THE 21ST CENTURY LEARNER

Liliana–Carmen MĂRUNȚELU[1]
[1] Assoc.Prof.,PhD, University Ovidius, Constanta.

Abstract: The present day technologies in communication and information are having a greater than ever impact on learning - how we learn, where we learn, when we learn, what we learn, what learning resources we have, and why we learn. It is an era of fundamental and fast changes that requires a lot of abilities from learners concerning their capacity for learning. This capacity does not imply the idea of learning more, but that of expanding and improving the ways in which learning takes place, as Alberti has explained. There is the growing expectation that students will become more flexible, more independent and autonomous, learners who can 'select personal pathways … and who will develop the skills of life-long learning' (Dunne, 1999, p.6). This paper tries to answer questions referring to the models of the learner for the world we live in, or to explain some of the approaches and processes by which the new-century learners will learn.
Key-words: Millennia /Net/Y- generation, education, learning, teaching, digital.

1. INTRODUCTION

There are changes taking place among the student population and there are some features of these changes that relate to the students' age. A student entering university in 2010 has been in a world with social networking sites as an available resource, and in a context of media hype concerning the effects on children and young people, since they were 13 years of age.

Social networking sites were barely on the horizon when the Net Generation and Digital Native literature became popular and this points to a regular temporal feature of technology innovation and one that affects digital and network technologies in particular. It is hard to predict what the next big innovation will be and the speed of change following an innovation can be prodigious.

The complex picture that emerges from empirical studies of the new millennium student shows differences between students within the age range of students thought to form a single generation. These differences are most marked in relation to the newer technologies, social networking sites and more recently the uploading and manipulation of video to various sites including YouTube. Digital and networked technologies do not present themselves to young people as one single entity. Students actively engage with a variety of different applications and services simultaneously and their features are far from uniform.

2. GENERATIONAL ASPECTS OF THE 21ST CENTURY LEARNER

According to authors such as Tapscott (1999, 2009), Howe and Strauss (1991, 2000), Prensky (2001a, 2001b, 2009, 2010), Oblinger and Oblinger (2005), Palfrey and Gasser (2008) and others, today"s generation of young people have been engrossed in a world infused with networked and digital technologies, therefore they behave in a different way than previous generations. They are claimed to think differently, they learn differently, they exhibit different social characteristics and have different expectations about life and learning. Some have even gone further claiming that the brains of students today are "physically different" (Prensky, 2001b) from earlier generations of students because of the students" early immersion in technology. The new generation of students are said to prefer receiving information quickly, relying on communication technologies, often multitasking and having a low tolerance for lectures, preferring active rather than passive learning (see for example Tapscott 1999; Oblinger, 2003; Oblinger and Oblinger, 2005).

In education they [the Net generation] are forcing a change in the model of pedagogy, from a teacher-focused approach based on instruction to a student-focused model based on collaboration." (Tapscott 2009 p 11). The most common terms in circulation used to identify new generations of young people who have been brought up in a digitally rich environment.are: the "Millennials" (Howe and Strauss, 1991, 2000, 2003), "Net Generation" (Tapscott, 1998, 2009, Oblinger & Oblinger 2005), "DigitalNative/ DigitalImmigrants" (Prensky, 2001a, 2001b, 2009, 2010, Palfrey and Gasser **2008**), and "Generation Y" (Jorgensen, 2003; Weiler, 2005; McCrindle, 2006). The same populationare also less commonly referred to as the "IM Generation" referring to the Instant Message Generation (Lenhart, Rainie, and Lewis, 2001), the "Gamer Generation" (Carstens and Beck, 2005) for the obvious reference to video games, and even "Homo Zappiens" (Veen, 2003) for their ability to control information flows. Each definition is slightly different and differs in the way it is used by researchers, but in general the terms are used interchangeably. At present there are a number of even newer terms that claim to identify a further generational step change, related to newer technological developments, using terms such as the Google Generation (Rowlands et al. 2008, JISC-Ciber 2008) or the i-Generation (Rosen 2010).

The term Millennial has a longer history and explains some of the generational aspects of the later debate and we follow this term with the two key terms, the Net generation and Digital Natives and conclude this introduction of key terms with a short consideration of the term Generation Y.

