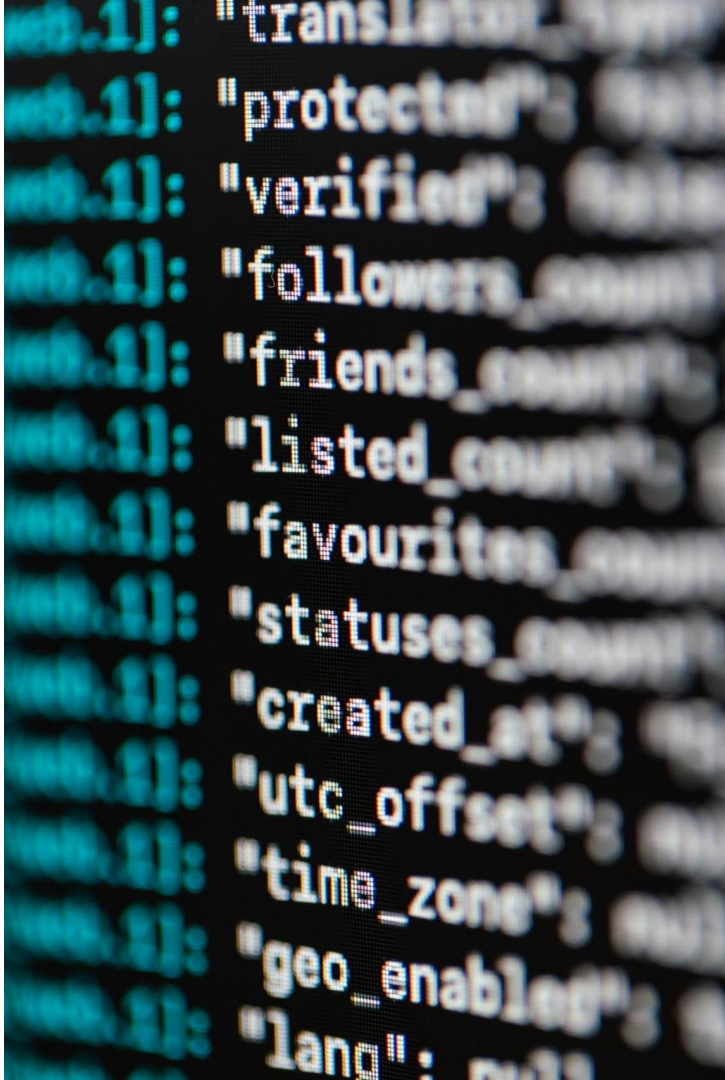
ESCALATE

Module 6
Unit 1

# Unit 1 – Effects of transitioning to online/digital teaching and learning

## Module 6: UNINTENDED CONSEQUENCES AND THE ETHICS OF DIGITALISATION

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# Unit 1: Effects of transitioning to online/digital teaching and learning in the Higher Education context

1. **Effects of transitioning to online/digital teaching and learning in the Higher Education context**
2. GDPR and ethical issues
3. Digital footprints, privacy and surveillance

# The objectives of this Unit are:

- To illustrate the effects of technology-driven teaching on pedagogy, learning methods, and behaviour of different types of students
- To appraise the changing roles and responsibilities of teachers and learners
- To discuss social interaction and effects on networks and face-to-face embodied socialisation
- To review the issues of the digital divide, digital access and equality in learning and teaching

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# Digitalisation: what is it?

Digitalisation is the use of digital technology to transform and become a major component of social and institutional processes (Tilson et al., 2010; Autio, 2017)

Digital technologies are becoming more and more important in our lives: it is used in healthcare, e-government, education, and social media and new forms of communication are now used on a daily basis by many

The European Commission estimates a fully-functioning Digital Single Market (DSM) could add €415 billion to the EU's GDP (Scottish Government 2017).

Digitalisation and digital connectivity are drivers of the digital economy: 5G technology alone has the potential to add £17 billion to Scotland's GDP and create 160,000 new jobs by 2035 (FutureScot, 2020) and similar ambitious estimates will feature in many EU countries.

