

Chapter 15

Digital Divides and Social Justice in Technology-Enhanced Learning

Lyndsay Grant and Rebecca Eynon

Beyond the Divide

In contrast to popular opinion, the digital divide is not going away. In fact the inequalities in access, use and experiences of the Internet may be getting wider (Helsper, 2011). The digital divide initially referred to the gap between those who had access to digital technology—particularly the Internet—and those who did not. However, since the early 2000s our understandings of the digital divide as a simple binary distinction between the digital ‘haves’ and ‘have-nots’ has shifted to a more complex conceptualisation that takes account of a range of individual and contextual factors in understanding use and non-use of the Internet (Chen & Wellman, 2004; Van Dijk, 2006). This is reflected in the literature where we see a shift away from the term digital divide to digital inequality (DiMaggio & Hargittai, 2001) or digital social inequality (Halford & Savage, 2010). At the same time, research in this area has moved away from more technologically deterministic arguments that assume that if people have access to technology then other benefits will automatically follow, towards a more holistic argument that recognises the complex relationships between technology and society.

Neil Selwyn (2004), in the first selected paper for this chapter, provides a useful critique of limited notions of the digital divide that see it simply in terms of a dichotomy between those who do and those who don’t have access to ICT. Firstly, ICT itself is not a homogenous category nor is it limited to the Internet. Secondly, “access” needs to account for gradations in the quality of access and

L. Grant (✉)

Graduate School of Education, University of Bristol, 35 Berkeley Square, Bristol, BS8 1JA, UK
e-mail: lyndsay.grant@bristol.ac.uk

R. Eynon

Oxford Internet Institute, 1 St Giles Oxford, Oxford, OX1 3JS, UK
e-mail: rebecca.eynon@oii.ox.ac.uk

individuals' perceptions of access. Thirdly, it is important not to equate access with use; meaningful use is a result of a complex mix of psychological, social, economic and practical factors. Finally, transforming the "have-nots" into "haves" is in danger of mistaking the means of ICT access with the ends of positive social, personal and educational consequences. In this article, Selwyn proposes a more complex hierarchical model that moves from 'formal' access to achieving long term positive consequences from ICT engagement. There still remains the question of explaining why some people are able to move to the top of this hierarchy while others do not step on the first rung of the ladder. Here, Bourdieu's concepts of economic, cultural and social capital (Bourdieu, 1997) are used to encompass the non-technological and non-economic as well as the technological and economic factors. Economic capital is clearly significant for the purchase of ICTs. Cultural capital includes the skills to use technologies, but also the 'know-how', attitudes towards ICT use and socialization into technology cultures that makes the difference between access to ICTs and meaningful use. Social capital describes the remote and face-to-face networks of expertise that people can tap into that provide advice, ideas and links to new technologies, services and ways of using them. This article provides a useful counterweight to overly simplistic notions of a binary digital divide, and provides an important and necessary refocusing of debates towards the outcomes of ICT use rather than simply seeing it as a worthy end in itself.

The second article selected for this chapter, by Mark Graham (2011), considers the subtle gradations of digital divisions in a spatial context within cyberspace itself. The spatial metaphor of moving into cyberspace places Internet use as the latest in a long line of claims about how technologies will overcome distance and geography to bring people together in a single space. Yet Graham shows how people's opportunities for online production and consumption are not completely independent from their offline geographies. Spatial differences such as rural/urban, global North or South, available technological infrastructure and access to networks and education, influence the kinds of online participation available and are not removed by gaining access to cyberspace. Further, cyberspace itself cannot be understood as a single 'place' shared by everyone, but, as Graham puts it, has its own "mappable geographies and uneven topologies" (p. 217). The article reproduces a "map" of cyberspace showing how users' engagement with other people and information is mediated through billions of nodes which are not all well networked with one another, meaning that it is not necessarily possible for everyone to move seamlessly from node to node across the space. Various mechanisms make some parts of the network inaccessible or less accessible to some people. These mechanisms include censorship and blocking from state censorship to parental limits on access and Internet filters; the language of communication makes large swathes of the Internet only accessible to those with fluency in English. The way we find and access information also results in some kinds of information being more visible and accessible than others. Search engine algorithms present search results in rank order in a way that increases the visibility of websites that are well-networked—resulting in websites that are outside powerful social networks remaining less visible. Rather than a single "cyberspace" overcoming

