

# Learning in Digital: An Approach to Digital Learners in the UOC Scenario

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## Introduction

Some authors (Oblinger & Oblinger, 2005; Palfrey & Gasser, 2008; Prensky, 2005; Tapscott, 2009), describe the existence of a new generation of people that have spent their childhood surrounded by media and computing, and who have a more intuitive and deeper knowledge of ICT than previous generations. These authors contend that this has affected their experience of learning, as it is believed that they have different thought patterns compared to previous generations (Tapscott, 1998). From this perspective, the vast majority of university students could be considered within this so-called Net Generation as they "were born after the year 1980" (Oblinger & Oblinger 2005 p.12).

According to the literature, the Net Generation has been in contact with ICT since early childhood, and that allows them to adapt quickly and efficiently to technological revolutions.

There are numerous labels to define this generation: one of the best known is "Digital Natives" defined as those "native speakers of the digital language of video games and Internet" (Prensky, 2005 p.1); in contrast with "Digital immigrants" applied to those born before 1980.

Others identify them as the DIG Generation "Digital Immediate Gratification, the Millennium generation or Nintendo Generation" (Ferreiro, 2006 p.6). They have also been called New Millennium Learners (NML), referring to "those generations born after 1980 and grown up in a context where digital technologies are an inevitable part of daily life" (Pedró, 2006).

Some of these authors identify a number of features of this generation (Oblinger & Oblinger, 2005; Prensky, 2005; Palfrey & Gasser, 2008): being digitally literate, continuously connected, showing a need for immediacy in receiving information, preference for social activities, being active experiential learners, showing a capacity to carry out several tasks simultaneously and being involved to the community. But, do Students at UOC fit this net generation profile?

In this paper, we outline our scepticism about what that literature has had to say about this generation.

## Scepticism about digital learners

Several studies (Kennedy et al., 2008; Bennett et al, 2008; Guo et al, 2008; Selwyn, 2009; Bullen et al, 2011) show that scientific evidence or statistics are rarely used when discussing the characteristics of this

generation. In fact, some of these authors refute the best known features, arguing that they also appear in other generations: "The oft-used example of a young person doing homework while engaged in other activities was also applied to earlier generations doing homework in front of the television (Bennett et al., 2008 p.779). They also refute its validity: "it is clear that many studies fail to find evidence to support claims that young students use digital technologies in a radically different manner or have a significantly different set of characteristics" (Margaryan & Littlejohn, 2008 p.4).

The methodology of the studies that support the Net Generation thesis has also been dissected to reveal some notable mistakes (Schulmeister, 2008):

Media activities of young people are reviewed from the perspective of entertainment without regard for other aspects of their lives.

Research into the actual use of media shows that young people continue to watch traditional television and listen to music to an enormous extent and also read print media; in contrast with Internet use.

The studies make incorrect generalizations about the whole generation based on the results of accidental samplings.

Most Net-generation authors assume that young people's behaviour is determined by new media, while various surveys show that the use of these media is not transferred to learning preferences.

Moreover, this overexposure to technology may not always be considered from a positive perspective: "spending too much time in cyberspace may establish an imbalance in brain processes, creating an overload that can reduce the ability of young people to process the information they receive" (Berson & Berson, 2005, p. 32)

Research increasingly shows that exclusion criteria regarding the Net-gen are based purely on the age factor. (Lee, 2005; Hargittai, 2010). However, some studies suggest a great variation in the use of technology in the same age range in selected samples (Kennedy et al., 2008).

In the case of higher education, the criticism mentioned is more palpable because, firstly, the use of technology in education does not imply a greater knowledge of it: "exposure to computer information systems at the high school or community college level was found to have little significant impact on student computer literacy" (Karsten & Roth, 1998, p. 15). And secondly, having extensive skills in ICT use does not necessarily lead them to being employed in academic activities: "A transfer of the abilities gained from using the computer to learning does not seem – or at least not to the degree expected – to take place. The use of the computer, for school assignments as well as for work done at the university, is soberly regarded by users as a means to an end. Possessing a high degree of e-competence does not mean that the wish to transfer e-methods to learning is in the blood" (Schulmeister, 2008).

