ENTICING THE GOOGLE GENERATION: WEB 2.0, SOCIAL NETWORKING AND UNIVERSITY STUDENTS

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Abstract

Much has been written about Gen X, Y and Google Generation students in the higher education sector. Student-centred approaches, new pedagogies, a focus on quality management, information and learning commons initiatives all evidence greater attention to the generational needs of the Google Generation. New technologies and applications have also been harnessed to meet students in their 'own space'.

Traditional library systems are being enhanced to include Web 2.0 functionality. Universities and their Libraries are establishing a presence in social network sites (eg Facebook, YouTube).

The paper analyses these trends, takes stock of these initiatives in the university library environment and questions the strategy and planning behind them. Are we responding in an ad hoc manner, is a presence required in all environments, do students want us in their space and how do we best allocate our energies and resources?

The paper also examines the marketing industry to understand how the commercial sector has approached these issues.

Experience at Victoria University (VU) as a development partner in implementing the Encore overlay for the Innovative Interfaces library management system will be reported. VU's presence in Second Life will be examined to understand the resources required, benefits sought and lessons learnt. A partnership with Teaching & Learning for a project to develop a Virtual Learning Commons will also be examined. In a university with 60% of students studying part-time, the Virtual Learning Commons project complements VU's recent initiatives to establish physical Learning Commons facilities across multiple campuses. In addition social network sites have been utilised to support the Student Rovers who provide peer support in the Commons.

The paper draws on a blend of theory, industry trends and project experience in a large multi-sector university to reach conclusions and make recommendations for the sector at large.

Keywords: Web 2.0, Social Network Sites, Second Life, Library Systems, Generation X, Generation Y, Google Generation.

Web 2.0 is probably the series title of the most important conversation of our age – and one whose impacts can be truly transformational on a global scale. [Abram 2006]

1. Introduction

Throughout the ages, generational change has continued to provide the raw materials for social comment, analysis, research and a considerable body of literature. Recently there has been considerable interest in the characteristics of Gen X and Gen Y, the generations who followed the post World War II Baby Boomers born between 1946 and 1964. The period for each generation is subject to debate, but Wikipedia defines Gen X as those born during the 1960s and 1970s who have driven the growth and ingenuity of the internet. Google, Yahoo!, MySpace, Dell, YouTube and many more technology companies were created by members of the Gen X demographic.

Gen Y, also according to Wikipedia, describes those people who were born between 1980 and 1995. Other terms for this group include: Millennials, Internet Generation, Digital Natives or NetGen. They highlight the pervasive role of technology in the lives of this generation.

The Google Generation has become popular in referring to the generation whose primary access point to the internet and possibly the world is through the search engine of the same name developed in the late 1990s. The information seeking behaviours of this group are the subject of a project conducted by the CIBER Group on behalf of the United Kingdom's Joint Information Systems Committee (JISC) and the British Library. In that project, the Google Generation is considered to be those born in 1994 and later [Gunter 2007].

The term Web 2.0 was coined in late 2004. According to Stephen Abram [2006], Web 2.0 goes beyond the 'Web 1.0 paradigm of web sites, email, search engines and surfing'. He suggests that: 'Web 2.0 is more about the human aspects of interactivity. It's about conversations, interpersonal networking, personalization, and individualism'.

Web 2.0 and the plethora of associated technologies and tools (e.g. wikis, blogs, podcasting, FaceBook, YouTube, Flickr) has created new opportunities and challenges for libraries and librarians. The emergence of the terms: Library 2.0 and Librarian 2.0 indicate that the industry can redefine itself in order to meet the changing needs of users, including the Google Generation. According to Casey and Savastinuk [2007], Library 2.0 is not just about technology but rather a user-centric focus on empowering users involving constant change and politics in terms of stakeholder management.

This paper considers the interplay between the information needs of Gen X, Y and the Google Generation, particularly in the context of higher education. Experience at Victoria University Library will inform the trends derived from the considerable literature in the area.

2. Information Behaviours

The briefing paper for the JISC and British Library 'Google Generation' project was released in January 2008 [CIBER 2008]. The project investigated how the Google Generation searches for information and posits the implications for the UK's major research libraries. The main characteristics of digital seeking behaviour in digital libraries were summarised as:

- Horizontal information seeking whereby users view only one or two pages
- Navigating around spending as much time finding their way as viewing the results
- Short power browsing sessions looking for 'quick wins'
- Squirreling content but with no evidence that the content is read
- Diversity of user behaviours due to location, gender, type of university and status
- Users assess authority of sources according to brand recognition (e.g. Google).

