

# Manifesto Redux: making a teaching philosophy from networked learning research

**Manifesto for Teaching Online** \* Distance is a positive principle, not a deficit. Online can be the privileged mode. \* The possibility of the 'online version' is overstated. The best online courses are born digital. \* By redefining connection we find we can make eye contact online. \* 'Best practice' is a totalising term blind to context – there are many ways to get it right. \* Every course design is philosophy and belief in action. \* The aesthetics of online course design are too readily neglected: courses that are fair of (inter)face are better places to teach and learn in. \* Online courses are prone to cultures of surveillance: our visibility to each other is a pedagogical and ethical issue. \* Text is being toppled as the only mode that matters in academic writing. \* Visual and hypertextual representations allow arguments to emerge, rather than be stated. \* New forms of writing make assessors work harder: they remind us that assessment is an act of interpretation. \* Feedback can be digested, worked with, created from. In the absence of this, it is just 'response'. \* Assessment strategies can be designed to allow for the possibility of resistance. \* A routine of plagiarism detection structures-in a relation of distrust. \* Assessment is a creative crisis as much as it is a statement of knowledge. \* Place is differently, not less, important online. \* Closed online spaces limit the educational power of the network. \* Online spaces can be permeable and flexible, letting networks and flows replace boundaries. \* Course processes are held in a tension between randomness and intentionality. \* Online teaching should not be downgraded into 'facilitation'. \* Community and contact drive good online learning. \* **Written by teachers and researchers in online education. University of Edinburgh MSc in E-learning 2011**

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## Abstract

The Manifesto for Teaching Online was first written by the Digital Education group at the University of Edinburgh in 2011, in order to articulate a shared position on online education and networked learning which was, at the time, in opposition to the dominant discourses surrounding the field. It aimed to work against the technicist and instrumentalist assumptions surrounding teaching online, to shift the perception of digital education as either an instrument for cost-saving, efficiency and competitive advantage, or an impoverished, 'second-best' option for learners who couldn't do better. The manifesto was committed to moving higher education toward a better understanding of the critical, creative and generative potential of the digital mode.

In 2015 we revisited and re-worked this manifesto to bring it up to date with developments in research, practice and policy surrounding digital education. This paper discusses the main areas of change we enacted, and uses these as a way of indicating where and how the field of networked learning has shifted in the last four years.

## Introduction

The *Manifesto for Teaching Online* is a series of short statements first written in 2011 by the Digital Education group at the University of Edinburgh.<sup>1</sup> It was designed to articulate a position about online education that informs the work of the group and the MSc in Digital Education programme it leads. This position was perhaps best summarised by the first of the manifesto statements:

*Distance is a positive principle, not a deficit. Online can be the privileged mode.*

<sup>1</sup> Both versions of the manifesto are viewable here: <https://onlineteachingmanifesto.wordpress.com/>

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Such a position was (and to an extent still is) at odds with dominant discourses of digital education that described it either in terms of replication of offline practices, or in terms of inadequacy, where online learning is the ‘second best’ option when ‘real’ (face-to-face) encounters are not possible or practical. We rejected both of these positions, and the instrumental approaches to online education that tend to accompany them.

The manifesto was initially developed over a period of a year, June 2010–May 2011, and it was further shaped and refined during a series of discussions and events among students and colleagues at the University of Edinburgh. Responses to the document ranged from excitement to discomfort, and when the manifesto was launched in early 2012, it was met with considerable interest. Coverage in the media and the blogosphere particularly emphasised its break from traditional academic writing, and its - to some surprising - focus on teaching rather than learning. The latter was a deliberate move to highlight the over-emphasis on learning and ‘learnification’ (Biesta 2005), especially in the context of online education, and to stress the importance of continuing to value and work with the idea and function of the teacher, however that role might be shifted and redefined by the digital.

Although there are many ways of reading the manifesto, one intention was that it be seen as productive in thinking through the design of online education and assessment – something that teachers might find useful and generative. It was intended to stimulate ideas about creative online teaching, and to reimagine some of the orthodoxies and unexamined truisms surrounding the field. Each point was deliberately interpretable, and it was made open so that others could remix and rewrite it. In early 2015, the Digital Education group itself began to revisit and reassemble the manifesto.