# Digitalisation: terms as used in this module

**Digitalisation:** digital technologies becoming a major part of how students learn, access information and classes and complete assignments at university

**Digitisation:** uploading assignments on the Internet instead of handing them in paper form

**Automation:** using software to mark assignments or to check for plagiarism

**Artificial Intelligence (AI):** sophisticated software such as intelligent tutoring systems

**Learning Analytics:** collection and analysis of data such as library loans, records on students etc.

**Learning Management System (LMS) and Virtual Learning Environment (VLE):** platforms such as Blackboard, Canvas, Moodle, where learning material/assignments can be distributed, uploaded, and performed (such as lecture recording)



Source: [2]

# Reflection

## Question

- In what ways is digitalisation affecting higher education?
- What sort of digital processes occur in your work or study environment?
- What ways does digitalisation affect teaching?
- What ways might it affect working in higher education?
- Think of a digital service you have used. What are the disadvantages and advantages of the digital service compared to a standard face-to-face one?

# An introduction to machine learning


**What is Machine Learning?**

Available: [What is Machine Learning? - YouTube]

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# Digitalisation: in education

Digital technologies are also now a key part of learning and teaching

Digital technologies in education cover:

**Remote learning**

**Blended learning**

**MOOCs (Massive Open Online Courses)**

**Learning analytics**

**Learning platforms including VLE/LMS**

**Plagiarism software**

.....

# Digitalisation: in education continued

Some argue that the university has become a forum for market competition

Digitally-enabled datafication “potentially introduces ‘real-time’ performance measurement” (UCU, 2020)

Digitalisation:

Value is placed on productivity and efficiency

Staff workload is intense

There is a change in culture that reflects marketisation (students as consumers; target-based working)

This environment of performance measurement can have an effect on students: thriving or struggling to work to data indicators

## 1.1

# Potential issues with technology-led (or influenced) rather than pedagogically-led education

# 1.1 Potential issues with technology-led (or influenced) rather than pedagogically-led education

- “As computers move to the center of learning, educational decisions will become inextricably interwoven with technical decisions. If, for the reasons cited above, we must consign major institutional decisions to the technicians based on their exclusive knowledge of networks, platform compatibility, and support capabilities, then control of educational policy will move steadily away from the professional educator and toward the technical expert. And it will inevitably begin to reflect the worldview out of which they work... Ultimately, it may also include gradually transforming the district from a school with technology into a school by technology.” From: (Infusing Technology Into a School: Tracking the Unintended Consequences)

Source: [2]

# Potential issues with technology-led education

- There are issues with technology leading or influencing the way in learning: how does it potentially affect students and staff, and what are the potential consequences for education?

- Outsourcing technology needs to third parties and corporations can lead to concerns over how data is stored, accessed, and used. Who is making the decisions with the results of the data analysis?

- There are concerns over standards such as a lack of guidelines and opacity in the universities tracking and monitoring activities, and the amount of data that is collected on students, which can be voluminous (Wired, 2020)

## Example

# Case Study: Learning Analytics

- “Learning analytics is the  measurement, collection, analysis and reporting of data about learners and their contexts, for purposes of understanding and optimising learning and the environments in which it occurs.” (ICLA&K, 2011)
- Learning Analytics “uses data about students and their activities to help institutions understand and improve educational processes, and provide better support to learners.” (Jisc, 2018)
- Learning Analytics platforms give students “engagement scores” by measuring things such as: Log-ins; Assignment submissions; Building access; Lecture attendance; Library loans; and E-book use
- The Solutionpath StREAM platform states that it “A bit like a fitness app for your education, the StREAM application provides your students with a powerful tool for self-adjustment and calibration.”

Source: [10]

# Reflection

## Question

- What might be the advantages of Learning Analytics? For whom?
- What might be the disadvantages of Learning Analytics? For whom?