According to the CIBER report [2008], observational studies show that:

… young people scan online pages very rapidly (boys especially) and click extensively on hyperlinks – rather than reading sequentially. Users make very little use of advanced search facilities, assuming that search engines 'understand' their queries. They tend to move rapidly

from page to page, spending little time reading or digesting information and they have difficulty making relevance judgements about the pages they retrieve.

The following consistent themes were summarised by CIBER [2008] on the use of the internet by the Google Generation:

- Information literacy has not improved despite increased access to technology
- Speed of searching results with little time on evaluating the relevance, accuracy or authority of information
- Poor understanding of their own information needs
- Preference for use of natural language
- Problems in selecting relevant materials from long lists of hits.

With regard to the information skills of new entrants to post-secondary education, it has been suggested that intervention at university may be too late. Formative skills need to be developed at school, otherwise students developed an ingrained coping behaviour through 'getting by' with Google [CIBER 2008].

In contrast, the Pew Internet and American Life project report [Estabrook, Witt and Rainie 2007] found that Gen Y (18-30) are the leading users of libraries including access to computers and the internet when seeking help to resolve problems. The study was focussed on the general public. 53% of American adults reported going to the public library in the past 12 months. Within this group, the largest percentage was from Gen Y, followed by Gen X with a gradual decline through the Baby Boomers with a 'distinct drop-off after about age 50 years'. Interestingly the report found that:

The profile of library users shows an economically upscale, information hungry clientele who use the library to enhance their already-rich information world.

In addition, 40% of the 'tech-loving' Gen Y said they would go to a library to solve future problems, compared with 20% of those over the age of 30. The Pew report contrasts this finding with a 1996 survey by the Benton Foundation that found that 'the youngest adult Americans, those age 18-24 years, were the least supportive of libraries and also saw libraries as becoming less important in future'. Commenting on this reversal, the Pew report observed that: 'Instead of the internet making libraries less relevant, internet use seems to create an information hunger that libraries help satisfy.'

3. Social Network Sites (SNS)

Perhaps the most familiar of Web 2.0 developments are social network sites such as MySpace and Facebook that facilitate the creation of individual profiles, the sharing of personal information, photos and activities as well as messaging within a network of friends. Boyd and Ellison [2007] provide an excellent definition of Social Network Sites and prefer the use of 'network' to 'networking' as the latter suggests relationship initiation. Library involvement with social network sites seeks to meet students on their own territory.

A JISC survey found that 65% of 6th form students in the UK regularly used social-networking sites [Swain 2007]. An estimated 79-95% of all undergraduates have Facebook accounts [Ellison 2007]. While some students reported the indispensability of Facebook, most failed to see how it could be used for teaching and 'resented the idea that they might be invaded by academics'. This criticism was also surfaced in an earlier 2007 JISC study where Facebook was seen by students as 'their space' [Franklin and van Harmelen 2007]. The CIBER project also warned:

... there are clearly dangers in trying to appear 'cool' to a younger audience…There is a big difference between 'being where your users are' and 'being USEFUL to your users where they are'. [CIBER 2008]

boyd [2007] provides some helpful tips for educators on how to participate appropriately in SNS. Rout [2007] quotes research conducted at three Australian universities that demonstrates not every young person behaves like the stereo-type of the Digital Native – permanently hooked to

PDAs, MP3 players and only interested in Facebook! Only 20% of young people surveyed claimed to create online material. Some students admitted to Facebook addiction but 'they don't want me to send essay questions to them through it'. The article concluded that more research was necessary before investing considerable sums on educational technology that may not be right.

One VU academic reported last year that in response to encouragement from students he joined Facebook and exposed his profile to them. Subsequently he found it difficult to maintain suitable professional 'distance' from students who complained when he didn't enjoy being poked by them online. VU also has a presence in Facebook encouraged by the Vice-Chancellor, although it is still in its infancy.

Snitch's column in October 2007 observed that Swinburne University's Vice-Chancellor was championing Facebook as the university's recruiter of the future and a useful meeting place for students and alumni. Snitch suggests however that in actively participating in the medium, we may facilitate a 'disservice' to our institutions'. He cited discussion lists created by students disgruntled with University changes (e.g. the controversional 'Melbourne Model'). On the flip side, the University of Melbourne's Facebook group has 1300 members where students say positive things about their institution.