This paper outlines the way the manifesto has changed between 2011 and 2015 to reflect shifts in the field of research, and the development of the group’s own research and teaching practice. In addressing some of the themes and issues informing the 2015 version, it discusses what we believe to be some of the most pressing critical issues facing practitioners of networked and digital education in the current moment.

## An evolving manifesto

The table below lists the statements from the 2011 manifesto (left), and the 2015 manifesto (right). Changes between the two are highlighted on the right.

<p>Distance is a positive principle, not a deficit. Online can be the privileged mode.</p> <p>The possibility of the ‘online version’ is overstated. The best online courses are born digital.</p> <p>By redefining connection we find we can make eye contact online.</p> <p>‘Best practice’ is a totalising term blind to context – there are many ways to get it right.</p> <p>Every course design is philosophy and belief in</p>	<p>Online can be the privileged mode. Distance is a positive principle, not a deficit.</p> <p>Place is differently, not less, important online.</p> <p>Text has been <u>troubled</u>: many modes matter in representing academic knowledge.</p> <p><u>We should attend to the materialities of digital education. The social isn’t the whole story.</u></p> <p><u>Openness is neither neutral nor natural: it creates and depends on closures.</u></p> <p><u>Can we stop talking about digital natives?</u></p>
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<p>action.</p> <p>The aesthetics of online course design are too readily neglected: courses that are fair of (inter)face are better places to teach and learn in.</p> <p>Online courses are prone to cultures of surveillance: our visibility to each other is a pedagogical and ethical issue.</p> <p>Text is being toppled as the only mode that matters in academic writing.</p> <p>Visual and hypertextual representations allow arguments to emerge, rather than be stated.</p> <p>New forms of writing make assessors work harder: they remind us that assessment is an act of interpretation.</p> <p>Feedback can be digested, worked with, created from. In the absence of this, it is just ‘response’.</p> <p>Assessment strategies can be designed to allow for the possibility of resistance.</p> <p>A routine of plagiarism detection structures-in a relation of distrust.</p> <p>Assessment is a creative crisis as much as it is a statement of knowledge.</p> <p>Place is differently, not less, important online.</p> <p>Closed online spaces limit the educational power of the network.</p> <p>Online spaces can be permeable and flexible, letting networks and flows replace boundaries.</p> <p>Course processes are held in a tension between randomness and intentionality.</p> <p>Online teaching should not be downgraded into ‘facilitation’.</p>	<p><u>Digital education reshapes its subjects.</u> The possibility of the ‘online version’ is overstated.</p> <p>There are many ways to get it right online. ‘Best practice’ <u>neglects context.</u></p> <p><u>Distance is temporal, affective, political: not simply spatial.</u></p> <p>Aesthetics <u>matter: interface design shapes learning.</u></p> <p><u>Massiveness is more than learning at scale: it also brings complexity and diversity.</u></p> <p><u>Online teaching need not be complicit with the instrumentalisation of education.</u></p> <p><u>A digital assignment can live on. It can be iterative, public, risky, and multi-voiced.</u></p> <p><u>Remixing digital content redefines authorship.</u></p> <p>Contact <u>works in multiple ways. Face-time is over-valued.</u></p> <p>Online teaching should not be downgraded into ‘facilitation’.</p> <p>Assessment is <u>an act of interpretation, not just measurement.</u></p> <p><u>Algorithms and analytics re-code education: pay attention!</u></p> <p>A routine of plagiarism detection structures-in distrust.</p> <p>Online courses are prone to cultures of surveillance. Visibility is a pedagogical and ethical issue.</p> <p><u>Automation need not impoverish education: we welcome our new robot colleagues.</u></p> <p><u>Don’t succumb to campus envy: we are the campus.</u></p>
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Community and contact drive good online learning.	
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Table 1: Comparison between the 2011 and 2015 manifestos

Many of the preoccupations of the 2011 manifesto remain foregrounded in the 2015 version, including assessment, context, contact, multimodality, aesthetics, openness and closure, power, and surveillance. A few statements have remained as they were, and many are similar but have changed to take account of new concerns, or to attempt better to articulate core ideas. Other statements are completely new, taking up matters of instrumentalism, materiality, scale, authorship, algorithms and automation. The rest of this paper will focus specifically on these new points, with a view to drawing out some of the key conceptual and philosophical issues they raise for networked learning practice and research.

