



Nordic Journal of Digital Literacy,
2006–2016, p. 72–84
ISSN online: 1891-943X

PEER REVIEWED ARTICLE

Challenging educational expectations of the social web: a web 2.0 far?

Neil Selwyn

Professor, Faculty of Education, Monash University, Australia
neil.selwyn@monash.edu

ABSTRACT

This short position paper reconsiders the exaggerated expectations that currently surround the social web and education within many sections of the education technology community. In particular four popular assumptions of the social web are challenged, namely: (i) expectations of enhanced participatory learning; (ii) expectations of enhanced equality of opportunity; (iii) expectations of learner affinity and interest; and (iv) expectations of freedom from proprietary constraints. The paper contends that many of these expectations stem from a tendency for education technology researchers and writers to over-value seemingly ‘new’ informal uses of the social web, whilst downplaying unequal power relations between individual learners and formal processes of education. The paper concludes that educationalists and technologists alike should strive to look beyond the rhetoric of the social web, and develop realistic and critical understandings of the ‘messy’ realities of social web technologies and education.

Keywords

social web, web 2.0, software, education

INTRODUCTION

Alongside other tags such as ‘web 2.0’, the ‘modern web’ and ‘social software’, the ‘social web’ provides a convenient umbrella term for a host of recent Internet tools and practices ranging from social networking and blogging to folksonomies and ‘mash-ups’. Whilst many computer scientists dispute the technical necessity of such rebranding and re-versioning of the Internet, these labels reflect the changing nature of contemporary online activity – in particular what is described as a ‘mass socialization’ of Internet connectivity based around the collective actions of online user communities rather than individual users (see Shirky 2008, Brusilovsky 2008). Thus in contrast to the ‘broadcast’ mode of information exchange that characterized Internet use in the 1990s, the web applications of the 2000s are seen to rely on openly shared digital content that is authored, critiqued and re-configured by a mass of users – what has been described as ‘many-to-many’ connectivity as opposed to ‘one-to-many’ transmission (O’Reilly 2005). Put simply, then, the current prominence of the ‘social



web’ within popular and academic discussion of the Internet reflects the growing importance that is being placed on interaction between and within groups of Internet users.

This privileging of participatory and collaborative group activity has clear parallels with contemporary understandings of learning and education, and it is perhaps unsurprising that the social web has prompted great enthusiasm of late amongst educators and educationalists (see Davies and Merchant 2009). In particular, it has been argued that social web practices have a strong affinity with socio-cultural accounts of ‘authentic’ learning where knowledge is constructed actively by learners with the support of communal social settings. A great deal of attention has been paid to the personalised and socially situated forms of learning (intended or otherwise) that are seen to stem from social web activities, with learners said to gain from participatory experiences in the co-construction of online knowledge (e.g. Lamas *et al.* 2009). Thus, the social web has now come to embody the long-held belief amongst education technologists that learning is an inherently social process that best takes place within technology-supported networks of learners involved in the creation as well as consumption of content. For these reasons alone, the social web is now being touted in some quarters as “the future of education” (Hargadon 2008).

As this last sentiment illustrates, growing numbers of commentators are promoting the educational potential of social web technologies in defiantly transformative terms. Aside from the cognitive and pedagogical benefits of social web use, it is now being argued widely that social web tools offer education providers an opportunity to (re)connect with otherwise disaffected and disengaged learners. For example, as Mason and Rennie (2007, p. 199) reason, “shared community spaces and inter-group communications are a massive part of what excites young people and therefore should contribute to [their] persistence and motivation to learn”. These expectations of enhanced motivation and interest are often accompanied by presumptions of enhanced equalities of opportunity and outcome, with much popular and academic commentary celebrating (at least implicitly) the social web’s capacity to recast online social arrangements and relations along open and democratic lines. As Solomon and Schrum (2007, p. 8) contend, “everyone can participate thanks to social networking and collaborative tools and the abundance of web 2.0 sites ... The web is no longer a one-way street where someone controls the content. Anyone can control content in a web 2.0 world”.

