

Anticipating the near future of teaching

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Abstract

The ways in which digital and networked higher education futures are imagined are rarely built around the values of universities, students and staff. Too often they are projected according to the values of ‘ed-tech’ industry and aligned policy discourses in which technological determinism, the interests of profit and the instrumentalisation of higher education are taken for granted as the inevitable drivers of change. This paper describes a methodology designed to enable universities to define and ‘own’ their own digital future, and to base it in the values of their communities. Such future visioning can be used as the basis for institutional strategy and planning, enabling us to advocate for resource and institutional policy change from a collectively-defined position. Equally importantly, it can be used to push back on other kinds of ‘inevitable’ futures described for us by agencies whose values are radically different. The paper describes the methods developed at the University of Edinburgh to achieve this future vision. It details the process we devised for defining a set of shared values and how we defined a preferred future for our own university. For the future of digital and networked education to be one that works in the interests of faculty and students, we argue that universities need to develop new, creative and values-based ways to envision and build it.

Keywords

Future; anticipation; digital education; values; methodology; institutional strategy

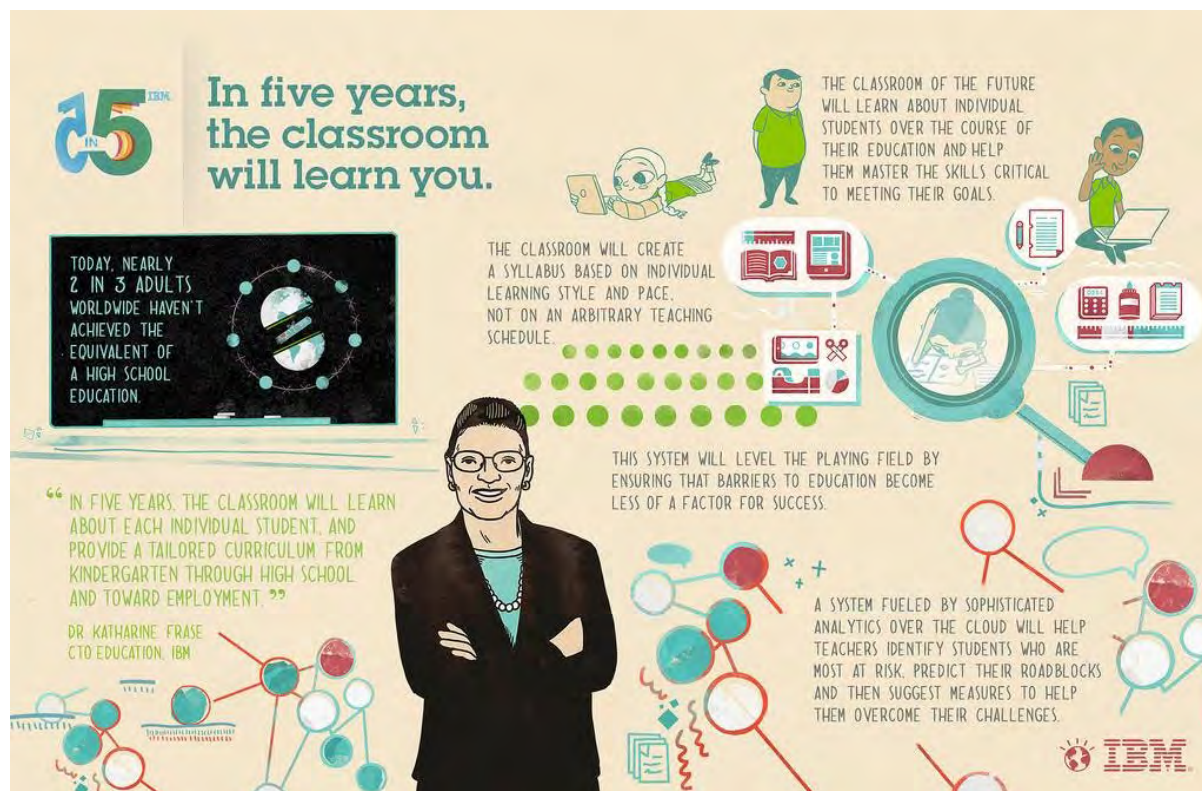
Introduction

Anticipated and present social, environmental and technological disruption dominates discussion of the future in current academic and popular discourse. In this context the ‘future of education’ is a subject of intense scrutiny, debate and imagining. To give just a few very recent examples, the OECD has released a new learning framework for education to 2030 (OECD 2018), proposing new ‘transformative’ competencies to enable young people to become ‘innovative, responsible and aware’ (p.5). NESTA (nd) has defined its work as being focused on our ‘fast changing future’, advocating for an education which is ‘broader, fairer and smarter’ (np). The European Commission (2018) has released a ‘future of learning package’ with recommendations for key issues at stake: lifelong learning, digital education and shared European values (np). Deloitte (2018) has paired with the Georgia Tech Centre for 21st Century Universities to map future(s) for public universities which can mitigate risk posed by perceived deficits in the US higher education sector: reduced public funding, lack of efficiency, lack of connectedness to industry, lack of attention to the needs of lifelong learners. The World Economic Forum (nd) foresees a future in which education is ‘fundamentally transformed’ by ‘technological innovation’ declaring the need for a new curriculum which is ‘future-ready’ for the 21st century.

The list goes on and the versions of the futures mapped and advocated are multiple and various, driven by the agendas, perspectives and interests of whoever is doing the imagining. For higher education, the framing of these ‘future’ debates is very often focused on how universities need to respond to ‘inevitable’ change driven from beyond the walls of the institution, with the horizons of that change most often determined by a combination of taken-for-granted neoliberalism and a technological determinism crafted by the interests of corporate ed-tech. Rarely are these future imaginaries defined by universities for themselves, or based in a set of values which see higher education as something more than a service sector tasked with ‘producing’ work-ready graduates at a challenging political and planetary moment.