It has also been suggested that we may capitalise on the popularity of SNS at the expense of threaded discussions in institutional virtual learning environments. One academic at Durham University noted the success of discussions through Facebook and the comfort of students with the medium. While disappointing that the virtual learning environment didn't encourage similar participation, the lesson may be in understanding the reasons for this difference [Swain 2007].

Competition for resources and attention between various sites and applications is an increasingly problem. How do we decide in which tools to invest our efforts? Should we refuse to support applications that appear to compete with institutional systems? Which tool is best for our needs yesterday, today and tomorrow? Can we afford to not be where our students want to be, despite the fact that we may not be welcome there? The November 2007 report that Facebook had received $750M equity from Microsoft and two equity capital firms [Abram 2007] suggests that we ought at least to monitor this phenomenon closely!

4. Virtual Networked Environments (NVE)

There has also been considerable interest in Second Life, the best known Networked Virtual Environment (NVE). Launched in 2003, the majority of interest blossomed from 2006 onwards. There were 12 million residents in Second Life at January 2008. Gartner [Filho 2007] predicts that by the end of 2012: '50% of large enterprises will establish an NVE business presence'. Similar to online games, these environments can be exciting, and provide immersive collaborative business and learning experiences using avatars or human proxies. Applications vary from informal sharing and transferring knowledge to more formal business activities, including virtual meetings. Compelling business reasons for utilising NVEs include:

- Increased attention and engagement
- Improved understanding, practice and experience through contextualised activities
- Provide a rich environment for learning, teaching, testing, simulation, and collaboration [Filho 2006]

IBM was a notable early adopter of Second Life in order to foster collaboration amongst staff members and to publicize new products and services [Abrams 2007]. A positive outcome has been through avatars breaking down communications barriers between layers of the IBM hierarchy. NVEs provide rich opportunities in the educational context where students who learn by doing, demonstrate greater understanding, and achieve higher retention rates [Filho 2007].

In line with world trends, Australian universities are embracing virtual worlds as part of their e-learning activities. Zampetakis [2007] reports that over 100 islands in Second Life have been sold to educational institutions worldwide, including RMIT and Monash Universities. RMIT's use is primarily in the school of architecture and design to 'deliver lectures and coursework and to give students free rein in creativity'. Other Australian players reported by Zampetakis include

Curtin University with simulations in urban and regional planning. University of Technology Sydney (UTS) is researching virtual reality for their MBA program and University of Southern Queensland was planning virtual class and moot rooms for law students. In addition Harris, Lowendahl and Zastrocky [2007] reference other Australian work at the Universities of Sydney and Newcastle.

Mitchell (2008) a leading thinker in vocational education and training points to a five to six year gap between personal student experience and formal learning systems. He lists innovative examples of Second Life applications in vocational hairdressing, construction, painting and decorating and mental health teaching fields. Other applications include retail and customer support functions and learning foreign languages. There 'learners can immerse themselves in foreign environments by surrounding their collaborative experience in a relevant context, cultural exposure and communication with native speakers (real and virtual interlocutors)'. [Filho 2007].

Glaser's commentary [2007] highlights different media responses to Second Life. In July 2007, Wired magazine turned around previously positive media coverage with a negative report that marketers were losing money on this virtual space, which is expensive and has a limited return.

This criticism was fuelled by Ritson [2007] from Melbourne Business School. American Apparel was the first major brand to open a store in Second Life. Other big brands such as Coke, adidas, Dell and Toyota also joined. However some players such as American Apparel and Starwood recently retreated from Second Life due to 'external criticism and insignificant sales'.

My own experience of Second Life is clunky and limited. Zampetakis [2007] cites a UTS academic who complained that virtual worlds take too long to establish and are better suited to design or multi-media students. Ritson concurs with comments about the emptiness of the site brought about by server space and bandwidth issues. This probably accounts for the large gap between regular and signed up users deduced from the statistics available at the Second Life site. Harris, Lowendahl and Zastrocky [2007] warn of educator fears that Second Life might 'collapse under its own weight' if the developers do not keep up with resident development and growth.

