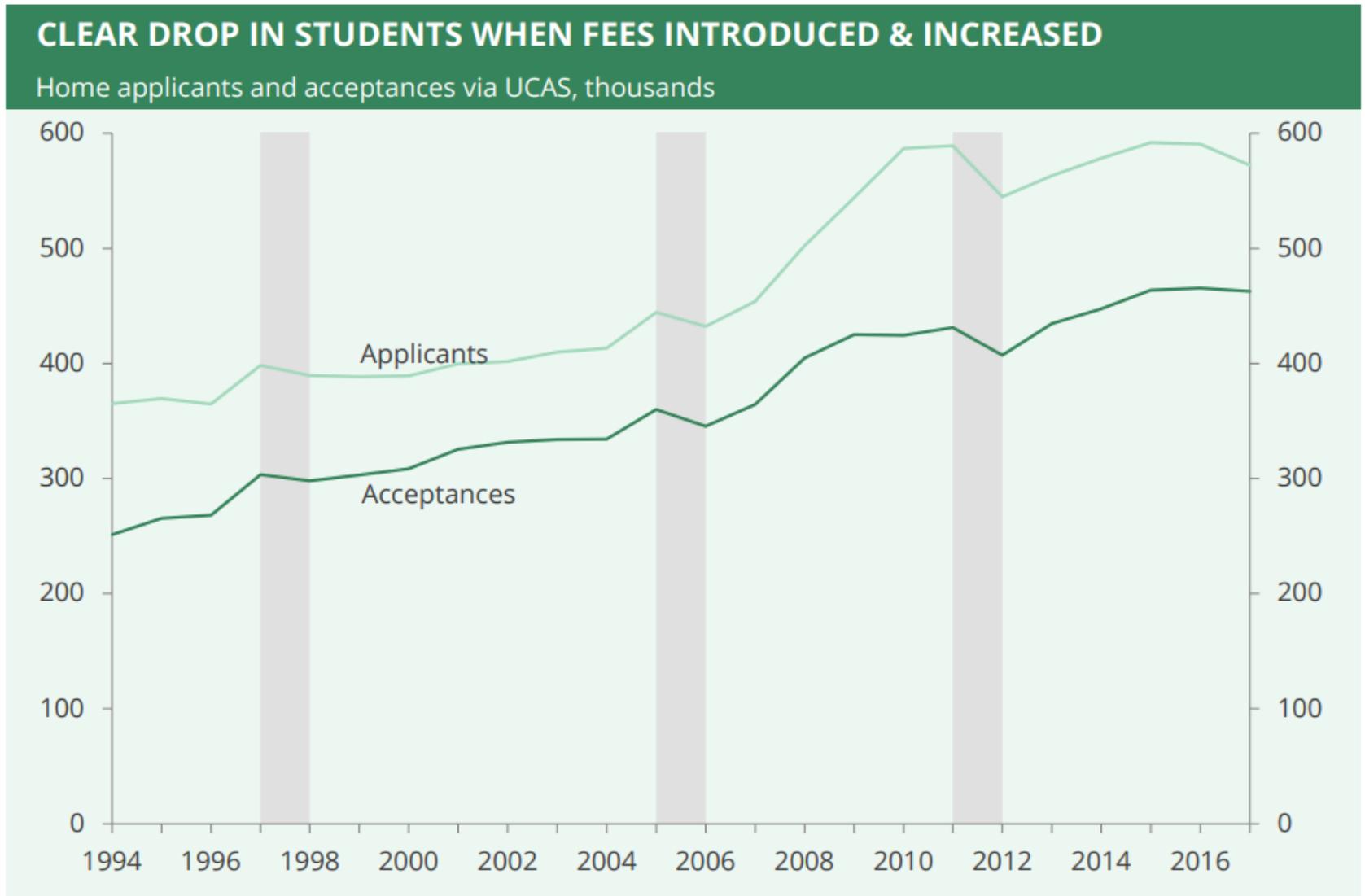
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# UK higher education (HE) background

- huge push from 1997 onwards to get 50% of 18-30 year olds into university or equivalent by 2010
- tuition fees (£1000 in 1998; £3000 in 2004; £9000 in 2012)
- universities traditionally offer Bachelor, Masters and doctoral degrees
- increasingly moving into offering alternative routes to HE through:
  - foundation degrees for students whose pre-university exam results weren't high enough or in the wrong subjects
  - degree apprenticeships for students who want to earn and learn at the same time

# Impact of tuition fees on student numbers



Source: UK Government. Contains Parliamentary information licensed under the [Open Parliament Licence v3.0](#).



