INDUSTRY 4.0

WHAT DO SCHOOLS NEED TO KNOW?

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LET’S TALK ABOUT CODING

• Switch from ICT to computing: skills gained and lost
• How the computing programme of study was developed
• Just how important is computer programming?
• Hopes vs actual outcomes
THE RESEARCH SO FAR

“Computing education across the UK is patchy and fragile.” (The Royal Society)

• Low confidence in ability to teach computing (48%)
• 29% of teachers: 0 hours of computing CPD per year
• 34% of teachers: 1-9 hours of computing CPD per year
WHAT’S REALLY IMPORTANT (NOW)

• Safety
  • e.g. against cyberbullying, grooming

• Social skills
  • e.g. online communication, empathy, (digital) citizenship

• Cognitive & emotional fitness
  • e.g. resilience, self-regulation, managing stress

• Information, media, & digital literacy
  • e.g. navigating information / misinformation / disinformation
WHAT’S REALLY IMPORTANT (FOR THE FUTURE)

“In the future, if you want a job, you must be as unlike a machine as possible.” (Monbiot)

• Social skills
• Critical thinking
• Creativity
• Understanding & engaging with technology
  • Logical / algorithmic / computational thinking
  • Digital literacy (including familiarity with basic computer science)
  • Collecting, processing, storing, & distributing data
BEST PRACTICES

Limited rigorous research on how teachers should teach. (Waite)

Emergent findings

• Collaboration & free-play are important (though may appear disruptive)
• Need exposure to a variety of devices, uses, & use cases
• Offline / “unplugged” lessons are perfectly legitimate
• Benefits of cross-curricular lessons
RESOURCES

Barefoot - www.barefootcomputing.org

Computing at School - community.computingatschool.org.uk

FutureLearn - www.futurelearn.com

Hello World magazine - helloworld.raspberrypi.org

National Centre for Computing Education - teachcomputing.org
TEACHERS ARE STILL THE EXPERTS

• "Digital native" / “digital immigrant” dichotomy is a **myth**
• Most digital skills are offline skills as well
• Teachers are still experts at education
• However, also an obvious need for more (quality) CPD
THANK YOU

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