

Why the Google Generation Will Not Speak: The Invention of Digital Natives.

By Tara Brabazon, Zanna Dear, Grantley Greene and Abigail Purdy

Searing social criticism is diverting, even ideologically titillating, but it frequently turns out to be sloppy social science, leaving us unprepared to reckon with some of the changes now upon us.¹

Grant McCracken

Popular cultural intellectuals have not served us well in this decade of user-generated content, blogs, podcasts, citizen journalists and Google. Indeed, while Grant McCracken critiqued Neil Postman, doubting the efficacy of ‘searing social criticism,’ he validated the work of pseudo-intellectual-journalist-experts-commentators like Stephen Johnson and soundbite phrases like ‘the long tail.’ While social criticism may not always cause change in consciousness or culture, the chances are that it is more effectively theorized than the work of those commentators currently enthused by the supposedly enabling relationship between technology and democracy.

This paper is not framed by social science, sloppy or rigorous. Neither is it aimed at preparing corporations, schools or universities with ‘managing change.’ Instead this collaborative article is a snapshot, a dialogue, and an exploration of the perils and problems of summoning an authentic voice of ‘youth,’ the ‘Google Generation’ or the ‘Digital Natives.’

The reason for this discussion hovers around this photograph.

¹ G. McCracken, *Transformations: identity construction in contemporary culture*, (Bloomington: Indiana University Press, 2008), p. xiii



The four writers of this article had the opportunity to speak at Gartner’s *Portals, Content and Collaboration Summit*, held in September 2008. Tara Brabazon delivered a keynote address. Grantley Greene, Abigail Purdy and Zanna Dear were asked to ‘represent’ their age group and speak as ‘Digital Natives.’ In other words, Brabazon – as a 39 year old Generation Xer – was granted authority to speak as a scholar, representing more than her age. Greene, Purdy and Dear were selected to speak about their age. Certainly the event was positive and Gartner was correct to target this technological / generational issue as worthy of discussion; visions and sounds are proliferated through blogs, MySpace, YouTube and podcasts. A Daily Mail headline shrieks “Social websites harm a child’s brain.”² Yet such neo-Lombrosian arguments are presented as fact. There is a marginalization of information literacy.

This panel was important, and perhaps not for the reasons considered by Gartner. It captured the gaps in social science and research and development. The last ten years has seen one more generation of young people who have been taken to represent a wider societal fear. One problem is youth is an invention, a category that is empty of definitive meanings and interpretations. It can be filled with the required agendas and discourses of a time. There are many organizations and individuals who are empowered through either

² D. Derbyshire, “Social websites ‘harm a child’s brain,’” *Daily Mail*, February 24, 2009, p. 1

demonizing or celebrating ‘young people.’ There are also many organizations that either demonize or celebrate ‘technology.’ Combining these two dynamic social variables and sign systems for social change and agency creates confusion. Debates erupt about citizenship, education, knowledge and politics. As Douglas Kellner suggests,

Modern education, in short, emphasizes submission to authority, rote memorization, and what Freire called the ‘banking concept’ of education, in which learned teachers deposit knowledge into passive students, inculcating conformity, subordination, and normalization. Today these traits are somewhat undercut in certain sections of the global postindustrial and networked society, with its demands for new skills for the workplace, participation in emergent social and political environs, and interaction within novel forms of culture and everyday life.³

Kellner entwines progress with technological advancement, overlaying social and political participation through this transformation. Such a stark passage between ideas and historical periods is part of what Gartner was hoping to trace in their panel with ‘Digital Natives.’ But what if we unsettle such readings of the past and present?

What is required are careful studies of information seeking behaviour from all groups in our schools, universities and societies, not simply one group clumped together as a generation. A recent “Generations Online in 2009” data memo from the Pew Internet and American Life found that

Contrary to the image of Generation Y as the ‘Net Generation,’ internet users in their 20s do not dominate every aspect of online life. Generation X is the most likely group to bank, shop, and look for health information online. Boomers are just as likely as Generation Y to make travel reservations online. And even Silent Generation internet users are competitive when it comes to email (although teens might point out that this is proof that email is for old people).⁴

Strong research studies are emerging that cut through the hyperbole and spin about ‘the Google Generation’ and ‘Digital Natives.’ Kirsty Williamson, Vivienne Bernath, Steven Wright and Jen Sullivan instigated a small study of “Research students in the electronic

³ D. Kellner, “Technological transformation, multiple literacies, and the re-visioning of education,” *E-learning*, Vol. 1, No. 1, 2004, p. 10-11

⁴ S. Jones and S. Fox, “Generations online in 2009,” Pew Internet Project Data Memo, January 28, 2009, Pew Internet and American Life Project, http://www.pewinternet.org/pdfs/PIP_Generations_2009.pdf

age.”⁵ Their investigation of fifteen research students at an Australian university examined the ways in which an information source was selected from the glut of electronic resources. The value of the study involved asking the research students how they knew when to stop data collection amid the array of information. The researchers argued that there has never been a more important time for academic librarians to shape, direct and guide this current cohort of research students. This paper therefore investigates the phrases ‘Google Generation’ and ‘Digital Natives’ and the impact of using these phrases on three students who would be included in such categories.

