

## Chapter 2

# Networked Learning, Stepping Beyond the Net Generation and Digital Natives

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### Introduction

This chapter critically examines an idea that has become common during the past 10 years that young people have undergone a generational change in which their exposure to digital and networked technologies, the bits and bytes of the twenty-first century, has caused a step change in the character of a whole generation. The empirical and theoretical basis for this argument is reviewed and critical theoretical perspectives are assessed. The discussion begins by reexamining the outcomes of a research project that studied the experience of networked learning in English universities that took place at the very end of the twentieth century. Evidence from that research is compared and contrasted with evidence gathered from students who were the very first students that could be described as part of the new generation, gathered approximately 10 years later.

The argument for a generational break is put clearly by Marc Prensky the originator of the term digital native when he states that young people have:

... not just changed incrementally from those of the past ... A really big discontinuity has taken place. One might even call it a “singularity” – an event which changes things so fundamentally that there is absolutely no going back (Prensky 2001, p. 1).

The claim for such a dramatic change rests on powerful anecdotal and popular evidence. Many educators and parents connect with an idea which identifies young people as more naturally adept with new technologies than they find themselves or others of the same age. The claim made by the author is that the material context constituted by widespread computing and digital networks has led to young people developing an instinctive aptitude and high skill levels in relation to the new technologies.

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Those older people who grew up in an analogue world, prior to the new digital technologies, are portrayed as always being behind, as being immigrants to this new world, and never likely to reach the levels of skill and fluency developed effortlessly by those who have grown up with new digital technologies.

The issue is important to networked learning because these claims include specific claims about approaches to learning in the new generation. The young learner is characterized as exhibiting known qualities that can be assumed to apply to an entire generation. The language used about the new generation of learners is directive and contains few qualifications. For example, Tapscott says this in his most recent book:

In education they [the Net Generation] are forcing a change in the model of pedagogy, from a teacher-focused approach based on instruction to a student-focused model based on collaboration (Tapscott 2009, p. 11).

The language is firm and commanding and the claim is that like it or not a new generation is forcing change and the character of that change is student-focused and based on collaboration. The claim that the new generation is likely to have a profound effect on education suggests that educational reform arises out of pressure from a new generation of digitally native students.

The general idea that the Internet would change learning practices was sketched out in the late 1980s and early 1990s. Harasim et al. (1995) wrote in terms of network learning and suggested that:

Network learners of the future will have access to formal and informal education of their choice, wherever they are located, whenever they are able to participate ... The network learner will be an active participant ... learning with and from experts and peers wherever they are located (p. 273).

The development that has occurred in the past 10 years is that the mechanism for change has moved from choice to become identified with a transformation in the character of a new generation of young people that have grown up with new technologies. Marc Prensky has recently written *Teaching Digital Natives* (Prensky 2010), a book in which he argues that because of the technological environment in the twenty-first century:

It is inevitable ... that change would finally come to our young peoples' education as well, and it has. But there is a huge paradox for educators: the place where the biggest educational changes have come is not our schools; it is everywhere else but our schools (p. 1).

Prensky is not alone in suggesting that institutional change has been slow and is likely to arise as an outcome of an inevitable process consequent on generational change. Don Tapscott (2009), for example, devoted an entire chapter in his recent book to the Net Generation as learners. It is clear from his writing that Tapscott views education as one of the central locations for the broad institutional changes he associates with the new generation, something he has developed further elsewhere (Tapscott and Williams 2010). Palfrey and Gasser (2008) also devote a chapter to learners in their book *Born Digital* and they also go on to promote the argument that: "The educational establishment is utterly confused about what to do about the impact of technology on learning" (p. 238). All these authors encourage the idea that education

has to change because there has been a generational change caused by a process of technological change. In this view, technological change is seen as arising independently and then having an impact on other dependant domains in society. Even when technological change is not seen as independent, it is often described as an inevitable outcome of social development. Writing in 2003, Selwyn noted that the problem with such discourses is that they fail to reflect the diversity and complexity to be found in real lives. This weakness can have an impact and become embedded in policy and “the framing of children, adults and technology within these determinist discourses tends to hide the key shaping actors, the values and power relations behind the increasing use of ICT in society” (Selwyn 2003 p. 368).

This chapter takes a critical stance in relation to the arguments put forward for there being a new Net Generation of digital native students and explores the consequences of these ideas from the standpoint of networked learning. Networked learning is defined in this chapter as:

learning in which information and communication technology ... is used to promote connections: between one learner and other learners, between learners and tutors; between a learning community and its learning resources (Goodyear et al. 2004, p. 1).

A key term in this definition is the word connections. It is the interactions that connectivity allows, including human interactions with materials and resources, but most particularly the human–human interactions enabled through digital and networked technologies that are the key to networked learning. The definition of networked learning takes a relational stance in which learning takes place both in relation to others and in relation to learning resources.

