Some Unintended Consequences of Greater E-Learning: The Digital Escalate Project

UNIVERSITY OF STIRLING

UWS UNIVERSITY OF THE WEST of SCOTLAND

Prof Ronald McQuaid, University of Stirling

Dr Aleksandra Webb, University of the West of Scotland

Presented at: The Digitisation of Higher Education: New Information Flows, Power Asymmetries and Implications for Surveillance and Privacy

Policy, practitioner and academic workshop organised by the Escalate Project in conjunction with CRISP   Stirling Highland Hotel, Stirling, Scotland. Wednesday 6th October 2021

ESCALATE

Erasmus+

CRISP
CENTRE FOR RESEARCH INTO INFORMATION, SURVEILLANCE & PRIVACY
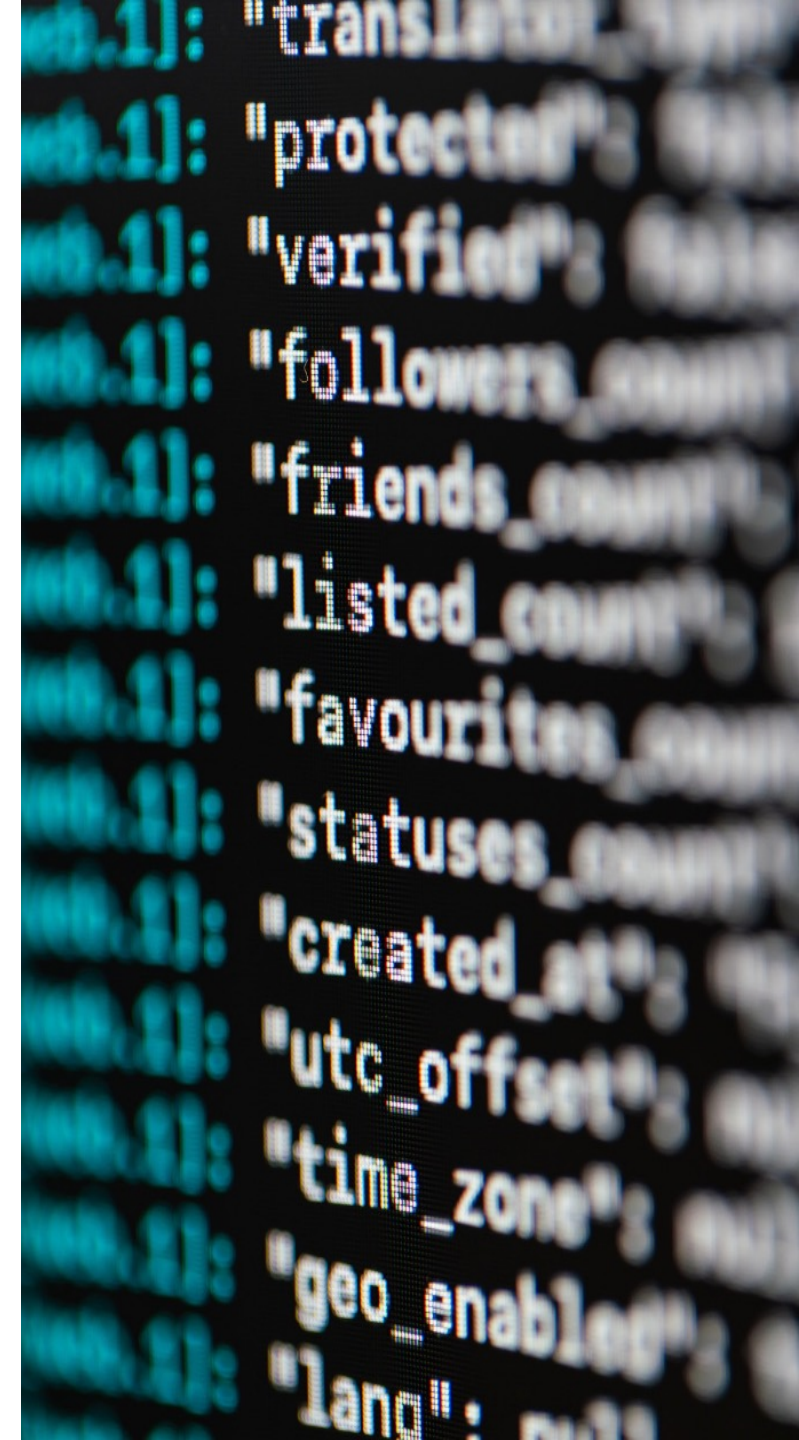
Digitalisation in HEI: the Escalate Project's aim and objectives

University of Stirling:
Prof Ronald McQuaid, Prof William Webster,
Dr Aleksandra Webb, Dr Elaine Robinson, Charles Leleux

Involves:
UK (Stirling and Exeter), Italy, Germany, Spain, Romania
over 2 years (2019-2021)

Web: https://escalate.projects.uvt.ro/ Tweet: @DigitalEscalate

Project aim

To assist universities in implementing activities designed to increase the levels of digital competences for employability, upskilling, according with a growing range of employment generated by the digital economy, aligned with the needs of and opportunities offered by the labour market and linked to professional profiles.