Millennials

In 1991, Howe and Strauss published their book Generations, describing the American history based on repeating generational stereotypes. In this book, Howe and Strauss (1991) first coined the term "Millennial Generation" (defined as being born between 1982-2000), as successor to, but not wanting to be associated with the "Generation X" (born between 1961-1981). Howe and Strauss later published Millennials Rising: The Next Great Generation (Howe and Strauss 2000). This book directly linked the generational hypothesis with the student population as in 2000 those born in 1982 or after began to leave schooling and enter higher education. The "Millennials" were said to be distinctly different from the preceding Generation X, partly as a consequence of a broad historical cycle but also as a result of a combination of historical circumstances, and timing. According to Howe and Strauss the new generation of millennial students were "optimistic, team-oriented, high-achieving rule-followers" (2003 p.1). Millennials, although described by their situation in terms of new technologies are also a part of a long term historical process rooted in biology and culture. The Millennials are just the most recent form of the recurring Civic generation, who are said to be heroic, collegial and rationalistic. Perhaps most interestingly the recurrent characteristics of this generational type are said to include the core values of community and technology.

Based on Howe and Strauss' concept of the "Millennials", Oblinger (2003) went on to argue that these new characteristics had created an imbalance between students' expectations of the new learning environment and what they actually found in universities and colleges. As a result, universities and colleges needed to understand these new learners and to adapt to their approaches to learning when they were designing programs and courses.

Oblinger took the precise date from Howe and Strauss for the emergence of the Millennial generation and suggested that they were born „in or after 1982" (Oblinger 2003 p38). However Oblinger & Oblinger (2005 section 2 p9) argued that this generation ended in 1991, making new entrants to higher education in the academic year 2009-2010 the last intake of this generation. Oblinger and Oblinger (2005) clearly build on Howe and Strauss and while they are cautious in stating their claims they associate the civic generation, drawn directly from Howe and Strauss, with the Net Generation defined in terms of its exposure to technology.

The generational argument suggests that the boundaries between one generation and the next are sharp, defined in single year turning points, implying that it takes just a few years to make a significant difference in young people"s attitudes and behaviour. However Oblinger & Oblinger also acknowledged that while they described these trends in generational terms they were adding a strong interest in contextual factors, especially the technological environment, and they argued that for changes in the student population: "age may be less important than exposure to technology" (2005 p.20).

In her article "Teaching, Learning and Millennial Students" (2004), Maureen E. Wilson makes recommendations for enhancing teaching effectiveness for Millennial students. These include:

-Student-Faculty Contact: Millennials who have had sheltered lives and have involved parents need to learn how to take responsibility for their own learning, how to relate to authority figures and how to advocate for themselves. Quality student-faculty contact can enhance students' motivation and enthusiasm for their own educational experience.

-Reciprocity and Cooperation: Millennial students have grown up working in groups and playing on teams. Since working with others can strengthen the learning environment for all students, Millennials are more likely to collaboratively work with their peers to enhance their own learning.

-Active Learning: Active and engaged learning is another aspect of optimal student learning. Using active learning strategies such as discussions, reflection activities, group projects and cooperative problem-solving can deepen students' understanding of course material and ability to apply new ideas. Since Millennials have a team-orientation, they ought to greatly benefit from active learning opportunities.

-Feedback: Most research on improving student learning emphasizes the need for prompt, frequent and constructive feedback from faculty to students. This type of feedback can help Millennial students to more effectively understand their strengths and weaknesses and lessen the pressure to achieve.

-Time on Task: Students must devote adequate time and effort to their academic endeavors in order to enhance the quality of their learning. Although Millennial students are confident and achieving, they may underestimate the time that is necessary for academic success. Faculty can help their Millennial students to learn how to better manage their time and efforts in order for them to achieve their academic goals.

-High Expectations: When faculty set high expectations for their students' learning, students will strive to meet these expectations that lead to enhanced learning. Faculty can help Millennial students by teaching them to think more critically and with more complexity, instead of just "teaching for the test."

-Diverse Talents and Ways of Knowing: Students' learning styles differ, which requires effective faculty to use a variety of teaching strategies. Millennials' achievement orientation will be challenged by any type of failure. By helping Millennial students to use different types of learning strategies in different situations, faculty are helping these students to be critical thinkers and adaptive learners.

It is critical to note that general group characteristics of Millennial students cannot accurately describe individual students. It is the broad understanding of the issues faced by Millennial students that can help faculty to create active, effective and engaging learning environments for his/her students.