This definition was applied in a research project that took place at the end of the twentieth century which aimed to explore students’ experiences of networked learning in higher education (Goodyear et al. 2001). At that time, there was relatively little research that examined undergraduate use of networked technologies in what would now be described as a blended setting, that is, sustaining courses in which networked technologies were supported by face-to-face contact (Goodyear et al. 2005; Jones and Bloxham 2001; Jones and Asensio 2001). This chapter looks back at the outcomes of that research in the context of recent research examining the terms Net Generation and digital native in both England and broader global contexts. The aim of this retrospective review is to suggest that ways in which the changes that have taken place in networked technologies and students’ attitudes toward them can be more adequately theorized in relation to the idea of networked learning.

## *Networked Learning in Higher Education*

The research that took place between 1999 and 2000, in the networked learning in higher education project, used a mixed method approach, including whole course surveys and interviews with staff and students from a range of courses in English HE. The findings from the research established that there were no strong links

between students' judgments about their experience of networked learning and either their conceptions of learning or their approach to study. A practical implication of this research was that it was reasonable to expect *all* students to have positive experiences on well-designed and well-managed networked learning courses, and positive experiences were not likely to be restricted to those students with more sophisticated conceptions of learning or deep approaches to study (Goodyear et al. 2003). Prominent among our research goals was to see firstly whether there were significant differences between students' expectations about networked learning and their reports of their experience of networked learning at the end of a course, and secondly whether expectations and experiences differed between different groups of students. Students' views were generally positive at the start and at the end of each course, though their attitudes became more moderate over time. The structure of students' reported feelings remained relatively stable over time and there was no evidence to suggest that male or younger students had more positive feelings about networked learning. The thoroughness with which new technologies were integrated into a networked learning course appeared to be a significant factor in explaining differences in students' feelings and as might be expected, a well-integrated course was associated with more positive experiences (Goodyear et al. 2005). At the dawn of the new millennium, there was no evidence in the study of courses in England using networked learning of a generational divide, rather the course context, and particularly the degree to which networked learning was embedded in the course, appeared to be a key factor.

### ***Empirical Research on Digital Natives and the Net Generation***

A persistent call has been for the introduction of good empirical evidence into the debate about the existence of a Net Generation and digital natives. Recently, there has been a significant effort to ground the Net Generation and digital native debate in evidence and there are a range of nationally and regionally focused research studies. These include studies in the USA (Hargittai 2010; Salaway et al. 2008; Smith and Borreson Caruso 2010; Smith et al. 2009) and Canada (Bullen et al. 2009; Salajan et al. 2010), Australia (Judd and Kennedy 2010, 2011; Kennedy et al. 2006, 2007, 2008, 2010; Oliver and Goerke 2007; Waycott et al. 2009), the UK (Jones and Cross 2009; Jones and Healing 2010a; Jones and Hosein 2010; Jones et al. 2010; Margaryan et al. 2011; Selwyn 2008), other European countries (Schulmeister 2010; Ryberg et al. 2010; Pedró 2009), South Africa (Brown and Czerniewicz 2010; Czerniewicz et al. 2009; Thinyane 2010), Chile (Sánchez et al. 2010), and Hong Kong (McNaught et al. 2009). This empirical evidence from around the world, in contrasting economic conditions, shows that today's young students repeatedly prove to be a mixture of groups with various interests, motives, and behaviors, and never a single generational cohort with common characteristics.

Rather than showing a Net Generation of digital native students, who were naturally proficient with technology due to their exposure to the technology-rich

environment, the empirical evidence showed that students' experiences with technologies varied. Not all students were equally competent with technologies and their patterns of use varied considerably when moved beyond basic and entrenched technologies (Hosein et al. 2010b; Jones et al. 2010; Kennedy et al. 2008). There were variations among students within the Net Generation age band (Bullen et al. 2009; Hosein et al. 2010b; Jones et al. 2010) and students' selection of tools were related to other characteristics, including age, gender, socioeconomic background, academic discipline, and year of study (Brown and Czerniewicz 2008; Hargittai 2010; Jones et al. 2010; McNaught et al. 2009; Selwyn 2008).

Although there has been a considerable growth in university students' access to a range of computing technologies and online technological tools, their use of technologies has often been for social and entertainment purposes rather than learning (Oliver and Goerke 2007) and there were differences in students' use of technology for social and leisure purposes and for academic use (Corrin et al. 2010; Hosein et al. 2010a; Kennedy et al. 2008). Furthermore, empirical studies showed that students' high levels of use and skill did not necessarily translate into preferences for increased use of technology in the classroom (Schulmeister 2010) and a large number of students still hold conventional attitudes toward teaching (Margaryan et al. 2011). In my own work, the research focused on first-year university students and there was no evidence that students arrived at university with high expectations for ICT use that the university could not fulfil (Hosein et al. 2010a; Jones and Hosein 2010; Jones et al. 2010). The findings also showed that students used ICT more than they were required to but they tend to use the same technologies that are required to use for their courses. This suggests that the range of technologies that students are familiar with, and which they expect to be available, are not radically different to those currently supplied by English universities and that students are still using ICT in somewhat predictable ways, e.g., to communicate with their tutors and to access course materials. The longitudinal analysis of our data suggested that in a similar way to the data gathered almost 10 years earlier, students become slightly less firm in their opinions about the usefulness of ICT for learning during their studies and their opinion becomes slightly less positive with regard to some university provision, such as online library resources and specialist software.