# Potential advantages of Learning Analytics

- QAA Scotland (part of the UK-wide Quality Assurance Agency for Higher Education (QAA)), highlighted student perceptions of Learning Analytics through its 2019 report *Learning Analytics: Student Perception across Scottish Higher Education Institutions*. Perceived opportunities included:

- the expectation of learning analytics providing reflective tools to improve student performance through personalised, automated feedback and individual face-to-face support
- the suggestion of using past student cohort experiences to develop and enhance current/future student experiences; and to provide staff accountability
- the desire for learning analytics to identify and support academically-struggling students and mitigate the risk of them dropping out
- learning analytics being desired to advance institutions' performance with regard to student wellbeing and their professional development

Source: [2]

# Potential disadvantages of Learning Analytics

- The QAA Scotland report also noted perceived concerns from students including:
- a need for transparent use of learning analytics and continuous conversation with the student body about the regulation and expectation of how learning analytics is used to enhance student experiences
- the growing student concern of the misuse of student data to support other agendas - other than the sole purpose of enhancing the student experience
- the probable disapproval of learning analytics if used unethically from the student's perspective.

Source: [2]

# Potential issues with technology-led education: student engagement

- Too heavy a reliance on metrics could lead some students to either “game” or fit to the system. Will the student try and adapt to fit what they think the analytics wants?
- If students are trying to adapt to metrics, how much does this take away their freedom of expression?
- Does it change the nature of engagement with subject material and with their chosen course?
- If engagement is not simply about attendance then how do we reconcile that with datafication/metrics? It could be easy for there to be an overreliance on these figures.

Source: [2]

# Potential issues with technology-led education: adapting to technology

- Sometimes the use of technology results in users adapting to it, rather than technology being made to adapt to the user. This is particularly an issue if institutions buy “off-the-shelf” software packages, or the technology is in place without considering the needs of those who use it; when it is bought because it is promoted as the latest innovation, rather than because it suits the needs of the institution. There should be a consideration of who the technology is for.

- Likewise, there is a focus on the development of education technology, rather than on actual demand. Seelos and Mair describe a “pro-innovation bias” (2012): are the technological innovations actually good, or is it innovation for innovation’s sake? Learning analytics work, for example, has been focused on the development side rather than demand side. How does it impact students? How are educators using it?

- Good practice for the use of Learning Analytics can be found on Slide 44

Source: [2]

## 1.2 The changing roles and responsibilities of teachers and students

# Example

## Case Study: Remote Learning

- Remote learning includes blended and hybrid (classroom and online combined) learning
- The COVID-19 pandemic impacted its usage: by the end of August 2020, 49% of HEIs in the US intended to use some form of online learning. The University of Cambridge decided in May 2020 to hold all lectures online until 2021. (BBC News, 2020)
- Some educators had to scramble to create content when they were made to put teaching online at short notice. It also impacted assessments – which required the use of remote supervision/proctoring.



Source: [10]