geographical constraints, a picture emerges of countless small—but nevertheless often insurmountable—divides within cyberspace itself. Ultimately, we need to consider cyberspace not as a single shared space that transcends geographical distance and inequalities, but as a series of multiple, scattered, disconnected spaces, that retain connections to their users' local physical spaces. Inequalities and divides exist within these virtual topologies, with some people being excluded from the powerful networks and flows of information in ways that can reinforce existing social, economic and political power structures.

These two articles move the debate about the digital divide firmly beyond a single divide between those who have and those who do not have access to ICT. Instead, we need to recognise the multiple ways that existing inequalities play out in individuals' and groups' engagements with technologies, how divisions exist within the connected world and in the outcomes people achieve from their engagement with technologies. However, it is important to recognise, as both Selwyn (2004) and Graham (2011) do, that it is not inevitable that technology use simply replicates existing patterns of inequality; the potential for change still exists and efforts to reduce inequalities need to be tackled with a more nuanced understanding of the causes, nature, and consequences of digital inequalities. Technology-enhanced learning (TEL) plays an important role in these debates, both in terms of designing initiatives that have an awareness of these inequalities and in creating opportunities to address them. To date, much of the research around the digital divide does not consider or speak to the TEL community and vice versa (although see Seale & Cooper, 2010). Here we try to bridge these two areas of important work.

Mapping and Overcoming the Digital Divide

The ways that people use the Internet and other new technologies are not the same, with significant differences in the amount of time, type, and range of activities people engage in online. These differences can be explained to a large degree by differences in demographic, individual and social characteristics that can be categorised into different dimensions of inequalities that try to incorporate people's digital and non-digital environments. For example, DiMaggio and Hargittai (2001) proposed five dimensions of digital inequality: equipment, autonomy of use, skills, social support and purposes of using the Internet.

Thus factors such as age and life stage (Eynon, 2009); skills (Hargittai, 2010; Livingstone & Helsper, 2010; Van Deursen & Van Dijk, 2011); confidence in technology (Eastin, 2005); positive attitudes towards technology (Dutton, Shepherd, & di Gennaro, 2007); quality of access (e.g. home access, personalised access, number of locations of access) (DiMaggio & Hargittai, 2001; Dutton & Blank, 2011); better support networks to use technology (DiMaggio & Hargittai, 2001; Eynon & Malmberg, 2011); the family context (Vandenbroeck, Verschelden, & Boonaert, 2008); and a range of other factors are positively related to uptake of a wider range of online activities.

Underpinning all of these patterns are issues of inequality. Those who are digitally excluded tend to be socially excluded as well. For the most part then, the digital simply replicates or reinforces existing inequalities in society. For example, in the case of learning, access to the Internet has not really increased the number of adults engaging in organised learning opportunities (Barraket, 2004; Eynon, 2009; Selwyn, 2006). In a nationally-representative survey, White and Selwyn (2012) found that those adults who were already taking up learning opportunities in the real world (e.g. night classes, work based training) also took up similar learning opportunities online, whereas those who had never engaged in adult learning were unlikely to re-engage with learning due to the increasing availability of learning opportunities in the online sphere. There is some evidence that the more informal the online learning opportunity, the more factors, beyond social exclusion, that become important (e.g. age, attitudes) but this is an area that is under-researched and needs to be fully explored (Eynon and Helsper, 2011; Warschauer et al. 2012; Thomas et al. 2005).

These patterns of inequalities in use of the Internet are consistent across many countries as demonstrated by the well-known studies by the Oxford Internet Surveys (OxIS) in the UK, EU Kids Go Online and Eurostat data that are collected across Europe, the Pew Internet surveys in the US and other survey data from across the globe that is collected as part of the World Internet Project.¹ Notably for TEL researchers, level of education has consistently been shown to be one of the most important factors in use/nature of use of the Internet, with those who are better off being more likely to benefit. Skills and self-efficacy beliefs about technology often follow as a close second.