There is now a need to return to the theories that contend for attention in explaining both the changes the evidence shows are taking place and how these changes relate both to students' age and a variety of other demographic and contextual influences.

## Theory, Criticisms, and Alternative Approaches

Several authors (Bayne and Ross 2007; Buckingham and Willett 2006; Herring 2008) have pointed to the importance of commercial and market interests in perpetuating the idea of a new generation and we noted earlier the strong anecdotal appeal of generational arguments for parents and educators. However, such arguments lead to some highly negative consequences. Bayne and Ross, for example,

note that digital native arguments lead to a paradoxical one-way determinism in which institutions and teachers are forced to change but each person is said to be fixed in their own generational position. This provides a contradictory account in which older people are expected to change, though they are generationally fixed, and become more like the new generation. In education, this can lead to a deficit model of professional development in which academic staffs who are outside the new generation can only ever be “immigrants,” never able to fully bridge the gap with “natives” arising from their generational position (Bayne and Ross; Bennett et al. 2008).

Bennett et al. (2008) have noted that the discourse surrounding technology and generational change resembles an academic “moral panic,” in that it restricts critical and rational debate and because the new generation is identified as a positive but threatening presence in relation to the existing academic order. The Net Generation and digital native discourse is one that provides a series of binary distinctions, new generation or old generations; technically capable and inclined or technically challenged; and finally between students and their teachers. These authors do not dismiss the potential for change related to developments in digital and networked technology, rather they argue for the collection of evidence and the adoption of a cautious attitude when advocating technologies as a vehicle for educational reform.

### ***The Generational Argument***

The idea of a Net Generation composed of digital natives has a strong generational component. Howe and Strauss wrote *Millennials Rising* (2000) several years after the book *Generations: The History of America's Future and The Fourth Turning: An American Prophecy* (1991). The idea of a Millennial generation is related to a cyclic view of history that suggests that the history of the USA has followed a regular and predictable pattern since the 16th century. From this perspective, the Millennials are simply the most recent outcome of a long historical process. Millennials, although described by their digital and networked technological context, are part of a process rooted in human history, biology, and culture. In this scheme, they are the most recent form of the “Civic” generational type, who are said to be heroic, collegial, and rationalistic. Interestingly, they are also said to have core values that include community, technology, and affluence. The idea of the Net Generation was associated with the historical idea of a Millennial generation through the work of Oblinger and Oblinger (2005).

The authors who use the term Net Generation do not generally advance this cyclical argument about generations, but the generational argument has had a clear influence on thinking about young people in education. Oblinger and Oblinger (2005, Ch. 2) explicitly build on the ideas of Howe and Strauss in the book *Educating the Net Generation*. While Oblinger and Oblinger are careful to state their claims cautiously, they associate a new generation, drawn directly from Howe and Strauss, with the Net Generation defined in terms of its exposure to technology (Jones 2011).

Palfrey and Gasser in their book *Born Digital* (2008) and subtitled “understanding the first generation of digital natives” suggest that the term generation is an overstatement and prefer to call the new cohort a “population” (p. 14). Their intention in this is clearly to reclaim the term digital native, but I fear their cause is lost. By identifying a population by their access to technology, it ceases to have full generational coverage because technology access is not a universal condition within the age group. They also note that access to technology is partly dependant upon a learned digital literacy. However, if being part of the population of digital natives requires learning, then the group cannot be “Born Digital” and it is not clear what benefits there are in retaining the idea of being a digital “native.” Even in the authors’ own terms, digital native is at best misleading and the idea of generational change needs to be abandoned.

As we have noted, Kennedy et al. (2008) found that the use of technologies among first-year Australian students showed significant diversity when looking beyond the basic and entrenched technologies. They found that the patterns of access to, use of, and preference for a range of other technologies varied considerably among students of a similar age. Similarly, in my own work (Jones et al. 2010), I have reported that English first-year students show significant age-related variations and that these are not generational in character. The Net Generation age group is itself divided internally and both of these empirical studies suggest that while age is a factor there is no single Net Generation or digital native group and that first-year university students of a similar age show a diversity that is inconsistent with a generational hypothesis.