Most studies on the learning traits of the Net-gen reveal that students do not consider the use of technology in university teaching to be very necessary (Bennet et al., 2008). In fact, Bennet et al. contended that "far from demanding lecturers change their practice", students "appear to conform to fairly traditional pedagogies, albeit with minor uses of technology tools that deliver content." (Margaryan & LittleJohn, 2008, p.6).

## **The digital learners in higher education international research project**

Digital Learners in Higher Education is an international research project that is investigating how postsecondary learners in different institutional contexts and cultures think about ICTs and how they use them in their social and educational lives. The goal is to gain an understanding of what the growing use of the new ICTs means for teaching and learning in higher education.

The research questions driving this study are:

- Do postsecondary students distinguish between their social and educational use of ICTs?
- What impact does students' social use of ICTs have on postsecondary learning environments?
- What is the relationship between social and educational uses of ICTs in postsecondary education?

We are using a multi-case study embedded design (Yin, 2009) containing three cases of social and educational use of ICTs. The cases consist of three distinct postsecondary institutional contexts: a Canadian polytechnic teaching institution (BCIT), a Canadian research-intensive university (University of Regina) and a European online university (Open University of Catalonia).

In the first phase of the study, BCIT partners reviewed the literature and tested some of the claims made about Net Gen students. Specifically, they sought to determine whether or not students at the BC Institute

of Technology (BCIT) fit the profile of the Net Generation learner as portrayed in the literature, and to try to understand how BCIT learners were using various ICTs. A review of the literature suggests that the discourse around the impact of new digital technologies on postsecondary education has been dominated by speculation, anecdotal observations and proprietary research that is difficult to assess. We found that there is no empirically sound basis for most of the claims that have been made (Bullen et al., 2011).

In the second phase of the study, a survey was designed in order to gather information about students' communication and study habits. Later, the survey was adapted for administration to students of UOC's cross-over course "ICT Competences".

## **Context: ICT competences at UOC**

UOC offers an internet-based learning system in a Virtual Campus, through which students can, at any time or place, create and access a dynamic and personalized learning process.

UOC students are generally older than typical undergraduate students: 9% are under 25, 33% are between 25 and 30, 40% are between 31 and 40, and 18% are over 40 years old.

UOC students do not attend face-to-face classes at University; instead theirs is a fully-online learning process. There is one appointment that UOC students can attend in person voluntarily (the opening session at the beginning of the semester) and another that can be compulsory depending on the courses they are taking (the exam or validation test at the end of the semester).

Since the foundation of UOC, ICTs have been integrated into the educational activity. A specific and "in all programs" course on digital literacy was created and has been evolving in parallel with students' needs. Currently, this course is aimed at meeting the basic ICT competences outlined in the Bologna declaration (Guitert & Romeu, 2008):

- Search for information on the Internet.
- Produce digital information.
- Disseminate digital information.
- Acquire communication skills in an online environment.
- Understand the basics of digital technologies.
- Plan and manage a virtual project.
- Acquire a digital civic attitude.
- Acquire team working skills in an online environment.

The ICT Competences course is based on a project-work methodology that facilitates the progressive acquisition of the ICT competences listed above. Students develop an online project in groups researching a specific scope of study. It helps them to acquire all the necessary competences to accomplish their program. The project is carried out with a series of linked activities that lead to the development of a final report that can take a number of formats (a text document, a wiki, an audio-visual production, all depending on the program where is taken).

Our course is adapted to the use of web 2.0 tools (depending on the requirements and the program's needs): all students upload their research links to a social bookmarking network (Delicious), some of them use GoogleDocs in order to plan and develop their projects, wikis are set up and online audio and video editing (Jaycut) is used.

## **UOC's participation in the digital learners in higher education international research project: Tool for gathering data and its adaptation to the UOC context**

For this study, UOC adapted a survey designed by the BCIT partners and administered it to the students in our ICT Competencies course. The adapted survey is divided into 5 sections:

The first section is related to general information about participants, such as gender, year of birth or which program they are taking.

The second section analyses their habits regarding whom they ask for help (with their learning process).

The third section is related to the tools they use to communicate with peers and instructors.

The fourth section analyses their communication habits with classmates and instructors and their study habits in individual and group activities.

Finally, the fifth section takes a look at the temporal dimension of studying (time they spend studying one

course, time needed to finish the program, time planning, etc.)

All sections were in the original survey except the fifth one. It was administered online to all ICT competences' course classrooms and participants completed the survey once.

