ABSTRACT

The net generation (Oblinger and Oblinger, 2005) was born around the time of the emergence of the personal computer, and, as a result has grown up with access to technology. Higher education institutions now face this generation of students in their classrooms. This paper discusses how technology has influenced the way these students process information and learn. The author, an Academic Development Coordinator at Varsity College, investigates the thoughts and perceptions of the teaching faculty about this generation and how the former can integrate technology into their teaching to support student learning. Suggestions are made regarding ways in which lecturers can respond to these students’ learning styles.

INTRODUCTION

Few people would disagree with the statement that ‘we live in ever changing times’. The exponential nature of information development means that yesterday’s fact can be today’s fiction and even tomorrow’s folly. The generation and flow of information is based on technology and to remain ‘connected’ to what is current requires information technology literacy. As a result today’s students typically access his/her world of information constantly through internet connected devices, like cell phones, smart phones, laptops and net books. By contrast the integration of technology within some of our classrooms is not always at the levels at which technology is integrated into students’ lives. Although some lecturers attempt to integrate technology in their teaching styles, even if it be only with the use of PowerPoint presentations as a visual aid to teaching, they are often the minority. This paper defines and discusses the implications of having the net generation in our classrooms. It argues that due to the characteristic ways in which these students process information and engage with technology, faculty need to think about adapting their teaching styles to accommodate them (Barton and Skilba, 2006). Yet despite the rate at which technology has integrated into daily life and is influencing the learning styles and practices of students – traditional teaching methods are often used, this in itself is not necessarily the problem. It may be that the choice of teaching practice may lack interrogation and that lecturers do not think often enough about whether or not these choices are still of value to this new generation of students. This paper provides a synopsis of faculty’s perceptions about the net generation of students and the use of technology to support student learning.

VARSITY COLLEGE CONTEXT

Varsity College is a private higher education institution in South Africa consisting of seven campuses located across the country. The participants in this research are located at the Cape Town campus.
This campus has an average number of 2000 students, half of whom are enrolled for diploma courses conferred by The Independent Institute of Education (IIE), the International College of Hotel Management (ICHM) and the IMM Graduate School of Marketing. The remaining half is dual-registered with both the University of South Africa (UNISA) and Varsity College. (UNISA is an open and distance learning university.) Students at Varsity College completing UNISA degrees attend Varsity College for tuition which supplements the curriculum they receive directly from UNISA.

It is important to note that the relative higher cost of private education suggests that Varsity College students may have privileged socio-economic backgrounds and therefore have fairly good access to technology when compared to the average South African university student who comes from disadvantaged backgrounds in both urban and rural areas and so is unlikely to have access to computers and the internet at home. Access to technology is further enhanced for Varsity College, Cape Town students as there is an average ratio of one computer per ten students. Hence the term ‘net generation’ in this paper refers to middle-class students and is not to be seen as a term that can encompass all South African students. The extent to which the term could be applied to this generation of school leavers is another topic of research.

The majority of the teaching faculty of Varsity College are independently contracted by Varsity College to provide lecturing for specific modules based upon their academic qualifications and their industry experience. This model is based on the premise that current industry knowledge and experience enriches the learning experience of the students. The faculty do not necessarily hold professional educational qualifications and so it has been necessary to provide opportunities for teaching and learning support to lecturers. This is the role of the Academic Development Coordinator (ADC) who is the education specialist on a Varsity College campus. It is his or her role to run workshops on teaching and learning related topics as well as conduct peer reviews with faculty in order to support good teaching practice and generally maintain contact with lecturers to keep the quality of teaching and learning foremost in their minds.

The net generation are those students born around the time that the personal computer was introduced and as a result they grew up with computers as a part of their life (Oblinger and Oblinger, 2005). Other terms that are used in literature for this generation include ‘generation-C’ (for content) and the ‘millennial generation’ (Benson, Bedford, Eubanks, Lehnguth, Li and Shaw, 2008). Prensky (2001) refers to this generation, that have always lived with emerging technologies, as ‘digital natives’ and he suggests that they use technology differently to those from previous generations who he refers to as ‘digital immigrants’. The former students are comfortable in environments that are technologically rich and where multimedia is used, especially audio and visual media (Sandars and Homer, 2008). Izzo (2002, cited in Munro, 2006:1-2) characterises the net generation as being ‘digitally literate and connected; experiential; entrepreneurial and independent; rejecting micromanagement; and valuing empowerment, collaboration, and immediacy.’

Oblinger and Oblinger (2005) highlight several important characteristics of the net generation. Firstly, they are more visually literate than previous generations. They express themselves easily using visual images and integrate these visuals with text and audio with ease. Secondly, as shown by Munro (2006), they value immediacy. This is evident in how fast they expect a response to their output as well as how fast they expect to receive information. They have an ability to multi-task and therefore often complete many tasks and activities simultaneously. Lecturers will be aware of how students communicate via text message and Facebook while in class. When students are working on an assignment at a computer, texting continues as well as their connection to social networking and instant messaging applications online. Multi-tasking is also evident in the social activities of students (Benson et al, 2008). When they
are in groups and socialising face-to-face, other absent social group members are often included via cell phone technology.