Those who predict – and create convincing narratives for – a particular future, do so with their own interests and values at the centre of their visioning. Where strong narratives of the future of higher education are spun by the technology industry they have the advantage of appearing to make a highly technologically and politically complex area of social practice seem simple and inevitable, often advocating for futures in which their own products play a pivotal role. For example, IBM’s 5-in-5 series releases annual future scenarios predicting innovations ‘which will change our lives within five years’ using infographics, press releases, papers and videos

to futurecast particular aspects of social change. In 2013, they released a 5-in-5 on education entitled ‘The Classroom Will Learn You’, mapping out a technology rich ‘smart classroom’ in which analytics and prediction would routinely stand in for teacher professionalism and insight. In fact, the human teacher is barely mentioned.



IBM 5-in5 series (2013)

Such ‘predictions’ are powerful because they define particular futures as inevitable, futures in which social challenges and problems will be ‘solved’ by technology (that corporations make substantial profits along the way is rarely mentioned). These strong narratives define, normalise and do the groundwork for building that future. Such speculations therefore *create* a future which aligns to the values and interests of corporate ed-tech, not to the values and interests of schools or universities.

We argue in this paper that universities need to develop methods for imagining and describing their own futures, and by doing so to advocate for futures which are driven by the values of universities as communities of scholarship. This is particularly vital for digital education, which has a strong tendency to see itself as being driven by technological change and the determinist, solutionist perspectives through which popular and policy narrative is often framed. The paper outlines one approach to doing this by describing a values-led, design-led methodology developed at the University of Edinburgh. The Near Future Teaching project started from the position that the university community is a critical agent able to build and take responsibility for a *preferred* future, rather than one which develops solely in response to futures defined by others.

The Near Future Teaching project

Near Future Teaching was launched by the University of Edinburgh as a formal institutional project – sponsored by the university’s Senate, and intended to define a future vision for digital education which could inform university strategy. In this sense it took place within the disciplinary domain of Futures Studies, defined by Poli (2017) as ‘a field that lies between the essential unknowability of the future and the effort to use the future for decision- and strategy-making in the present’ (58). The field of Futures Studies has been described as having three different forms or phases: 1) prediction/forecast, 2) foresight and 3) anticipation. In describing the most recently emergent of these – anticipation – Amsler and Facer (2017) suggest that:

Whereas attempts to *predict* organisational dynamics, political developments, financial behaviour, economic demands or ecological disasters aspire to eliminate risks of uncertainty,

and *foresight* aims to equip actors with insights into multiple possibilities, *anticipation* assumes an active and critically reflective interaction with futures that are unknowable. (1) [our italics]

It was this emphasis on agency and critical reflection which drove the design of Near Future Teaching. At a time when technological change is assumed to be driving the future of education, we wished to take a step back to formulate a vision that was based not on prediction, technological determinism and the instrumentalisation of education, but on the values and perspectives of a large community of students, academics and aligned professionals.

