Siân Bayne, Assistant Principal Digital Education
@sbayne

Jennifer Williams, Project Manager, Institute for Academic Development
@jlwpoetry

Michael Gallagher, Research Associate, Centre for Research in Digital Education
@mseangallagher
Aim: not to predict, but to co-design a values-based future for digital education at Edinburgh
Social futures

Global and local demographic shifts
Ageing population and lifelong learning
Automation of work
‘Unbundling’ of HE
Urbanisation
Inclusion
Trust in public institutions

Technological futures

Datafication of society
Surveillance
AI
Educational neurotechnology
Cognitive enhancement
Virtual realities
New forms of value
Near Future Teaching: principles

Principle 1: educational futures work should aim to challenge assumptions rather than present definitive predictions

Principle 2: the future is not determined by its technologies

Principle 3: thinking about the future always involves values and politics

Principle 4: education has a range of responsibilities that need to be reflected into visions of its future

Near Future Teaching: process

1 Foresight:
   Taking the community pulse
   Reviews and projections (scientific/technical; educational/social)

2 Scenario development:
   Defining values
   Scoping plausible future worlds
   Designing educational futures for each

3 Testing:
   Student panel
   Academic expert panel
   Children’s panel

4 Surfacing challenges, insights and recommendations

5 Translation into policy and action
1 Foresight: taking the community pulse – events
LECTURES
1 Foresight: reviews and projections

**Future Teaching trends: science and technology**

Michael Gallagher and Siân Bayne  
Centre for Research in Digital Education  
Moray House School of Education  
University of Edinburgh

**Introduction**

This review partners with *Future Teaching trends: education and society*, highlighting the technological trends likely to have significant implications for the future of higher education over the medium term, and those we should attend to in future teaching. This is not a comprehensive review of technological brief overview of a few areas chosen for their potential high impact.

**Future Teaching trends: education and society**

Michael Gallagher and Siân Bayne  
Centre for Research in Digital Education  
Moray House School of Education  
University of Edinburgh

**Introduction**

This review partners with *Future Teaching trends: science and technology*, providing a short overview of the global societal shifts likely to impact on education over the coming few decades, in order to inform the Near Future Teaching project. It is not a comprehensive review: rather it highlights a few key areas we feel are of particular relevance.
Scenario development:
- Defining values
- Scoping plausible future worlds
- Designing educational futures for each
Too much technology can threaten wellbeing

Education is enhanced

Diversity enhances education

Disciplinary silos should be broken

Education should not be treated like a commodity

“Always being online and available, students have less separation between university and home.”
(NFT Blog, Pilot Workshop 2)

“As technology changes, you have to evolve instead of letting tech take you over... 5 o'clock on Friday you have to say no more emails.”
(NFT Video, No More Tech)

“The university should be teaching students how to separate work and non-work time, and time management skills.”
(NFT Blog, Pilot Workshop 2)

“Inherent biases and prejudice should be challenged through critical engagement with literature, which is diverse in race, gender, sexuality, ability.”
(NFT Blog, BME Liberation Group)

“One of my lecturers and I had a discussion about the content being quite difficult to discuss... pretty much everyone bar the four of us are very middle class.”
(NFT Video, Values 2)

“How does what we see feed into what we believe to know, how that confirms existing biases.”
(NFT Blog, Virtual Reality @ uCreate Studio)

Students and staff should be more involved in decision making

Learning experiences should be more tailored to the individual
Exchanges Over Instructions

Relationships, dialogues and personal exchanges between students and staff enhance learning in a way that instructional forms of teaching can’t. Universities should act towards strengthening relationships and dialogue in favour of bespoke, human-centred teaching methods over non-discursive, instructional ones.

Experiences Over Measurements

As universities take a role in shaping the thoughts and behaviours of students, there is a risk of reducing learning to a form of economic capital that values one-dimensional certificates, promoting competition over cooperation.

Instead, creativity, curiosity and failure should be encouraged, promoting the value of experiences over formal academic outcomes.