The Google Generation?

Assumptions are always made about youth, particularly when the people making the assumptions are not young.⁶ The “generation gap” was invented to express a loss in traditional authority structures. Clothes, rock music and long hair⁷ connoted not only difference or radicalism, but the building blocks of revolution.⁸ This sweeping statement of difference on the basis of age since the 1960s has had many consequences. Firstly, and perhaps most significantly, the focus on age has meant that other social variables – particularly race, class,⁹ gender,¹⁰ and religion – have been under-discussed. Secondly, alongside this simplification of identity is an absence of history. One cultural formation – music, fashion, hair, the web - is taken to be much more significant than it actually is. Thirdly, the writers extolling youthful difference invariably regard young people as a force of change, defiance, crisis and threat.¹¹ This revolution through youth continues until the moment they enter adulthood.¹² Then the next group of 13-19 year olds –

⁵ K. Williamson, V. Bernath, S. Wright, J. Sullivan, “Research students in the electronic age: impacts of changing information behaviour on information literacy needs,” *Communications in Information Literacy*, Volume 1, Issue 2, Fall 2007.

⁶ S. Cohen, *Folk Devils and moral panics*, (London: MacGibbon, 1972)

⁷ D. Jones, *Haircuts: fifty years of styles and cuts*, (London: Thames and Hudson, 1990)

⁸ S. Hall and T. Jefferson, *Resistance through rituals*, (London: Hutchinson, 1976)

⁹ M. Savage, *Class analysis and social transformation*, (Maidenhead: OUP, 2000)

¹⁰ A. McRobbie, *Feminism and Youth culture*, (Houndmills: Macmillan, 1991), A. McRobbie and M. Nava, *Gender and Generation*, (London: Macmillan, 1984)

¹¹ G. Pearson, *Hooligan: a history of respectable fears*, (London: Macmillan, 1983)

¹² D. Rimmer, *Like Punk never happened*, (London: Faber and Faber, 1985)

Generation X,¹³ Generation Y, the Nintendo Generation, the Google Generation - is scanned for their threat, promise, challenge and transformation.

These assumptions about youth often block actual research into behaviour, history and context, damaging schools, universities and libraries.¹⁴ This flaw in analysis has existed since the 1960s with the mods and their amphetamines and scooters, the skinheads with their boots, violence and racism, the punks with their safety pins, slashed clothes and mohawks.¹⁵ Now that music and fashion are no longer battlegrounds between generations,¹⁶ the talk of radical generational change and threat has moved to technology.

Instead of mods, skins, rockers, punks and Goths, the new group of threat and opportunity has been labelled Digital Natives. This phrase was first used in 2001 by Marc Prensky. A management consultant, he used the term to demonstrate that, “today’s students think and process information fundamentally differently from their predecessors.”¹⁷ Once more the young ones are restless and the older generation does not understand them. But true to the pattern, Prensky has:

1. diagnosed a moment of revolutionary change,
2. invented a social crisis and failure in education resulting from it and
3. transformed himself into a consultant uniquely qualified to fix it.

The term “generation” is too blunt a sociological instrument to accurately describe social, economic and political change. It always has been. It is far too vague a description to

¹³ S. Redhead (ed.), *Rave off*, (Aldershot: Avebury, 1993), S. Redhead, *Subculture to Clubcultures*, (Oxford: Basil Blackwell, 1997), S. Redhead, *The end-of-the-century party: youth and pop towards 2000*, (Manchester: Manchester University Press, 1990)

¹⁴ The last decade has been difficult for libraries and librarians. To track these challenges, please refer to N. Baker, *Double Fold: libraries and the assault on paper*, (New York: Random House 2001), J. Conaway, *America’s library: the story of the library of congress 1800-2000*. (New Haven: Yale University Press, 2000), J. Hamilton, *Casanova was a book lover*, (Baton Rouge: Louisiana State University Press, 2000), F. Kilgour, *The evolution of the book*, (Oxford: Oxford University Press, 1998), E. Shreeves, “The acquisitions culture wars,” *Library Trends*, Vol. 48, No. 4, Spring 2001, pp. 877-890 and M. Wilson, “Understanding the needs of tomorrow’s library user: rethinking library services for the new age,” *APLIS*, Vol. 13, No. 2, 2000, pp. 81-90.