# Reflection

## Question

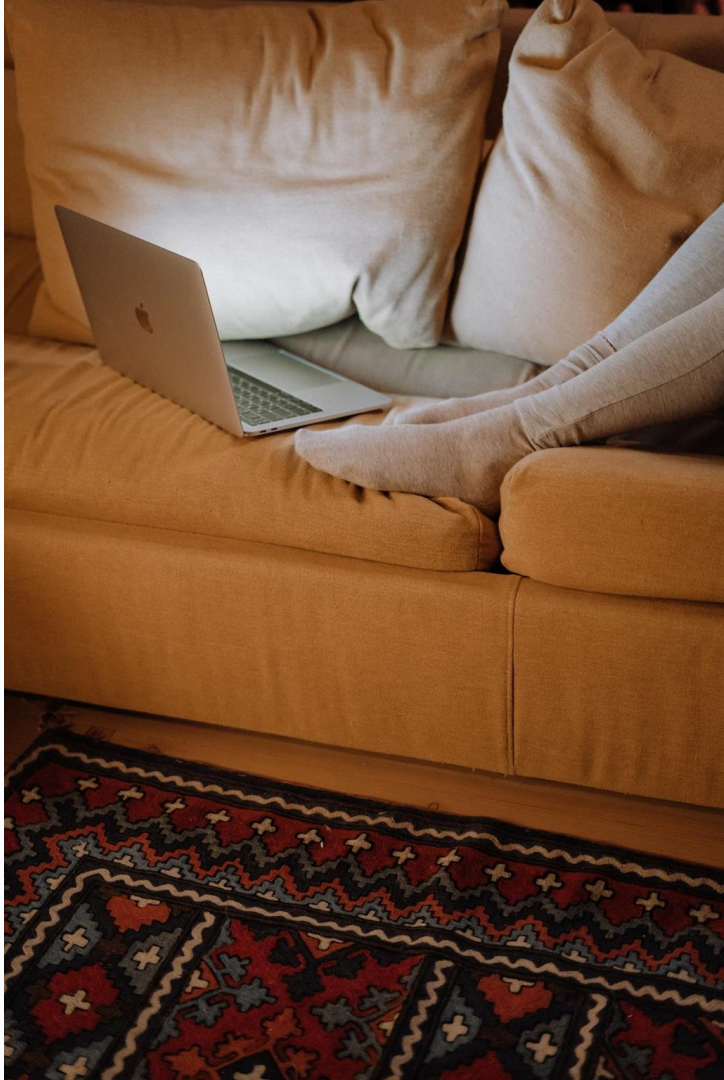
- What might be the advantages of Remote Learning? For whom?
- What might be the disadvantages of Remote Learning? For whom?

# Potential advantages of remote learning

- Tailored teaching and deeper engagement
- Virtual community
- Safe learning environment
- Useful for students
- Self-reflection for staff

# Potential disadvantages of remote learning

- Work-intensive – particularly during COVID-19 – for staff and for students
- Reduced attendance and substantial engagement
- Quality of equipment used and digital connectivity that is available



# 1.2 The changing roles and responsibilities of teachers and students

## Increasing workload and staff responsibilities

- Consider this quote from a lecturer, featured in The Conversation: “The ability to pre-record (and thus re-record) material has led me to strive for perfection. In a normal lecture, there are no opportunities to go back, but when I’m sat at my desk at home, the possibilities are endless. Obviously, any improvement is good for students, but it has come at a great cost to my time.” (The Conversation, 2020). The anticipated benefit of online learning is for students, but what value do staff get? This aspect is often ignored.

- With learning increasingly moving online, what does this mean for the role of staff? Although the use of new technologies in teaching may be designed to aid staff and the learning process, it could change their role from educating students to assisting students going online



Source: [2]

# The changing roles and responsibilities of teachers and students

## Effects on learners

- The onset of the COVID-19 pandemic led to more co-designing of lessons/activities etc.

- This can have the effect both on the independence of learners – they are able to help direct their own education/learning (in the same manner as patient-centred care), however, what sort of responsibility does this put on the learner?

- In a study on perceptions of telecare it is noted that telecare is seen as something that gives individuals independence, but in actuality gives them more responsibility – more responsibility does not mean more independence (Lynch et al., 2018).

Source: [2]

# The changing roles and responsibilities of teachers and students

## Effects on learners

- Does online learning become a substitute for actual attendance? (Jensen, 2007 (in (Nworie & Haughton, 2008)) Are these lessons a substitution, rather than a supplement? The intention of allowing remote learning is to supplement face-to-face teaching, but this is undermined if students simply use it instead of attending class.

- Can lead to lack of independent study: if students focus too much on “going over” online lectures, this could be seen as a substitute to finding materials of their own – which leads to a technology meant for more independent learning, leading to less independent learning

- Good practice for online teaching can be found on Slide 45

Source: [2]

# 1.3 Social interaction and effects on networks and face-to-face embodied socialisation

# Example

## Case Study: AI tutors

- The use of automated tutors is becoming a popular way of providing a personalised tutor to students, as they are able to adapt over time as the student asks them questions
- Chatbots can act as companions for university students, answering questions on their university, student life, and as well as study questions
- Commercial voice assistants such as Alexa, Siri, and Cortana are being increasingly used in education to assist students with queries.