Participatory and Transparent

Students and staff feel powerless against the opaque and hierarchical governance of educational institutions. Students and staff should be involved as partners who can directly and cooperatively influence their learning and teaching. Through increased participation, learning pathways and experiences can be more tailored to suit individual needs.

Diverse and Inclusive

Diversity enhances education by exposing learners to diverse perspectives and experiences. However, financial barriers lower accessibility to education; students are living under debt and increasingly high living and course costs, while many staff face precarity due to zero-hour contracts or poverty wages. Where possible, education should be inclusive and promote forms of diversity.
World 1. Data, data everywhere

World 2. A new ecology

World 3. Human and machine co-dependence

World 4. Uberfication from cradle to grave
World 1. Data, data everywhere

Datafication
Marketisation
Tight borders
Increased competition
World 2. A new ecology

- Climate change
- Data-driven decision making
- Compulsory renewability
- Compassion and global justice
World 3. Human and machine co-dependence

Automation
Human-machine hybridity
Personal missions
Leisure
World 4. Uberfication from cradle to grave

Ageing population
Sharing economy
Consumer power
Unbundling
World 1. Data, data everywhere
World 2. A new ecology
World 3. Human and machine co-dependence
World 4. Uberfication from cradle to grave
World 1. Data, data everywhere

Datafication – Marketisation – Tight borders – Increased competition

Value 1: experience over assessment
A divide between students accessing affordable, tutor-light education, and those who can pay for human expert-mentored pathways. 'Experience' looks very different for these two groups.

Value 2: diversity and inclusion
The university has built technologies which curate highly diverse peer groups, enabling wide exposure to multiple worldviews.

Value 3: relationships over instruction
Dialogic teaching from subject experts is core to the experience of high-paying students. Those on 'tutor-light' tracks have access to international peer groups and intelligent agents.

Value 4: participation and transparency
Much of the student experience is determined by algorithmic decision making and routine, invisible surveillance. However, a focused programme of work on explainable AI, data ethics and student data literacy has created a relatively transparent system for student support at Edinburgh.
Climate change – Data-driven decision making – Compulsory renewability – Compassion and global justice

Student experiences are directed toward practical outcomes: the impact of student work on a set of defined challenges becomes the core measure of its value.

International collaboration across an academic commons ensures diversity of content and inclusive definitions of academic knowledge.

Academic mentorship becomes vital to help students navigate and work with a vast and volatile global knowledge network.

Students work with global challenge-based networks to define and build their own personal curriculum and mission: most higher education is highly participative.

University abandons assessment as the idea of individual human achievement dissolves.
World 3. Human and machine co-dependence

Value 1: experience over assessment
Unlimited time for study emphasises the importance of a quality experience, but maintaining student motivation and sense of direction is a key issue for universities. Ennui has become a common feature of the human condition.

Value 2: diversity and inclusion
Human-machine hybridity is so accepted in this world that those who are excluded - for self- or societally-determined reasons - experience massive inequality. This is challenging for institutions.

Value 3: relationships over instruction
Gaining basic knowledge through instruction is considered archaic in this world, though some continue to see it as a necessary grounding for meaningful, impactful human work.

Value 4: participation and transparency
Societal aspirations for meaningful transparency have disappeared as massively complex hybrid systems maintain social order: transparency is no longer considered a positive term.

Automation – Human-machine hybridity – Personal missions – Leisure
World 4. Uberfication from cradle to grave

Ageing population – Sharing economy – Consumer power – Unbundling
Preferable
Probable
Plausible
Possible
1 Foresight:
   Taking the community pulse
   Reviews and projections (scientific/technical; educational/social)

2 Scenario development:
   Scoping plausible future worlds
   Designing educational futures for each

3 Testing:
   Student panel
   Academic expert panel
   Children’s panel

4 Surfacing challenges, insights and recommendations

5 Translation into policy and action
What futurists can do is to facilitate the development and application of individual, organizational and collective foresight.

One result of good foresight work is a well-developed decision context embracing aspects of past, present and possible futures.

Outputs

Co-produced values- and evidence-based position on futures for:
  Investment in (educational) technology
  Investment in people/culture
  Nature and development of future curriculum