However, there is very limited research in the digital divide literature that explores the complex link between use of the Internet and outcomes (Van Deursen, Helsper, Eynon, & Van Dijk, 2016). For example, the online sphere offers a range of opportunities that potentially could lead to learning in the widest sense of the term. These include information seeking (Rieh, 2004), communicating (Hew & Hara, 2006), watching videos, listening to music, blogging, sharing pictures and creating media content (Rollett, Lux, Strohmaier, Dösinger, & Tochtermann, 2007). Such activities may support individuals learning about themselves, about a topic of interest, and as a way to participate fully in social and cultural life in a digital age (Jenkins, Clinton, Purushotma, Robison, & Weigel, 2006). However, taking up these usage opportunities does not straightforwardly equate to learning. We need to better understand what needs to happen for people to achieve meaningful benefits from using technologies in the context of their lives; and to understand this with an awareness of the normative assumptions that are often in play within research in this area (Tsatsou, 2011).

¹See <http://microsites.oii.ox.ac.uk/oxis/>; <http://www2.lse.ac.uk/media@lse/research/EUKidsOnline/Home.aspx>; <http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/>; <http://www.pew.org/>; <http://www.worldinternetproject.net> respectively.

Livingstone and Helsper (2007), in the third selected paper, also stress this point in relation to online opportunities. In their analysis of nationally representative data of 9–19 year olds they present the ‘gradations’ rather than ‘divides’ in young people’s Internet use, and discuss the possible implications of such use for young people’s everyday life. They note that Internet use is never static and needs to be considered over time. Importantly for digital inclusion research, their analysis highlights that young people tend to start using the Internet for only a couple of activities and tend to take up more online opportunities as they become more experienced. Thus, supporting “basic” or “popular” uses may act as a gateway to more “complex” and perhaps more “capital enhancing” online activities such as learning.

The fourth selected paper, (Van Dijk, 2006) highlights the kinds of inequalities that are important in digital divide research. He suggests these are: immaterial (life chances, freedom), material (economic, social and cultural capital, resources); social (positions, power, participation) and educational (capabilities and skills). He argues that digital divide research requires more developed theoretical frameworks in order to determine precisely what is new about inequalities in access and use of the Internet and related technology compared to other resources in society in order to ascertain the real life outcomes related to differences in Internet use. He suggests that, if one considers information as a core resource in society, then new disadvantages are occurring due to a lack of access to information, inability to use information effectively, and reduction in power in the network (Van Dijk, 2006). Such considerations help to develop a more nuanced understanding of the meaning of Internet use on learning and everyday life.

While the outlook is not particularly positive, there are a significant minority of people who are socially excluded but are to some extent digitally included (Eynon & Helsper, 2011; Helsper, 2008). Thus, there is for some a form of “digital choice” in operation (Haddon, 2004; Wyatt, 2003). While “choice” is a somewhat problematic concept, as any choice is made within people’s existing social structures (Eynon & Helsper, 2011), it is quite useful conceptually as it moves us away from a deficiency model that sees non-use or low use of the Internet as inherently a deprivation (Selwyn, 2004). It also suggests that successful intervention is possible.

How Might Education Respond to Digital Inequalities?

Aside from questions about how to conceptualise and measure digital inequalities, there is the question of what can be done to reduce the effects of such inequalities. There are several ways that educational institutions might be thought to play a role in reducing such digital inequalities, including providing a point of access to the Internet, supporting young people in their development of their digital skills (Eynon & Geniets, 2015; Eynon & Malmberg, 2011), and providing students with a good understanding of the range of opportunities that may be available to them online. Jenkins et al. (2006) also emphasise the potentially important role of schools in

ensuring all young people are able to fully engage in online participatory cultures, not only those who have the necessary resources and support at home.