Specific objectives

- To understand '"university disruption" at regional and local levels and the threats posed to universities and labour market from digitalization;
- To identify who are the educational institutions and organizations involved and what innovations can be employed to help understand and tackle digitalization impacts;
- To elicit more effective local and regional higher education institutions' responses to digitalization across Europe.

Erasmus+   ESCALATE

COORDINATED HIGHER INSTITUTIONS RESPONSES TO DIGITALISATION

2019-1-RO01-KA203-063214

www.escalate.projects.uvt.ro

Output 1: Digitalisation- Country Reports

Home   Project   Partners   Publications & Resources   News & Events   Contact   Forum

Reports and results

Higher Education Institutions Responses to Digitalization - State of the Art Review

- ▶ European Compendium
- ▶ Executive summary
- ▶ Infographics
- ▶ Romania Country Report
- ▶ Italy Country Report
- ▶ Germany Country Report
- ▶ Scotland Country Report
- ▶ Spain Country Report
- ▶ UK Country Report

https://escalate.projects.uvt.ro/results/reports-and-results/

- *Digitalisation* high on EU/national/regional/institutional agendas

- **European Commission Digital Economy and Society Index (DESI)** 2019, UK ranks fifth of the 28 EU Member States
  - Overall in the UK, 71% of the population have at least basic digital skills (EU average of 57%)
  - 46% of population above basic digital skills (EU average 31%)

- *Skills shortages* predicated to increase in the next five years in:
  - Digital employment across sectors (particularly across new jobs in AI, Cyber Security, e-commerce)
  - social and emotional intelligence and higher cognitive skills (skills that are often further developed in universities)

- Universities across globe undergoing constant transformation to respond to **society and labour market needs**

- *Universities are responding to shifts*:
  - changing way students learn
  - expectations for preparing students for work and/or
  - a requirement for HEI operational efficiency

- **Varying degree to which technology is used/integrated** with the traditional methods of delivery

- *Covid-19 pandemic* forced universities to rapidly increase digital teaching and student services (existing & new trends)

Examples of digital innovation & digital skills development in HEI

- **New courses developing digital skills** (data science, computing, design etc.)

- **Digital Skills Development for students** (*incl.* training in use of institutional VLE and library available to students pre-arrival + productivity, digital and data literacies, and cyber security awareness), **and staff** (courses in online & blended learning)

- **Innovative assessment and Digital Literacy** (presenting solutions to a problem, often based on data handling and analysis in a format of a digital artefact (e.g. presentation, video, podcast, digi-essay)

- **Investment in software and media management systems** that offer media creation and management options

- **Digital transformation of student learning and experience** (laptop loan schemes, online support and guidance (e.g. bite-sized information in multiple formats, bulletins, blogs, memes and snippets released via social media/ apps).

Impact of the 2020 Coronavirus pandemic:

- **Digital Champions and training for staff** (to create self-supporting communities of practice confidently and meaningfully embedding the technology in teaching)

- **Supporting students through difficult times** (many lost peer and staff support but also access to sufficient technology and infrastructure)

- **More collaborative ways of working** (academic and non-academic staff creating local digital platforms for sharing experience and positive practices)

- **Reappraisal of existing practices** and upskilling in digital skills for design and delivery of educational content is the worthwhile investment that has a potential to **increase the quality of learning and student engagement.**

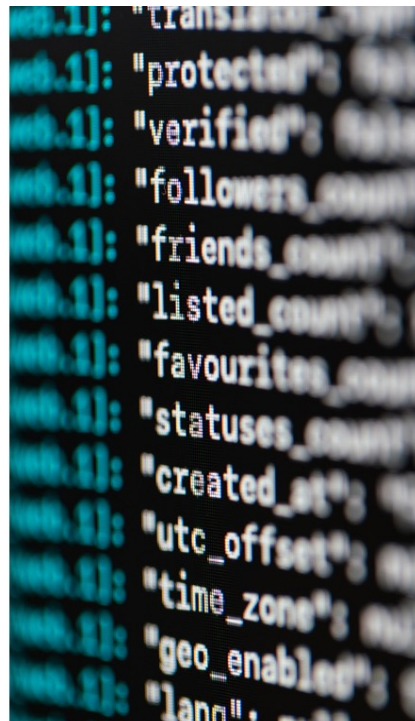- **Acknowledged and hidden cost of online teaching** (workload, emotional load, stress etc.)