Glaser [2007] reports success stories such as handicapped user experiences in Second Life that are impossible to achieve in real life. He points to the need to differentiate between positive consumer experiences such as the handicapped example and scepticism about Second Life as a corporate marketing vehicle. Ritson [2007] highlights the need to remain focussed on communication objectives and to carefully consider return on marketing investments before racing down the virtual path. He concludes:

Whether you build brands with virtual stores, online ads or traditional media you had better be able to explain why you invested your marketing budget in that manner. Try doing it any other way and you are virtually guaranteed to be out of job. In the real world, at least.

By the end of 2011, 80 percent of active internet users (and Fortune 500 enterprises) will have a 'second life' but not necessarily in Second Life [Prentice 2007]. Gartner's advice to enterprise clients is to 'investigate and experiment with the trend but do not invest substantially until the environments 'stabilize and mature'.

Virtual worlds have captured the imagination of a considerable number of people. They are not games, but are compelling, immersive and powerful tools to assist in collaboration, community development and innovation inside the enterprise. Although the embryonic nature of virtual worlds means that significant issues and obstacles are in effective use by enterprises, the upside potential is so great that no enterprise can afford to ignore the opportunity [Prentice 2007].

In order to evaluate opportunities for participation in the virtual world, Gartner offers five laws for participation:

- Virtual worlds are not games, but neither are they a parallel universe (yet)

- Behind every avatar is a real person (enterprises must consider their corporate reputations)
- Be relevant and add value – don't expect to make profits in virtual worlds for at least 3 years.
- Understand and contain the downside
- This is a long haul – there is a high probability that market pressure will lead to mergers of current virtual worlds into a smaller number of environments with free transfer of assets and avatars from one to another [Prentice 2007]

An important consideration is that virtual worlds such as Second Life rely on user-generated content and context. Intellectual property in assets and landscape created in the virtual world belong to the creators, although this may be hard to control. Creators must also moderate suitability for target audiences. Prentice [2007] warns that while the visual aspects of virtual worlds offer powerful opportunities to obtain customer feedback on future products, provide product support and build community awareness, commercial transactions are largely unsuited to the environment at this stage.

Consequently Zastrocky et al [2007] encourages higher education institutions to ensure alignment between virtual environments and the institution's research, teaching and learning goals. Within your university identify the early adopters and easily attainable objectives. Focus on increasing faculty/student communication, collaboration and learning activities because they can achieve short-term benefits. He also recommends watching for emerging integration developments between e-learning platforms and virtual world environments.

Victoria University (VU) also purchased a Second Life island in 2007. At present the island is being populated by a project team including specialist designers led by the Head of the Flexible Learning Unit. It is planned that the Vice-Chancellor will officially launch the island early in 2008. The site will include student-centred spaces to encourage interaction (e.g. where international students can make friends), a variety of course information, and space where alumni can interrelate. While this is not a Library project, the Library is contributing to the project, particularly though a Library/Learning Commons presence on the VU island.

The project has particularly benefited from the internal expertise of multimedia staff and students. The project has provided opportunities to involve students in a real learning in the workplace project with tangible outcomes.

5. Risk Management

Despite considerable benefits and opportunities for businesses and universities in exploiting new technologies and virtual worlds, contingent risks should not be overlooked. Gartner categorise these risks into five groups:

- IT related security risks
- Identity authentication and access management
- Confidentiality
- Brand and reputation risk including social and ethical positioning
- Productivity [Prentice 2007]

Technologies involved in delivering these applications may challenge corporate IT environment security. In anonymous situations where identities may not be verified, fraudulent and anti-social behaviour (e.g. graffiti, sexual misconduct, stalking) may not be as controllable in the real world. Use of open, internet accessible tools and sites across public networks challenges confidentiality and commercially sensitive information requirements, particularly for large corporate enterprises.

Misrepresentation of organisations on the internet and in virtual worlds may result in significant brand and reputation risk. This is not only for large commercial organisations where resultant damage may have catastrophic impact on share prices and markets. In the educational context, Salisbury University in the US suffered inadvertent damage to reputation through the Facebook site of the University President [Jiang 2007]. Controversial holiday photos and captions were considered offensive and unprofessional within and outside the university

community resulting in a public apology and the removal of the Facebook site. A key factor in the incident was the President's lack of awareness of the extent of access to her content and security provisions.

Productivity issues concern some organisations. Senior executives may consider time lost and financial costs (e.g. computing, bandwidth and internet fees) through staff participation in SNS to be a significant risk. In some corporate environments, access to such sites has been disabled or restricted to 'public' computers in recreational areas [Prentice 2007].