Net Generation

In 1997 Don Tapscott, a consultant on the application of technology in business and society, published his book "Growing Up Digital: The Rise of the Net Generation", which commented on the social and business impact of a new digital generation which was then coming of age.

Tapscott coined the term „Net Generation", which referred to young people who had grown up surrounded by digital media. According to Tapscott (1997), the reason he used the term „Net Generation" was because the most significant change affecting that generation had been the rise of the computer, the Internet and other digital media. He argued that: the New Generation is exceptionally curious, self-reliant, contrarian, smart, focused, able to adapt, high in self-esteem, and has a global orientation...there has been a change in the way children gather, accept and retain information. (Tapscott, 1997)

He noted that the generation of technologically advanced students would soon be arriving at university and posing radical questions about the transformation of traditional forms of teaching and learning. In his later book (2009) Tapscott provided dates for the start and end of the Net Generation arguing that it encompassed those born in between January 1977 and December 1997.

An important feature of Tapscott's argument was that he claimed to identify significant changes in attitudes and approaches to learning related to the generational shift.

Indeed Tapscott suggested that because of changes in technology there have been some „inevitable" consequences for learning. Tapscott identified the Internet as the ultimate interactive environment and argued that education needed to move from what he described as a teacher-centred approach to learning to a learner-centred approach. By teacher-centred Tapscott meant a transmission model of education in which the teacher or lecturer imparted knowledge to the student. Learner-centred in Tapscott's view placed the focus on the individual student's activity. The lead for this change was to come from the students: But as we make this inevitable transition we may best turn to the generation raised on and immersed in new technologies. (Tapscott 1999, p11).

Tapscott argued that the Net Generation was an outcome of changes in technology but he went on to argue that the new generation of young people was an agent of radical change, change that had a particular relevance for education and especially for higher education.

"This new generation comes home and they turn on their computer and they're in three different windows and they've got three magazines open and they're listening to iTunes and they're texting with their friends," he says, "*and* they're doing their homework."

With such a networked approach to work and leisure time, Tapscott says the traditional university classroom is starting to feel less appropriate.

"The big thing is to get an 'A' without having ever gone to the lecture," Tapscott says. "All these kids that have grown up collaborating and thinking differently walk into a university and they're asked to sit there and passively listen to someone talking."

He says that if someone from 100 years ago miraculously came back and found a modern engineer designing a bridge, it would be clear how much technology had changed things. But if that same person walked into a university lecture hall today, it would be entirely familiar.

"We need to move toward a collaborative model of learning that's student focused, [that's] highly customized and that is a model appropriate for a new generation that learns differently," says Tapscott. He warns that universities are ignoring the changing needs and desires of young people — and they're doing so at their own peril.

"When you have the cream of the crop of an entire generation thinking that the model of pedagogy is deeply flawed," he says, "well, the writing's on the wall."

Net Generation students work fast and make plans even faster. They need institutional infrastructures that can keep up with their pace.

For students who have grown up in a 24-hour news environment, they want to be the first to hear about events that affect them personally.

College professors understand the traditional "lecture, read and test" method is failing to reach the Net Generation college student. Large lecture courses are regularly broken up into small group discussions. Microsoft PowerPoint presentations are popular, as are posting all presentations, lecture notes, assignments and syllabi online.

Many traditional college courses now have online discussion components powered by software and services like the recently merged Blackboard and WebCT. Students and professors are pushing for these online course components to include more of the multimedia Web experience the Net Generation is accustomed to -- the images, audio, and video that make the information come alive.

But not everyone in academia is buying into the idea that the Net Generation represents a great departure from all previous college students. If anything, say some educators, it's the students who should adapt their attention-deprived learning styles to fit a traditional college education, not the other way around.

In an article in the Chronicle for Higher Education, American University linguistics professor Naomi Baron says that Net Generation students have confused effective communication for self-expression at all costs. Their writing and thought process lacks depth, since no time is set aside for proper reflection. There's something to be said, argues professor Baron, for the ability to sit still and think.

