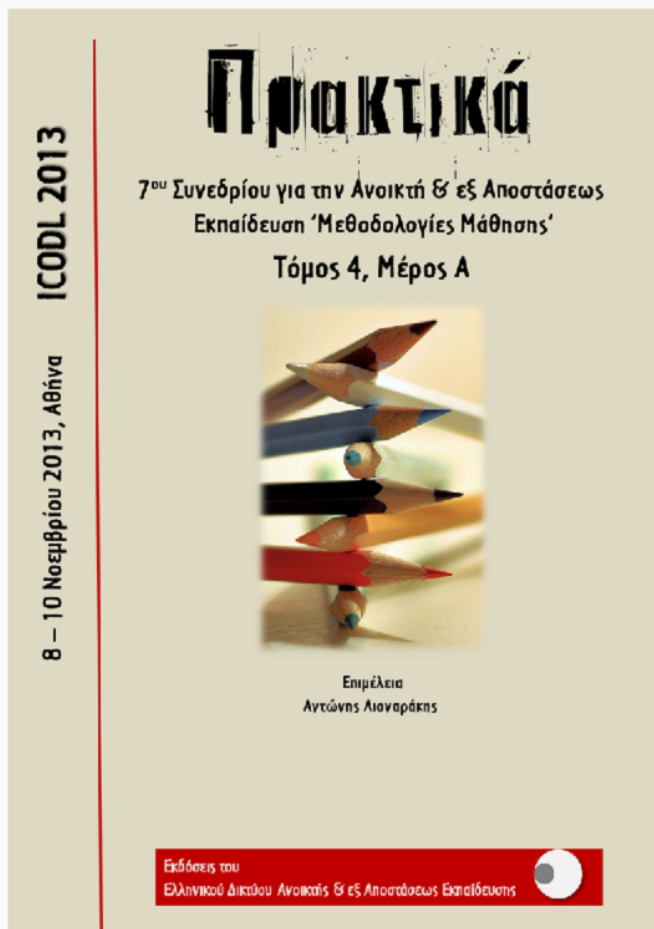


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**Being a «Digital Native» is not enough: A case study of the students' digital profile at the European University Cyprus**

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## Being a «Digital Native» is not enough: A case study of the students' digital profile at the European University Cyprus

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### Abstract

In the last decades there is a growing interest among universities for the use of Information and Communication Technologies in teaching and learning. More analytically, the impact of technology on science and scholarship, teaching and learning in traditional universities, the possibilities for distance education, and even the internal management of universities has been particularly profound. Despite the fact that today's most undergraduate students are considered «Digital Natives» and appear comfortable with the use of technology, especially as far as mobile phones and social networks (eg. Facebook) are concerned, still it is difficult to assume that they understand how to use Information and Communication Technologies (ICT) in an academic and/or professional setting. The aim of this paper is to study the ICT skills of the students who study Primary Education and Early Childhood Education bachelor programs at the European University Cyprus and to describe to what extent they use technology for personal and academic reasons. The study took place in the context of the obligatory course «Educational Technology and Computers» of the 4<sup>th</sup>-and last-year of the studies during the academic year 2012-2013, with the participation of 70 undergraduate students. The gender and age factors were also taken into consideration. The research confirms the initial hypothesis of the study and provides evidence, which can promote and facilitate the integration of information literacy into the curriculum.

**Keywords:** *ICT skills, educational technology, undergraduate students, primary education, early childhood education, European University Cyprus.*

### 1. Introduction

The impact of Information and Communication Technology (ICT) on Higher Education and on today's society in general is still unfolding, but without question this aspect is one of the more powerful influences on Higher Education. The impact of technology on science and scholarship, teaching and learning in traditional universities, the possibilities for distance education, and even the internal management of universities has been particularly profound (Altbach, Reisberg & Rumbley, 2009:3).

More analytically, in the last decades there is a growing interest among universities for the use of Internet in teaching and learning. In addition, the Information and Communication Technologies (ICT) have changed the nature of education by providing learning communities for teachers and students, where they can interact

with each other even if they are situated in different geographical locations. The importance of interaction in forms of flexible, online and distance education have been researched and described at length — whether learners interacting with individualized computer programs or learner-to-teacher or learner-to-learner interaction that at a distance requires the mediation of technology (Moore, 1989 & Garrison & Anderson, 1989).

The European Higher Education Area (EHEA) has brought changes in the way students learn and teachers teach. The new roles require the active participation of the students and the use of more resources and new strategies to respond to emerging needs. To carry out this process successfully it will be necessary to establish more support mechanisms for both students and teachers (more training, more resources, better infrastructure, encouraging reflection, etc.) (Gros & Romañá, 2004).