These risks must be balanced with the strategies and aspirations of the institution and managed explicitly. Some enterprises are re-assessing such restrictions due to the importance of networks and collaboration for worker productivity and morale [Prentice 2007]. The mission and culture of universities tends to be less restrictive and to focus on the intellectual and educational outcomes of innovation and new technologies.

At VU, the University Library through the distributed funding of internet access fees is one of the largest providers of public access computing. With an exponential growth in internet charges in 2007, the Library was faced with the dilemma of providing widespread access to internet sites while balancing a tight budget. In line with the teaching and learning aspirations of the University, the Library provides access to SNS, particularly as they are increasingly home to course related educational experiences. Nevertheless the Library also receives customer feedback on the availability of computers. Students perceive that others are monopolising personal computers for recreational use (e.g.YouTube) while others seeking to use educational resources and to complete coursework requirements seem disadvantaged.

The issue was exacerbated by inconsistent practice across the University with some teaching areas providing greater and lesser access to certain sites based on individual perceptions, concerns and funding. The Library has raised this as a key issue through the University's peak Information and Knowledge Management Committee. Until a holistic University policy is determined and additional funding provided to sustain increasing internet charges, the Library seeks to provide wide access within available budgets.

6. Policy Context

As identified, there are many risks, policy questions and institutional strategy needs associated with Web 2.0 technologies. The early Web presence of many organisations sprang up in a haphazard and un-coordinated way largely due to the efforts of early adopters or innovators. In the same way pockets of Web 2.0 implementations have emerged from academic and support areas that are close to students and seek to respond creatively. Inevitably there is limited support or expertise available from corporate areas with a focus on existing systems. Often such initiatives are not known by the Chief Information Officer [Zastrocky 2007].

Decisions to proceed with implementing Web 2.0 applications may be opportunistic and outside usual project governance processes. Casey and Savastinuk [2007] quote Lawley who aptly observed: 'You have to figure out what the problem is first before you come up with a solution'. While Lawley was speaking about Second Life, the observation equally applies to all Web 2.0 initiatives.

Gartner recommends the establishment of governance and best practice policies to document secure and acceptable use of social networks and online communities for business applications [Smith & Lundy 2007]. A recommended starting point is existing policies such as acceptable use of email, internet and external comment. In addition to issues highlighted in the risk management section of this paper, university policies should consider security, authentication, identity management, access, bandwidth, hardware and integration with other technologies.

Web 2.0 is about collaboration. At the institutional level it is necessary to identify what to share, how to share, when to share and with whom [Eid and Drakos 2007]. Answers to such questions must be informed by university strategy which is understood and shared throughout the university. A number of Universities have developed knowledge and/or information

management strategies to provide strategic direction in this area. VU has such a project underway. Perhaps the most difficult aspect of such initiatives is the cultural or people issue.

One associated issue is that of privacy and access to records of what students may have posted to online systems in the past. Collaborative platforms and new methods of interaction can result in a rich tapestry of opinions and contributions from students as part of their intellectual formation. Policies on archiving and retention of permanent online records, trustworthiness of online records and permissions to access student created content are relevant. Employer and potential employer use of pre-employment evidence of internet activities through 'googling' applicants may reveal surprising information that may be detrimental to employment [Harris, Harris and Morello 2006].

A robust governance framework is necessary to oversee institutional policy and strategic directions in implementing technologies that have risk implications. Despite the need for rigour there is a further risk that innovation and creativity in responding to student needs may be stifled due to an overly zealous approach. Harris, Lowendahl and Zastrocky [2007] highlight that many academic technology initiatives commence outside IT governance. There are concerns that once projects shift to an institutional arena, pushes towards restrictive practices such as single corporate platforms may mean that the freedom to experiment is lost. Consequently pilot projects are advocated in areas that can benefit from such interactions and through staff and students willing to experiment. A 'sandpit' approach to development is necessary to stimulate creativity and deliver innovative outcomes [Smith & Lundy 2007].

7. Virtual Learning Commons

In order to complement VU's strategy of developing innovative student-centred Learning Commons facilities across the University, the Library in partnership with other stakeholders has embarked on detailed planning for a Virtual Learning Commons. An internal Teaching and Learning grant has been secured to fund the project which has a detailed project plan in line with VU requirements.