Source: [10]

# Reflection

## Question

- How important are informal discussions with fellow students and others to learning and developing your own ideas?
- How might these be influenced (positive or negative) by more digital learning?

# 1.3 Social interaction and effects on networks and face-to-face embodied socialisation

- Prior to AI tutors and chatbots, interactions and learning on HEI campuses would be mostly performed on a face-to-face basis, with emails also being a secondary option. The use of an AI tutor to ask academic questions, or a chatbot for pastoral care will have an effect on a student's social experience.

- A publication from the UK Government on the use of smart speakers and voice assistants in the home noted that some users could view smart speakers/voice assistants as powerful beings, or share intimate details with a non-human life form (UK Government, 2019). It may not be clear to the student that they are conversing with a machine, particularly if it is given a name, or personality traits.

- The push for AI tutoring is often focused on what it will do for student experience, rather than the pedagogic guidance it may impart – such software could affect the teaching methods of educators, as they adapt their teaching styles to be more in line with AI tutors (UCU, 2020).

Source: [2]

# Dangers related to a lack of social interactions in learning (student reported)

- When COVID-19 forced HEIs to start closing their campuses in 2020, many students had to adapt to learning at home : “I personally benefit greatly from the intimate space of learning in class. There’s a degree of humanness in person in real time. I’m pretty concerned going forward that that can’t be achieved through a screen.” (from The Harvard Gazette, 2020)

- Remote lecturing can lead to lack of motivation on part of the student, as they have no face-to-face interactions for topic discussion with other students or with educators. It can also mean a lack of feedback for the staff, who are unable to read facial expressions, or body movements when lecturing to a camera.

- E-escaping: such isolation and lack of social engagement can lead to students dropping out (Nworie & Haughton, 2008) A student may find it easier to disengage from a course if they are never actually physically responding to the people in their class or the person that teaches it.

Source: [2]

# Social interaction and effects on networks and face-to-face embodied socialisation

- Consider this: “Kearsley states that, educational technology has become “primarily, if ironically, a distraction from what matters most—effective learning and good teaching” (1998, p. 47).” (From(Nworie & Haughton, 2008) How much does technology get in the way of engagement and actual teaching?

- Instead of having an aim of bettering education, efficiency is focussed on, and how to assess students.

- Digital technologies can be a way of bringing education to more people, but can also be socially isolating (Sull, 2005 (Jensen, 2007 (From (Nworie & Haughton, 2008))

# 1.4 Digital divide, digital access and equality issues in learning and teaching

# Example

## Case Study: Digital Divide

- As we can see, online learning and digital technology in higher education can give more access to those outside the institution, including those physically unable to attend classes, those with fixed work schedules, and those not in the same country as the institution.
- However, what if a university decides to move all its teaching online, including lectures, assignment hand-ins, and tutorials?
- What if a student lives in a remote, rural, area, with poor Internet access? Or has to share a laptop with five other members of their household?

Source: [10]

# Reflection

## Question

- Can you remember a moment of being unsure how to use technology for education or work?
- Did you have support you could turn to?
- How did it affect your confidence in what you were doing?

# Did you know...

## Internet access and digital skills

- In the EU, only 58% of the population have at least basic digital skills (UK 74%)
- 33% of the population have above basic digital skills (UK 49%)
- 9.5% of EU citizens have never used the Internet
- Despite strong demand for Information and Communication Technology (ICT) graduates, the EU has only 3.6% of all graduates graduating with an ICT degree

(Source: The European Commission Digital Economy and Society Index (DESI) 2020)

# 1.4 Digital divide, digital access and equality issues in learning and teaching

- The digital divide is the gap between access and availability of the Internet and ICT facilities (including skills to use it) between different communities and individuals and having access to information (Venezky, 2000)
- The digital divide can be seen in different socioeconomic groups, population location, and country. This gap gives rise to other inequalities in access such as opportunities, information, and services.
- The term digital native is often used, describing the embedded nature of technology in young people's lives, however, this does not always reflect the skills of students in an online higher environment (Prensky, 2001).