ESCALATE

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

Module 6: UNINTENDED CONSEQUENCES AND THE ETHICS OF DIGITALISATION

Output 2: Training Materials

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**

1.0	Introduction
1.1	Potential issues with technology-led (or influenced) rather than pedagogically-led education
1.2	The changing roles and responsibilities of teachers and students
1.3	Social interaction and effects on networks and face-to-face embodied socialisation
1.4	Digital divide, digital access and equality issues in learning and teaching

2.1	What is data protection and GDPR?
2.2	GDPR requirements in Higher Education
2.3	Emergent data protections issues in a digitized Higher Education environment
2.4	Learning online, plagiarism, open-source materials, uses of copyright materials
2.5	Ethical issues related to online teaching and learning
2.6	Examples and recommendations of good practice

3.1	What are: digital footprints, privacy and surveillance?
3.2	Surveillance and the commercialisation of the surveillance logic
3.3	Pros and cons of surveillance of students, teachers and workers
3.4	Privacy and data protection issues for students, staff and organisations
3.5	Cyber security issues for educational institutions and individuals (staff and students)

https://escalate.projects.uvt.ro/training-materials/#

Thematic focus of Modules

Training Materials

Module 1: Digital education disruption – the role of online learning and digital technologies

Unit 1 – The use of digital technologies in online teaching and learning	Unit 2 – The role of online teaching and learning in a globalized digital economy	Unit 3 – Digital disruption in higher education

Module 2: Enabling open-source technology and innovative solutions for educators and students

Unit 1 – Open Source Technologies in Education	Unit 2 – Impacts and Benefits of Open Source Technologies in Education	Unit 3 – Examples of Solutions

Module 3: New educational opportunities created by digital technologies and barriers to going digital

Unit 1 – Accessible and flexible educational contents	Unit 2 – New software and apps to help learning providers to manage, plan, deliver and track the learning process	Unit 3 – Barriers to going digital

Module 4: Labour market and new sectoral responses to digitalization

Unit 1 – The impacts of digitalization on the labour market and key sectors	Unit 2 – Labour market monitoring and available tools	Unit 3 – Policy Responses to Digitalisation

Module 5: Innovations in skills, policy design and education system governance

Unit 1 – University governance in the field of research and development	Unit 2 – University governance in the field of higher education	Unit 3 – University governance in the field of knowledge transfer and science communication