The University of Edinburgh has around 40,000 students and 15,000 staff (of whom around 7,000 are formally defined as academic). It is organised into three Colleges – Arts, Humanities and Social Sciences; Medicine and Veterinary Medicine; and Science and Engineering. Just under half our students come from countries outside the United Kingdom – this is a highly international and diverse student population. We also have high numbers of distance learners for a research-intensive university – just under 4,000 of our current student body study online, mostly within our College of Medicine and Veterinary Medicine, and we have over 2.5 million people studying on our portfolio of MOOCs. It was within this context that we developed our methodology and articulated our vision for a preferred future for digital education and networked learning.

The project began at the beginning of 2017 and ended in the Spring of 2019, and ran over four phases, briefly outlined below. Full detail of all phases of the project and outputs are available for viewing and re-use on the project web site: www.nearfutureteaching.ed.ac.uk

Phase 1: scoping

This first phase took around one year to complete: approximately 300 students and staff from across the University raised key issues, concerns and priorities for the future of digital education through 15 events and workshops and 50 short, video-recorded interviews. Insights from the events were captured in blog posts on the project website. The short interviews were recorded on video, analysed, clustered and edited into common themes. The resulting 13 short, thematic videos are all available on the project site. They demonstrate how students and staff, when asked to speculate on the future of digital education, very quickly moved away from focusing on technologies to expanding on the kind of future they *wanted* for the university: one based on generally very well-articulated values. At the end of this phase, we were able to define the four core values emerging from this part of the work, which would define and structure the outcomes from the project.

During this phase we also researched and published two short reviews and mappings of current technological and social trends which seem – from our moment in the present – to be likely to inform the near future of teaching (Gallagher and Bayne, 2018a and 2018b). These ‘Future Teaching Trends’ reviews were deliberately brief, intended to be easily usable by highlighting areas of particular relevance to digital and networked learning. They are summarised in the following table.

Education and Society	Science and Technology
Recruitment demographics: Increased competition for international students globally Declining numbers in domestic groupings traditionally attending university (young, full-time, middle class)	Datafication Of society Of education
Lifelong learning: Ageing population Emergence of alternative providers of education	Artificial intelligence In society In education
Unbundling and new degree models	Neuroscience and cognitive enhancement Educational neurotechnology Cognitive enhancement drugs
Automation of teaching, automation of work	Virtual and augmented realities
Urbanisation	New forms of value Blockchain and distributed ledgers Smart contracts
Wealth and inclusion Widening participation	

Trust and precarity Collapse of trust in institutions Academic precarity and casualisation	
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Table 1: A summary of the reviews: both are available in full online and reusable under a creative commons license (Gallagher and Bayne, 2018a and 2019b).

Phase 2: Scenario development

During this phase we contracted a small design strategy company to work with us: called Andthen, they were able to bring expertise in design and futures thinking to the project, and worked closely with the core university team over the rest of the project, designing and facilitating workshops, helping with the synthesis of workshop outcomes, and designing the final project report. Using the values developed in conversation with students and staff during the scoping phase, and drawing on the trend reviews, we debated and developed four plausible future worlds and institutional responses to these in two very intensive half-day workshops attended by a group of 20 students and staff. We outline the speculative future universities in a later section of the paper – developing and discussing these enabled us to establish what a preferable future for digital education would look like at the University of Edinburgh.

Phase 3: Testing

From the phase two workshops a draft set of aims and indicative actions for a preferred future for digital education were developed by the project team, and taken out for testing in intensive workshops with staff and students. They were also compared with next-generation students' future visions of higher education through two sessions with 57 children in primary and high school. More than 100 people were involved in this testing phase.

Phase 4: Finalising

The vision, aims and actions were finalised in response to testing, and approved by the relevant university committees. A launch event took place in March 2019.

Core values

The vision formulated from the Near Future Teaching project is based on the values of students and staff at the University of Edinburgh, values surfaced through the phases of activity described. These values are critical to the type of futures work being performed in the Near Future Teaching project, being critical to 'any futures work, which aims to empower individuals and groups to make decisions about possible future paths rather than simply coerce them towards certain predetermined actions' (Facer and Sandford, 2010).