There are, of course, many different forms of social web and web 2.0 applications and activities –all differing in content, purpose and potential outcome. As such it is misleading to view ‘the social web’ in uniform terms. As outlined above the ‘social web’ label refers at best to a loosely connected family of Internet services, applications and tools. Yet this heterogeneity notwithstanding, the promises of educational improvement and transformation associated with different social web practices have all too easily coalesced in the minds of many educational technologists around the world into a powerful overall

imperative for change. This imperative can be said to be largely based around a perceived set of common characteristics and principles of community, collaboration, sharing and an overall freeing-up and democratisation of action. Whilst the applications themselves may be very diverse, many education technologists have been enthused by the implications for education practice and provision arising from a general ‘spirit’ of social web use in education settings.

For example, there is now much discussion within education technology circles of how best to redesign education provision along more fluid and collaborative lines in order to exploit the education potentials of the social web. Persuasive arguments are now being advanced for the technological (re)engagement and (re)empowerment of learners through the establishment of ‘school 2.0’, ‘education 2.0’, and even ‘lifelong learning 2.0’ (Fumero 2006, Rosenfeld 2007, Wang and Chern 2008, Pettenati *et al.* 2009). Demands are being made for the radical rethinking of the processes and practices of contemporary education institutions – as evident in recent calls for the introduction of ‘remix curricula’ and ‘pedagogical mash-ups’ (e.g. Fisher and Baird 2009). For better or worse, the concept of the social web is having a pronounced influence on the ways in which the twenty-first century educational landscape is now being (re)imagined and (re)approached by education commentators and stakeholders.

Whilst encompassing many important points and issues, these current discussions can be said at best to provide only partial accounts of the social web and education. The need remains, therefore, to redress some of the silences and gaps in prevailing educational understandings of the social web, and set about developing *critical* accounts of the complex and often compromised realities of learners’ *actual* uses of social web tools. In particular, more attention needs to be paid to the structures, boundaries and limitations of social web use that lurk beneath any illusion of enhanced freedom and empowerment – in short more attention needs to be paid to the politics of social web use in education. With these issues in mind, the remainder of this short position paper seeks to (re)appraise the supposed novelties of the social web in education, and ask what *new* activities, practices, relations and outcomes are actually being facilitated and supported.

Before developing these arguments in earnest it is perhaps worthwhile stating from the outset that the proceeding critical commentary is not driven by a wilfully Luddite or anti-technology perspective that is “motivated more by fear than insight” as Behr (2009, p. 22) puts it. Instead, it is hoped that focussing attention on the problematic nature of the social web and education can provide a counterbalance to some of the more hyperbolic elements of current discourse, especially within academic and commercial circles, and therefore move the educational community towards more refined understandings of the intellectual, political, economic and technology dynamics that make the information technology a reality” (Hassan 2008, p. xi). Thus whilst they may be construed as provocative, the following thoughts are offered as a genuine

attempt to guide future educational appropriations of the social web along more realistic, and ultimately successful, lines. As Geert Lovink (2004, p. 4) has reasoned, there is a pressing need to move beyond polarised debates of either “rejecting or embracing new media” and instead think positively *and* negatively about digital technologies as the situation demands.

RECONSIDERING EXPECTATIONS OF THE SOCIAL WEB

Enhanced participation and learning

One of the primary shortfalls in educational debate is the disjuncture between the rhetoric of mass socialisation and active community-led action and the rather more individualised and passive realities of social web engagement by many users. As outlined above, growing numbers of educationalists and technologists view the participatory practices associated with social web use as leading inevitably to social forms of learning. Yet there is currently little evidence that most users use social web applications in especially participatory, interactive or even sociable ways. For example, despite their undoubted potential for communal activity, the most used social web tools are most often appropriated for the one-way passive consumption of content. This is readily apparent in the ways that the majority of users engage with *YouTube* or *Wikipedia* to access existing content – approaching such applications in a ‘take-it-or-leave-it’ manner rather than the intended spirit of ‘make-it-and-leave-it’. As best, therefore, most users can be said to be responsible merely for the creation and sharing of personal informational archives and ‘profiles’ of their everyday lives. As Beer and Burrows (2007, para 3.2) observe, “the mundane personal details posted on profiles, and the connections made with online ‘friends’, that become the commodities of web 2.0”. Whilst such content is undoubtedly of personal significance for an individual and their small network of contacts, it is most accurately described as constituting what Shirky (2008, p. 86) terms “the ordinary stuff of life” rather than user-generation-content created for general consumption.