The teaching syllabus for a Primary or Early Childhood bachelor degree, offers students specific training in the use of information and communication technology (ICT) in the context of education technology courses. Recent research (Vlachopoulos, 2009 & Vlachopoulos, González & Gómez, 2010) has shown that the use of ICT in learning activities in humanities and social sciences university departments is used mostly in order to support the face-to-face teaching and learning. Despite the fact that its application has offered some very important benefits to both instructors and students (Vintró et al., 2008), the current conditions in these departments show that extended use of ICT for academic and learning activities can be difficult to achieve. One reason is that there are often limited funds available. Another is that the diverse skills and knowledge required in order to participate with success in these new learning methods are not formally described (Vlachopoulos, 2009a).

Over the last few years, the instructional technology instructors introduce a number of different technological resources and online activities as learning tools to be used in the Primary and Early Childhood Education bachelor degrees. As a consequence of these innovations there has been a visible trend towards better student results, because ICT gives them more confidence in so far as it makes the teaching and learning process easier and at the same time can make studying more enjoyable.

In this context, this paper's basic hypothesis is that despite the lack of some experience and skills on using technology, the introduction of ICT in teaching and learning in Education university departments result in a renewal of teaching methodologies and help students to achieve the learning objectives and better develop the skills associated with their degree subjects. So before applying any innovation with ICT a needs analysis is necessary in order to identify whether the students are ready and capable to receive and take advantage of this innovation.

## **2. Contextualizing the experience: The «Educational Technology and Computers Course»**

The course “Educational Technology and Computers” is a core course that is offered during the 4<sup>th</sup> year of the bachelor degree studies in Primary Education and Early Childhood Education. Its purpose is to introduce students to the theory and philosophy of the application of computers and modern technology in the learning process. Also, the course aims to give information, reflection and practice in various types of technologies (mainly using the computer) and explain how to use them in teaching and learning.

More analytically, the students, after attending this course, they are expected to be able to:

- Explain the concept of educational technology and its contribution in

education.

- Identify the possibilities and the challenges for the improvement of the teaching and learning process with the use of ICT.
- Develop skills on using internet, applications and education programs as teaching tool within the curriculum.
- Develop skills on evaluating electronic education resources and make decisions on their use in learning scenarios.
- Design teaching plans with the use of ICT.

Apart from the theoretical knowledge that it is necessary to achieve the above learning outcomes, the students are taught a variety of applications and programs that can be used in the teaching practice of the students, such as document and word processor software, presentation software, spreadsheet applications, mind mapping software, online survey applications and video editing software.

### 3. Method

In 2001, Marc Prensky published some papers on a new generation of students: the «Digital Natives». The basic thrust of Prensky's argument was that this new group of students coming into universities was fundamentally different from any that educators had seen before. Digital Natives had «spent their entire lives surrounded by and using computers, videogames, digital music players, video cams, cell phones, and all the other toys of the digital age» (Prensky, 2001:1).

Surprisingly, little empirical research has been published on students' general use of technology in the context of Cyprus Higher Education. We do know that teenagers and young adults in Cyprus are high owners and users of technology including computers, the Internet and mobile phones (Demertzis et al. 2009), but there is not extent research on the type of use. Are today's university students Digital Natives? Do they use technology in their student/academic life as muchh as they do it in their personal life?

In order to study this fact, we used a survey created for similar purpose (Vlachopoulos, 2009b & Kennedy et al. 2008) and we sent it to 70 students of the 4th year of the bachelor degrees in Primary Education and Early Childhood Education at the European University Cyprus. As we were interested in students who ascribe to the category of «Digital Native» based on age, the analysis of this study was restricted to students born after 1988 (100% of the above mentioned 70 students).

Almost all the students who participated in the study were born between 1989 and 1992 (accounting for 94% of the sample), meaning that they were aged between 21 and 24 when they completed the survey. Many more females than males responded to the survey (84% females; 16% males), since the bachelor degrees in Primary and – specially- Early Childhood Education are attended basically by female students at the European University Cyprus.

A 22 question survey, adapted from another similar research (Vlachopoulos, 2009b & Kennedy et al., 2008), developed specifically for this study, asked students about their access to, use of, skills with, and preferences for any array of emerging technologies and technology based tools and applications. The survey comprised four main sections: demographic information (3 questions), access to hardware and the internet (6 questions), use of and skills with technology based tools and applications (6 questions) and preferences for the use of technology based tools in their University studies at the Faculty of Arts and Education Sciences (7 questions). In this context, it is important to mention that only some of these questions are reported in this paper due to extension limitations. The above data collection was realized during the sixth

meeting/classes of the course «Educational Technology and Computers», which is offered in Fall, Spring and Summer semesters, in October 2012, February and June 2013.