¹⁵ J. Savage, *England's Dreaming*, (London: Faber, 1991)

¹⁶ D. Hebdige, *Subculture* (London: Routledge, 1989: 1979)

¹⁷ M. Prensky, “Digital Natives, Digital Immigrants,” *On the Horizon*, Vol. 9 No. 5, October 2001, <http://www.marcprensky.com/writing/Prensky%20-%20Digital%20Natives,%20Digital%20Immigrants%20-%20Part1.pdf>

understand an age group and how ‘they’ deploy ‘technology.’ But in his affirmation of modernity, it is not surprising that Prensky deploys reified, positivist science: “it is very likely that our students’ brains have physically changed – and are different from ours – as a result of how they grew up.”¹⁸ Besides simplifying how ‘a generation’ engages with information, he has also hypothesized a physiological transformation of the human brain.

His argument becomes more damning when describing those ‘older people’ who, as Digital Immigrants, doubt the scale of this change (and his argument). Seemingly, in a post-multicultural era, being an immigrant is a problem because they keep a “foot in the past.”¹⁹ For Prensky, this group is technologically inhibited; they use the internet after other media platforms when searching for information and supposedly print emails. No ethnography or participation observation data is cited to verify these claims. Prensky seemingly forgets that the platforms, data and information being processed at multi-tasking speed by the ‘natives’ were created by ‘immigrants’ like Bill Gates, Serge Brin and Chad Hurley. Prensky also neglects to mention that ‘immigrants’ know more than ‘natives.’ In less xenophobic times, such a statement would be self evident, even at the level of analogy or metaphor. Immigrants have lived in different ways, in at least two places and must manage the trauma of movement, translation and change. Immigrants are flexible because they have to be. They know how to engage with information quickly or slowly, understanding when superficial reading and data mining will suffice and when a line by line, page by page, chapter by chapter deep involvement with an intricate text is required. But Prensky is intellectually invested in the generational premise and must therefore preach crisis and endless change:

If Digital Immigrant educators really want to reach Digital natives – i.e. all their students – they will have to change. It’s high time for them to stop their grousing and, as the Nike motto of the Digital native generation says, ‘Just do it!’²⁰

A bit of history is required at this point. ‘Just do it’ was a Nike slogan introduced in 1988, before the digital natives were born, which fact clearly does not get in the way of

¹⁸ *ibid.*

¹⁹ *ibid.*

²⁰ *ibid.*

Prensky's 'theory' of generation. Prensky runs a consultancy business that designs games, which he describes as "the best opportunity we have to engage our kids in real learning."²¹ When reading his articles, such as "Digital game-based learning", which appeared in *ACM Computers in Entertainment* in 2003, his 'research' features two references, one of which comes from his own book.²² Significantly, he also forgets about the thousands of scholars returning to education. Our students are diverse in age, race, class and religion.

An important work on the debate encircling Prensky's work emerged in 2008, written by Sue Bennett, Karl Maton and Lisa Kervin and published in *The British Journal of Educational Technology*.²³ These scholars saw the 'digital native' discussion as a form of 'moral panic,' one of many that have branded with the tag 'youth.' Less emphasised by Bennett, Maton and Kervin was Prensky's astonishingly narrow discussion of content and curriculum. He stated, "students should be learning 21st century subject matter, such as nanotechnology, bioethics, genetic medicine, and neuroscience."²⁴ Everything else is "legacy knowledge."²⁵ This 'legacy' (or in effect redundant) subject matter includes language education, history and geography.

It is no surprise that the humanities have been dismissed so easily. For the last ten years, good teaching has been defined as the innovative use of digitally convergent platforms. The consequence of this inelegant and inaccurate relationship between 'new technology' and 'good teaching' is that curriculum development has suffered.²⁶ The focus is on

²¹ M. Prensky, "Really good news about your children's video games," MarcPrensky.com, June 15, 2003, <http://www.marcprensky.com/writing/Prensky%20-%20Really%20good%20news.pdf>

²² M. Prensky, "Digital game-based learning," *ACM Computers in Entertainment (CIE)*, Vol. 1, No. 1, October 2003, <http://portal.acm.org/citation.cfm?id=950566.950596>

²³ S. Bennett, K. Maton and L. Kervin, "The 'digital natives' debate: A critical review of the evidence," *The British Journal of Educational Technology*, Vol. 39, No. 5, pp. 775-786

²⁴ M. Prensky, "Listen to the natives," *Educational Leadership*, Vol. 63, No. 4, December 2005-January 2006, http://www.ascd.org/authors/ed_lead/el200512_prensky.html