Indeed, Internet usage statistics suggest that most social web applications rely on content (re)creation by around 0.5 percent of users (Arthur 2006). For example, *Wikipedia* depends heavily on a ‘small core’ of a few thousand ‘highly active participants’ (predominantly older, educated, North American males) that writes and edits entries that are then consumed by an audience of millions of users (Leadbeater 2008, p. 15). It is similarly reckoned that an image hosted on the *Flickr* photograph-sharing application will, on average, attract between 0.26 and 0.5 responses, with little constructive commentary or critical exchange that could be said to constitute learning (Cox 2008). These data therefore suggest the continued relevance of the so-called ‘90-9-1 rule’ of participation inequality – a rule of thumb amongst technologists regarding user generated content in online communities where one percent of users are said to be willing to be create original content on a regular and sustained basis, nine per cent to comment and perhaps contribute original content on an intermittent

basis, and the remaining 90 percent to just passively consume (see Nielsen 2006).

Whilst such patterning of mass non-participation can be rationalised as ‘a predictable imbalance’ that actually serves to drive online communities towards more efficient and improved outcomes (e.g. Shirky 2008), these issues challenge the educational expectations of mass participatory learning and socio-cultural ‘authentic’ exchange. Indeed, recent empirical studies of social web use by learners in formal and informal settings suggest a lack of what could be considered as ‘authentic’ or even ‘useful’ participative learning activity amongst young people. Ongoing Norwegian research by Brandtzæg (2008), for example, has identified nearly three-quarters of young social web users as what can be termed ‘non-active users’, with other UK and Australian studies also highlighting a general lack of ‘sophisticated’ or ‘advanced’ use of social web services and applications (Kennedy *et al.* 2008, Chan and McLoughlin 2008, Luckin *et al.* 2009, Nicholas *et al.* 2008). As Luckin *et al.* (2009) concluded with regard to social web use by UK teenagers at home and school, there was “little evidence of critical enquiry or analytical awareness, few examples of collaborative knowledge construction, and little publication or publishing outside of social networking sites”. At best, many users’ engagement can be said to lead to what Crook (2008) terms a ‘low bandwidth exchange’ of information and knowledge, with any potential for socially-situated authentic learning realised more accurately in terms of co-operation or co-ordination rather than collaboration between individuals. Of course, this is not to say that *all* learners interact with the social web in this manner. Yet for many young people, social web applications appear to be used to engage with learning content and other learners in a number of bounded and passive ways, rather than supporting unfettered active interaction with information and knowledge.

Enhanced equality of opportunity

As already discussed, education expectations of the social web often convey a sense of heightened equality of opportunity as well as outcome. Yet such sentiments belie what appears to be a complex and divided patterning of social web (non)use by young people and adults in practice. Empirical studies suggest that young people’s engagements with social web technologies remain differentiated along lines of socio-economic status and social class, as well as race, gender, geography, age and educational background (Dutton and Helsper 2007, Jones and Fox 2009). Indeed, it could be argued that much of the popular and commercial appeal of the social web stems precisely from the fact that the users and audiences of such applications remain skewed towards young, male, well-educated, affluent Western users. As Andrew Cox (2008, p. 508) observes:

“The active groups are also demographics particularly interesting to advertisers. Thus, there continues to be a significant digital divide in how [social web] sites such as Flickr are used, which [...] undercuts the idea that as such they could offer major sites of cultural citizenship”.

