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

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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

CLEAR DROP IN STUDENTS WHEN FEES INTRODUCED & INCREASED
Home applicants and acceptances via UCAS, thousands

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.

The Advanced Manufacturing Research Centre (AMRC)
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)
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)
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)
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
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.

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

For education, employment & citizenship: Sheffield’s Information & Digital Literacy framework
Additional factors for apprentices at the AMRC

Location
Time
Technical issues
Terminology
Academic writing
Teaching staff
The story so far

Engaged the apprentices
Improved discovery and access to information
Made connections
Trained the trainers
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
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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References


Finally...
What’s the connection between CAKE and

Rahul Mandal: an engineering researcher at the AMRC
AND THE WINNER IS... RAHUL!
Thanks!

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