The extent to which schools actually can and do provide such opportunities varies between schools and, in general, schools in better off areas tend to use the Internet and digital technologies in more sophisticated ways and give students more access and support (Lee, 2008; Warschauer, Knobel, & Stone, 2004). Of course, some schools in deprived areas do provide more innovative approaches. However, most schools can only go so far in providing access and support for online learning and participation as they usually limit the time young people can spend online and the kinds of content and services they are able to engage with—particularly in terms of restricting access to sites where social interaction is possible or entertainment, video, games and music can be accessed (Dresang, 2005; Ito et al., 2008; Lee, 2008; Sharples, Graber, Harrison, & Logan, 2009). Educational institutions are often criticised for not using new technologies in significant and meaningful ways and teachers are often accused of lacking skills and having negative attitudes in this domain. Schools and teachers should not be singled out for blame in this regard without understanding the wider demands placed on them however, as limited use of technology in education can be a very rational choice given the formal systems and structures in place (Crook, 2002; Eynon, 2008). There are many reasons why schools limit children's online engagement, including the availability of technology and supervisory resources, time needed to cover curricular content, the educational priorities of the school, as well as concerns about online misbehaviour, privacy and e-safety (Sharples et al., 2009). Young people may therefore find their use of technologies at school is not able to overcome restricted opportunities at home. For example, in a qualitative study in the UK of young people who did not have Internet access at home the most notable implications were a feeling of being left out socially, of not being able to do homework as thoroughly as they would like and not being able to simply “do their own thing” online. It appeared that in qualitative terms at least a lack of home access was tending to reinforce and compound existing social inequalities (Davies & Eynon, 2012). Similarly, in the US Robinson (2009) demonstrated how a lack of access to home computers led to an instrumental approach to using technology that had implications for confidence and ways of using technology for learning.

How Might Technology-Enhanced Learning Support Social Justice?

Digital inequality is a social injustice itself, but some research also explores how technology-enhanced learning might offer opportunities to address other social inequalities. Of course, as discussed above, the idea that digital technologies can in themselves comprehensively address social injustices overlooks the complex individual, institutional, economic, political, cultural and societal factors that give

rise to inequalities in the first place and the correspondingly complex ways these inequalities need to be addressed. No form of technology-enhanced learning can therefore be seen as a sure-fire route to overcoming social injustice, but there may be some ways in which it can play a supporting role when it is developed with an understanding of, rather than assumptions about, the particular people the intervention is aiming to support.

If we think of overcoming digital inequalities as achieving meaningful and beneficial consequences from engaging with digital technologies, then similarly we can ask how technology-enhanced learning might support participation in society in terms of social, economic, political and cultural benefits. Exactly how such participation and outcomes are defined, however, is something to be determined with technology-users themselves rather than pre-determined by researchers, governments or other organisations, though approaches such as user-centred or participatory design (see Light & Luckin, 2008).

Research in this area is dominated by case studies of particular initiatives and so it is difficult to draw general conclusions about the role or “effectiveness” of technology-enhanced learning in furthering social justice. There are, however, several themes in which researchers have focused their attention on how technology-enhanced learning might have something to offer.

Access to Education

Technology-enhanced learning has been seen as providing access to educational content by those who otherwise would be excluded from education, particularly in areas where access to formal education and educational resources are limited. The use of mobile technologies to support learning in African countries where wired infrastructure is not available has been claimed as on the “tipping point” of becoming a major area of research, practice and policy (Traxler & Ng’gambi, 2012) while others have seen technology-supported learning as offering potential in situations where many children are unable to attend school (Unwin, Tan, & Pauso, 2007). However, technology-enhanced learning still faces challenges of scalability and sustainability as well as challenges of providing appropriate cultural and context-specific content and approaches and its success remains dependent on the enthusiasm and dedication of learners and teachers (Traxler & Ng’gambi, 2012). Local technology-enhanced learning initiatives can usually only address some specific needs; for example, Unwin et al. (2007) found that the street children they worked with would have preferred to attend mainstream school but their parents could not afford to keep them there. A technology-enhanced learning approach providing access to educational content may in this case provide some alleviation of inequalities but is unlikely to be able to make inroads on the broader inequalities in these young people’s lives.