It would seem sensible, therefore, for any discussion of the educational potentials of the social web to first acknowledge that current generations of technology users continue to be as ‘digitally-divided’ as previous generations, albeit in ways which are more subtle (but no less significant) than broad-brush measures of either ‘using’ or ‘not using’ the Internet. The type of social web tools that an individual uses, the ways in which they are used, and the outcomes that accrue as a result all appear to coalesce into what can be termed a set of ‘second order’ digital divides (see Hargittai 2002). For instance, in terms of the type of social web applications used by individuals, recent studies have suggested that preferences for particular applications over others follow sophisticated class-based patterns of taste and distinction (in terms of social networking, for example, Hargittai [2007] reports that preferences for applications such as *MySpace* as opposed to *Facebook* appear to be patterned along lines of social class and educational background). Similarly, in terms of the nature of social web activity, the likelihood of a user engaging in the creation of online content has been found to be patterned by socioeconomic status (Hargittai and Walejko 2008). Whilst these data refer to North American users, there is emerging evidence that such delineations are evident between as well as within countries (Notten *et al.* 2009). All told, it would seem that individuals’ appropriation of, and engagement with, the social web is bounded by the same ‘abiding fault-lines of modernity’ of class, income and age that shaped previous phases of technology development throughout the twentieth century (Golding 2000, p. 179).

Learner affinity and interest

A third problematic assumption within educational discussion of the social web is the notion that current generations of young people are inherently attuned to such technologies. Instead, as Withers and Sheldon (2008, p. 5) observe, young people are more accurately described as holding “contradictory attitudes towards the Internet ... describing many aspects of Internet use as both positive and negative”. For example, Crook and Harrison’s (2008) study of UK teenagers found nearly one-quarter reported making no use of social networking sites – offering reasons that such applications were ‘boring’, ‘time consuming’ and/or ‘uninteresting’. Whilst some respondents professed to not knowing how to make use of social networking sites, others stated that they simply preferred talking with people on a face-to-face basis – mirroring Staples’ (2009, p. 62) identification of “low satisfaction with the nature of the social interaction” as a prevalent rationale for rejection of social networking. Such sentiments were also evident in Danah Boyd’s recent ethnography of US teenagers’ use of social networking sites. Here Boyd (2007a, p. 3) identified two groups of non-participants – what she labelled as ‘disenfranchised teens’ and ‘conscientious objectors’:

“The former consists of those without Internet access, those whose parents succeed in banning them from participation, and online teens who primarily access the Internet through school and other public venues where social network sites are banned. Conscientious objectors include politically

minded teens who wish to protest against Murdoch's News Corp. (the corporate owner of MySpace), obedient teens who have respected or agree with their parents' moral or safety concerns, marginalized teens who feel that social network sites are for the cool kids, and other teens who feel as though they are too cool for these sites".

In this sense, it would be unwise to assume that a learner's interest, motivation or affinity will be necessarily enhanced by the use of social web technologies to an activity. Indeed, a number of commentators warn against attempts to motivate and engage young people simply through the introduction of consciously 'trendy' forms of social web technology use into educational processes and practices (Lankshear and Knoebel 2004). As Tapscott and Williams (2008, p. 54) conclude with regard to the (mis)application of new technology in the workplace, young people's "appetite for authenticity means that they are resistant to ill-considered attempts by older generations to 'speak their lingo'".

Freedom from proprietary constraints

Aside from highlighting young people's capacity for digital discernment, the above quotation from Boyd's study of youth (non)use of social networking applications also touches upon the often ignored role of commercial interests in the production and provision of social web tools and services. One of the deep-rooted attractions of social web technologies for many education technologists is the perceived ability for learners and teachers to 'break free' of the propriety interests that are seen to stymie digital technology use, not least the pre-set configurations and limitations of commercially produced software packages. Indeed, as Danah Boyd (2007b, p. 17) has observed elsewhere, terms such as social web, web 2.0 and 'social software' are not used by those involved in technology merely as neutral descriptors, but also as rallying calls for a new age of Internet use constructed 'by the people, for the people' rather than centred around the profit-driven concerns of e-commerce and the other business-related interests of the dot.com era.