On the basis of this scoping work conducted in Phase 1, four core values were distilled from the work with staff and students using an 'affinity mapping' approach, a process of identifying and sorting ideas generated from the data collected in the scoping phase (Roberts et al, 2013). This involved looking across the interviews and event records and defining common opinions and perspectives that were raised by individuals. These key issues were captured in the form of a series of 'opinion cards'. Each opinion card had a theme on one side and a sample of quotes direct from the students and staff of the University of Edinburgh on the back (all the 19 opinion cards are viewable on the project website). Some representative examples are provided in Table 2.

Opinion	Representative Quotes
Opinion 1: Education should not be treated like a commodity	'We resist being treated as consumers, and seeing our education treated as a commodity' 'It puts everyone into a box and if you don't fit in you won't do well' 'The risk of reducing every aspect of learning to a form of economic capital.'
Opinion 4: Education should encourage creative thought	'The university should be a space for learning and un-learning.' 'The opportunity to wonder about stuff...I think that if you lock that off too much you will be too deterministic.' '...avoid being too driven by training in some sense it should be on education that we are focussing on. It should be trying to encourage curiosity.'
Opinion 13: Students and staff should be more involved in decision making	'Co-curricular and students as partners' 'I didn't get a voice and couldn't shape the way I learn or choose the material I work with.' 'Students and staff who should directly and cooperatively control their learning, their teaching, their research and their contributions to the common good.'

Table 2: A selection of opinion cards (from 19 total) along with the representative quotes that constituted the theme presented; all opinion cards are available in full online and reusable under a creative commons license.

Through further analysis of the opinion cards developed from the interviews and events with students and staff, we established four core driving values. These form the basis for all the aims, objectives and actions in the final report. We see these are the most important outputs from the project, expressions both of the kind of future that students and staff *wanted* for the university, as well as methodological objects in their own right which would be used in subsequent phases of the project. The distillation of these values aligns with the position that ‘socio-technical change is not determined by technological development, but by the social contexts, values and institutions within which it develops’ (Ulcsak and Facer, 2012). For the purposes of the Near Future Teaching project and for near future teaching at the University of Edinburgh, these values drive all subsequent aims, objectives and activities.

Value	Description
Experience over assessment	Learning should not over-assessed and instrumentalised. Teaching should share a focus on employability and success with an understanding of the value of rich experience, creativity, curiosity, and – sometimes – failure.
Diversity and Justice	Education should design-in meaningful diversity and real inclusion across all areas of activity. All near future teaching should further social responsibility and global justice.
Relationships first	Relationships, dialogues and personal exchanges between students and staff build understanding in a way that is not possible via transmissive forms of teaching. Teaching should be designed to provide the time and space for proper relationships and meaningful human exchange.
Participation and flexibility	The University community should cooperatively shape how – and what – it learns and teaches. Flexibility for the individuals, fluency across disciplines and cooperative responsibility for curricula should shape near future teaching.

Table 3: The four core values for near future teaching at the University of Edinburgh as defined by students and staff; all value cards are available in full online and reusable under a creative commons license.

Four future worlds

During phase two of the project, four scenarios were developed that distilled our trend reviews (Gallagher and Bayne, 2018a and 2018b) into a set of ‘plausible divergent future worlds’ (Facer and Sandford 2010). From these, further scenarios were developed to shape a discussion around what universities might look like within these four future worlds, with each scenario representing a *possible* future university. The four speculative future university scenarios were co-designed in an intensive workshop with 20 students and staff, and are outlined below: none are intended to be either dystopic or utopic, negative or positive, but rather to work as detailed thought experiments which would give us something to work with as we defined a *preferred* future.

Future University 1: Data, data, everywhere

Key drivers in this world: datafication, tight borders, marketisation of education, and increased competition

The shape of the university: Accelerated datafication of everyday life and the normalisation of ubiquitous surveillance makes quantification, measurability and trackability the key markers of value. Data-driven decision making across all sectors positions STEM and data science at the top of the disciplinary hierarchy. Higher education shifts toward a focus on provision at the point of need, with timely routes to accreditation in particular skills areas taking priority over extended periods of study within co-located communities of scholarship.

Future University 2: A new ecology

Key drivers in this world: Climate change, data-driven decision making, compulsory renewability, compassion, and global justice

The shape of the university: Global crisis has shifted collective mindsets, with a strong emphasis across all areas of human activity on responsible and sustainable action. The goal of economic growth disappears as a key driver with all activity instead measured according to an ‘eco bottom line’ making sustainability and renewability the new indicators of human advancement. Data analytics for compassion are funded globally to better understand and manage issues around environmental impact, equity and sustainability. Education and research become focused almost entirely on addressing global crises, with teaching in universities increasingly designed around action and practical solutions to ‘real world’ problems.