²⁵ *ibid.*

²⁶ A. Ip, I. Morrison, M. Currie and J. Mason, "Managing online resources for teaching and learning," *Sixth Australian World Wide Web Conference*, 2000, <http://ausweb.scu.edu.au/aw2k/papers/ip/paper.html> and Bridget Dalton and Dana Grisham "Taking a position on integrating literacy and technology in the curriculum," *Reading Online*, March 2001, http://www.readingonline.org/editorial/edit_index.asp?HREF=/editorial/march2002/index.html

process and tools, not literacies and knowledge. Under-reported in the literature is the high drop out rate from online courses,²⁷ ‘gaming behaviour’ from normally civilized students who flame their colleagues with racist, sexist or homophobic abuse,²⁸ poor attendance in class²⁹ and low levels of reading on or off screen.³⁰

How did we end up here, confusing ‘the new’ with ‘the effective’? It is much easier to locate a moment of change than to recognize continuities between past and present. Particularly at moments when media platforms change, it is very easy to infer or assume a series of social changes following it. But in the social sciences, causality is very difficult to prove because of the complexity in isolating two social variables and forging a direct and linear link between them. What we require are less assumptions of change and more research monitoring behaviour and practices on and offline. The *PEW Internet and American Life*³¹ longitudinal studies have contributed enormously to the sociology of the web, as have Ofcom’s studies of adult and child literacy.³² It is easy – too easy – to assume that “generation” is a useful variable to understand digitized platforms.

In January 2008, an important report emerged from the JISC, the Joint Information Systems Committee. The report was titled the *Information behaviour of the researcher of*

²⁷ K. Tyler-Smith, “Early Attrition among First Time eLearners: A Review of Factors that Contribute to Drop-out, Withdrawal and Non-completion Rates of Adult Learners undertaking eLearning Programmes,” *Journal of Online Learning and Teaching*, Vol. 2, No. 2, 2006, http://jolt.merlot.org/documents/Vol2_No2_TylerSmith_000.pdf

²⁸ J. Eve and T. Brabazon, “Learning to leisure,” *Journal of Literacy and Technology*, Vol. 9, No. 1, April 2008, http://www.literacyandtechnology.org/volume9/jlt_v9_1_eve_brabazon.pdf

²⁹ P. Latreille, “Student attendance & lecture notes on VLEs: part of the problem, part of the solution?” *Higher Education Academy – Economics Network*, April 2008, http://www.economicnetwork.ac.uk/showcase/latreille_attendance.htm

³⁰ P. Deekle, “Books, Reading, and Undergraduate Education,” *Library Trends*, Vol. 44, No. 2, 1995, pp. 264-69

³¹ *PEW Internet and American Life*, <http://www.pewinternet.org/>

³² *Media Literacy Audit: Adults*, Ofcom, March 2, 2006, http://www.ofcom.org.uk/advice/media_literacy/medlitpub/medlitpubrssi/medialit_audit/medialit_audit.pdf and *Media Literacy Audit: Report on Media Literacy amongst children*, Ofcom, May 2, 2006, http://www.ofcom.org.uk/advice/media_literacy/medlitpub/medlitpubrssi/children/children.pdf

the future, better known as the Google Generation Report.³³ Significantly, the research team tracked the reading behaviour of both students and teachers. The findings of the report were startling and offer the clearest critique to glib phrases like the Google Generation, digital natives and digital immigrants.

1. There are very few – too few – controlled studies of information seeking behaviour that is able to isolate age as a variable.³⁴
2. Speculation and ‘mis-information’ has been perpetrated about how young people behave in online environments.³⁵
3. All researchers – not only ‘young people’ are skim-reading research, reading abstracts rather than drilling deeper into the paper.
4. Young people are not ‘dumbing down.’ Society is ‘dumbing down.’
5. “The information literacy of young people, has not improved with the widening access to technology: in fact, their apparent facility with computers disguises some worrying problems.”³⁶
6. “Young scholars are using tools that require little skill: they appear satisfied with a very simple or basic form of searching.”³⁷
7. “Digital literacies and information literacies do not go hand in hand.”³⁸

The lack of ethnography, participant observation and teacher-led research over the last decade has had an impact. Policy and funding decisions have been poorly informed. The key finding of the Google Generation Report remains that assumptions about computer literacy are masking educational problems. The conversational phrasing that is deployed in the Google Search engine is capping information expectations, rather than enabling the movement to other search engines and directories such as Google Scholar³⁹ or the Directory of Open Access Journals.⁴⁰ In other words, our inexperienced students are

³³ JISC, *Information behaviour of the researcher of the future*, CIBER briefing paper, (London: UCL, 2007),

http://www.jisc.ac.uk/media/documents/programmes/reppres/gg_final_keynote_11012008.pdf