The Steering Committee is meeting at the time of writing so the approach has yet to be finalised. However with 60% of students working part-time and increasing pressure on student availability, it is envisaged that a Virtual Learning Commons portal will be constructed in order to provide a rich treasury of learning and support resources that will be available to the university community 24x7. Social network tools will facilitate communication within the learning community whether on or off-campus. Policy questions such as the determination of appropriate platforms and tools, the choice of internal or externally hosted services and integration with other VU systems have yet to be determined. An enterprise approach that links to a variety of applications and integrates with teaching initiatives is anticipated.

8. Student Rover Project

VU Library and our partners in Teaching and Learning Support have implemented web-based social network applications to support a peer mentoring scheme within the Learning Commons involving student rovers who are predominantly Gen Y. 'RoverSpace' was developed for the Rovers to 'reflect on their practice, share resources, refine their response to students' problems and queries, share insights with peers and discuss issues with their supervisors' [Tairi et al 2008].

A central lesson learnt was that the usability and reliability of software is less important than the way in which such tools are used by participants. Technical problems were experienced with the Elgg application (elgg.org) that was administratively demanding and unstable technology. Following a change to Googlegroups, the program manager's role changed from administrative and technical support for the tool to encouraging Rover contribution to the software. He had time to monitor interaction and to initiate increasingly reflective tasks. A clear evolution in rover reflections and shift reports was noted and improved written expression and analytical skills resulted from regular participation by the students.

A detailed study to evaluate the Student Rover Program is currently being conducted through focus groups with staff, users and rovers; analysis of content in the social networking tools; longitudinal interviews with the rovers, observational studies and a literature review.

9. Encore

In 2006 Calhoun presented a report for the Library of Congress on the changing nature of the catalogue and its integration with other discovery tools. The report observed that the 'catalog is in decline, its processes and structures are unsustainable, and change needs to be swift'. While the catalogue does represent a decreasing proportion of the universe of scholarly information, Calhoun [2006] concluded that despite this diminishing role, the catalogue was 'likely to continue for at least a couple of decades and probably longer'.

This is encouraging since VU is currently undertaking a project to refresh the Library's catalogue using Web 2.0 functionality. The Library Catalogue continues to be the central launching point for searching library resources available to the University community. While the catalogue provides access to rich resources, the Library was concerned that its look and feel were declining in comparison with Web 2.0 offerings. While the university was eager to implement Web 2.0 offerings, it seemed that limited progress was being made in other areas. The opportunity to become a development partner in implementing the Encore overlay for the Innovative Interfaces library management system was attractive as it:

- Provided an opportunity for the Library to play a lead role in Web 2.0 technologies that appeal to students
- Integrated with the Integrated Library Management System (ILMS), leveraging existing investments and minimising internal development work
- Offered an early adopter opportunity to influence product development and obtain a discount on the full purchase price.

Senior management and the University's peak Information and Knowledge Management Committee was impressed by the Amazon.com style of features and supported the initiative. The flip-side of being a development partner is that products are constantly being developed and expectations of mature systems are not always matched in the early adopter environment.

One of the attractive features of Encore is that it enables clients to locate information and resources using the traditional tools such as Library of Congress Subject Headings but doesn't burden them with the need to understand complicated taxonomies. A tag cloud of relevant subjects appears as 'keywords'. Users may also add to that cloud with their own tags. Library skills, schemas and tools are still important for information retrieval but through Web 2.0 they are demystified. In Web 2.0 Librarians and users both create content.

Encore has been installed successfully within the University and it will be launched shortly for student input and feedback. The formal launch of the service will be timed to maximise integration with feature sets due with scheduled software releases.

One attractive feature of Encore is the ability for students and academics to contribute user reviews, ratings and tags to library materials. As this is not on open release as yet, it is 'simply too early to assess their impact or effectiveness' of such functionality in similar systems. [CIBER 2008]

10. Conclusion

Throughout this paper we have found that it is difficult to generalise or create stereotypes about the generations, specifically Gen X, Y and the Google Generation. The CIBER [2008] report found:

Our overall conclusion is that much writing on the topic of this report overestimates the impact of ICTs on the young and underestimates its effect on older generations. A much greater sense of balance is needed.

Nevertheless Gen X has produced individuals with the creativity and technical smarts to develop and lead transformational hi-tech companies such as Google.

Web 2.0 is fundamentally different from Web 1.0 which was largely about technology. Web 2.0 empowers users, it's about people, relationships, networks, and continual change.