In the light of the above, it is important to consider the way that the net generation learns. Oblinger and Oblinger (2005) characterise the learning style of the net generation as experiential; they like to learn by doing rather than by being told what to do. The net generation also learn comfortably in teams, they value structure and they expect interactivity in their learning experiences. They learn easily with visually represented information and in kinaesthetic ways (learning activities that incorporate movement and physical action). Harriet Swain (2010) reported on comments made by David Melville, Vice-Chancellor of the University of Kent, on this generation of university students. He acknowledged that universities need to respond to this generation of student as they are immersed in technology, use online social networking and Wikipedia. This generation interacts with the knowledge they access and the functionality of Wikipedia, for instance, allows users to add and change the information provided. Melville and his faculty realised that this would lead to a profound change in both student learning and faculty teaching in that students expect to be involved in the design of their education. Furthermore, once information has been accessed, it is no longer seen as something you hold onto, but rather information to be shared with others. This brings about interesting challenges for universities who value intellectual property, maintain copyright and limit access to information. Similarly, there is increased evidence of plagiarism amongst students as they view information and ownership of that information differently to the traditional and still accepted values of a higher education institution.

**FACULTY PERCEPTIONS**

Faculty meetings are held at the beginning of each academic semester at Varsity College, Cape Town. This is where lecturers meet to consider aspects of teaching and learning as well as to plan and discuss the semester that lies ahead. It was within the faculty meetings of January 2010 that the information for this article was generated. One of the themes for teaching and learning support in 2010 at Varsity College is ‘Technology to support best teaching practice’ (Whaits, personal communication, 2009). The author, in the role as ADC, played an online YouTube.com video clip (Brenman, Fisch and McLeod, 2009) at these faculty meetings to stimulate discussion on the digital students in the classroom and how technology can support best teaching practice appropriate to this type of student. The video content is about the information age and the impact this has on the student (*ibid*). Faculty then entered into facilitated discussion with the author about the nature of the net generation student as well as the integration of technology into the classroom to support student learning. The following is a discussion of the comments made by faculty during these meetings.

The first set of comments made by lecturers was to do with the speed at which net generation students expect to receive information.

> This generation wants everything instantly; they’re losing their sense of intuition.

> They need time to understand, they’re not going to get the knowledge they need instantly.

The challenge for lecturers lies in the relatively slow process of traditional pedagogy and student learning; e.g. the Socratic Method. Students may have this expectation of immediacy due to the instant speed of the internet and convenience of the technology.

The speed and ease with which students can access information means that the skills of sorting and judging the relevance of the information are not necessarily in place. This was supported by the comments below.
We can create structure so that they can discern between what information is good and bad.

They lack the ability to judge what factually correct information is. Whatever they read on the internet is taken at face value.

In the author’s experience students mostly rely on the internet as a source of information in compiling assignments and doing extra reading on a topic. This may be due to the ease with which information can be accessed. However, as noted above, they often lack the skills to judge accurately the quality and credibility of the information that they source. Badke (2009) suggests that the net generation has been let down because they have not been equipped with the skills to distinguish the essential difference between traditional publications and the average website. The gateway to the internet is most often a search engine and even further limited by the use of a basic Google search. Most students will simply rely on the top ten or fifteen search results on a topic as a source of information. There is also no inherent quality control of content and anyone with a modem is able to put information online. There is, therefore, the need for a traditional library, but we also know that students respond better to the interactivity of digitised text and the visual supplementation available online. Yet if this is not always the best quality, how do we get books to match up? Due to the fast pace at which new information is generated in this information age, lecturers and students also have pressure and desire to engage with only the latest possible information on a topic. In many disciplines this is outdated by the time it is published in printed format. The answer may lie in a balance of online and traditional sources of information and an awareness of the limitations and benefits of both.

Students’ mindset has changed (sic). It’s not about the learning process; they just want to pass the exams.

We are judged on pass rates, how will all of this additional effort be recognised?

Students want to pass the exam. I don’t think they’ve changed from students 40 years ago. Human beings are fixed.

These comments provide insight into the kinds of pressures that exist for lecturing staff in higher education institutions. A discussion about these pressures is relevant when considering integrating technology into the classroom because it may explain why lecturers have been slow in introducing this technology.