Two of the most well-known initiatives using technology to support learning opportunities to low-income children and countries include the One Laptop Per

Child initiative which offers low-cost laptops to children in low-income regions² and the Hole in the Wall project which provided opportunities for self-directed learning via computers accessible through street kiosks (Mitra & Rana, 2001). Both these projects have received their fair share of critique however, for an overly technocentric approach that underplays the importance of appropriate content (in terms of language, culture and educational content) and the role of teachers and the wider community in the use of technologies for education (Warschauer, 2002; Warschauer, Cotten, & Ames, 2012).

More recently, technologies have supported wider access to education through the sharing of Open Educational Resources (OERs) and distance participation in Massive Open Online Courses (MOOCs). Much of the impetus behind OERs and MOOCs is driven by a desire to use technologies to provide access to education—or a different kind of education—than would otherwise be possible. For example, OER Africa aims to build educational capacity and support access to education across the continent.³ As OERs and MOOCs become integrated within the business models of universities and commercial producers of educational resources, questions of who gets to access these opportunities and the consequences of participation remain to be answered. However, based on the current evidence, it seems that those who are most likely to participate in such initiatives are well educated people from well-off countries (Ezekiel, 2013).

Recognising Learning Outside the Mainstream

The consequences of not doing well in formal education are serious and long-lasting and there is evidence that children from lower socio-economic status households tend to achieve less highly than their more privileged peers. Yet the same young people may be engaging in informal learning activities outside school that are not recognised in mainstream education. Some research has explored how digital technologies might support informal learning outside school and the potential of digital tools to capture and represent such learning to enable reflection on learning by the learners themselves as well as formal educational institutions (e.g. Walker, 2008).

Some research has particularly focused on broadening the kinds of learning and achievements that we value and give credit to beyond the traditional academic standards measured by schools. For example, the Badges for Lifelong Learning project explored how skills developed through online participation could be recognised and accredited.⁴ Assessment of learning that takes place in digital communities can connect learners to knowledge communities well beyond what they would experience in school and may enable more kinds of learning to be recognised as valuable.

²<http://one.laptop.org/>.

³<http://www.oerafrica.org>.

⁴<https://www.hastac.org/collections/badges-learning-research>.

While digitally capturing and accrediting diverse kinds of learning may allow a wider range of skills and talents to be recognised, its ability to contribute to more socially just forms of education needs to be balanced against the skills and qualifications that are valued by society more broadly and employers in particular.

Education for Citizenship and Political Engagement

The capability to engage in political and civic life is an important aspect for full social participation and can be conceptualised as engaging with others to work for improvements from the local to global level and engaging with a diverse range of perspectives. Some fear that online communities allow us to limit our encounters with others to those who share our own perspectives, but large scale quantitative research has found that when US young people encountered others' perspectives online they encompassed a diverse range rather than simply those that confirmed their own opinions (Kahne, Middaugh, Lee, & Feezell, 2011). Some young people however did not encounter very many perspectives of any persuasion at all. Where young people had experienced digital media literacy education this was associated with greater exposure to diverse perspectives as well as deeper political engagement online. Kahne and colleagues (Kahne, Feezell, & Lee, 2012; Kahne, Ullman, & Middaugh, 2011) make the point that online engagement can foster civic and political engagement, but that this does not automatically happen for everybody and digital media education is needed to ensure that all young people can take advantage of this opportunity.