Considerable insight and wisdom has come from a number of recent reports commissioned by JISC. Profiles of user behaviours demonstrated by the three generations in question are compelling. They navigate around the net looking for quick wins, searching is relatively superficial with little use of advanced features and users have difficulty assessing content for suitability. Brand recognition (e.g. Google) often wins. Information literacy skills are limited through 'making do' with Google and it is suggested that remedial work at the university level is almost too late. Perhaps this is a job for the school sector!

There is also a role for Librarians in helping students understand some of the fundamentals behind Web 2.0 systems including managing their exposure on these sites through privacy controls. Helping users become better informed about the use and control of information is important.

Studies have found that members of Gen Y are the most active current users as well as strong advocates of libraries including computers into the future. It seems that the internet has created an enhanced hunger for information in this generation.

With 79-95% of undergraduates being members of Facebook, it is hard to discount the impact of social network sites. Nevertheless there is a strong message that academics (read also librarians) are not welcome in these student spaces. danah boyd offers some useful tips on gaining respect in such zones without imposing presence.

Virtual networked environments cannot be overlooked with 12 million residents world-wide in Second Life. This environment offers incredible potential for increased attention and enjoyment, to impart understanding and practice especially in contextual environments as well as new venues for learning, teaching, testing, simulating and collaborating.

Universities are establishing presences in Second Life with success suggested in areas such as design, multi-media and foreign languages where simulation advantages are most suitable. However life is not perfect in Second Life with commentators reporting on corporate exits from their islands. Limited returns on significant investments have resulted in departures. Our lesson from the marketing world is to carefully consider our marketing aims and to invest accordingly. Don't follow the hype for its own sake.

Gartner offers five laws for success in the virtual world, including the need to plan for the 'long haul'. The virtual world provides useful environments for customer feedback and support and for building communities. They are largely unsuitable for commercial transactions at this time. In the higher education arena, early adopter pilots in academic areas are recommended for quick wins. There is potential for libraries to team with academics in developing these projects. Utilize expertise from multimedia and design areas of the university if available.

Considerable risks exist when new technologies are deployed including: IT, identity, confidentiality, brand and reputation and productivity. Virtual worlds offer additional challenges as well as opportunities and all risks must be identified and managed. It is difficult to 'reign in' developments after the event, therefore appropriate institutional strategies and policies should be in place to inform decisions. University knowledge and information strategies should be in place with project management and governance mechanisms to ensure good decisions on projects. We need to understand what our problem is before we design the solution!

It is essential, however, that good policy and governance does not stifle innovation and creativity, particularly in student-facing initiatives. Franklin and van Harmelen [2007] capture the essence here when they suggest:

Most importantly, because the use of Web 2.0 in learning and teaching is still a developing field, we recommend that institutions take a light-touch approach in the use of regulations that might constrain experimentation with the technologies and allied pedagogies.

A number of Web 2.0 experiences at VU, involving library leadership and participation are reported. Projects such as the Encore functionality for the Library catalogue, the Virtual Learning Commons and the VU presence in Second Life are in various stages of development and some will be implemented prior to IATUL 2008. The Student Rover project has proven that software is less important than the business application but that productivity gains can be made if efficient, low maintenance systems are used.

Lessons from this paper include:

- the difficulty of generalisation
- the need for some rigour and process when deciding on areas to be pursued
- potential to be by-passed if you do nothing
- importance of innovating and capitalising on significant benefits of some new technologies.

Web 2.0 offers many challenges, some of which we are only beginning to understand. Will we be prepared for Web 3.0 and what about the Semantic Web? Tim Berners-Lee says 'eventually the day-to-day mechanisms of trade, bureaucracy and our daily lives will be handled by machines talking to machines' [CIBER 2008]

By 2010 the average knowledge worker will be actively participating in a minimum of 10 teams and 30 % of these people will participate in teams with external participants. Issues of freedom of expression, security of research, rights to privacy of content, thin lines between work and personal time, work vs personal activities and work vs personal content will be more significant at that time. [Harris, Harris and Morello 2006]

Through understanding the mix of Web 2.0 and the information behaviours of our generational customers we might be better prepared for that future.

Franklin and van Harmelen [2007] warn against the mistake to consider Web 2.0 as the sole driver of change. It is just one part of higher education ecosystem. Others include: pressures for greater efficiency, changes in student population, and ongoing emphasis on better learning and teaching methods.

The dilemmas we face with understanding our generational customers and in maximising the benefits of Web 2.0 can only be progressed if we truly understand the higher education context in which we operate and act accordingly.

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