### *Agency and Affordance*

The arguments used to support the contention that there has been a significant generational change rely on a form of structural, specifically technological, determinism. The argument suggests that because young people have been exposed to a range of digital and networked technologies there has been a consequent change in their attitudes and natural skill levels with these technologies and they are radically different from preceding generations. In this account, technology behaves as an independent and external structural factor acting on social forms but not being conditioned by them. Alternative accounts understand young people as active agents in the process of engagement with technology. The notion of agency has been widely discussed as a contrasting framework to structure in the social sciences. Structure describes the factors enabling and constraining what human agents do. Agency, in contrast, is concerned with the shaping of processes by the intentions and projects of humans. Czerniewicz et al. (2009) have investigated student agency in relation to university students’ use of new technology by applying the critical realist approach of Archer (2002, 2003).

Archer’s opinion is that agency can be viewed as a “distinct strata of reality” (Archer 2003, p. 2), in which agency is emergent and cannot be reduced to structure



nor vice versa. In Archer's writing, there is an association of the agent with the person and the self and social identity for Archer is a "subset" of personal identity. It is the individual who holds the power to be active and reflexive:

In a nutshell, the individual, as presented here in his or her concrete singularity, has powers of ongoing reflexive monitoring of both self and society (Archer 2002, p. 19).

The strength of this approach is the rejection of social as well as technological determinism and its focus on the active mediation between structure and agency. Archer also argues that agency is fundamentally a human characteristic. Czerniewicz et al. (2009) agree with this approach and argue that: "The particular value of Archer's work is her interest in the relation between agency and structure from the perspective of the agent, or the person" (Czerniewicz et al. 2009, p. 83).

The research I have conducted (Jones and Healing 2010a) illustrates the way in which the structural conditions that students face at university are, at least in part, the outcomes of collective agency. The research showed how staff members designed and redesigned courses in relation to available technologies and how the availability of the technologies themselves was an outcome of decisions and actions taken elsewhere in the university. For this reason, I have suggested expanding the notion of the agent to include persons acting not on their own behalf, but enacting roles in collective organizations, such as courses, departments, schools, and universities. Furthermore, individual students are working in settings that have increasing amounts of active technologies that replicate the aspects of human agency. Increasingly, the digital networks through which education is mediated are able to become interactive and I reported that distraction is already recounted by students who suggest it is caused by the intervention of automated processes, such as notifications from social networking sites. While it may be correct to argue that there is not a complete symmetry between human and machine agency, there is an increasing likelihood that students will interact with humans and machines in similar ways.

### ***Networked Individualism and Networked Sociality***

Manuel Castells is possibly the most widely known author to place networks at the centre of contemporary society (2000). Building on work by Wellman (see Wellman et al. 2003), Castells has used the term "networked individualism" to describe the form of sociality in such societies. Networked individualism relates to the way social relations are realized in interaction between online and off-line social networks and to a move from physical communities to personalized or privatized virtual networks. This social trend raises fundamental questions about the relationships between the emerging networked society and the organization of learning environments in both formal education and training. Networked individualism might suggest that we need to take a more critical approach to the theories of education and learning that are based on community and collaboration. The term also suggests that we can do this without ruling out the central place of communication and dialogue in education and learning (Jones and Dirckinck-Holmfeld 2009). The term networked individualism suggests a move away from place-to-place interaction



toward interactions that are person to person in character. The pattern of social life enabled by networked digital technologies is one that allows for a sociability based on the person rather than classic notions of community and collaboration. The new networks rely as much on weak ties as they do on the strong ties of traditional groups and communities (Jones et al. 2008).

The emphasis on the person and choice in networked individualism contrasts with the deterministic arguments that support the Net Generation and digital natives. Bennett and Maton (2010) suggest that networked individualism places the focus on the individuals who navigate through their own personal networks. This focus on choice is welcome, but it may be insufficient as the choices people make are in conditions that they themselves are not able to control (Jones 2011). Jones and Healing (2010a) argue that choices are made at various levels of social scale, including in universities, departments, and whole institutions. Their argument suggests that choice cannot be restricted to the individual and that decisions about what kind of infrastructures to provide for students have an impact on the range of choices which students have.

If educational designers and university policy makers respond to networked individualism by individualizing networked learning, they are not only responding to a social pressure, they are adding to it by constituting a privatized context within which students make educational and technological choices. The more radical arguments for PLEs suggest an extremely individualized and learner-centric view of learning. This radical view ignores the political and institutional requirements built into educational systems for social cohesion (Dirckinck-Holmfeld and Jones 2009), and seen from a social cognitive or a social pedagogical perspective such a radical version of PLEs may be counterproductive. Networked learning offers an alternative vision of a learning environment that allows for individualization but emphasizes connections rather than the privatization involved in PLEs. While networked learning does not necessarily privilege the strong ties involved in collaboration or community, it still involves a connectedness of some kind, whether reliant on strong or weak ties.