Digital Natives/ Digital Immigrants

In 2001, another term to describe this generation was introduced by Marc Prensky (2001a, 2001b), who named them „Digital Natives", because he found them to be „native speakers" of the digital language of computers and the Internet. According to Prensky (2001a), Digital Natives were distinct from previous generations, who he described as Digital Immigrants, and they had developed new attitudes, aptitudes, and approaches to learning. Prensky argued that there had been a sharp generational step and that the emergence of Digital Natives led to significant changes: A really big discontinuity has taken place. One might even call it a "singularity" –an event which changes things so fundamentally that there is absolutely no going back. (Prensky 2001 p 1) Prensky identified the entire generation with the change and suggested that the new generation thought differently and that this generational change had been caused by a process of technological change. In his second article

Prensky (2001b) also claimed that the brains of Digital Natives were „physically different" from those of previous generations because of the direct effects of digital technologies.

In contrast to „Digital Natives", those who were not born in the digital world and had adopted many of the new technologies later in life, were called the „Digital Immigrants" (Prensky, 2001a). Unlike Digital Natives, Digital Immigrants had to learn and adapt to using emerging technologies rather than seeing them as natural tools as part of their given world. According to Prensky, no matter how well Digital Immigrants adapted to the new environment, they would retain their „digital immigrant accent". Prensky also expressed a concern about the profound gap he had identified between Digital Native students and the technological literacy of their Digital Immigrant tutors, and he went on to claim that this generation gap was„the biggest single problem facing education today" (2001 p.2). The characteristics and learning preferences of Digital Native students, he argued, were incompatible with the teaching practice of their teachers.

As this generation of young people entered higher education, educators would need to change their teaching approaches in order to meet the needs of the new generation of learners (Prensky, 2001a). Students were once again the motor of change: Our students have changed radically. Today's students are no longer the people our educational system was designed to teach (2001a p.1). Both Tapscott and Prensky developed a determinist line of argument that suggested that technological change led automatically to a sharp change in generational characteristics and the new generation of students would then become an agent of further change. The change they both identified was centrally located in education and the institutions of higher education in particular.

Generation Y

The term „Generation Y" has also had a wide use, mainly in relation to business and commerce, and it has currency in some contexts that have not adopted the terms Net Generation or Digital Natives. It is claimed that it first appeared in an AdAge magazine in 1993 (Zhao and Liu, 2008; Halse and Mallinson, 2009), as a term to identify the generational cohort following Generation X. Generation Y was a succession from Generation X and it was composed of the children of the „Baby Boomers" a generation identified with those born in the years after the Second World War. There have been various dates suggested for the start and end points of this generation, but they generally ranging from the mid 1970s to the mid 1990s (Jorgensen, 2003; Noble et al., 2008; Weiler, 2005). Once again the claim suggests that having grown up in a digital world at a time of economic expansion has led Generation Y to have developed unique generational characteristics (Wolburg and Pokrywczynski, 2001). These include aptitudes for collaboration and networking and a positive attitude towards change (Chen, 2008; Noble et al., 2008; Tulgan and Martin, 2001). Digital devices including personal computers, mobile phones, iPods and game consoles were not only necessary as communication tools but they were also symbols of generational identity (Huntley, 2006).

3. CONCLUSIONS

Things are changing around us very dramatically, very quickly. The world is becoming more interconnected, the environment is becoming less stable, and technology is continuously altering our relationship to information. Changing global conditions demand that we rethink what, but even more important, how and where we learn. We need education for the 21st century.

When students design, plan, carry out, and publicly exhibit a project of genuine value (to themselves, to the community, or to a client), it has a transformative effect on their perception of themselves, their relationship to learning, and their sense of their place in the world around them. It is also the best way to develop the diverse portfolio of skills that are increasingly in demand from employers.

Now that many mobile phones can access more information than is held in any library, the idea of school as the place you go to acquire knowledge is an anachronism. However, schools still have an important role to play as the 'base camp' for enquiries that will take students into their communities, and online.

An interest in learning is the key characteristic that teachers share with their students, and teachers need to be able to conduct action research and be aware of developments in their field, in order to develop their practice (and share it with their colleagues).

Students are experts in their own learning – they know how they learn best, and what they are most interested in, and schools stand to benefit from working with them rather than performing for them. In other words, rather than trying to put on a fancier show for their students, teachers should let them backstage.

Attentive readers may be noticing that there is nothing 'new' about the preceding characteristics of 21st century education. These ideas are at least 100 years old - John Dewey is probably their most famous advocate, though they go back much further. However, digital technology has made this vision more attainable, for more people, than ever before. It has also vastly increased the number of education providers that a learner can choose from. Schools no longer have a monopoly on 'academic' learning, and if they do not adapt, the world may simply leave them behind.

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