³⁴ *ibid.*, p.14

³⁵ *ibid.*, p.14

³⁶ *Information behaviour of the researcher of the future*, *op. cit.*, p. 12

³⁷ *ibid.*, p.14

³⁸ *ibid.*, p. 20

³⁹ Google Scholar, <http://scholar.google.co.uk/>

⁴⁰ Directory of Open Access Journals, <http://www.doaj.org/>

satisfied with the low skill base, and perhaps they do not even know that they are restricting themselves to low-level competencies. Because of the supposition that ‘new technology’ must be difficult and digital immigrants cannot manage it, we have neglected building the relationship between information seeking skills and the development of knowledge.⁴¹

This JISC report confirmed that it is un(der)researched theories about the online environment and students that threatens to damage the research(ers) of the future. Statements can be made about ‘the Google Generation,’ ‘young people’ and their use of technology. Many of these beliefs are incorrect or unproven and when decisions about schools, universities, curricula and libraries are made on the basis of these theories, we are heading into dangerous terrain. The simple fact that a media platform is available does not mean that it is used or used well.

The ‘Google Generation’ as a phrase must transform from a supposedly neutral description to a springboard of change in teaching and learning. It is easy to argue that one platform or technological intervention shatters the windows of our world. But web 2.0 is best understood as a challenge not a unilateral force of change. Best practice in such an environment does not stop with a diagnosis. Leadership commences at this point. The remainder of this paper offers a series of questions and answers between the authors, probing not only phrases like digital natives and the Google Generation, but the consequences of these labels on contemporary students.

Dialogues through Digitization

TB: **How did it feel to be on a Digital Native panel for Gartner?**

ZD: I felt incredibly privileged to be asked to speak for Gartner and the whole experience was utterly incredible not to mention good for my CV. However being a ‘Digital Native’ for Gartner was at first a different matter. Before actually meeting the analysts and speaking in front of the audience I felt

⁴¹ In Jack Goldsmith and Tim Wu’s important book, *Who controls the internet: illusions of a borderless world*, (Oxford: Oxford University Press, 2008) they argued that “Information does not, in fact, want to be free. It wants to be labeled, organized, and filtered so it can be discovered, cross-referenced, and consumed,” p. 51

completely inadequate and unqualified to speak as a 'Digital Native'. First off I'm nearly 25 and can remember life before computers became all pervasive, and I'm hardly the world's most digi-friendly soul. I also am fairly far from wizz kid status when it comes to navigating software programs. However once I was speaking I realized it is essential that anyone expecting the young adults entering the work force to be completely fluent in all things digital needs a sharp awakening. The reality is that this upcoming workforce has just as varied capabilities and interests as those that have preceded it; the main difference is the type of tools available - not the type of worker.

AP The Gartner panel experience was a great insight into a large corporation which would be, or be similar to, those we as a workforce would be involved in. I feel as though it is significant that such established companies are looking at mass changes in the coming years. The main issue that I felt uncomfortable with is the fact that so much is expected of us as a new generation; as far as I am aware we have little new skills to contribute to the existing workers.

GG Being a digital native was one of the greatest experiences of my life. I loved being on the panel being able to express my views in front of successful businessmen and some millionaires. It was an unforgettable experience and I am so happy I had the opportunity because I know people would dream of having a chance like I had. I am very thankful for my teacher for choosing me to be on the panel.

TB: A series of journalists and writers have used phrases like the Google Generation and Digital Natives to describe your age group. Why do you think that is? What do you think are the differences between you and your parents and teachers? Do you see any problems with a label like 'Google Generation'?

ZD Labels are useful for generalising age groups, and journalists use them to do just that, and there is little difference between past phrases like 'Generation X' and 'Babyboomer' to those used today, except of course the passage of time and the narratives currently offered to distinguish contemporary youth. Digital technology has been present in our lives since birth in one form or another, so phrases like 'Digital Native' are inevitable if not unsurprising. In the same sense the phrase 'Google Generation' merely reflects the extremely successful diffusion of a particular computer technology in our highly computer dependent lives. However the phrase does also hold more negative connotations, suggesting our generation is failing to gain sufficient research skills. Though I do feel the proliferation of the phrase has initiated public discussion of the issues surrounding digital technologies and education and has even encouraged our generation to defend its abilities.

AP The notions of 'Google Generation' and 'Digital Natives' are in themselves not derogatory, The generalisations that accompany them are what cause the

problems. To assume skills and weakness to a generation neglects to look upon individual characteristics that an employee can offer. What are the technical skills without the personal communication techniques that allow for them to be conveyed to non-members of the 'Generation'? Technology undeniably features highly in future developments, but other components need to be considered. We may have more competent technical abilities but do we as the 'Google Generations' lack in imagination and creativity?