### *The University and the Net Generation*

The Net Generation and digital natives debates are not restricted to describing young people or predicting their approaches to learning. The authors of some of these ideas have a more radical agenda, one that predicates deep institutional change on the speculative arguments about the character of this new generation (Margaryan et al. 2011). Tapscott and Williams provide the following account of the necessity for radical change:

Change is required in two vast and interwoven domains that permeate the deep structures and operating model of the university: (1) the value created for the main customers of the university (the students); and (2) the model of production for how that value is created. First we need to toss out the old industrial model of pedagogy (how learning is accomplished) and replace it with a new model called collaborative learning. Second we need an entirely new *modus operandi* for how the subject matter, course materials, texts, written and spoken word, and other media (the content of higher education) are created (2010, p. 10).

These fundamental changes in the university are predicated on a new cohort of students bringing about a generational clash. The determinism forms a complete circle in which young people are determined by their technological environment to form a new generational cohort and then the Net Generation go on to force deep changes to the fundamental nature of the university. Tapscott and Williams propose an entirely new approach to the place and role of the university in society. The answer that Tapscott and Williams suggest is the adoption of a free market approach in which private initiative and the market replace existing models of the university. The government's role would be reduced to building the digital infrastructure, such as broadband networks, that would allow such private commercial providers to succeed. In the context of severe budget reductions, following the banking crisis, these calls for a reduced role for the state and increased private provision fall on fertile ground and they find a strong echo in the UK Government-commissioned Browne Report (2010).

Like Bates (2010), I argue that the future of university provision is a choice and not the result of a technologically determined process. Technological change can assist many kinds of changes in university teaching and learning and in relation to the broader role of the university. Technological change does not require universities to change in one particular way rather than another and it certainly does not lend itself to simple solutions based on generational stereotypes. Resistance to educational reform can arise from issues of funding and the significant divergences in vision that different social groups have for universities. Change is not hindered by the state-organized nonmarket form of organization in the university sector, and a neoliberal approach to markets and privatization offers no simple solution. The key issue that this chapter addresses is the determinism inherent in Net Generation and digital natives arguments that obscures the role of political choice.

## Concluding Remarks

The networked learning in higher education project was completed almost 10 years ago. It was reporting on a population of students that would have been born in the early 1980s at the beginning of the age group that has become known as the Net Generation and digital natives. It was a period in which broadband network connections were still a novelty and ADSL, using copper wire subscriber lines, was launched commercially only in 2000. The provision of wired broadband in student study bedrooms was still a novelty and almost certainly unavailable, outside of some workplaces, for distance learners (Jones and Healing 2010b). Mobile phones were relatively new and while Vodafone took the first mobile call in 1985 the GSM 2G phone system, enabling SMS text messaging, was introduced only in the 1990s. Mobile Internet is a very recent service, introduced with 3G networks after the new millennium had begun. One of the conclusions we drew in 2000 was that there was no evidence of a generational divide. We also noted that students' views of networked learning were generally positive but that these views moderated over time

following exposure to their networked learning course. A key factor we identified was the integration of networked learning within the course and positive experiences were associated with the most integrated courses. Ten years later and despite the increased availability of computing devices, fast broadband access, the development of mobile technologies, and all the rhetoric about new generations, we find very similar results in research from across the world. In my own research, in the UK, I have found no evidence of the much hyped generational divide. I have found that students are generally satisfied with university provision and that they are quite unlike the picture found in Net Generation and digital native literature. The students were not radicals adopting the most recent innovations, skilled in the latest technologies, and forcing change on reluctant faculty and resistant universities. Their requirements were modest and remained focused on the kinds of communication tools and services that enable access to the study resources that the universities are already providing.

There is now a mounting empirical base on which we must begin to develop theories to adequately account for the changes that we can clearly see from research across the world. The availability of cheap computing, broadband, and mobile networks and a range of Web-based services is clearly changing the way both students study and the way the universities they attend conduct their work. These changes involve choice and they cannot be read from a predetermined script that relies on a crude form of determinism. I agree with Bennett and Maton (2010) that one of the things we require now is a more theoretically informed body of research that moves away from simple dichotomies. We need to understand the changes that are taking place while avoiding the hyperbole that has characterized much of the debate in the past 10 years. We need to reengage with research agendas and step outside the narrow confines of the recent debate. In the research 10 years ago, we drew on the relational tradition of research that suggested that there might be a relationship between teachers' approaches to teaching and learners' approaches to learning (Jones et al. 2000). Margaryan et al. (2011) noted that: "Our findings show that, regardless of age and subject discipline, students' attitudes to learning appear to be influenced by the teaching approaches used by lecturers." (p. 10). This is a line of research that could usefully be further developed, for example by investigating the way faculty's use of new technologies can influence the take up and use of new technologies by students for educational purposes.

In researching the relationship between students and technology, much of the research effort has gone into self-report, largely through the use of surveys but also in interview data. There is a need to move beyond this kind of data using new methods to access data that reveals the actual use of new technologies. Recently, Judd and Kennedy (2010) reported a 5-year study of medical students that described actual rather than reported use. Their innovative approach provided quantitative data, but there are also the beginnings of qualitative approaches that go beyond simple interviews by engaging the students themselves in capturing data. Ryberg (2007) conducted an interesting, ethnographically inspired study of "power users" of technology. The study investigated whether young "power users" might be learning, working, and solving problems differently as a result of their more intensive

use of technology. Jones and Healing (2010b) have reported their experience of using a cultural probe and the self-collection by students of video and textual records prompted by SMS text messages. Corrin et al. (2010) have used a similar experience sampling approach in their work.