Future University 3: Human-machine interdependence

Key drivers in this world: automation, human-machine hybridity, personal missions, increased leisure

The shape of the university: Automation has replaced much human work, resulting in growing demand for education focused on personal creativity, criticality and problem solving. Easy access to information, and the automated synthesis of large, complex bodies of knowledge, have created a shift in education away from fixed curricula toward ‘experience’, with the most successful universities offering rich, time-intensive, student-led pathways extendable over the entire life course. Discipline boundaries have largely disappeared as STEM and social science converge with the creative arts and humanities.

Future University 4: Uberfication from cradle to grave

Key drivers in this world: Ageing population, sharing economy, consumer power, unbundling

The shape of the university: The role of the university as trusted gatekeeper and source of accreditation has shifted as new forms of value and economy re-shape higher education. Learning is highly commodified, as each individual purchases micro-credit from multiple providers, accumulating credit through life while building a personal portfolio evidencing all their key competencies. The boundaries between education, employment and retirement become blurred as the population ages, and higher education now takes place across the course of a lifetime, with ‘upskilling’ at point of need becoming a key part of much provision. Academics work for the most part as freelancers, building personal and team reputations which compete in the global education free market.

Applying the values-based approach

These possible future universities were debated and developed in a second half-day workshop attended by the same group of 20 students and staff. These set out to understand what a preferable future for digital education would look like at the University of Edinburgh largely by exploring how the core values described earlier would manifest in these four university scenarios.

In groups, the workshop began by mapping the four core values to each of these worlds, trying to understand how they might be played out in each, and then followed that mapping by identifying speculative examples of what digital education might actually look like for each of these mapped values. From the outputs of this workshop, an understanding of the kinds of futures that would be *preferable* to students and staff was identified. This was translated by the core Near Future Teaching (NFT) team into a draft vision and associated strategy for building a preferable digital education future at the University. This vision took the form of five over-arching aims, accompanied by a set of indicative actions, and are detailed in the final section of the paper.

Throughout October–December 2019, the vision and aims were tested in a series of sessions with staff and students from across the University and in local primary and high schools. The purpose of these sessions was to test the response to the draft vision and strategy and gather feedback and input for a further iteration from both the current and future university community. Following these testing sessions, the aims, objectives, and indicative actions emerging from the Near Future Teaching project were finalised and published.

Aims for a preferred future

The identified aims emerging from this process are an expression of our preferred future among all the futures available to us, one not based on determinism or the instrumentalisation of education but rather on the values of a large academic community. Each aim carries with it a set of objectives as well as indicative actions that might

be undertaken to achieve them. These indicative actions are by no means definitive but are rather an attempt to translate *anticipation* into action, to address futures that are unknowable based on our present values. They identify how as an institution we might practically build the preferred future identified.

Aim	Objectives	Indicative Actions
Community focused: Digital education with the University community at its heart.	Prioritising human contact and relationships. Connecting our community of scholarship in new and diverse ways.	Use technology to build relationships between students and staff based on trust, resisting logics of surveillance and unnecessary monitoring. Accompany these with innovative, cross-discipline community building approaches including peer pairing based on shared interests and geographies.
Post digital: education which recognises that technology is fully embedded in daily life.	Reworking the concept of 'contact time' to reflect contemporary practice. Rethinking what it means to be 'here' at Edinburgh.	Define and embed a re-worked understanding of 'contact time' into workload models and course descriptors, which takes account of student mobility, distance education and flexible patterns of study. Plan for the introduction of technological capacity to teach online and on-campus students together in joint cohorts.
Data fluent: digital education that understands data, data skills and the data society.	Addressing automation with an emphasis on human skills. Engaging creatively and responsibly with learning data.	Use our research expertise in data to build an ethical, responsible near future for our teaching and to improve student experience. Embed critical understanding of data ethics and algorithmic accountability within academic development and staff training.
Assessment oriented: digital education with a focus on assessment and feedback.	Diversifying assessment practice. Making assessment more engaging for students and academics. Supporting new kinds of feedback.	Focus academic development and course design around building exceptional learning experiences, rather than on assessment and performance. Critically evaluate and build capacity for high quality automated assessment and feedback appropriate to disciplines, as a way of augmenting and supporting human assessment.
Playful and experimental: enabling creative, academic and student-led R&D for digital education.	Confidently opening our teaching practice to technological change. Being energetic in designing new, creative ways of teaching digitally.	Invest to give academics more time to be creative and risk-taking in their use of digital education. Provide teaching staff and students with central access to programmers and developers for joint prototyping and trialling of new ways of doing digital education. Support staff and students to scale up and spin out digital education ideas and applications.
Boundary challenging: digital education that is lifelong, open and transdisciplinary.	Building a culture of lifelong learning. Supporting teaching which transcends disciplines. Committing to openness. Connecting to the city and region.	Build capacity for individuals to develop a lifelong relationship with the University regardless of their geographical location or career stage, via open and digital education. Make it easy for local people to be part of the university community through informal as well as formal learning.