Yet, if anything, the social web could be said to mark the increased privatisation and commercialisation of contemporary education processes and practices. Whilst news media are keen to present stories of lone pioneers such as Mark Zuckerberg creating applications such as *Facebook* in their sparetime, many of the most prominent and popular social web services are mainstream, commercially produced, for-profit services. In particular, increasing numbers of social web applications are provided by the likes of what Hinchey (2008) terms 'media-giant producers' such as Pearson, Mattel and Disney, rather than a 'long tail' of more specialised 'grass-roots' developments (Anderson 2006). Many of the social web applications targeted at what is referred to as the 'teen and tween market' such as *Club Penguin*, *Runescape* and *Maplestory* may be 'free-to-play' but all aim to make money from the users – what Allan (2009) terms 'pocket money pickings'. Such sites rely on a variety of tactics, such as

tiered membership where subscribers are offered additional content, banner advertising and ‘micro-transactions’ where young users can ‘spend’ small amounts of virtual currency pre-paid by their parents or guardians. As a representative of Nexon – publishers of the *Maplestory* application – reasoned, “an in-game avatar represents an ‘ideal portrait of myself’ in the cyberworld. Teens and tweens are very active in expressing their own individuality and do not hesitate to spend money on expressing it as well” (Sung Jin Kim, cited in Allan 2009, p. 5). Thus it is important to note that what most mainstream users experience as the social web “is not simply a benign space, but one that is ultimately shaped by commercial needs” (Cox 2008, p. 508). Whilst these may appear to be trivial concerns, questions need to be raised over how the profit-seeking role of many social web providers corresponds with concerns over education and learning. Aside from the monetarisation of proprietary social web services such as *MySpace*, commercial interests are also featuring increasingly in the sponsorship, creation and branding of the social web, with companies keen to align themselves with the social web in order to “attract attention to their products and to establish themselves as experts, thus building trust and credibility” (Rettberg 2008, p. 141). Similar questions can be asked of how commercial demands compromise the configuration of social web tools – whether in the guise of the intervention and censoring of user content by providers (often under the guise of ‘acceptable use policies’), or else the manipulation of increasingly commercialised relationships between the individual user, online content and other users. From this perspective educationalists must be aware of the built pedagogies and configured forms of ‘learner’ designed into the structures and systems of social web tools. Recent critics have pointed in particular to the expected and encouraged commodification of creativity that many social web tools engender – pushing users to concentrate on a commodified promotion of self and exchange of what was previously highlighted in this paper as personal micro-details, in pursuit of competitive advantage in the ‘attention economy’ of the social web. As Cox (2008, p. 506) observes:

“Users’ behaviour combines quite conscious altruistic appearing behaviour whose purpose is gaining attention with a cloying language of community and positivity. In this way, the users’ consumption of the site leads them to commodify their own behaviour, in ways which coincide with commercial purposes. Much of this behaviour, like blogging, seems quite solipsistic”.

As these examples all illustrate, while commentators may wish to imagine a degree of “corporate social responsibility to youth in the new media world” (Withers with Sheldon 2008, p. 7), there is always a possibility that the realities are quite different. In this sense, the profit-led involvement of IT firms in social web applications demands continued scrutiny¹.

CONCLUSIONS

All of these arguments suggest that the educational application of the social web is rather more complex, constrained and compromised than prevailing descriptions of ‘education 2.0’ and ‘school 2.0’ would suggest. In particular, the points raised in this paper highlight the dangers of over-privileging the social web’s supposed ‘freeing-up’ of individual agency and informal practice at the expense of overlooking the many enduring boundaries, constraints and structures that persist within contemporary Internet use. In this sense, education in the age of the social web is perhaps most usefully seen as marking a set of continuities –rather than a set of radical discontinuities –from the educational and technological arrangements of previous decades. Whilst social web technologies may well be implicated in significant adjustments to the future organisation of education and learning, it would be foolhardy to assume that social web applications possess a capacity to somehow transform the power relations that persist between individual learners and formal institutions.