GG: Journalists and writers have used phrases like the Google generation and digital natives to describe my generation because my generation has grown up using Google and digital technology and to a large extent relying on this technology to find information and provide entertainment. The difference between me and my parents is that I grew up using technology both at home and at school so I was taught how to use technology whereas my parents had to teach themselves. This contributes to the fact that they are not as capable, able or willing to use technology as much I am. I do not see a problem being branded the Google Generation. I feel that it is justified; as the label is simply showing that people my age have grown up with Google in our lives. The fact that I used Google from an early age and still use it to this day further supports this label.

TB: What are your attitudes towards new technology? What technology do you carry around with you? What social networking sites do you use? How and why do you use Facebook?

ZD: I'm fairly easy going towards new technology, I'm neither a leader nor a luddite. I use whatever I need to achieve my goals, mostly the internet, databases, catalogues and lots of word processing too. A fair amount of e-mailing of course and moderate Facebook usage daily as well. I always carry my (very old hand me down) phone that I use to tell the time with more than anything else. I own two iPods (both gifts) that I rarely have with me because I can't be bothered to upload new stuff onto them (I think itunes is a god awful program and long for the days when something supersedes it). I do also have a Macbook (another gift) that joins me on my commute when essay deadlines loom. So to summarise, I never seem to pay for my techno devices or even use them much...maybe I am a bit of a luddite! I use Facebook very stealthily (I'm not searchable) and only to communicate with a very select group of family and friends (15 to be precise).

AP: We have grown up with emerging technologies at our grasp. We are capable and much more willing to incorporate new structures into our lives, but at the same time, this makes competition in the market fierce. We will experiment with the new and improved, but also dismiss what we don't want, need or feel is adequate: we can always demand more and will expect the best. My mobile phone also has a camera and mp3 player; I carry this one device for all my needs. Could I have a better phone, mp3 and camera separately? Probably. But it is the convenience that means it is easy for me.

Facebook plays a dominant role in my everyday life. I use it to contact friends, friends I haven't seen in months, friends I only saw a few hours ago. Many times I spend my time doing other activities just while it's running, just in case I miss out on something, or miss someone. When I am in a position where I can't access Facebook the first few hours, days, feel like I have been cut off from the whole world. After the initial 'withdrawal' I feel a lot better. Tragic I know. The less I use, the less I feel the need.

GG: I love new technology I find it exciting when something which has not been made, seen or thought of is created. I always have technology on my person, normally my mobile phone and MP3 player. For long trips I bring a portable games console. I would not leave the house without at least one of these items. The social networking site which I use is Facebook. I use Facebook to communicate with friends and upload pictures which is a source of entertainment as well as a way to keep in contact with friends.

TB We should talk about technologies and education. How old were you when you first used a computer? Can you remember what you did with a computer? How were computers used in your school?

ZD: I think I was probably 4 or 5 when I first used a computer, I remember it (yes just the one) arriving at my primary school and my teachers taking weeks to figure out how to use it. When they eventually did, we would play a 'snap' type game, where you match the images to each other. Computers were always used as 'fun' educational devices (lots of maths games) up until secondary school, where there was one room full of computers and you only used them if you took 'computer tech' or 'business studies'. They weren't online.

AP: The most significant thing that I can remember about computers when I was in primary school was that they were a treat. We were allowed to use them once a week in a designated computer room. Each class room had a computer, a dusty old pc in the corner. They were rarely used. The computer lessons consisted of us being able to play on programs such as 'paint' or 'word'. The projects were basic, the point being that we were simply to be privileged because we were using such technologies.

GG: I was thirteen when I first used a computer. I remember using excel a lot inputting data, creating bar and pie charts. I used Microsoft word processor for typing essays. The main use of the computers in my school was to do research and to type up work using the Microsoft Word. Any form of entertainment that my school knew about would be filtered out.

TB What are your opinions about the software and hardware that is used in contemporary universities. Should universities change - or change more - to 'keep up' with you and / or 'the Google Generation'? Should lectures and seminars be replaced for more 'modern' styles of teaching?

ZD: I think Brighton Uni's computer suite actually does a really good job at keeping the hardware and software updated. I think technologies like OHPs and PowerPoint are used well to good effect in lectures and seminars generally and I don't really think there is a need to add any more technologies to the lecture environment. I can't imagine a better way of teaching except ... Except maybe a cattle prod for the inconsiderate bastards who don't shut up when the lecturer is talking!! DON'T PRINT THAT! Actually do print that.

AP The technologies used in university seem to meet all our needs, (so far). That said there are areas that could be updated to improve performance. There is little point pumping money into more computers if there are still people who do not know how to use them to full capability. The money would be better off invested in the knowledge.