Future Challenges for Digital Divide Research

The more complex and nuanced understandings of the digital divide bring with them new theoretical and empirical research challenges. Most of the research that maps the changing contours of digital divides is quantitative and therefore tends to measure the frequency and breadth of use but does not capture the diverse meanings or consequences of technology use for individuals, and how these are shaped within the wider contexts of their lives (Mehra, Merkel, & Peterson-Bishop, 2004; Thomas, Haddon, Gilligan, Heinzmann, & de Gournay, 2005; Tsatsou, 2011). Similarly, while we now have a better understanding of the ways that different forms of digital inequalities and social inequalities inter-relate we need to segment Internet users into better defined groups to understand the differences between them and the different kinds of support they might need (Eynon, 2009; Eynon & Malmberg, 2011). The use of more participatory designs and practices within this area of Technology Enhanced Learning (TEL) could also be particularly valuable. Indeed, research that aims to understand the ways that TEL might support greater social, economic, cultural and political participation tends to be case study based; further

research is needed to situate promising initiatives within a broader understanding of pervasive inequalities for particular individuals and groups to draw conclusions about any potential role for TEL in furthering social inclusion.

We hope here to have made some useful connections between research into digital inequalities and research into technology-enhanced learning. Ultimately, we need to bring together efforts to tackle digital inequalities and digital approaches to tackling social and educational inequalities within a broader programme of policy and practice that commits to tackling inequalities at every level of society.

References

- Barraket, J. (2004). E-learning and access: Getting behind the hype. In M. Osbourne, J. Gallacher, & B. Crossan (Eds.), *Researching widening access to lifelong learning: Issues and approaches in international research* (pp. 91–102). London: Routledge Falmer.
- Bourdieu, P. (1997). The forms of capital. In A. Halsey, H. Lauder, P. Brown, & A. Stuart-Wells (Eds.), *Education: Culture, economy, society* (pp. 46–58). Oxford: Oxford University Press.
- Chen, W., & Wellman, B. (2004). The global digital divide: Within and between countries. *IT & Society*, 1(7), 39–45.
- Crook, C. K. (2002). The campus experience of networked learning. In C. Steeples & C. Jones (Eds.), *Networked learning: Perspectives and issues* (pp. 293–308). London: Springer.
- Davies, C., & Eynon, R. (2012). *Teenagers and technology*. London: Routledge.
- DiMaggio, P., & Hargittai, E. (2001). *From the digital divide to 'digital inequality': Studying Internet use as penetration increases* (Working Paper Series 15). Center for Arts and Cultural Policy Studies, Princeton University.
- Dresang, E. T. (2005). The information-seeking behavior of youth in the digital environment. *Library Trends*, 54(2), 178–196.
- Dutton, W. H., & Blank, G. (2011). *Next generation users: The Internet in Britain 2011*. Oxford: Oxford Internet Institute, University of Oxford.
- Dutton, W. H., Shepherd, A., & di Gennaro, C. (2007). Digital divides and choices reconfiguring access: National and cross-national patterns of Internet diffusion and use. In B. Anderson, M. Brynin, J. Gershuny, & Y. Raban (Eds.), *Information and communications technologies in society* (pp. 31–45). London: Routledge.
- Eastin, M. (2005). Teen Internet use: Relating social perceptions and cognitive models to behavior. *Cyberpsychology & Behavior*, 8(1), 62–75.
- Eynon, R. (2008). The use of the world wide web in learning and teaching in higher education: Reality and rhetoric. *Innovations in Education and Teaching International*, 45(1), 15–23.
- Eynon, R. (2009). Mapping the digital divide in Britain: Implications for learning and education. *Learning, Media and Technology*, 34(4), 277–290.
- Eynon, R., & Geniets, A. (2015). The digital skills paradox: How do digitally excluded youth develop skills to use the Internet? *Learning, Media and Technology*. doi:[10.1080/17439884.2014.1002845](https://doi.org/10.1080/17439884.2014.1002845)
- Eynon, R., & Helsper, E. J. (2011). Adults learning online: Digital choice and/or digital exclusion? *New Media & Society*, 13(4), 534–551.
- Eynon, R., & Malmberg, L. (2011). Understanding the online information seeking behaviours of young people: The role of networks of support. *Journal of Computer Assisted Learning*, 28(6), 514–529.
- Ezekiel, E. J. (2013). Online education: MOOCs taken by educated few. *Nature*, 503, 342. doi:[10.1038/503342a](https://doi.org/10.1038/503342a)