## Positioning digital education

*Openness is neither neutral nor natural: it creates and depends on closures.*

*Can we stop talking about digital natives?*

*Online teaching need not be complicit with the instrumentalisation of education.*

In light of the shifts in the field of digital education over the past five years, particularly the prominence of massive open online courses and the debates they have provoked, the introductory statement from the 2011 manifesto, that ‘online can be the privileged mode’, raises new questions that needed to be addressed in the re-worked manifesto. These have centred around the materialities of digital education (Fenwick et al 2011), the non-neutrality of the idea of ‘openness’ (Bayne et al 2015), the persistence of the unhelpful idea of digital ‘generations’ (Helsper and Eynon 2009), and a challenge to the assumption that online teaching is inevitably complicit with neo-liberal, instrumentalising imperatives in education itself (Haugsbakk and Nordkvelle 2007; Friesen 2013).

The manifesto’s treatment of openness is one of the biggest shifts between the first and second iterations. In 2011, MOOCs had not yet emerged on the scene, and a primary mode for online education - despite many years of engagement with the idea of open educational resources - was to be closed off from the wider web, corralling students and teachers into ostensibly ‘safe’ spaces designed for educational purposes (Bayne 2004). Discourses of digital education are far more likely now to draw on ideals of openness than of closure or constraint. However, these often lack criticality, assuming that openness is inevitably empowering, and will inevitably disrupt and improve education (Bayne et al 2015). Openness itself is not critically interrogated as a term, being taken, problematically, to mean ‘access alone’ (Knox 2013). Edwards (2015) argues that ‘all forms of openness entail forms of closed-ness’ (p.253) and that educators must move away from ‘pursuing openness per se as a worthwhile educational goal’ and instead decide ‘what forms of openness and closed-ness are justifiable’ (p.255). This tension between openness and closure is expressed in the manifesto as a reminder that openness is not neutral, and that educators need to be cautious about embracing promises of openness without exploring the closures that will come along with it.

The 2015 manifesto includes a new point which can be read equally as a question or a plea: ‘can we stop talking about digital natives?’. Generation-based, essentialising accounts of technology use and affinity have been shown to be unhelpful both practically and conceptually, and have been thoroughly critiqued and discredited in recent years (Helsper and Eynon, 2009; Bayne and Ross, 2011). Nevertheless, they have if anything become *more* prominent in media, web, corporate and policy discourses, justifying everything from a need for total ‘disruption’ of educational systems, to supposed lack of capacity for reflection and attention on the part of young people, to the impossibility of anyone over a certain age truly belonging in digital spaces. The public

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conversation sometimes appears to shift (Lepage 2015), but there is as yet no sign of the demise of the homogenising binaries set up by talk of digital natives.

## Designing for distance

*Distance is temporal, affective, political: not simply spatial.  
Don't succumb to campus envy: we are the campus.*

The first version of the manifesto made a cluster of assertions about the nature of 'distance' in online education, focusing primarily on the idea that 'place is differently, not less, important online' and that 'distance is a positive principle'. These points aimed to counter the tendency to de-privilege distance: the term 'distance education' is itself a negative definition – it is what is *not* on-campus, what is other to the 'norm' of the on-campus (Bayne et al 2014).

While these ideas still hold in 2015, we realised in re-crafting the manifesto that discussions in the literature around place, space and distance were becoming more nuanced. In particular, the 'temporal turn' within the social sciences and humanities over recent years (Hassan 2010) helped us understand that conceiving distance as only geographical was not enough. While the 'anytime, anywhere learning' cliché has been applied regularly to digital education over the last few decades, there is still a tendency in the literature to focus on spatiality (the 'anywhere') more than on temporality (the 'anytime'). This preoccupation with space over time means that 'the drive to conceptualize the way digital technologies may produce new temporalities, in addition to the new experiences of distance and global geography' (Barker 2012) has tended to be neglected. While there are signs that this is shifting (for example in work by Gourlay 2014; Barbera and Clara 2014), the challenge of teaching within what Sheail (2015) calls a context of 'transtemporality' remains largely undiscussed.