The first comment above shows teachers’ frustration with students’ practice of surface rather than deep learning (Ramsden, Beswick and Bowden, 1989) as they focus on learning areas of content that will get them through the assessments. Lecturers may feel that any activities involving the use of technology will be seen as a waste of time by the students. In fact integration of technology into the classroom and teaching practice is not an add-on task, but should rather be a teaching tool. It is also evident in the second comment that lecturers believe that integrating technology into the classroom and adjusting pedagogy for the digital student is ‘additional effort’ and therefore a separate task, rather than inherent to teaching the student of the net generation.

We need to teach the same way we always have, to give them grounding and keep them rooted.

My class gives them discipline. We cannot lose what we’ve always had.

It is not about technology. We don’t need technology in our classes, it just distracts from what I have to say.
These comments suggest that some members of faculty are still resistant to the concept of integrating technology into their teaching. Such integration does not mean that technology replaces the role of a good teacher. This statement is supported by Professor Fothergill, who has integrated podcasting into his teaching of engineering students at Leeds University (Hoare, 2010). While podcasting proved to be popular and successful, he acknowledges that technology on its own is not enough. He says that technology works best when integrated with traditional teaching techniques and that he has found students to be most receptive to a blend of teaching methods like face-to-face teaching, supplemented with technology. But the fact remains that the old model of pedagogy ‘teacher-focused, one-way, one-size-fits-all, makes no sense to young people who have grown up in a digital world’ (Tapscott, 2008).

Respondents also commented on the role that technology can play in teaching in a way that caters to a variety of learning styles.

Catering to diversity is important.

Technology has enormous potential for stimulation of the senses and with a little creativity educators can enhance their teaching effectiveness with the use of technology.

I’ve had to think about what role this cell phone plays in my class. It doesn’t seem as though they can be without it.

When considering how assimilated cell phones and internet devices are within normal daily life, it seems that the only time students may be ‘unnaturally’ disconnected from their world is when they are in the classroom. Can we effectively teach fish out of water? Martineau (2008) suggests that educational institutions must begin to rethink their policies regarding the use of these devices in the classroom, not only because the classroom is becoming increasingly dissonant to the students ‘real’ (sic) life, but also because these devices possess useful capabilities for the teacher. While it may be expensive to equip all students with laptops, cell phones are relatively cheap and are already in the classroom. Accessing the internet via these cell phones allows for online activity like chat, information searches, and online gaming. While these may previously have seemed inappropriate for a classroom setting, with creativity on the part of the teacher these activities may hold educational value for the net generation. One of the primary uses of technology is for communication and this is a major reason why the net generation assimilates technology into their daily lives. They use technology extensively to network and socialise (Oblinger and Oblinger, 2005).

Students socialise better today with the use of sms’s.

Students need better soft skills to function in the working world today.

Older generations often say that ‘young people’ today do not know how to communicate or socialise because they are always on their cell phones, even when in face-to-face company. It could be argued that the opposite is true. The net generation is on their cell phone for that distinct reason, often including many more people than just those engaged in the face-to-face conversation.

There are student websites with past exam papers. It took me years to find them and only a moment for students to tell me where they are.

Students like to rework an existing piece of knowledge. It’s like Wikipedia, they build on information.

They ask how they can improve things.
The extent to which students today are technologically savvy and connected means that they are able to process information far faster than ever before. An aspect of this processing is their practice of constructing knowledge upon that which already exists. This is evident in their approach to learning which is constructivist in nature rather than being receptive to mere transmission. The Wikipedia phenomenon, as alluded to in the comment above, has resulted in students’ expectations that they should interact with, and even change, information that they access. The internet and supporting technology also allows students to pool information and knowledge in ways that respond to their learning needs. In the case of the first comment – students’ concern with assessment and need for past examination papers results in an online place to store and retrieve these papers. This shows how students make technology function to meet their needs.

There is a dissonance between the student we have and the curriculum we work with.

Information is often out of date; we need to find ways of keeping information instant and current. Students may also feel frustrated with the traditional university practice of prescribed texts and learning material that is often print-based and therefore less malleable, up-to-date or interactive than online sources. These comments may be an indication of a need for supplementation of prescribed references with online resources for teaching and learning, which may be more up-to-date and interactive.

The faculty expressed their views about the role that they play as educators to cater for the needs of the net generation, as well as how their teaching currently supports the learning of the net generation.

We can create a framework upon which students can hang knowledge.

We need to be adaptable, flexible and responsive.

These comments show that lecturers are thinking beyond the mere transfer of content and value the importance of scaffolded learning (Vygotsky, 1978). This concept of ‘scaffolded learning’ may be pertinent for the net generation who, according to Brenman, Fisch and McLeod (2008) are entering into a working world with employment positions that do not yet exist. Therefore the content knowledge may not be as important as the framework within which that knowledge is constructed. In some disciplines the first year of study is obsolete upon graduation. This shows that we need to be equipping students with generic and transferable skills, which serve as a platform for lifelong learning.

Today’s students have a constant stream of information coming into their consciousness; we need to find ways for them to let some out.