Module 6: Unintended consequences and the ethics of digitalisation

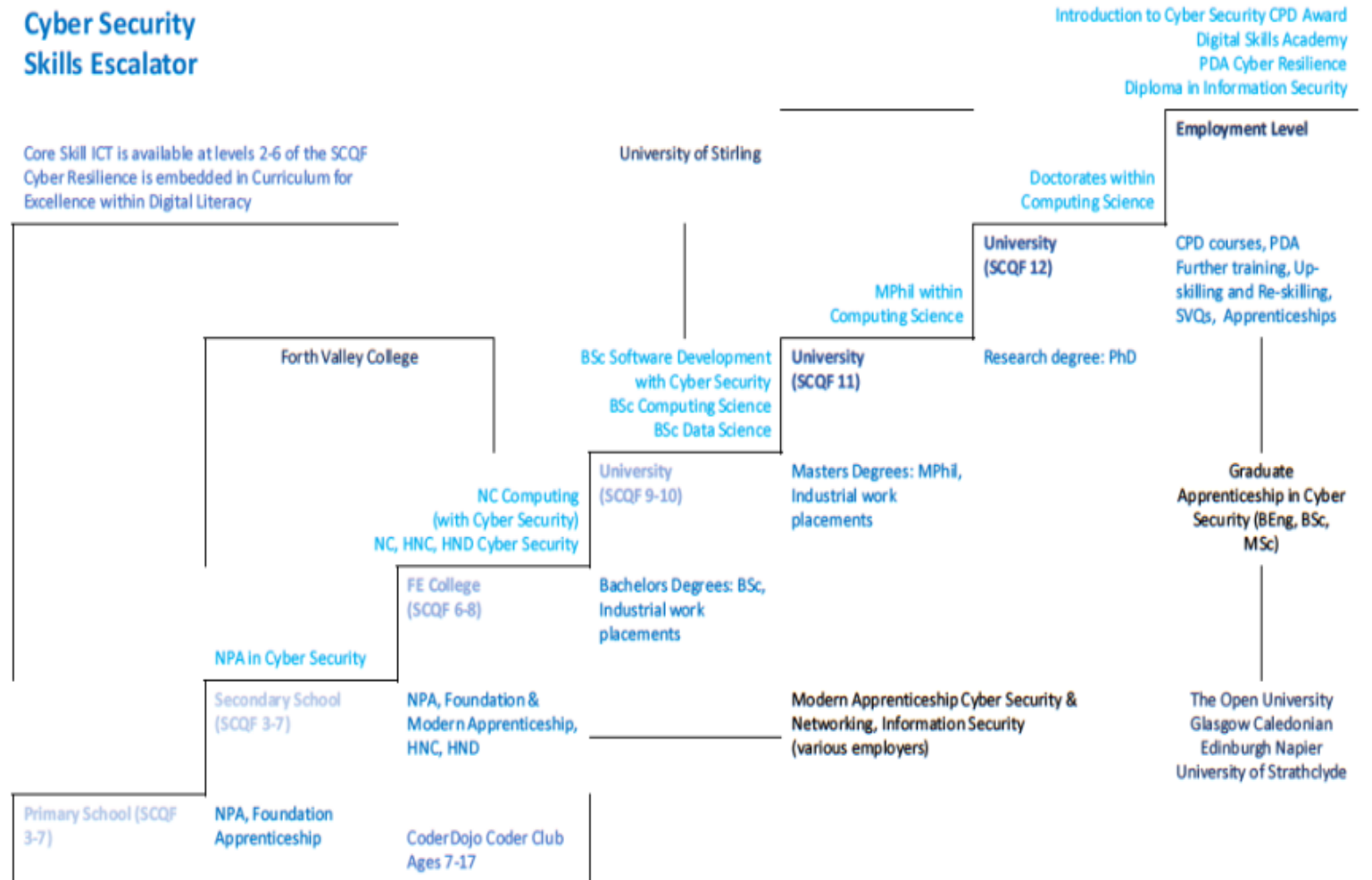| Unit 1 – Effects of transitioning to online/digital teaching and learning	Unit 2 – GDPR and ethical issues	Unit 3 – Digital footprints, privacy and surveillance

Output 3: Skills Escalator (Cyber Security)

Escalator it is skills development a mapping tool to ensure:
- a region has sufficient citizens skilled in a particular field/sector critical to economic success
- the skills and training needed to enter or progress in this field/sector are available locally, <u>at all levels</u>

Erasmus+

ESCALATE

ESCALATE

Stirling, Scotland

Evidence Base for a Skills Escalator – Cyber Security (Work Package 4)

UNIVERSITY OF STIRLING

Author: Elaine Robinson, Ronald McQuaid, Aleksandra Webb, William Webster, MWO, Stirling Management School University of Stirling UK

Cyber Security Skills Escalator

Unintended consequences digital learning & teaching

Impacts of technology-led education on quality, equality and formation of social capital

Cyber-security threats

Personal data protection issues

Ethical aspects of student attendance and engagement

Student performance and engagement monitoring practices

Monetisation opportunities from student digital footprint (3rd party)

Staff monitoring practices

Development of future machine learning (and AI) with associated ethical and other issues (e.g. databases used to develop then reinforcing existing biases)
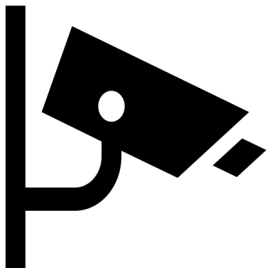
Future path dependency due to choices in infrastructure

4 of the areas of potential unintended consequences

- E-Learning and Assessment

- Digital Divides

- Learning Analytics

- AI assistants

E-Learning and Assessment – some pros

- Flexibility and depth of engagement with students

- A (virtual) sense of community virtual

- Remote Labs allows for safer learning environment Help those unable to attend classes

- Near unlimited and flexible sharing of digital resources

- Time-saving for staff

- Can prompt professional reflection teaching styles etc.