# Digital divide, digital access and equality issues in learning and teaching

- Although promoted to equalise, learning online can actually widen the gap between those with and without access: “While the purpose was to use technology to improve teaching and learning, the have-nots are further distanced from the benefits of technology use. In the traditional classroom environment, such problems are minimized.” (Nworie & Haughton, 2008)

- Technology is hailed as a way for HEIs to stay modern and up-to-date with the fast-changing world of IT. If students arrive without the set of skills required and end up falling behind, who does this really benefit? The focus on technology means those students arriving with a more limited set of skills will lose out.

- COVID-19 highlighted this lack of access: since so much of HEI learning has moved to online only, those who have limited access will suffer. For example, communities in Nigeria with limited Internet connectivity and disruptive power supply will suffer more as a result of education being moved online (SOAS, 2020).

Source: [2]

# Did you know...

## Digital Skills Gap

The digital skills gap in society costs the UK economy £63 billion in lost additional GDP (House of Commons, 2016).

The EU Digital Economy and Society Index (DESI) 2020 notes that only 58% of its citizens possesses at least basic digital skills (EU DESI, 2020)

The DESI 2020 notes the influence of sociodemographic aspects: 82% of young individuals (16-24) and 85% of those with high formal education have at least basic digital skills. Whilst 35% of those aged 55-74 and 30% of the retired and the inactive possess basic skills. (EU DESI, 2020).

Good practice for Digital Training can be found on Slide 46

# Key takeaways

- There are both benefits and issues from digitalisation and digital technologies becoming embedded in education
- Digital learning can provide a tailored, self-reflective, more engaging way for students to learn, in a way that suits them, as well as providing information on student progress for educators
- There is a concern regarding attendance, the amount of actual engagement from students, lack of social interaction, the outsourcing of tech, the constraining nature of online lecturing, as well as the workload increase for staff and the changing roles and responsibilities for staff and students
- The digital divide and the digital skills gap highlights the need for ensuring access provision in HEIs and maintain training in digital technologies

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# Good practice

## Learning Analytics Code of Practice

Have complete transparency and clear institutional policies

Be responsible in its usage – comply with legislation

Have a clear description of usage

Protection of anonymity where necessary

Ensure the quality of data and the processes are robust and valid

Provide access to analytics

Enable positive interventions and minimise adverse impacts
From Jisc (2018a)

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Source: [8]

# Good practice

## Skills for online learning requires investment

"Early buy-in from faculty, administrators, campus technology groups, and other users within the institution in the adoption of innovations gives them some level of ownership and enables them to participate in the adoption process, change management, and problem solving when unexpected outcomes result. Stakeholders who are not involved at the onset in the adoption process will not see themselves either as part of the problem or part of the solution, and, therefore, may not be willing to participate in interventions or solutions to identified problems."

(Nworie & Haughton, 2008)

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Source: [8]

# Good practice

## Digital Training

The Scottish Higher Education Enhancement Committee (SHEEC) managed by Quality Assurance Agency for Higher Education (QAA) aim to promote digitalisation in HEIs in Scotland.

Digital competence is being embedded as a learning outcome in courses at Scottish universities, alongside an increased range of courses focusing on digital skills such as UG courses on Big Data, Cyber Security, and Financial Technology (Webb, 2020).

The EU Code Week (codeweek.eu) provides workshops, challenges, courses for teachers, students, librarians, and other tech enthusiasts to encourage coding and ICT access

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Source: [8]

# Authors

Ron McQuaid
Elaine Robinson
Aleksandra Webb
William Webster
University of Stirling, Scotland

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