Indeed, whilst educational forms of social web technologies will continue to emerge and stabilise over forthcoming years it would seem important that the academic and technological communities responsible for much of the initial promotion and shaping of ‘the idea’ of the social web do so in a more reasoned and realistic manner than is currently the case. In particular it is essential to acknowledge the political nature and the political importance of the social web and education. As this article has demonstrated, debates about education and the social web are not simply concerned with matters of Internet bandwidth or the pedagogic affordances of wikis. They are also debates about questions of benefit and power, equality and empowerment, structure and agency and social justice. From this brief discussion alone, it is clear that current celebrations of social web use in education are not objective accounts of the realities of social web use *per se*. Rather they are expressions of wider debates, controversies and tensions about the future of education provision in the twenty-first century. As Michael Apple (2002, p. 442) has reasoned:

“The debate about the role of the new technology in society and in [education] is not and must not be just about the technical correctness of what computers can and cannot do. These may be the least important kinds of questions, in fact. Instead, at the very core of the debate are the ideological and ethical issues concerning what schools should be about and whose interests they should serve”.

As an ideologically driven debate, current thinking about the social web therefore contains a number of silences and gaps that need to be recognised and confronted – not least the portrayal of social web technologies as capable of enacting new arrangements and forms of education. For all its intuitive appeal, the widespread valorisation of informal learning and the individualised learner with current understandings of the social web in education dangerously depoliticises the act of learning (Gorman 2007). Such arguments present an overly

simplistic view of successful education as relying merely on groups of like-minded disembodied individuals, whilst failing to consider the wider social, economic, political and cultural contexts of the societal act of schooling. A number of critical questions therefore remain unasked and unanswered in the current accounts. For example, what is the role of the private sector and corporate capitalism in social web based learning? What inequalities of access, skills, resourcing or know-how will remain, and who will be concerned with correcting them? If the state is no longer responsible for the provision of education through school systems, then who is to assume responsibility?

All of these unaddressed questions point to the need from now on for educational technologists to approach the educational application of the social web with a heightened sense of equanimity and humility. In particular, it would seem realistic to expect any instances of informal learning that may accrue from social web use to continue to be subsumed into more formal educational practices. Indeed, current manifestations of social web use offer little, if any, reason to assume that the dominant forms of learning in (late) modern society will cease to be the highly individualised, regulated, ordered, sorted and institutionalised processes of schooling that have persisted since the late nineteenth century. As such, it is perhaps most likely that social web activities and practices will continue to be shaped by the ‘grammar’ of formal education systems in ways that are concerned essentially with the instrumentalist ‘consuming of massive amounts of symbolic information’ (Monke 2008, p. 4). At best, then, any unfettered episodes of social web supported informal learning may well remain mostly an additional benefit for already privileged social groups who tend to prosper most from all forms of learning.

Of course, moving the attention of the education community away from the highly seductive *promises* of the social web and towards these rather less satisfactory *practicalities* will be no easy task. Yet, there is a clear need for all members of the educational community to set about developing more realistic and critical understandings of the ‘messy’ realities of social web technologies and education. This task goes well beyond asking over-simplified questions of whether or not social web technologies ‘work’ or not in educational settings. Instead, educators and educationalists should set about addressing questions of how social web technologies (re)produce social relations and in whose interests they serve – thus striving to challenge and problematise the dominant discourses of transformation and enhancement in current thinking. As all the issues touched upon in this paper should attest, the debate over the social web and web 2.0 in education has only just commenced, and a great deal of (re)thinking is required before the likely benefits of such technologies can be realised. Thus, instead of moving our attention onto the even more nebulous educational potential of the semantic web and ‘web 3.0’ (see Ohler 2008), the education community has a collective responsibility to start thinking about the social web and ‘web 2.0’ in far more serious and realistic terms than previously has been the case.

ACKNOWLEDGEMENT

The author would like to thank the two anonymous referees for their helpful comments on an earlier draft of this paper.