E-Learning & Assessment – challenges for staff/students

- Assessments become *algorithm-pleasing exercise* (Straumscheim 2015, Williamson 2019)
- *'Gaming'* the system with little learning (Chin, 2020)
- *Plagiarism NB*, but monitoring may be invasive or discriminatory
- Software, VLEs may not fully *reflect different groups* in society
- Reshapes their traditional roles, *become facilitator*, rather than educator,
- *Lecture capture* – constrains authenticity, spontaneity, self-censorship & lack real-time interaction (Taplin et al. 2014, Morris et al. 2019)
- *Increase workload*, blurs work-life boundaries, shift sudden & stress (DeFilippis et al. 2020)
- Replace, not enhance, *live experience*, soft skills development (Morris et al. 2019). 'Binge watching' lectures as a form of study and revision.
- "*E-escaping*" (Nworie & Houghton 2008)

Digital Divides

The digital divide raises issues around the extent of access:

- ICT *infrastructure access* to when carrying out E-learning and teaching remotely (incl. hardware such as computers, laptops, as well as Internet access and support) (Nishijima et al. 2017)
- Are the necessary *digital skills* in place for students and staff when learning and teaching online
- Different groups of staff and students have varying attitudes towards the use of open educational resources – how do these differentially affect groups in terms of access to learning (Ochieng & Gyasi 2021)
- How do HEIs and teachers support students who have skills gaps and/or cannot make full use of E-learning or who are particularly affected by issues such as COVID-19 pandemic?

Learning analytics challenges and unintended consequences

- The outsourcing of technology has led to concerns over data usage without acknowledgement of pedagogical approaches and frameworks. Its *usage can be vague and non-transparent way* (UCU 2020a)

- *Decisions* about student attainment/development influenced by algorithms rather than staff (Zeide 2019)

- Learning analytics can be used to *predetermine student success and failure* (Educause 2014) and can lead to datafication of student learning and behaviours (NUS 2015), e.g. by 'game playing' to fit with expectations set by the analytics system

- The use of AI in learning analytics may be also *subject to bias*. Hence can reinforce, existing situations etc. (O'Neil 2016, UCU 2020a, EC 2019)

- A reliance on metrics, marketisation of the university, and push on improving the "student experience", often leads to increasing *academic workloads*, and declining mental health (Morrish 2019)

- Processing information about students, against parameters they may be unaware of, can impact self-identity and *undermine privacy* (Drachsler and Greller 2016), and question institutional transparency (Zimmer 2013)

- HEIs need strong protection of *data against misuse and loss* (Educasue 2014)

- Risk *of technology- rather than education-led learning* (Price/Kirkwood 2014, Zilvinskis et al. 2017)

- Most staff are *unaware of how learning analytics work*, and thus it becomes difficult for them to question the decisions that the algorithm makes (O'Neil 2016, Rainie & Anderson 2017, Prinsloo 2020)

- Need transparency on issues such as staff surveillance through software such as Cortana and 'My Analytics' (including their 'nudging' actions)

AI assistants

Advantages:

- AI assistants can learn from and adapt to *students' needs*

- They can provide *tailored support* to students (UCU 2020a)

- They can answer basic questions 24/hrs *freeing up time for educators* to focus on deeper teaching issues (Georgia Tech 2020)

Challenges and unintended consequences:

- It may not be clear to the student that they are *conversing with a machine* (Georgia Tech 2020)

- There are potential *privacy implications* and danger of third parties providing these assistants becoming *powerful players* in education (Centre for Data Ethics and Innovation 2019, Williamson and Hogan 2020)

- Such software could *affect pedagogic guidance and the teaching methods* (UCU 2020b)

- The push to use such assistants could leave students with a *lack of social interactions* and could limit depth of discussions

Conclusions

- HEIs had to rush into greater E-Learning but are still to determine types & levels of unintended consequences

- Large number of potential consequences for students, staff, institutions and beyond

- Need large scale, systematic evaluation of consequences & how to ameliorate them

- Need urgent action on current non-transparent, poorly understood system

References

- See **https://escalate.projects.uvt.ro/** **Tweet: @DigitalEscalate**

For individual references see:

Robinson, E., McQuaid, R., Webb, A., and Webster C.W.R. (2021) 'Unintended Consequences of E-Learning: Reflections on the Digital Transformation of Learning in Higher Education', in: Larsen, C., Kippen, J., Schmid, A. Panzaru, C. (eds) *Transformations of Regional and Local Labour Markets Across Europe in Pandemic and Post-Pandemic Times. Challenges for Regional and Local Observatories*, pp. 379 - 398, Rainer Hampp Verlag, Munich. doi.org/10.5771/9783957104007-379 http://hdl.handle.net/1893/32909

Webb, A., McQuaid, R. and Webster, C.W.R. (2021) 'Moving learning online and the COVID-19 pandemic: a university response', *World Journal of Science, Technology and Sustainable Development*, Vol. 18, No. 1, 1-19. https://doi.org/10.1108/WJSTSD-11-2020-0090