The affective dimensions of distance are also referred to in the new manifesto, with the aim of further emphasising that emotional, 'felt' distance is as important a teaching challenge as spatial and temporal distance. This point was reached in part through research into conceptualisations of campus and the perceived distancing from the university 'real estate' experienced by online students. In research we conducted with our own online students, we found that while distance students had many ways of relating to the material campus of the university, one dominant position was of 'campus envy' - a tendency for students to view the campus as an emotional and symbolic 'home,' and as a kind of touchstone or guarantor of the authenticity of academic experience (Bayne et al 2014). So while we felt it was important to acknowledge that 'the campus' has important symbolic value for distance students, we also wanted to make the point that 'campus' is now constituted in multiple ways by people, technologies, spaces and networks that are enacted globally and with a fluidity which makes the boundaries of campus space extremely leaky. In this way we arrived at the final point of the revised manifesto: 'Don't succumb to campus envy: we are the campus'.

## Being an online teacher

*Assessment is an act of interpretation, not just measurement.  
A digital assignment can live on. It can be iterative, public, risky, and multi-voiced.  
Remixing digital content redefines authorship.  
Massiveness is more than learning at scale: it also brings complexity and diversity.*

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In thinking through matters of assessment, both versions of the manifesto pushed against an assumption that there is anything simple about the teacher’s role as assessor, or the nature of assignments themselves. Digital assignments can and frequently do raise issues of authorship and audience when they are interrupted or contaminated by contact with ‘agents beyond the course’ (Bayne and Ross 2013, p.99): when strangers encounter and interact with them, when they make use of techniques of remix and collaboration, when they are edited, algorithmically recontextualised, degrade or break down. Furthermore, teachers must grapple with what it means to *interpret* student work, and this can especially be surfaced when that work takes forms involving multimodal representation of knowledge. Assessment is often understood to involve teachers (or their proxies, including automated agents) in taking an objective view of the quality of student work, and rubrics, assessment criteria and fine-grained numerical marking schemes all work to support such a view (Sadler, 2015). When such objectivity comes into question, productive ways of discussing and understanding assessment practice as interpretive are needed (Lamb 2014).

This is a particularly urgent issue for those working towards ‘scalability’ or automation of assessment, as is frequently seen in MOOCs, for example. The majority of scalable assessment practice in MOOCs has been limited to computer-marked multiple choice quizzes. Assessment of open-ended questions has relied on various forms of peer marking, while developments in automated essay scoring have encountered significant challenges, working well only in cases where essays are restricted and homogeneous (Balfour 2013). This points to a larger issue with ‘massiveness’ itself, that it is very often ‘structured with the assumption that each student approaches education in the same way’ (Knox 2014, p.208). The manifesto asks us to examine this assumption, and to explore massiveness as a potential site of complexity and diversity, not just ‘learning at scale’.

When space is made for a diverse and complex ‘multitude’, the result can be a ‘shift away from thinking about individuals to thinking about connections, flows, and relations that exceed us as human beings’ (Knox 2013b). Such shifts might be examined in smaller or more contained contexts just as successfully as in massive ones, but there are significant challenges in doing so, some of which relate to the often opaque workings of data and algorithm in producing the space of education. We now turn briefly to consider these.

## Code acts

*We should attend to the materialities of digital education. The social isn’t the whole story.  
Automation need not impoverish education: we welcome our new robot colleagues.  
Algorithms and analytics re-code education: pay attention!*

This cluster of points addresses what Fenwick and Landri (2011) have identified as the turn, in educational research, ‘away from the preoccupation with individual learners, teachers or minds to embrace the situatedness of these processes and their many interrelations.’ (p.1). This move requires us to address what Sorenson has referred to as our ‘blindness toward the question of how educational practice is affected by materials’ (Sørensen 2009, p. 2). However while arguing that social models of understanding education do not go far enough, the manifesto also emphasises that we need to give greater attention to a particular dimension of materiality - the operation of code, data and algorithms within education. When we take into account the creation and delivery of digitally-produced educational resources, assessment via automated marking, plagiarism detection, descriptive and predictive learning analytics, educational data-mining, digital research methods, academic metrics, data governance in the academy, social media footprints and email dependence we come to an understanding that there are very few areas of contemporary educational practice which do not ‘take place in code/spaces’, or are not ‘shaped by coded practices’ (Kitchin 2015). As Williamson (2015) has described it:

code acts as a kind of pedagogy that is immanent and everywhere in daily life, running as a substratum of experience with the power to variously instruct, seduce, educate, liberate, discipline and govern us. (p.4)