REFERENCES

- Allan, K. (2009) 'Hey kids! Wanna play an MMORPG?' *The Guardian*, 9th April, Technology supplement, p. 5
- Anderson, C. (2006) *The long tail* New York, Hyperion
- Apple, M. (2002) 'Is the new technology part of the problem or part of the solution in education?' in Darder, A., Baltodano, M. and Torres, R. (eds) *The critical pedagogy reader* London, Routledge
- Arthur, C. (2006) 'What is the one per cent rule?' *The Guardian*, 20th July, Technology supplement, p. 2
- Beer, D. and Burrows, R. (2007) 'Sociology and, of and in web 2.0: some initial considerations' *Sociological Research Online*, 12, 5, [www.socresonline.org.uk/12/5/17.html]
- Behr, R. (2009) 'The good and the bad of digital dependency' *The Observer*, 22nd February, Review supplement, p. 22
- Boyd, D. (2007a) 'Why youth@social network sites: the role of networked publics in teenage social life' in Buckingham, D. (ed.) *MacArthur foundation series on digital learning – youth, identity, and digital media* Cambridge MA, MIT Press
- Boyd, D. (2007b) 'The significance of social software' in Burg, T. and Schmidt, J. (eds.) *BlogTalks reloaded: social software research and cases* Norderstedt, Books on Demand
- Brandtzæg, P. (2008) 'Hvilken type nettsamfunnsbruker er du?' presentation to the 'Sosial web og læring' (Social Web and Learning Conference), University of Oslo, 16th October
- Brusilovsky, P. (2008) 'Social information access: the other side of the social web' *Lecture Notes in Computer Science*, no.4910, pp. 5–22
- Chan, A. and McLoughlin, C. (2008) 'Where are we up to? A preliminary study of the usage of web 2.0 tools in a regional high school' in Atkinson, R. and McBeath, C. (eds) *Hello! Where are you in the landscape of education technology? Proceedings ascilite Melbourne 2008* [www.ascilite.org.au/conferences/melbourne08/procs/index.htm] pp. 160–164
- Cox, A. (2008) 'Flickr: a case study of web 2.0' *Aslib Proceedings*, 60, 5, pp. 493–516
- Crook, C. (2008) 'Theories of formal and informal learning in the world of web 2.0' in Livingstone, S. (ed) *Theorising the benefits of new technology for youth* University of Oxford/London School of Economics Crook, C. and Harrison, C. (2008) *Web 2.0 use for learning at key stage three and four: final report* Coventry, Becta Davies, J. and Merchant, G. (2009) *Web 2.0 for schools: learning and social participation* New York, Peter Lang
- Dutton, W. and Helsper, E. (2007) *The internet in Britain: 2007* Oxford Internet Institute, University of Oxford
- Fisher, M. and Baird, D. (2009) 'Pedagogical mashup: gen Y, social media, and digital learning styles' in Hin, L. and Subramaniam, R. (eds) *Handbook of research on new media literacy at the K-12 level* Hershey PA, IGI Global Fumero, A. (2006) 'Eduweb 2.0: iCamp and n-gen educational web' in *Proceedings of WEBIST 2006* April, Setúbal, Portugal [www.htk.tlu.ee/icamp/Members/antonio/webistdraft.doc]
- Golding, P. (2000) 'Forthcoming features: information and communications technologies and the sociology of the future' *Sociology*, 34, 1, pp. 165–184
- Gorman, R. (2007) 'The Feminist standpoint and the trouble with 'informal learning': a way forward for MarxistFeminist educational research' in Green, A., Rikowski, G. and Raduntz, H. [eds] *Renewing dialogues in Marxism and education* London, Palgrave Macmillan