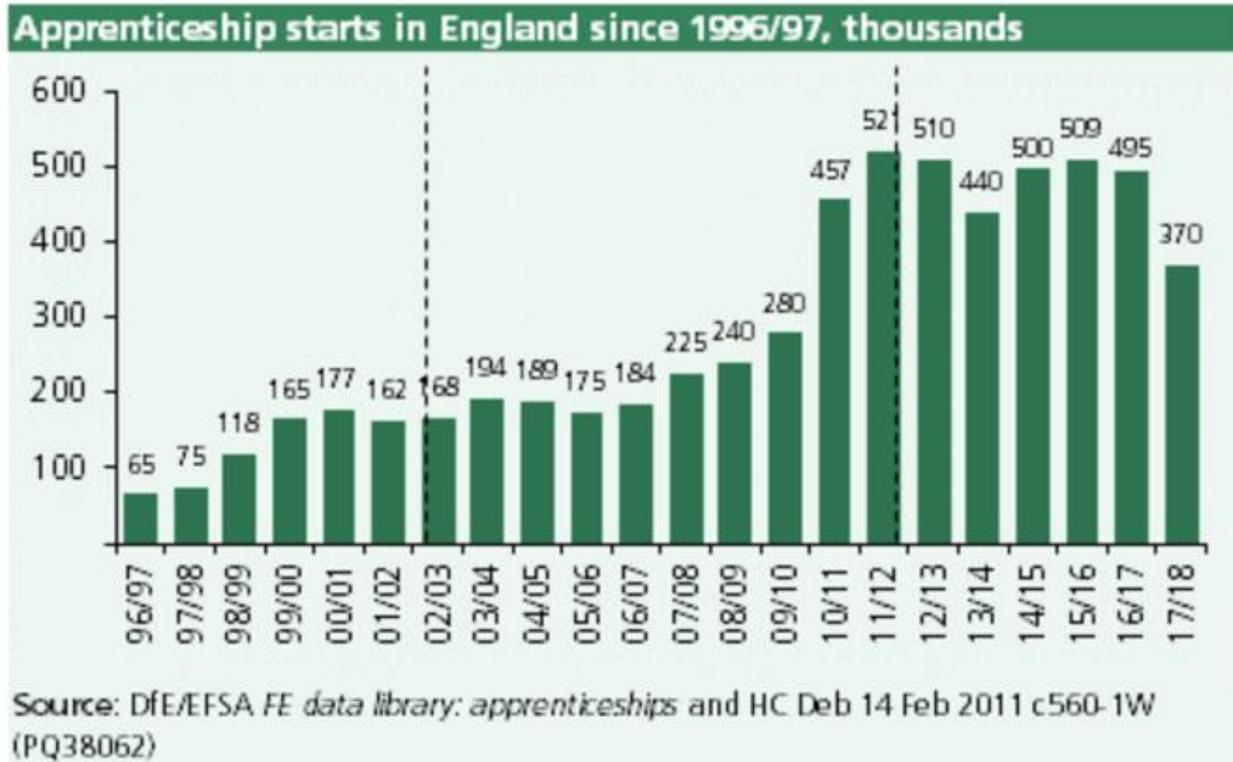
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# Apprenticeships in the UK

- In 2015 UK Government committed to creating 3 million apprenticeships by 2020
- From April 2017 UK government introduced an apprenticeship levy for businesses with a wage bill over £3m
- Levy-paying businesses can use the levy to fund apprentices
- Small businesses can co-invest with the government and share the cost of apprenticeship training

# Apprenticeship starts (all levels)



Changes were made to how information on apprenticeships is collected between 2001/02 and 2002/03, and between 2010/11 and 2011/12. These changes are denoted on the charts by dotted lines. Data either side of the dotted lines are not directly comparable.



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# The Advanced Manufacturing Research Centre (AMRC)





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# The AMRC

- Founded in 2001
- A cluster of centres carrying out research into advanced machining, manufacturing and materials, which is of practical use to industry
- Has 100+ industrial partners including Boeing, Rolls-Royce, BAE Systems, Airbus and McLaren as well as small local companies



Introducing the AMRC (video: © AMRC)



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# The AMRC Training Centre

- Opened in Jan 2014 (first intake of advanced apprentices Oct 2013)
- Offers young people aged 16+ full-time employment, a salary, a recognised qualification
- Intermediate apprenticeships
- Advanced apprenticeships
- Higher apprenticeships (foundation degree and above)



Introducing the Training Centre (video: © AMRC)



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# What skills are employers looking for?