- Graham, M. (2011). Time machines and virtual portals: The spatialities of the digital divide. *Progress in Development Studies*, 11(3), 211–227.
- Haddon, L. (2004). *Information and communication technologies in everyday life: A concise introduction and research guide*. Oxford: Berg.
- Halford, S., & Savage, M. (2010). Reconceptualizing digital social inequality. *Information, Communication & Society*, 13(7), 937–955.
- Hargittai, E. (2010). Digital na(t)ives? Variation in Internet skills and uses among members of the “net generation”. *Sociological Inquiry*, 80(1), 92–113.
- Helsper, E. (2008). *Digital inclusion: An analysis of social disadvantage and the information society*. London: Communities and Local Government.
- Helsper, E. (2011). *The emergence of a digital underclass: Digital policies in the UK and evidence for inclusion* (Media Policy Brief 3). London: Department of Media and Communications, London School of Economics and Political Science.
- Hew, K., & Hara, N. (2006). Identifying factors that encourage and hinder knowledge sharing in a longstanding online community of practice. *Journal of Interactive Online Learning*, 5(3), 297–317.
- Ito, M., Horst, H., Bittanti, M., Boyd, D., Herr-Stephenson, B., Lange, P.G., Pascoe, C.J., Robinson, L. (with Baumer, S., Cody, R., Mahendran, D., Martínez, K., Perkel, D., Sims, C., & Tripp, L.) (2008). *Living and learning with new media: Summary of findings from the digital youth project*. Chicago: The John D. and Catherine T. MacArthur Foundation Reports on Digital Media and Learning. Available from: <http://digitalyouth.ischool.berkeley.edu/files/report/digitalyouth-WhitePaper.pdf>. Accessed 5 May 2012.
- Jenkins, H., Clinton, K., Purushotma, R., Robison A. J., & Weigel, M. (2006). *Confronting the challenges of participatory culture: Media education for the 21st century*. Chicago: The John D. and Catherine T. MacArthur Foundation Reports on Digital Media and Learning. Available from: <https://mitpress.mit.edu/books/confronting-challenges-participatory-culture>. Accessed 5 May 2012.
- Kahne, J., Feezell, J., & Lee, N. J. (2012). Digital media literacy education and online civic and political participation. *International Journal of Communication*, 6, 1–24.
- Kahne, J., Middaugh, E., Lee, N. J., & Feezell, J. (2011). Youth online activity and exposure to diverse perspectives. *New Media and Society*, 1–21. Available from: http://ypp.dmlcentral.net/sites/all/files/publications/Online_Diversity.pdf. Accessed 5 May 2012.
- Kahne, J., Ullman, J., & Middaugh, E. (2011). *Digital opportunities for civic education*. American Enterprise Institute for Public Policy Research. Available from: http://www.civicsurvey.org/sites/default/files/publications/Digital_opps_civ_ed.pdf. Accessed 5 May 2012.
- Lee, L. (2008). The impact of young people’s Internet use on class boundaries and life trajectories. *Sociology*, 42, 137–152.
- Light, A., & Luckin, R. (2008). *Designing for social justice: People, technology, learning*. Bristol: Futurelab. Available at: <http://archive.futurelab.org.uk/resources/publications-reports-articles/opening-education-reports/Opening-Education-Report1128> [downloaded 15.5.2012].
- Livingstone, S., & Helsper, E. (2007). Gradations in digital inclusion: Children, young people and the digital divide. *New Media & Society*, 9(4), 671–696.
- Livingstone, S., & Helsper, E. (2010). Balancing opportunities and risks in teenagers’ use of the Internet: The role of online skills and family context. *New Media & Society*, 12(2), 309–329.
- Mehra, B., Merkel, C., & Peterson-Bishop, A. (2004). The Internet for empowerment of minority and marginalized users. *New Media & Society*, 6(6), 781–802.
- Mitra, S., & Rana, V. (2001). Children and the Internet: Experiments with minimally invasive education in India. *British Journal of Educational Technology*, 32(2), 221–232.
- Rieh, S. (2004). On the web at home: Information seeking and web searching in the home environment. *Journal of the American Society for Information Science and Technology*, 55(8), 743–754.
- Robinson, L. (2009). A taste for the necessary: A Bourdieuan approach to digital inequality. *Information, Communication & Society*, 12(4), 488–507.