Table 4: The six aims emerging from the Near Future Teaching project, along with representative objectives and indicative actions.

Conclusion

This paper has described a methodology designed to enable universities to define and ‘own’ their own digital future, and to base it in the values of their communities. Such future visioning can be used as the basis for institutional strategy and planning, enabling us to advocate for resource and institutional policy change from a collectively-defined position. Equally importantly, it can be used to ‘push back’ on other kinds of ‘inevitable’ futures described for us by agencies whose values are radically different, and whose primary objectives are often profit and growth. For the future of digital and networked education to be one that works in the interests of faculty and students, universities need to develop new, creative and values-based ways to envision and build it.

References

- Amsler, S. and Facer, K. (2017) Learning the Future Otherwise: Emerging Approaches to Critical Anticipation in Education. *Futures*, 94, (1-5).
- Deloitte Center for Higher Education Excellence (2018) The future(s) of public higher education: how state universities can survive – and thrive – in a new era. Deloitte Insights. https://www2.deloitte.com/content/dam/insights/us/articles/4726_future-of-higher-education/DI_Future-of-public-higher-ed.pdf [viewed 5 October 2019]
- European Commission (2018) Future of Learning Package. https://ec.europa.eu/commission/news/future-learning-package-2018-jan-17_en [viewed 5 October 2019]
- Facer, K., & Sandford, R. (2010). The next 25 years?: future scenarios and future directions for education and technology. *Journal of computer assisted learning*, 26(1), 74-93.
- Gallagher, M. and Bayne, S. (2018a) Future Teaching Trends: Education and Society. <https://www.nearfutureteaching.ed.ac.uk/wp-content/uploads/2019/01/Future-teaching-trends-%E2%80%93-education-society-1.pdf> [viewed 5 October 2019]
- Gallagher, M. and Bayne, S. (2018a) Future Teaching Trends: Education and Society. <https://www.nearfutureteaching.ed.ac.uk/wp-content/uploads/2019/01/Future-teaching-trends-%E2%80%93-education-society-1.pdf> [viewed 5 October 2019]
- Gallagher, M. and Bayne, S. (2018b) Future Teaching Trends: Science and Technology. <https://www.nearfutureteaching.ed.ac.uk/wp-content/uploads/2019/01/Future-teaching-trends-%E2%80%93-science-technology-1.pdf> [viewed 5 October 2019]
- NESTA (nd) Our work in education. <https://www.nesta.org.uk/education/our-work-education/> [viewed 5 October 2019]
- OECD (2018) Education 2030: the future of education and skills. OECD. [https://www.oecd.org/education/2030/E2030%20Position%20Paper%20\(05.04.2018\).pdf](https://www.oecd.org/education/2030/E2030%20Position%20Paper%20(05.04.2018).pdf) [viewed 5 October 2019]
- Poli, R. (2017) Introduction to Anticipation Studies. London: Springer.
- Roberts, S., Hine, C., Morey, Y., Snee, H., & Watson, H. (2013). ‘Digital Methods as Mainstream Methodology’: Building capacity in the research community to address the challenges and opportunities presented by digitally inspired methods.
- Ulicsak, M., & Facer, K. (2012). Whose Educational Futures? Widening the Debates. In *Transformative Approaches to New Technologies and Student Diversity in Futures Oriented Classrooms* (pp. 171-189). Springer, Dordrecht.
- World Economic Forum Strategic Intelligence (nd) Education and skills global issue. <https://intelligence.weforum.org/topics/a1Gb0000000LPPfEAO?tab=publications> [viewed 5 October 2019]