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The challenge for networked and digital education is to attend to these new, coded materialities in a way which is critical but does not close them off. It is too easy in education to fall back on an untheorised anthropocentrism which leaves only two paths open to us: an uncritical embrace of technological instrumentalism, or an equally unhelpful resistance to it which assumes the ‘human touch’ is at the centre of all quality educational practice (Feenberg 2003). Neither path helps us better understand how to work *with* code, algorithm and automation to enact a pedagogy which is both critical, responsible and open to new, non-anthropocentric formulations. Thus the tendency to see automation as complicit with cost-cutting, efficiency drives and teacher de-professionalisation needs to be tempered with an understanding that it can also work in *favour* of a critical approach. Code, data and algorithm can be articulated in ways which emphasise the importance of the teacher and the generative potential of the digital, networked mode: one example of this is the twitterbot we developed to work as co-tutor in one of our MOOCs (see Bayne 2015). So, while emphasising that automation need not impoverish education, we also suggest that we need to find ways of working alongside what we playfully call our ‘robot colleagues’.

## Conclusion: why a manifesto?

Committing to the production of a manifesto gave us a chance to work beyond the boundaries of the formalised and institutionalised modes of writing with which we are most familiar as academics: the academic paper, the quality assurance report, the outcomes-oriented course document. It forced us to work intensively as a team, over the period of a year in the first instance, to agree the core points of our shared teaching philosophy, and then to formulate these in a way that was succinct, provocative and engaging. As an exercise in reaching a shared understanding of what constitutes teaching quality, it surpassed to a very significant degree the formalised and routinised institutional processes of ‘quality assurance’, allowing us to open up the process of our thinking to input from our students, colleagues in other areas of the university, and a global public. It enabled us to tighten the links between our teaching and our research in a light-touch, agile way which catalysed the academic literatures in the interests of formulating and describing our practice. It also gave us an opportunity to build on other manifestos in this area – in particular the ‘E-quality in networked learning manifesto’ produced by Beaty, Cousin and Hodgson in 2002 and 2010 (Beaty et al, 2010).

As an unintended consequence it also generated publicity for the work of our group, with good coverage, in particular, within the US online media. Following an article in *Inside Higher Ed* (Kolovich 2012), which suggested we had ‘meme-ified online advocacy’, various reviews in the blogosphere suggested that the manifesto was ‘arguably the most exciting document for discussion to emerge thus far in 2012’ (Marostica, 2012), ‘a bold move to break the chains that bind completely online to traditional and blended instructional models’ (Shimabakuro, 2012) and ‘an interesting set of aphorisms which read kind of like McLuhan probes’ (Design Futures Archaeology, 2012). The manifesto was algorithmically re-mixed several times by readers, described as indicating a ‘paradigm shift’ for educational services (Swanson 2012), and as a ‘a sincere attempt to capture the essence of online education and explain it to the world in one easy to comprehend outpouring.’ (Marquis, 2012).

In his ‘Compositionist Manifesto’ Bruno Latour (2010) suggests that we need to re-think the conventional purpose of the manifesto as an anti-reactionary revolutionary call-to-arms by an avant-garde committed to the ideal of progress. Indeed, this was never the intended function of our manifesto: the idea of ‘progress’, as Latour states, has become too contentious and, as we have already suggested, temporality is too messy a notion to reduce to a simple forward march. ‘Revolution’ itself has been reduced to an empty buzz word in education as in other social arenas. However, like Latour we would hold that the idea of the manifesto still has a purpose. In our case, this was to suggest ways of thinking about digital education in terms other than those which have become embedded in higher education practice and policy, jolting the truisms and ‘commonsense’ clichés of educational technology into some other future, one which is challenging, disruptive and exciting. The manifesto

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is contingent, open to debate, to change, to re-working as the field itself shifts: it is a ‘call to attention’ rather than a call to arms:

[A manifesto makes] explicit (that is, *manifest*) a subtle but radical transformation in the definition of what it means to progress, that is, to process forward and meet new prospects. Not as a war cry for an avant-garde to move even further and faster ahead, but rather as a warning, a call to attention, so as to stop going further in the same way as before toward the future. (Latour 2010, p.473)

## References

- Balfour, S., 2013. Assessing Writing in MOOCs: Automated Essay Scoring and Calibrated Peer Review™. *Research and Practice in Assessment*, 8, pp.40–48.
- Barberà, E and Clarà, M. (2014) ‘Editorial: The temporal dimensions of e-learning’, *E-Learning and Digital Media*, 11(2), pp. 105-107.
- Bayne, S., 2004. Smoothness and Striation in Digital Learning Spaces. *E-learning*, 1(2).
- Bayne, S., Gallagher, M.S. and Lamb, J. (2014) Being ‘at’ university: the social topologies of distance students. *Higher Education*, 67(5), 569-583.
- Bayne, S., Knox, J. and Ross, J. (2015) Open Education: the need for a critical approach. *Learning, Media and Technology*, 40(3), 247-250.
- Bayne, S. (2015) Teacherbot: interventions in automated teaching. *Teaching in Higher Education*, 20(4), pp. 455-467.
- Bayne, S. and Ross, J. (2013) Posthuman literacy in heterotopic space: a pedagogical proposal. In R Goodfellow and M Lea (eds) *Literacy in the Digital University*. Taylor and Francis.  
<http://www.routledge.com/books/details/9780415537971/>
- Bayne, S., & Ross, J. (2011). ‘Digital Native’ and ‘Digital Immigrant’ Discourses: A Critique. In R. Land & S. Bayne (Eds.), *Digital difference: perspectives on online learning*. Rotterdam: Sense. pp. 159-170.
- Beaty, L., Cousin, G. and Hodgson, V. (2010) Revisiting the E-Quality in Networked Learning Manifesto. *Proceedings of the 7th International Conference on Networked Learning 2010, Edited by: Dirckinck-Holmfeld L, Hodgson V, Jones C, de Laat M, McConnell D & Ryberg.*
- Biesta, Gert (2005) Against Learning. Reclaiming a Language for Education in an age of Learning. *Nordisk Pedagogik* 25 (1): 54–66.
- Design Futures Archaeology (2012) The Manifesto for Teaching Online - Introduction. February 26 2012.  
<https://defarch.wordpress.com/2012/02/29/the-manifesto-for-teaching-online/>
- Edwards, R., 2015. Knowledge infrastructures and the inscrutability of openness in education. *Learning, Media and Technology*, 40(3), pp.251–264.
- Feenberg, A. 2003. Modernity Theory and Technology Studies: Reflections on Bridging the Gap. In *Modernity and Technology*, edited by Thomas J. Misa, Philip Brey, and Andrew Feenberg, 73– 104. Boston, MA: MIT Press.
- Fenwick, T. and Landri, P. (2012) Materialities, textures and pedagogies: socio-material assemblages in education, *Pedagogy, Culture & Society*, 20:1, 1-7.
- Fenwick, Tara, Richard Edwards, and Peter Sawchuk. 2011. *Emerging Approaches to Educational Research: Tracing the Sociomaterial*. London: Routledge.
- Friesen, N. 2013. “Educational Technology and the ‘New Language of Learning’: Lineage and Limitations.” In *The Politics of Education and Technology: Conflicts, Controversies and Connections*, edited by N. Selwyn and K. Facer, 21–38. London: Palgrave.
- Gourlay, L. (2014) ‘Creating time: Students, technologies and temporal practices in higher education’, *E-Learning and Digital Media*, 11(2), pp. 141-153.
- Hassan, R (2010) Globalization and the 'Temporal Turn': Recent Trends and Issues in Time Studies. *The Korean Journal of Policy Studies*, Vol. 25, No. 2 (2010), pp. 83-102
- Haugsbakk, G., and Y. Nordkvelle. 2007. “The Rhetoric of ICT and the New Language of Learning: A Critical Analysis of the Use of ICT in the Curricular Field.” *European Educational Research Journal* 6 (1): 1–12.
- Helsper, H, and Eynon, R. (2009) Digital Natives: where is the evidence? *British Educational Research Journal*, 36(3), 503-520.