Lectures could be improved but are at present adequate. Personally I feel that the most important aspect in these one hour slots is not the technology used to convey the knowledge to use, but the enthusiasm of the people projecting them. Lectures may sometimes appear bland, the same routine many times a week. The problem is not that the PowerPoint is dull or the overheads too basic, it is simply that the people teaching appear uninterested.

GG: The software and hardware in my university is quite up to date. With relatively new computers, word processing software, picture editing and cameras. Universities should update their software and hardware every few years so that they do not fall behind the times. I do not believe that lectures and seminars should be replaced as they are insightful, inform and probe arguments that I and fellow scholars would not think of which contributes to the quality of our education.

TB: Explain how you conduct your research. Say you are given a topic - considering you are from the University of Brighton - on Brighton popular music. How would research that topic? Tell us the process.

ZD Research always has several key ports of call for me, Google and Google Scholar – for cursory information and key terms, Brighton Uni Library and Hampshire Library services (and their online catalogues) for relevant hard copy publications and any accessible online database lists for useful electronic publications. I would not use Wikipedia for academic research – too risky. For Brighton popular music, I would type that or other relevant search terms and phrases into Google, the

library catalogues and the online database lists to garner relevant publications from which to gather, read and take notes.

AP: My first port of call would be Tara's Readers [collection of readings]. They not only equip us with the knowledge, it is consistently informative. You could argue that this process was lazy but in truth, they encourage me to read more. To be thrown into a topic you have no prior knowledge of can be daunting, to be able to read a basis, knowing that what you are reading is relevant is inspiring and helps and encourages. Yes, I could just read those items and not conduct other research, but I do also know that there are other texts that are relevant, I personally feel happier doing it with a basis of knowledge. To do this further research, I would look to two sources, the library and 'Google Scholar'. With the help of 'talispilgrim' I would search for books with key words to the title, the same process would apply to 'Google scholar', and I would imagine, to the rest of my year group.

GG: I would go the library get a few books on popular music/culture to help create a definition of popular music and get some academic theories and opinions. I would now have the foundation of my answer.

I would buy a few music magazines to look at charts and reviews of popular music. Then I would Google popular music in Brighton. Find out quantitative information about these events like the attendance. Then with this information construct an argument.

TB: Would that process change if you were given another topic, such as terrorism or the role of the media in the 'credit crunch'?

ZD: Yes. For a nationally and internationally topical subject areas my research would almost certainly begin with, if not include, online news media such as Guardian unlimited, Times Online, bbc.co.uk, Reuters and Al Jazeera.

AP: The only part of the process I would change is the reference to the journals from Tara. Personally I find that the problems with our education system are that we are taught what are taught but not taught how to learn. Our research skills suffer because we have a set curriculum and need to attain good grades, yet still adhere to the aims of the module. We do not learn how to learn, just to absorb.

GG: The process would be more or less the same for any topic. I would find out the history behind the topic, and then use academic theories from books. In addition I would use online news articles to search for any useful up to date facts and figures. Since being at university I have learned not to use Google for research so now I rarely use it.

TB: Abby and Zanna, you have been on work placements in your degree. What did you think about how technologies were being used in the modern work place? Did you feel out of your depth, or quite comfortable in the digitized working environment?

ZD: Well database wise my work placement had very slow and outdated systems so in that sense I felt a little ahead of my game there. However the software programs they used for marketing were very new to me. I didn't feel incapable of grasping them given adequate time and instruction to do so, however. I really enjoyed using them actually and never felt out of my depth.

AP: During my work placement I used many technologies that I was already familiar with, Microsoft Word and Excel and Internet Explorer. These basic programmes formed the basis of the workplace. The other primary programme I was required to use was 'Mediatlas' an online database. Navigating this site was relatively simple after brief instructions. If Mediatlas did not work, the simple answer was to 'Google it'. My only problem in this work environment was not the technology, but the practicalities of working in the media, we had (and still haven't) received any guidance on writing for journalism placements or in this case (for PR) press releases. This was the aspect that my employers were most surprised at. In terms of technology, although I did not struggle with the processes, I had nothing additional to bring to these people a decade older than me, not what you would expect from a 'digital native'.

TB A recent research report released in January 2008 was called *Information behaviour of the researcher of the future*. Most people call it the Google Generation Report. It was stated in this report that "the information literacy of young people has not improved with the widening access to technology: in fact, their apparent facility with computers disguises some worrying problems." What do you think these 'worrying problems' with information literacy may be in 'the Google Generation'? How do you define information literacy?

ZD: I think without doubt the worrying problems will be to do with our ability to locate information from reliable sources. The sheer volume of available information on the internet is often endorsed as a positive feature of internet access, yet it cloaks the need for information to be dependable. Information literacy is about sourcing information and deciphering its meaning and relevance. I believe it is possible to have higher and lower levels of information literacy and that the ability to support information belongs to those with high literacy skills.