## Results

### Demographic information

1036 students completed the online survey (approximately 35% of the students in the course) so we have a representative sample of the population.

61.4 % of the respondents were women and 38.6% men.

If we analyse their year of birth, the 26.7% (276) were born between 1940 and 1970, 46.9% (486) between 1970 and 1982, and 26.4% (276) between 1982 and 1991. This last age-group of the sample (26.4%) could be classified as Net generation, with the remaining 73.6% seen as non-Net Generation.

### Habits relating to who they ask for help

The results of Section 2, which sought information about what students do when they have a doubt about their courses' content, showed that the majority of participants (both Net and non-Net generations) prefer to try to solve it on their own (e.g. read the materials of the course) or by searching the Internet for an answer.

Table 1 What students do when they have a question about course content (Mean, 1= never, 6=always)

	<b>Non-Net Generation</b>	<b>Net Generation</b>
Prefer to address it on their own	5.05 (Standard Deviation: 0.8)	5.05 (Standard Deviation: 0.8)
Prefer to search the Internet	4.21 (Standard Deviation: 1.2)	4 (Standard Deviation: 1.4)

As we can see in Table 1, there is virtually no difference in the responses of the two groups to this question. Both groups are highly independent.

### Tools they use to communicate with peers and instructors

Results from section 3, as represented in Table 2, showed that the tools used most by students were the UOC e-mail account and the campus' forums. The responses from the two groups are almost the same: both groups seldom communicate with these tools. This suggests they do not communicate frequently with their peers, which is consistent with their tendency to prefer to work independently.

Table 2 Which tool student use to communicate with peers and how often?

	<b>Non-Net Generation</b>	<b>Net Generation</b>
UOC e-mail account	39.3% (Seldom = 1 to 4 times per month)	39.5% (Seldom = 1 to 4 times per month)
Other campus' tools (e.g. forums)	35,8% (Seldom = 1 to 4 times per month)	35.8% (Seldom = 1 to 4 times per month)

Synchronous tools and telephone were the least used methods of communication (up to 60% say they never use them).

We have gathered similar data in the case of communication with instructors, shown in Table 3.

Table 3 Which tools student use to communicate with instructors and how often?

	<b>Non-Net Generation</b>	<b>Net Generation</b>
UOC e-mail account	60.5% (Seldom = 1 to 4 times per month)	47.5% (Seldom = 1 to 4 times per month)
Other campus' tools (e.g. forums)	50.7% (Seldom = 1 to 4 times per month)	32 % (Seldom = 1 to 4 times per month) and 32% Often =5 to 10 times per month

Both groups seldom use their UOC e-mail accounts to communicate with instructors, but we can see a small difference between the two groups in the case of other campus' tools: Digital learners use the campus' tools to communicate more frequently with instructors.

## Study habits

Table 4 represents how students see their own study habits, which they were questioned about in section 4.

Table 4 Study habits (expressed in mean, 1-6 Likert scale)

	<b>Non-Net Generation</b>	<b>Net Generation</b>
I prefer to work on assignments on my own when doing schoolwork.	5.31 (Standard Deviation: 1.08)	5.14 (Standard Deviation: 1.1)
I prefer to study only with friends.	2.27 (Standard Deviation: 1.4)	2.23 (Standard Deviation: 1.3)
I prefer to learn by trying things out for myself.	4.43 (Standard Deviation: 1.4)	4.22 (Standard Deviation: 1.4)
I prefer to get clear instructions before trying something new.	4.55 (Standard Deviation: 1.4)	4.36 (Standard Deviation: 1.4)
I am used to doing several different tasks at the same time.	4.57 (Standard Deviation: 1.4)	4.46 (Standard Deviation: 1.3)
I usually have a work plan for each course	4.49 (Standard Deviation: 1.3)	4.22 (Standard Deviation: 1.5)

In both cases, we can see that the lowest rated item is studying with friends. This result is consistent with participants' responses that suggest they prefer to study independently. This is likely related to the fact that they are studying in an online university that gives them access to programs that offer them more flexibility and allows them to study at their own pace.

Multitasking has similar ratings too. This indicates that there is no difference in one of the main characteristics that has been attributed to the Net generation.