Proceedings of the 10th International Conference on Networked Learning 2016, Edited by: Cranmer S, Dohn NB, de Laat M, Ryberg T & Sime JA.	127	ISBN 978-1-86220-324-2
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- Kitchin, R. (2015) Foreword: Education in code/space. in *Coding/Learning: software and digital data in education*, edited by Ben Williamson. Stirling: University of Stirling.  
[https://codeactsineducation.files.wordpress.com/2015/08/coding\\_learning\\_-\\_software\\_and\\_digital\\_data\\_in\\_education.pdf](https://codeactsineducation.files.wordpress.com/2015/08/coding_learning_-_software_and_digital_data_in_education.pdf)
- Kolovich, S. (2012) Meme-ifying online advocacy. *Inside Higher Ed*, February 24 2012.  
<https://www.insidehighered.com/news/2012/02/24/online-education-advocates-look-make-their-message-viral>
- Knox, J. (2014). Posthumanism and the Massive Open Online Course: contaminating the Subject of Global Education. PhD. Edinburgh: University of Edinburgh.
- Knox, J. (2013). The Limitations of Access Alone: moving towards open processes in education. *Open Praxis*. 5(1). pp. 21-29.
- Knox, J. (2013b). eLearning and Digital Cultures: A multitudinous open online course. eLearn Magazine, <http://elearnmag.acm.org/archive.cfm?aid=2525967>.
- Lamb, J. (2014). A constellation of images, words and sounds: tutor experiences of multimodal assessment in the digital classroom. Dissertation, MSc Digital Education, University of Edinburgh.  
<http://multimodaldissertation.weebly.com>
- Latour, B. (2010) An attempt at a 'compositionist manifesto', *New Literary History*, 41(3), pp.471-490.
- Lepage, E. (2015). Why 'Millennial' is Meaningless for Social Media Targeting. Hootsuite blog,  
<http://blog.hootsuite.com/millennial-social-media-targeting/>
- Marostica, L. (2012) A new attempt at making online education cool. *Deseret News*, February 26 2012,  
<http://www.deseretnews.com/article/865550874/A-new-attempt-at-making-online-education-cool.html>
- Marquis, J. (2012) The online teaching manifesto: slick marketing or revolutionary decree? *OnlineUniversities.com*, March 5 2012. <http://www.onlineuniversities.com/blog/2012/03/the-online-teaching-manifest-slick-marketing-or-revolutionary-decree/>
- Sadler, D.R. (2015) Backwards Assessment Explanations: Implications for Teaching and Assessment Practice. In D. Lebler, G. Carey, & S. D. Harrison, eds. *Assessment in Music Education: from Policy to Practice*. Landscapes: the Arts, Aesthetics, and Education. Springer International Publishing, pp. 9–19.
- Sheail, P. (2015) Unpublished thesis: *Time-shifting in the digital university: temporality and online distance education*. University of Edinburgh.
- Shimabakuro, J. (2012) Edinburgh Manifesto. ETC Journal, February 2 2012.  
<http://etcjournal.com/2012/02/26/edinburgh-manifesto-a-declaration-of-endeppendence/>
- Sørensen, Estrid. 2009. *The materiality of learning: Technology and knowledge in educational practice*. Cambridge, New York: Cambridge University Press.
- Swanson, K. (2012) Manifesto for teaching online defines a flexible learning future. *Getting Smart*, March 6 2012. <http://gettingsmart.com/2012/03/manifesto-for-teaching-online-defines-a-flexible-learning-future/>
- Williamson, B. (2015) Introduction. *Coding/Learning: Software and digital data in education*. Stirling: University of Stirling. [https://codeactsineducation.files.wordpress.com/2015/08/coding\\_learning\\_-\\_software\\_and\\_digital\\_data\\_in\\_education.pdf](https://codeactsineducation.files.wordpress.com/2015/08/coding_learning_-_software_and_digital_data_in_education.pdf)

Proceedings of the 10th International Conference on Networked Learning 2016, Edited by: Cranmer S, Dohn NB, de Laat M, Ryberg T & Sime JA.	<b>128</b>	ISBN 978-1-86220-324-2
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