Overall, the importance of the debate about the new generation of students is that determinist arguments about the new generation of students can close down debate about the role and purposes of higher education. Networked learning relies on these debates for its existence and it would be impoverished if the radical market-driven solutions that are associated with Net Generation and digital native arguments succeed.

## References

- Archer M. (2002). Realism and the problem of agency. *Journal of Critical Realism*, 5, 11–20.
- Archer M. (2003). *Structure, Agency and the Internal Conversation*. Cambridge: Cambridge University Press.
- Bates, T. (2010). *A critique of Tapscott and William's views on university reform*. Retrieved January 24, 2011, from <http://www.tonybates.ca/2010/02/14/a-critique-of-tapscott-and-williams-views-on-university-reform>
- Bayne, S., & Ross, J. (2007). *The 'digital native' and 'digital immigrant': A dangerous opposition*. Paper presented at the Annual Conference of the Society for Research into Higher Education, Brighton 11–13th December 2007. Retrieved January 24, 2011, from [http://www.malts.ed.ac.uk/staff/sian/natives\\_final.pdf](http://www.malts.ed.ac.uk/staff/sian/natives_final.pdf)
- Bennett, S., & Maton, K. (2010). Beyond the 'digital natives' debate: Towards a more nuanced understanding of students' technology experiences. *Journal of Computer Assisted Learning*, 26(5), 321–331.
- Bennett, S., Maton, K., & Kervin, L. (2008). The 'digital natives' debate: A critical review of the evidence. *British Journal of Educational Technology*, 39(5), 775–786.
- Brown, C., & Czerniewicz, L. (2008). *Trends in student use of ICTs in higher education in South Africa*. Paper presented at the 10th Annual Conference of WWW Applications. Retrieved January 24, 2011, from [http://www.cet.uct.ac.za/files/file/ResearchOutput/2008\\_wwwApps\\_UseTrends.pdf](http://www.cet.uct.ac.za/files/file/ResearchOutput/2008_wwwApps_UseTrends.pdf)
- Brown, C., & Czerniewicz, L. (2010). Debunking the 'digital native': Beyond digital apartheid, towards digital democracy. *Journal of Computer Assisted Learning*, 26(5), 357–369.
- Browne, J. (2010). *Securing a sustainable future for higher education: An independent review of higher education funding and student finance*. Retrieved January 24, 2011, from <http://hereview.independent.gov.uk/hereview/report/>
- Buckingham, D., & Willett, R. (Eds.). (2006). *Digital generations: Children, young people and new media*. Mahwah, NJ: Erlbaum.
- Bullen, M., Morgan, T., Belfer, K., & Qayyum, A. (2009). The Net generation in higher education: Rhetoric and reality. *International Journal of Excellence in eLearning*, 2, 1–13.
- Castells, M. (2000). *The rise of the network society* (2nd ed.). Oxford: Blackwell.
- Corrin, L., Lokyer, L., & Bennett, S. (2010). Technological diversity: An investigation of students' technology use in everyday life and academic study. *Learning Media and Technology*, 35(4), 387–401.
- Czerniewicz, L., Williams, K., & Brown, C. (2009). Students make a plan: Understanding student agency in constraining conditions. *ALT-J, The Association for Learning Technology Journal*, 17(2), 75–88.
- Dirckinck-Holmfeld, L., & Jones, C. (2009). Issues and concepts in networked learning: Analysis and the future of networked learning. In L. Dirckinck-Holmfeld, C. Jones, & B. Lindström