The author found this to be a particularly interesting comment and for him it resonated with the fact that this information age and digital environment must have an impact upon the psyche of the individual. It highlights the need for active learning opportunities and engagement between the lecturer and student in the classroom. As an institution, Varsity College responds to this important need by keeping class numbers relatively small, with a maximum of forty five students in a class to allow for student interaction. Technologies like blogging, online chat and social networking may be tools with which students can disseminate information.

How do I include videos and online content without internet access in my classroom?
There is no denying that technology and the hardware it requires costs money and within this economic climate funds are not always easily available. Unfortunately, it is common within education that the facilities required to integrate technology into the classroom are not always as readily available as would be ideal. However, Oblinger and Oblinger (2005) remind the reader that they must not assume that the net generation necessarily wants to use technology heavily in their education. They make the important point that net generation learners ‘don’t think in terms of technology; they think in terms of the activity technology enables’ (ibid: 2.10). Furthermore, they argue that educational institutions should not assume that more technology is necessarily better but rather technology that enables certain types of activities is likely to be appreciated by students.

You guys (ADC) have got work to do with us – we need training.

This final statement serves as a call to attention for support staff and the institution – that faculty may be open to dealing with the net generation, but they do not necessarily have the knowledge and skills to adjust their teaching to best influence the learning of the net generation.

HOW CAN WE RESPOND TO THE NET GENERATION?

The meetings between faculty suggest that some lecturers are excited and poised to make dramatic changes to their teaching, but await institutional investment in technology hardware. Whereas others feel that integrating technology into their classrooms is a giant leap and one for which they neither have the time nor inclination. Integration of technology need not change all that a lecturer does in the class. It can mean achieving the same educational goals in a new and more efficient way by making only small changes and introducing technology slowly. Similarly, there is no need for environments that are buzzing with technological wizardry to be effective. Rather, a lecturer can find creative ways of using the resources that do exist.

This article highlights the importance of lecturers knowing how students interact with technology and what technologies they employ in their daily lives. The next step for lecturers is to find ways of integrating this into their teaching. Examples are: the use of students’ cell phones (online access, MXit, Facebook and SMS), library computers, data projectors, Facebook pages, free blogging sites, and podcasting. Renard (2005) speaks of the value of free resources, like instant-messaging and blogging for learning. Lecturers can create links with students across the country via instant messaging and encourage discussion and sharing of knowledge on topics covered in the class. MXit and Blackberry chat are free (or nominal cost) functions that are cell phone based, therefore the technology is already at hand in the class. ‘M-Learning’ is a term referred to by Benson et al (2008), which incorporates the use of mobile technology for learning. This uses Wi-Fi, 3G and cellular connectivity to online sources.

The key characteristic of technological user interfaces is visual stimulation. As noted at the beginning of this article the net generation responds to visual stimuli and they are considered to possess high visual literacy. Net generation students understand concepts that are graphically depicted more than concepts that are explained using large amounts of text. This is likely due to the student’s constant access to online media. Lecturers may need to transfer the design characteristics (more graphics and less text) of web pages popular with students to the design of their PowerPoint slides and visual aids.

Students are comfortable with multimedia rich environments. Hence it is reasonable to suggest that it may be necessary for lecturers to look beyond the textbook or whiteboard to engage with more of the senses and other learning styles. The teaching and learning culture at Varsity College is one rich in the appreciation of facilitation style pedagogy and therefore the use of group work. The net generation responds well to collaboration in completing tasks as well as the social interaction derived from this style.
Renard (2005) suggests the use of ‘a WebQuest’, which is defined by Dodge (1997, cited in Renard, 2005) as ‘an inquiry-based activity in which all of the information that learners interact with comes off the internet’. Students are given a topic and task, they are provided with links to online sources that they must visit to complete the quest. While this may seem basic a decade later than when proposed by Dodge, the current value may lie in the capacity of this task to coach students to access more credible sources or use a wider variety of sources than they are used to doing (and encourage the use of online databases).

Prensky (2001) brings attention to the importance of reflection in the learning experience of digital students. This is often lacking in the way a student thinks due to the twitch-speed at which information is processed. If reflection is a time for students to create ‘mental models’ from experience then teachers need to make time available for personal reflection on the learning that is taking place (ibid). This reflection occurs in reading and writing activities. It may be important to step away from the activities of group work and team interaction at times to revert to individualised experiences of reflection, where knowledge can be consolidated.

**CONCLUSION**

It is a challenge to teach at a time of exponential growth in information technology and its users. Change is needed in response to the technology that has had such a profound effect on the students we have in our classes. The faculty at Varsity College are becoming increasingly conscious of the characteristics of the net generation student and the role that they as teachers play in integrating technology into their teaching to support student learning. They are grappling with these issues and considering ways in which they can respond better to the net generation.

**REFERENCES**


