

WHAT IS ...?

What is the Net Generation? The challenge for future medical education

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Abstract

The Net Generation is the cohort of young people born between 1982 and 1991 who have grown up in an environment in which they are constantly exposed to computer-based technology. It has been suggested that their methods of learning are different from those of previous generations. In a survey of first-year undergraduate students, we found that a large majority started university with experience of using online systems such as blogs and wikis; furthermore, their attitudes to the possible use of such tools in learning were positive. The Net Generation is a challenge to the way that all universities and medical schools provide teaching and learning. We suggest that all educators of this group of students need to be aware of incoming students' skills and experience and do more to promote their use in the undergraduate curriculum.

Introduction

The Net Generation is the cohort of young people born since around 1982 who have grown up in an environment in which Information and Communications Technology (ICT) has become an integral part of daily life. Computers now provide access to a wide variety of learning opportunities, both formal and informal, at school and at home. This generation has been called the Net Generation and they differ fundamentally from previous generations in the way that they learn, shop, work, play and communicate with others. We describe the characteristics of the Net Generation, report a survey of this group's experience and views on entry to university, and discuss the implications and challenges for future undergraduate medical education.

What is the Net Generation?

The Net Generation, also known as Generation Y (Gibson & Manuel 2003) or Millennials (Howe & Strauss 2000), refers to young people born between 1982 and 1991 (Oblinger & Oblinger 2005). These young people are now entering further and higher education. The demographic revolution has now met the digital revolution (Tapscott 1998). The numbers of young people in the 16–25 age range are now a formidable demographic feature of the total population of the US, Canada and Western Europe. They have grown up in a world in which technology has not just surrounded them but has become an integral part of their lives. Prensky has called this generation 'Digital Natives' since they are 'native speakers' of the digital language of computers and the Internet (Prensky 2001). In the UK, at least 20% of all children have begun to use a computer by the age of eight, and between the ages of 11 and 18, at least

60% of young people use a computer daily, with at least 50% regularly going online (Valentine & Pattie 2005).

This generation is also active in social networking and they are highly connected with their peer group, especially by the use of mobile phones (Ling 2004), Internet chat rooms, blogs and wikis (Jones & Madden 2002). In the case of the mobile phone, young people are often constantly connected and its use becomes so much a part of the individual's life that it is regarded as being an extension of the individual and an essential part of life (Weilenmann & Larsson 2001).

Blogs, also known as weblogs, are frequently updated websites with a dated commentary and links (Blood 2002). There has been a phenomenal increase in the number of blogs, with over 20 million sites currently being tracked by the blog search engine Technorati (<http://www.technorati.com>). Wikis, from the Hawaiian word meaning 'quick', are a freely expandable collection of interlinked web pages for storing and modifying information (Leuf & Cunningham 2001). There are technical differences but they can be regarded as providing identical opportunities to share information, especially by creating networks of users.

How does the Net Generation learn?

It is clear that the Net Generation is more technologically savvy than its predecessors; some have gone further than this and have suggested that they even learn in fundamentally different ways from previous generations (Oblinger & Oblinger 2005). Whether or not this shift is as dramatic as people like Oblinger and Oblinger would suggest, there is no doubt that members of this generation, which represents the current and future

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Table 1. Responses to survey questions (percentages).

	Yes	No	Maybe	
Blogs/wikis				
Have you ever used a blog/wiki?	29	70		
If no, might you use blogs/wikis in the future?	5	26	42	
Have you had your own blog/wiki?	14	83		
If no, might you have your own blog/wiki in the future?	5	37	35	
Chatrooms				
Have you ever used a chatroom?	73	26		
If no, might you use chatrooms in the future?	4	21	10	
Have you had your own chatroom?	9	89		
If no, might you have your own chatroom in the future?	2	54	17	
Usefulness for learning – all respondents	Very	Quite	Not very	Not at all
To what extent do you think blogs/wikis could be useful in your learning as a student at Leeds University?	9	42	37	12
To what extent do you think blogs/wikis could be useful in your learning as a student at Leeds University?	15	38	35	12
Usefulness for learning – respondents with experience of use				
To what extent do you think blogs/wikis could be useful in your learning as a student at Leeds University?	24	41	29	5
To what extent do you think chatrooms could be useful in your learning as a student at Leeds University?	24	52	16	9

cohorts of undergraduate students, has different skills and experience at their disposal than their predecessors.

Oblinger & Oblinger (2005) highlight the essential differences in the way that the Net Generation learns. The Net Generation is more comfortable with environments that are rich in multimedia images, especially visual and audio. They prefer to be actively engaged in tasks rather than reading about events or writing about them. Their motivation to learn comes from being actively involved in the learning and from their attempts to answer questions that arise during a task. They expect immediate responses and are achievement orientated, preferring a clear learning outcome to their task rather than ambiguity. Although the Net Generation may spend many solitary hours playing computer games, they regard social interaction as very important and they prefer to work in groups in which they actively help fellow group members. They like to talk about what they are doing, especially to other members of their peer group. These interactions are not only face to face but are supplemented by the use of a range of ICT. They are avid users of technology but research has noted that they want more than technology as a method to help them to learn (Roberts 2005). They rate highly the opportunity to access directly the experience and expertise of their university teachers, especially by having opportunities to ask questions.