- (Eds.), *Analysing networked learning practices in higher education and continuing professional development*. Rotterdam: Sense Publishers.
- Goodyear, P., Asensio, M., Jones, C., Hodgson, V., & Steeples, C. (2003). Relationships between conceptions of learning, approaches to study and students' judgements about the value of their experiences of networked learning. *Association for Learning Technology Journal*, 11(1), 17–27.
- Goodyear, P., Banks, S., Hodgson, V., & McConnell, D. (2004). Research on networked learning: An overview. In P. Goodyear, S. Banks, V. Hodgson, & D. McConnell (Eds.), *Advances in research on networked learning*. Dordrecht: Kluwer.
- Goodyear, P., Jones, C., Asensio, M., Hodgson, V., & Steeples, C. (2001). *Students' experiences of networked learning in higher education, final project report (2 vols)*. Bristol: Joint Information Systems Committee (JISC).
- Goodyear, P., Jones, C., Asensio, M., Hodgson, V., & Steeples, C. (2005). Networked learning in higher education: Students' expectations and experiences. *Higher Education*, 50(3), 473–508.
- Harasim, L., Hiltz, S. R., Teles, L., & Turoff, M. (1995). *Learning networks: A field guide to teaching and learning*. Cambridge, MA: MIT.
- 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.
- Herring, S. (2008). Questioning the generational divide: Technological exoticism and adult construction of online youth identity. In D. Buckingham (Ed.), *Youth, identity and digital media* (pp. 71–92). Cambridge, MA: MIT.
- Hosein, A., Ramanau, R., & Jones, C. (2010a). Learning and living technologies: A longitudinal study of first-year students' frequency and competence in the use of ICT. *Learning Media and Technology*, 35(4), 403–418.
- Hosein, A., Ramanau, R., & Jones, C. (2010b). *Are all net generation students the same? The frequency of technology use at university*. IADIS International Conference e-Learning 2010, Freiburg, Germany.
- Howe, N., & Strauss, W. (1991). *Generations: The history of America's future and the fourth turning: An American prophecy*. Oxford: Oxford University Press.
- Howe, N., & Strauss, W. (2000). *Millennials rising: The Next greatest generation*. New York: Vintage Books.
- Jones, C. (2011). Students, the net generation and digital natives: Accounting for educational change. In M. Thomas (Ed.), *Deconstructing digital natives*. New York: Routledge.
- Jones, C., & Asensio, M. (2001). Experiences of assessment: Using phenomenography for evaluation. *Journal of Computer Assisted Learning*, 17(3), 314–321.
- Jones, C., Asensio, M., & Goodyear, P. (2000). Networked learning in higher education: Practitioners' perspectives. *Association for Learning Technology Journal*, 8(2), 18–28.
- Jones, C., & Bloxham, S. (2001). Networked legal learning: An evaluation of the student experience. *International Review of Law, Computers and Technology*, 3(15), 317–329.
- Jones, C., & Cross, S. (2009). Is there a Net generation coming to university? In H. Damis, & L. Creanor (Eds), *"In dreams begins responsibility" - choice evidence and change: The 16th Association for Learning Technology Conference, Manchester 2009* (pp. 10–20). Retrieved August 3, 2011, from <http://oro.open.ac.uk/18468/>
- Jones, C., & Dirckinck-Holmfeld, L. (2009). Analysing networked learning practices: An introduction. In L. Dirckinck-Holmfeld, C. Jones, & B. Lindström (Eds.), *Analysing networked learning practices in higher education and continuing professional development*. Rotterdam: Sense Publishers.
- Jones, C., Ferreday, D., & Hodgson, V. (2008). Networked learning a relational approach – weak and strong ties. *Journal of Computer Assisted Learning*, 24(2), 90–102.
- Jones, C., & Healing, G. (2010a). Net generation students: Agency and choice and the new technologies. *Journal of Computer Assisted Learning*, 26(5), 344–356.
- Jones, C., & Healing, G. (2010b). Networks and locations for student learning. *Learning Media and Technology*, 35(4), 369–385.
- Jones, C., & Hosein, A. (2010). Profiling university students' use of technology: Where is the net generation divide? *International Journal of Technology Knowledge and Society*, 6(3), 43–58.