- Hargadon, S. (2008) 'Web 2.0 is the future of learning' March 4th
[www.stevehargadon.com/2008/03/web-20-is-futureof-education.html]
- Hargittai E. (2002) 'Second-order digital divide: differences in people's online skills' *First Monday*, 7, 4
- Hargittai, E. and Walejko, G. (2008) 'The participation divide: content creation and sharing in the digital age' *Information, Communication and Society*, 11, 2, pp. 239–256
- Hargittai, E. (2007) 'Whose space? Differences among users and non-users of social network sites' *Journal of Computer Mediated Communication*, 13, 1, article 14
- Hassan, R. (2008) 'The information society' Cambridge, Polity
- Hinchey, P. (2008) 'Educational technology' in Hill, D. (ed) 'Knowledge and power in the global economy' New York, Lawrence Erlbaum
- Jones, S. and Fox, S. (2009) 'Generations online in 2009' Washington DC, Pew Internet and American Life Project
- Kennedy, G., Dalgarno, B., Bennett, S., Judd, T., Gray, K. and Chang, R. (2008) 'Immigrants and natives: investigating differences between staff and students' use of technology' in Atkinson, R. and McBeath, C. (eds) 'Hello! Where are you in the landscape of education technology? Proceedings ascilite Melbourne 2008' [www.ascilite.org.au/conferences/melbourne08/procs/index.htm] pp. 484–492
- Lameras, P., Paraskakis, I. and Levy, P. (2009) 'Using social software for teaching and learning in higher education' in Hatzipanagos, S. and Warburton, S. (eds) 'Handbook of research on social software and developing community ontologies' Hershey PA, IGI Publishing
- Lankshear, C. and Knoebel, M. (2004) 'From flogging to blogging via wifi' paper presented to the *American Educational Research Association annual meeting*, San Diego, April
- Leadbeater, C. (2008) 'We-think: the power of mass creativity' London, Profile
- Lovink, G. (2004) 'Uncanny networks' Cambridge MA, MIT Press
- Luckin, R., Clark, W., Logan, K., Graber, R., Oliver, M. and Mee, A. (2009) 'Do web 2.0 tools really open the door to learning: practices, perceptions and profiles of 11–16 year olds students' *Learning, Media and Technology* 34, 2, pp. 87–104
- Mason, R. and Rennie, F. (2007) 'Using web 2.0 for learning in the community' *Internet and Higher Education*, 10, pp. 196–203
- Monke, L. (2008) 'Better informed – but poorly educated?' *The Guardian* September 23rd, 'Time to Learn' supplement, p. 4
- Nicholas, D., Rowlands, I. and Huntington, P. (2008) 'Information behaviour of the researcher of the future' [www.jisc.ac.uk/media/documents/programmes/reppres/gg_final_keynote_11012008.pdf]
- Nielsen, J. (2006) 'Participation inequality: encouraging more users to contribute' October [www.useit.com/alertbox/participation_inequality.html]
- Notten, N., Peter, J., Kraaykamp, G. and Valkenburg, P. (2009) 'Digital divide across borders – a cross-national study of adolescents' use of digital technologies' *European Sociological Review* [forthcoming]
- O'Reilly, T. (2005) 'What is web 2.0? Design patterns and business models for the next generation of software' [www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html]
- Ohler, J. (2008) 'The semantic web in education' *Educause Quarterly*, 31, 4, pp. 7–9
- Pettenati, M., Cigognini, M., Guerin, E. and Mangione, G. (2009) 'Personal knowledge management skills for lifelong-learners 2.0' in Hatzipanagos, S. and Warburton, S. (eds) 'Handbook of research on social software and developing community ontologies' Hershey PA, IGI Global
- Preston, P. (2009) 'The media of our discontent' *The Observer*, 22nd February, Business and Media supplement, p. 10
- Rettberg, J. (2008) 'Blogging' Cambridge, Polity

- Rosenfeld, E. (2007) 'Beginning the conversation about education 2.0' *Teacher Librarian* 34, 4, p. 6
- Shirky, C. (2008) *Here comes everybody: the power of organizing without organizations* London, Allen Lane
- Solomon, G. and Schrum, L. (2007) *Web 2.0: new tools, new schools* Washington DC, International Society for Technology in Education.
- Staples, D. (2009) 'Web 2.0 social networking sites' in Lytras, M. and Ordonez de Pablos, P. (eds) *Social web evolution: integrating semantic applications and web 2.0 technologies* Hershey PA, IGI Global
- Tapscott, D. and Williams, A. (2007) *Wikinomics: how mass collaboration changes everything* New York, Atlantic
- Wang, S. and Chern, J. (2008) 'The new era of 'school 2.0' – teaching with pleasure, not pressure' in *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2008* Chesapeake VA, Association for the Advancement of Computing in Education
- Withers, K. with Sheldon, R. (2008) *Behind the screen: the hidden life of youth online* London, Institute for Public Policy Research