Survey of incoming first-year students

We were interested in identifying the skills, experience and views on ICT of incoming undergraduate students, including medical students, to a UK university. We polled first-year

undergraduate students in the first semester of their studies; hence these respondents were no more than six weeks into their university education. There were 197 medical students and 80 psychology students. We distributed a simple questionnaire to examine previous experience and views on the use of three ICT approaches that we considered could be useful in enhancing teaching and learning: blogs, wikis and Internet chatrooms. Given the similarities in the nature of blogs and wikis we chose to group those together. We gave a brief, single-sentence definition of each tool and asked a series of questions about them relating to experience of using and potential usefulness for learning.

The mean values were calculated on each of the points for each question and the results are shown in Table 1. The responses showed a high level of exposure to these tools among this cohort of students: nearly a third had used a blog or wiki, and nearly three-quarters had used an Internet chatroom. Furthermore, 14% and 9% respectively had even had their own blog/wiki or Internet chatroom.

In general, respondents were open to the idea that these tools could be useful in their learning as undergraduates: a narrow majority thought that blogs/wikis (51%) and Internet chatrooms (53%) could be very or quite useful. This is impressive in view of the fact that some of these respondents had no exposure to such tools. When we selected for cases who did have experience of using blogs, wikis or Internet chatrooms, the percentage of those who were positive about the use of such tools rose considerably: 65% thought blogs/wikis could be very or quite useful and 76% thought Internet

chatrooms could be very or quite useful in learning at university.

What are the implications for educators of the Net Generation?

The clear message from our survey is that there is a high degree of experience with at least some online tools by many incoming undergraduate students. There is also considerable openness to the possible use of these tools in their learning as university students.

Tapscott (1999) suggests that the overall approach to teaching the Net Generation has to change in response to the needs of this cohort of learners. He describes several shifts that are required: from linear to hypermedia opportunities for learning, from instruction to construction, and from one-size-fits-all to personalized approaches to learning. Traditional approaches to learning are linear and date back to using books as a learning tool. In this approach, there is both a beginning and an end to the sequence of learning. This approach is found in textbooks but also in most other instructional media, such as videos or CD-ROMs. However, the Net Generation accesses information with a more interactive and non-sequential approach. A wide variety of Internet resources for learning are used, including websites and blogs, and the learner repeatedly goes backwards and forwards between several resources. This approach allows students to develop personalized learning by construction.

All educators need to reflect on precisely what their role is, in a situation where the student will rely less on the educator as a provider of information and more on the educator as a facilitator of learning. Such a change necessarily involves a new way of delivering teaching, where learning is regarded as a 'learning ecology', and learning becomes a network process facilitated by information and communication technology (Siemens 2005). By this framework, a student's learning will depend on how easily accessible the various learning resources are—resources that may include those freely available on the Internet, such as websites, but also resources that have been specifically created by educators to enhance learning, including blogs and wikis. Within a learning framework of this sort, learning becomes a more personalized experience for the student.

The Net Generation regards its peer group members as an important learning resource, and methods to capture this knowledge and link learners together are required. Students can have personal blogs and these can be used as portfolios to store personal thoughts and information sources (Williams & Jacobs 2004). These blogs are not static sites but can be easily shared with other learners. Recent advances in social bookmarking software can create links between learners to produce virtual communities of learners and these can be enhanced through sharing of files and personal collections of learning resources (Kennedy 2004).

There are significant implications, for both learners and educators, if this learning ecology approach is implemented within the undergraduate curriculum. All learners will need skills to ensure they can develop, access and evaluate a wide range of learning resources. This learning ecology approach

may require additional input by the institution early on in the learner's education but most learners will be building upon varying degrees of familiarity with this approach. Again here it is clear that the educator's role is one of facilitation. As we see it, the main barrier to implementing such teaching is likely to be not the learners but the educators; there seems reluctance among many educators to move away from traditional teaching methods, and indeed there is a sense in which this is a radical departure from a system that has worked well for a very long time. Adopting Prensky's classification outlined above that sees the Net Generation as digital natives, most educators are 'digital immigrants', in the sense that they were not exposed to digital tools in their formative years (Prensky 2001). Educators are typical immigrants: on encountering a new culture they try, often in vain, to adapt to the new culture while bringing along the baggage of their own cultural legacy.

In order to move forward in a sensible and measured way, we suggest that new ways of facilitating learning must be adopted but these should be integrated with existing programmes, a so-called 'blended approach' (Broadbent 2002). Those in the Net Generation still desire interaction with their educators and opportunities need to be created to allow adequate time with their educators.

Conclusion

The task of educating the Net Generation is a challenge to be faced by all educators. There is a growing realization that the students who make up our current and future undergraduate cohorts use very different resources and strategies to learn compared with their educators' generations. The survey reported here shows that incoming students are familiar with some of the popular, emerging web-based tools that educators could be using for teaching. Our conclusion is that educators need to embrace these new e-learning tools, but that a balanced move forward is essential. We do not suggest abandoning traditional teaching methods entirely and, in particular, students will continue in the future to appreciate personal communication with their educators. However, we have to accept that the future provision of effective and economical learning opportunities requires approaches that are not currently familiar to many educators.

Further reading

Don Tapscott has a website linked to his book *Growing Up Digital*. This has numerous links to all aspects of the Net Generation. (See <http://www.growingupdigital.com/>)

The Pew Internet and American Life Project performs regular surveys of the use of the Internet and information and communications technology. It is based in the US but provides a useful glimpse into current, and future, trends. (See <http://www.pewinternet.org/>)

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