Table 5 Their opinion about working with peers expressed in means (1= totally disagree, 6=totally agree)

	<b>Non-Net Generation</b>	<b>Net Generation</b>
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it helps me understand course content better.	4.23 (Standard Deviation: 1.4)	4.28 (Standard Deviation: 1.4)
I enjoy it.	3.99 (Standard Deviation: 1,4)	4.07 (Standard Deviation: 1.3)
it results in better work completed.	4.17 (Standard Deviation: 1.4)	4.15 (Standard Deviation: 1.3)
it saves time.	3.53 (Standard Deviation: 1.5)	3.68 (Standard Deviation: 1.5)
it keeps me motivated to keep working	4.07 (Standard Deviation: 1.5)	4.10 (Standard Deviation: 1.4)
classmates provide useful feedback for my work.	4.33 (Standard Deviation: 1.3)	4.41 (Standard Deviation: 1.3)
I feel isolated from other students of this program	2.33 (Standard Deviation: 1.4)	2.39 (Standard Deviation: 1.5)

We can see, like the other items, that there are very similar ratings in both cases. All items show high scores so we can tell that participants prefer to work individually (as table 4 items show) but they find work in groups useful when they have to do it.

The fourth and the seventh item have the lowest rating:

In the first case, we have calculated the Pearson correlation index between this item and two items referring to the time taking the course; in order to find out if students with a lower rating in this item are those who spend more time in a course. We cannot confirm a relationship between these items because the correlation indexes are very near to 0 in all cases.

In the second case, we can see a high standard deviation (1.4 and 1.5 respectively). The high level of the dispersion in the responses renders the Pearson index inapplicable, and we therefore cannot deduce any tendency.

## Temporal dimension of studying

Analysis from the results of the last section of the survey, concerning the temporal dimension of studying, shows similar responses but with some differences (see Table 6).

Table 6 Opinion about time and studying (expressed in frequencies)

	<b>Non-Net Generation</b>	<b>Net Generation</b>
Studying online requires more time than studying face to face	45.8% strongly/totally agree	54% strongly/totally agree
In order to study a university program through the Internet, time planning is a key issue	69.1% totally agree	72 % totally agree

It seems that digital learners are more worried about the time they spend taking an online program, because 15.2% of them strongly agree with this statement and a 38.8% totally agree (in the case of digital immigrants 17% strongly agree and 28.8% totally agree; this is a difference of nearly 10 percentage points). The same is true in the case of considering the time planning as a key issue, but with a minor difference.

Finally we can see what students think about the time they need to finish their programs and a single

course.

Table 7 Time they need to complete a program and a course (expressed in frequencies)

	Digital immigrants	Digital learners
How many semesters do you think you will need to finish your program	90.4% (more than 5 semesters)	83% (more than 5 semesters)
How many hours per week do you think is necessary to complete an online course?	53.7% (between 5 and 10 hours per week)	47.3% (between 5 and 10 hours per week)

As Table 7 shows, there seems to be little difference from the previous items: there are more digital immigrants than digital learners who think they need more time to finish a course or a program but, as can be seen in Table 7, this difference is not very great.

## Conclusions

Based on an analysis of this data we can conclude that there is no relationship between generation and study and communication preferences of the students at UOC. This finding is consistent with the findings of the BCIT study and is further evidence that the notion of the Net Generation as presented in the literature is more speculation than based on reality.

We could not find any statistical data supporting Tapscott (2009) and Oblinger's (2005) statements. In fact, the data suggest the opposite: Older learners at UOC's feel as confident with the use of ICT as the younger learners, they are capable of carrying out different activities simultaneously and the differences between the generations are almost imperceptible in most cases.

But if we have to point to some differences, it seems that, surprisingly, younger learners are more worried about the time issues of studying online and they communicate with instructors more frequently. However if we analyze the means we see that these differences are not that great. Older learners seem to be more worried about the time they need to finish their course or program, a fact that could be explained by the short time they have to study because of their commitment to work and family activities. But these differences are not statistically significant.

The second phase of the Digital learners in Higher Education international research project will deal with the following:

- We will set up virtual focus groups with some of the students that participated in the first phase. The principal aim of these focus groups is to gather qualitative data to analyze their academic and social use of ICT in greater depth.
- A second survey will be given to the participants of the focus groups, in order to gather more statistical data supporting their statements.

Once the second phase is complete, further research could be carried out to find out if fully online students have different study habits to students that use online programs as a part of a blended system.

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