- Rollett, H., Lux, M., Strohmaier, M., Dösinger, G., & Tochtermann, K. (2007). The Web 2.0 way of learning with technologies. *International Journal of Learning Technology*, 3(1), 87–107.
- Seale, J., & Cooper, M. (2010). E-learning, accessibility and pedagogy: In search of the missing tools of practice. *Computers & Education*, 54(4), 1107–1116.
- Selwyn, N. (2004). Reconsidering political and popular understandings of the digital divide. *New Media & Society*, 6(3), 341–362.
- Selwyn, N. (2006). Digital division or digital decision? A study of non-users of computers. *Poetics*, 34, 273–292.
- Sharples, M., Graber, R., Harrison, C., & Logan, K. (2009). E-safety and Web 2.0 for children aged 11–16. *Journal of Computer Assisted Learning*, 25(1), 70–84.
- Thomas, F., Haddon, L., Gilligan, R., Heinzmann, P., & de Gournay, C. (2005). Cultural factors shaping the experience of ICTs: An exploratory review. In L. Haddon (Ed.), *International collaborative research: Cross-cultural differences and cultures of research* (pp. 13–51). Brussels: COST.
- Traxler, J., & Ng'gambi, D. (2012). Snapshot of Africa's mobile learning milestones: Guest editorial preface for special issue on mobile learning in Africa. *International Journal of Mobile and Blended Learning*, 4(2), i–iv.
- Tsatsou, P. (2011). Digital divides revisited: What is new about divides in the research. *Media Culture & Society*, 33(2), 317–331.
- Unwin, T., Tan, M., & Pauso, K. (2007). The potential of e-learning to address the needs of out-of-school youth in the Philippines. *Children's Geographies*, 5(4), 443–462.
- Van Deursen, A. J. A. M., Helsper, E. J., Eynon, R., & Van Dijk, A. J. A. M. (2016). Compound and sequential digital exclusion: Internet skills, uses and outcomes. In *66th Annual ICA Conference*, Fukuyama.
- Van Deursen, A. J. A. M., & Van Dijk, J. A. G. M. (2011). Internet skills and the digital divide. *New Media & Society*, 13(6), 893–911.
- Van Dijk, J. (2006). Digital divide research, achievements and shortcomings. *Poetics*, 34, 221–235.
- Vandenbroeck, M., Verschelden, G., & Boonaert, T. (2008). E-learning in a low-status female profession: The role of motivation, anxiety and social support in the learning divide. *Journal of Computer Assisted Learning*, 24(3), 181–190.
- Walker, L. (2008). *Shoutbox report*. Bristol: Futurelab. Available from: <http://www2.futurelab.org.uk/projects/shoutbox/research>. Accessed 16 May 2012.
- Warschauer, M. (2002). Reconceptualising the digital divide. *First Monday*, 7(7). Available at: <http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/viewArticle/967/888>. Accessed 6 May 2012.
- Warschauer, M., Cotten, S., & Ames, M. (2012). One laptop per child Birmingham: Case study of a radical experiment. *International Journal of Learning and Media*, 3(2), 61–76.
- Warschauer, M., Knobel, M., & Stone, L. (2004). Technology and equity in schooling: Deconstructing the digital divide. *Educational Policy*, 18(4), 562–588.
- White, P., & Selwyn, N. (2012). Learning online? Educational Internet use and participation in adult learning, 2002 to 2010. *Educational Review*, 64(4), 451–469.
- Wyatt, S. (2003). Non-users also matter: The construction of users and non-users of the Internet. In N. Oudshoorn & T. Pinch (Eds.), *How users matter: The co-construction of users and technologies* (pp. 67–79). Cambridge/MA: The MIT Press.