AP: We are, in wide comparisons, a generation who are technologically capable. We have access to the internet, we are on the better side of the so called digital divide, growing in a developed country and we have more access to the internet than many others. The majority of us have access to the internet at home, in university,

and for many in the palm of our hands on our mobile phones. I would agree with the findings in that we are not more efficient because we have more technologies, if anything we are less so. We are navigators of the internet who can find information in just a few clicks, we can make films and videos and have them distributed, make web pages seen by hundreds, we are part of the technology but we are not building them, we are using.

I would say that 'information literacy' is to define those capable of using and navigating technology for their own gratification. Those who are information literate will have basic knowledge of common information programmes and processes, those that are widely used among the population: email, Google, word processing and data basis. Programmes and applications that without the knowledge of how to use them, they would be left out of the 'loop'.

GG: I would agree with the statement "the information literacy of young people has not improved with the widening access to technology". The literacy of my generation has not improved in some cases. I would say that there are students with low or high levels of literacy capabilities. Many students do not want to use differing research methods and would prefer to rely on portals like Google which restricts the amount of knowledge you can learn. The problem which my generation has with the widening access to technology is that they now have a huge reliance on Google finding or helping them with what they need. As Google provides quick and easy access to information, many students feel as though there is no requirement to use other sources of information.

TB: Another finding from this report was that "young scholars are using tools that require little skill: they appear satisfied with a very simple or basic form of searching." Do you agree? Is Google the best way to find all information? What other methods or strategies can you think of to find other sorts of information?

ZD: University has successfully instilled in me a deep fear of citing unreliable sources and taught me that it is far from enough to just 'google it'. Uni has shown me better methods of searching for dependable information which I have adopted and outlined in other parts of this article.

AP: If I was asked to research a topic, and a fellow student was asked the same, there would be massive similarities. The likelihood being that we would look for the same things in the same places. We are all taught the same, the only thing that will keep us distinguishable is our own individual desire to learn and acquire knowledge. At the end of my final year, nearly 100 students will graduate with the same degree, having done the same modules and most probably after all reading the same limited texts. What will separate one from the other?

I am no different from the mass. I will have read the same books from the university library, searched the same key words on Google Scholar and learned my basic knowledge from Wikipedia. New forms of teaching need to be put in place to allow us to learn how to learn, rather than just absorb.

GG: To be honest I would agree that the majority of scholars are happy using simple tools that require little skill as it makes their lives a whole lot easier. However there are still scholars who do more in depth searches through the use of books, magazines critical articles and documentaries to name a few. The more determined, motivated, committed scholars will not settle for the easy option and would prefer to use more challenging research methods. Google is not the best way to find what you need to get the highest grades or to provide you with a creative argument. This I have been taught at university.

TB: **Look forward a decade. You are thirty. How do you think your relationship with technology would have changed? If you were to predict the next 'big thing' after Google, Facebook and the iPod - what would it be?**

ZD: I expect my relationship with technology to grow ever more dependent if nothing else, though reluctantly of course. As far as predicting the next big thing I simply can't imagine. I hope there will be a really effective book technology and I'd like journal databases to become more accessible. If I could have only one techno-wish granted though it would definitely be for headphones to stop spilling out tinny surplus sound thus ending the near suicidal/homicidal thoughts that take over one's mind during journeys on public transport.

AP: I feel as though there are limits to the amount of technology we are willing to adopt. We want things that will make our life easier not harder, technologies that require huge amounts of our time will not be incorporated. As new workers entering the workforce we will be required to work long hours in a competitive market. We will have less time and gladly accept technologies that save precious time, whether personal or professional. We want our music to travel with us, we want our friends to always be a click away and we want constant and efficient internet access. Now we have had such advanced and innovative technologies we are becoming ever more scrupulous as to what we will uptake, the technologies that become a part of our lives will be those that we demand and require.

GG: When I am thirty I would say that my relationship with technology will be even stronger than it is now. If I was to predict the next big thing I would say that it would be a device that incorporates the computer, the internet and the mobile phone with all of its features.

Statements about 'Digital Natives' and the Google Generation impede the scale, scope and depth of the conversations required about learning, teaching, researching and writing.

Good teaching and librarianship are required, yet the credibility of both professions is low. The difficulty is that information – through Google – is seen to be both abundant and cheap. Actually, the abilities required to assess information are complex and costly. Students require time, care, energy and good assessment to improve their digital academic research. Teachers require professional development in library studies, internet studies and literacy theory to create a worthwhile intellectual journey through this new research landscape. Yet while the simplistic categorization of ‘generation’ is used, the more considered sociology of digital education is silenced. A Google Generation cannot speak, but all of us can listen, read, write and think with greater intellectual generosity and a consideration of cultural difference.