- current information-seeking skills to support planning and decision-making
- critical thinking and analysis
- problem-solving
- communication and interpersonal skills
- speed and depth of research
- ethics and research integrity

(Bruce, 1999; Head, 2012 & 2017; Lloyd, 2006)



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# Undergraduates versus apprentices

- for undergraduates 'real learning' often happens in the workplace - they know the theory and are eager to apply it in practice
- for apprentices - they take the practical elements for granted and they welcome the opportunity to learn the theory



Research as pedagogy



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# What are the Information & Digital Literacy factors for success?

Emphasising transferable skills for the workplace

Encouraging a questioning mindset

Using the right terminology

Collaborating with academic leaders

Timing

Context

(Phillips et al, 2018)

Information and digital literacy framework.

For education, employment and citizenship.



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- Introduction.
- Discovering.
- Understanding.
- Questioning.
- Referencing.
- Creating.
- Communicating.
- Implementing the framework.

For education, employment & citizenship:  
Sheffield's Information & Digital Literacy  
framework



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# Discovering.

Discovering information →

# Understanding.

Find meaning and context →

# Questioning.

Think critically →

# Referencing.

Find your style →

# Creating.

Produce new knowledge →

# Communicating.

Communicate your work →



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# Additional factors for apprentices at the AMRC

Location

Time

Technical issues

Terminology

Academic writing

Teaching staff





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# The story so far

Engaged the apprentices

Improved discovery and  
access to information

Made connections

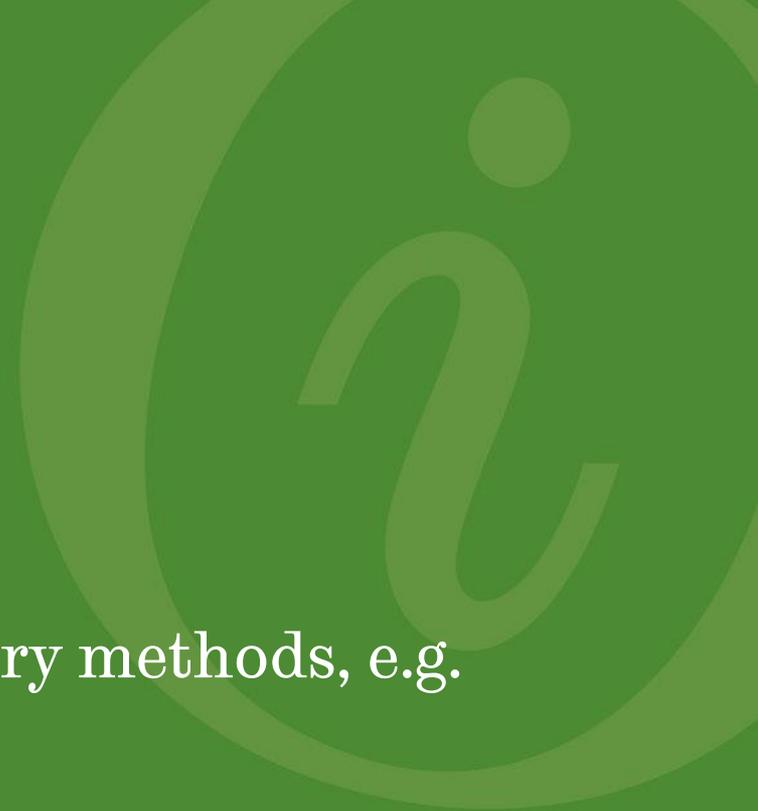
Trained the trainers





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# Future

Exploring more appropriate delivery methods, e.g.  
webinars

Understanding employers expectations and views of  
apprentices

Expanding work with intermediate and advanced  
apprentices

Working with staff to look at feasibility of a local  
learning space



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# Further information

The Advanced Manufacturing Research Centre  
Patterns and trends in UK higher education 2018  
Apprenticeship funding: how it works  
Project Information Literacy

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Finally...

# What's the connection between CAKE and and



Rahul Mandal: an engineering researcher at  
the AMRC



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Thanks!

[h.moore@sheffield.ac.uk](mailto:h.moore@sheffield.ac.uk)

