Education 4.0 and Industry 4.0: what it means for FE and skills

Paul McKean, head of further education and skills
The fourth industrial revolution

A real shift in technology capability that will change the world around us; just as previous revolutions created step changes in our ancestors’ lives
IR 4.0: Changing the way we shop

Pilotless drones to be tested in step towards air parcel deliveries

An official trial in February will see an unmanned small aircraft tested beyond an operator's visual line of sight.

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A revolution that knows no collars

95% of accounting tasks, and 94% of paralegal jobs are predicted to be impacted by technology.
World Economic forum: Future of jobs 2018

All businesses need a comprehensive ‘augmentation strategy’

“an approach where businesses look to utilize the automation of some job tasks to complement and enhance their human workforces’ comparative strengths and ultimately to enable and empower employees to extend to their full potential.”
Skills needs are changing

Top 10 skills

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<th>in 2020</th>
<th>in 2015</th>
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<tr>
<td>1. Complex Problem Solving</td>
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<td>2. Critical Thinking</td>
<td>2. Coordinating with Others</td>
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<td>3. Creativity</td>
<td>3. People Management</td>
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<td>5. Coordinating with Others</td>
<td>5. Negotiation</td>
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<td>6. Emotional Intelligence</td>
<td>6. Quality Control</td>
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<td>7. Judgment and Decision Making</td>
<td>7. Service Orientation</td>
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Capita report: Robot wars or automation alliances?

“\[quote\]
It frees me up to do loads of other things. I love it!”
\[quote\]
Education administrator, Manchester

“\[quote\]
New skills are gained to use new automated systems”
\[quote\]
Warehousing employee, Bristol

People will collaborate with technology

77% say they expect the number of roles requiring people to collaborate with AI to increase in the next five years\(^4\)

New tech, new opportunities

By 2025, algorithms and intelligent machines are expected to create 133 million new roles globally, while displacing around 75 million - a net gain of 58 million jobs\(^5\)
Demand for digital vocational skills are increasing

coptrz.com/dji-announce-qualified-entities-programme-for-public-safety-organisations/
Demand for digital vocational skills are increasing
Demand for digital vocational skills are increasing
ONS: Automation could replace 1.5m jobs

Source: Office for National Statistics
What is education 4.0?
Education 4.0

- **Teaching transformed** – how should teachers focus their efforts if AI and other technologies are used to their full potential in the college experience?

- **Personalised adaptive learning** – an individualised approach that takes learner diversity, performance and behaviour into account

- **Assessment re-imagined** – can AI, digital experiential learning and micro-credentials replace high stakes summative tests?

- **Intelligent digital and physical estates** – which work together and are responsive to student journeys and interactions
Teaching transformed

(Augmentation strategy for tutors)

- **Reducing staff workload** – taking away administration and bureaucratic tasks from tutors/support staff freeing them up to teach/support learners e.g. Ada chatbot Bolton College

- **Changing the ‘teaching’ dynamic** – using personalised and adaptive learning to support the more able/independent learners to progress at their own pace enabling tutors to spend their time with the learners requiring support

- **Automated processes** – automating formative assessment tasks and feedback reducing ‘human’ marking and providing ‘instant’ feedback to learners e.g. VLE quizzes, First Pass, Bolton College etc. Automating business systems/processes.
Personalised adaptive learning

- **Dependency based progression** – Automated marking and formative assessment within VLEs which provides different pathways dependent on assessment score e.g. if learner achieves over 90% in assessment provide stretch and challenge activity or if learner achieves below 50% trigger tutor support request.

- **Virtual/Augmented reality** – 360° immersive environments e.g. virtual milking shed, English language, dance studio/performance lesson capture.

- **Geo location resources** – Learning resources released dependent on location of learner or resources attached as an asset to a place on a digital map (treasure hunt).
Foundations for Education 4.0

• Digital leadership
• Digital infrastructure
• Digitally enabled curriculum
• *Digitally capable staff*
Thank you

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