- Jones, C., Ramanau, R., Cross, S. J., & Healing, G. (2010). Net generation or digital natives: Is there a distinct new generation entering university? *Computers in Education*, 54(3), 722–732.
- Judd, T., & Kennedy, G. (2010). A five-year study of on-campus Internet use by undergraduate biomedical students. *Computers in Education*, 55(1), 564–571.
- Judd, T., & Kennedy, G. (2011). Measurement and evidence of computer-based task switching and multitasking by 'Net Generation' students. *Computers in Education*, 56(3), 625–631. doi:10.1016/j.compedu.2010.10.004.
- Kennedy, G., Dalgarno, B., Gray, K., Judd, T., Waycott, J., Bennett, S., et al. (2007). The net generation are not big users of web 2.0 technologies: Preliminary findings. In *ICT: Providing choices for learners and learning*. Proceedings of ASCILITE Singapore 2007. Retrieved January 24, 2011, from <http://www.ascilite.org.au/conferences/singapore07/procs/kennedy.pdf>
- Kennedy, G., Judd, T., Dalgarno, B., & Waycott, J. (2010). Beyond natives and immigrants: Exploring types of net generation students. *Journal of Computer Assisted Learning*, 26(5), 332–343.
- Kennedy, G., Krause, K.-L., Judd, T., Churchward, A., & Gray, K. (2006). *First year students' experiences with technology: Are they really digital natives?* Melbourne: Centre for Study of Higher Education, The University of Melbourne.
- Kennedy, G. E., Krause, K.-L., Judd, T. S., Churchward, A., & Gray, K. (2008). First year students' experiences with technology: Are they really digital natives? *Australasian Journal of Educational Technology*, 24(1), 108–122.
- Margaryan, A., Littlejohn, A., & Vojt, G. (2011). Are digital natives a myth or reality? University students' use of digital technologies. *Computers in Education*, 56(2), 429–440.
- McNaught, C., Lam, P., & Ho, A. (2009). The digital divide between university students and teachers in Hong Kong. In *Same places, different spaces*. Proceedings ASCILITE 2009, Auckland, New Zealand. Retrieved January 24, 2011, from <http://www.ascilite.org.au/conferences/auckland09/procs/mcnaught.pdf>
- Oblinger, D. G., & Oblinger, J. (2005). *Educating the Net Generation*. EDUCAUSE Online book. Retrieved August 3, 2011, from <http://www.educause.edu/ir/library/pdf/pub7101.pdf>
- Oliver, B., & Goerke, V. (2007). Australian undergraduates' use and ownership of emerging technologies: Implications and opportunities for creating engaging learning experiences for the net generation. *Australasian Journal of Educational Technology*, 23(2), 171–186.
- Palfrey, J., & Gasser, U. (2008). *Born digital: Understanding the first generation of digital natives*. New York: Basic Books.
- Pedró, F. (2009). *New millennium learners in higher education: Evidence and policy implications*. Paris: Centre for Educational Research and Innovation (CERI).
- Prensky, M. (2001). Digital natives, digital immigrants. *On the Horizon*, 9(5), 1–6.
- Prensky, M. (2010). *Teaching digital natives: Partnering for real learning*. London: Sage.
- Ryberg, T. (2007). *Patchworking as a metaphor for learning: Understanding youth, learning and technology*. Unpublished PhD thesis, Aalborg University, Aalborg. Retrieved January 24, 2011, from [http://www.telearn.org/warehouse/RYBERG-THOMAS-2007\\_\(001783v1\).pdf](http://www.telearn.org/warehouse/RYBERG-THOMAS-2007_(001783v1).pdf)
- Ryberg, T., Dirckinck-Holmfeld, L., & Jones, C. (2010). Catering to the needs of the "digital natives" or educating the "Net Generation"? In M. J. W. Lee & C. McLoughlin (Eds.), *Web 2.0-based e-learning: Applying social informatics for tertiary teaching*. Hershey, PA: IGI Global.
- Salajan, F. D., Schönwetter, D. J., & Cleghorn, B. M. (2010). Student and faculty inter-generational digital divide: Fact or fiction? *Computers in Education*, 55, 1393–1403.
- Salaway, G., Caruso, J. B., & Nelson, M. R. (2008). *The ECAR study of undergraduate students and information technology*. Boulder, CO: EDUCAUSE Center for Applied Research.
- Sánchez, J., Salinas, A., Contreras, D., & Meyer, E. (2010). Does the new digital generation of learners exist? A qualitative study. *British Journal of Educational Technology*, 42(4), 543–556. doi:10.1111/j.1467-8535.2010.01069.x.
- Schulmeister, R. (2010). Students, Internet, eLearning and Web 2.0. In M. Ebner & M. Schiefner (Eds.), *Looking toward the future of technology-enhanced education: Ubiquitous learning and digital native*. Hershey, PA: IGI Global.



- Selwyn, N. (2003). 'Doing IT for the kids': Re-examining children, computers and the 'Information Society'. *Media, Culture and Society*, 25(3), 351–378.
- Selwyn, N. (2008). An investigation of differences in undergraduates' academic use of the internet. *Active Learning in Higher Education*, 9(1), 11–22.
- Smith, S. D., & Borreson Caruso, J. (2010). *The ECAR study of undergraduate students and information technology, 2010 (Research Study, Vol. 6)*. Boulder, CO: EDUCAUSE Center for Applied Research. Retrieved January 24, 2011, from <http://www.educause.edu/ecar>
- Smith, S., Salaway, G., & Borreson Caruso, J. (2009). *The ECAR study of undergraduate students and information technology, 2009 (Research Study, Vol. 6)*. Boulder, CO: EDUCAUSE Center for Applied Research. Retrieved January 24, 2011, from <http://www.educause.edu/ecar>
- Tapscott, D. (2009). *Grown up digital: How the Net generation is changing your world*. New York: McGraw-Hill.
- Tapscott, D., & Williams, A. (2010). Innovating the 21st century university: It's time. *Educause Review*, 45(1), 17–29.
- Thinnyane, H. (2010). Are digital natives a world-wide phenomenon? An investigation into South African first year students' use and experience with technology. *Computers in Education*, 55, 406–414.
- Waycott, J., Bennett, S., Kennedy, G., Dalgarno, B., & Gray, K. (2009). Digital divides? Student and staff perceptions of information and communication technologies. *Computers in Education*, 54(4), 1202–1211.
- Wellman, B., Quan-Haase, A., Boase, J., Chen, W., Hampton, K., Isla de Diaz, I., et al. (2003). The social affordances of the internet for networked individualism. *Journal of Computer-Mediated Communication*, 8(3).



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