#### 4. Results

First of all, the participating students were asked about their access to hardware (computers, mobile phones, tablets, etc.) and their access to the Internet. The answers were separated in two main categories: the first category includes all students who have unlimited or almost unlimited access, while the second one includes all students who have limited or no access at all. The following table presents the students' answers in a more schematic way, using two different colors for the above categories.

Hardware		Unrestricted access	Almost Unrestricted access	Limited access	No access
Mobile phone		70 (100%)	0 (0%)	0 (0%)	0 (0%)
Desktop computer		37 (53%)	22 (31%)	6 (9%)	5 (7%)
Digital camera		32 (46%)	32 (46%)	5 (7%)	1 (1%)
Tablet (iPad)		15 (21%)	25 (36%)	25 (36%)	5 (7%)
Laptop		40 (57%)	25 (36%)	5 (7%)	0 (0%)
Video Games Console		15 (21%)	30 (43%)	10 (15%)	15 (21%)
Internet	Broadband	67%	21%	12%	0%
	Dialup	36%	21%	36%	7%
	Wireless	67%	21%	7%	5%

Table 1. The students' answers on having access to hardware and Internet

As it can be understood by the table 1, more than 85% of all the participants has access to Internet and to the emerging hardware, a fact that confirms the theory about the generation of the «Digital Natives». On the other hand, it is obvious that the computer (desktop or laptop) is the students' main tool for creating digital documents and for other study purposes. Many students are familiar with multimedia presentations (Power Point) but very few with editing photos (Photoshop), few also are familiar with video edition, while almost everybody has tried to create a personal web page. Almost everyone is using the computer to listen to the music daily, while almost half of the participants use it for playing computer games. As far as the use of the mobile phones, everybody answered that uses them for calling and texting every day. A very frequent use of the mobiles' newer features is reported, such as taking and sending pictures as well as accessing web based information and sending and receiving emails. Finally, the mobile phone is the main tool for participating in the different social networks, such as Facebook, Twitter and Instagram.

The following tables show the students' answers in a more schematic way.

I use the computer	Percentage used			
	daily	weekly	monthly	not used
for writing documents (e.g. using <i>Word</i> )	31%	69%	0%	0%

to create graphics or manipulate digital images (e.g. using <i>Photoshop, Flash</i> )	7%	7%	7%	79%
for creating web pages (e.g. Blogs)	31%	62%	7%	0%
for creating multimedia presentations (e.g. <i>PowerPoint</i> )	7%	31%	62%	0%
for creating editing audio and video (e.g. <i>Windows Movie Maker</i> )	0%	7%	12%	81%
for general study	54%	19%	12%	15%
to play digital music files (e.g. <i>iTunes</i> ) without accessing the Internet	100%	0%	0%	0%
to play games, without accessing the Internet / web	14%	31%	24%	31%

Table 2. The students' answers on using the computer (desk top/ laptop)

I use the mobile phone	Percentage used			
	daily	weekly	monthly	not used
to call people	100%	0%	0%	0%
to text/ SMS people	100%	0%	0%	0%
to take digital photos or movies	54%	19%	15%	12%
to send pictures or movies to other people	33%	24%	24%	19%
as a personal organizer (e.g. diary, address book)	7%	31%	24%	38%
to access information/ services on the web	54%	12%	0%	34%
to access social networks	54%	12%	12%	22%
to receive and send email	54%	24%	0%	22%

Table 3. The students' answers on using the mobile phone

As far as the use of the web is concerned, the table below shows that the participating students use many of the proposed option even in different range.

Use the web	YES (%)	NO (%)
to access a school portal (Moodle platform)	100	0
to look up reference information for study purposes (e.g. online dictionaries)	24	76
to browse for general information (e.g. news, holidaying, event timetables)	93	7
to listen to sound recordings (e.g. via streaming audio or <i>iTunes</i> )	54	46
to buy or sell things (e.g. <i>eBay, Amazon, air tickets.</i> )	24	76
for other services (e.g. banking, paying bills)	24	76
to send or receive email (e.g. <i>Hotmail, Yahoo, Outlook</i> )	100	0
For participating in social networks	100	0
to build and maintain a website (blog)	100	0
to download MP3 files (e.g. music, videos, podcasts)	12	88
to share photographs or other digital material ( <i>Blinklist, Flickr</i> )	24	76
to make phone calls ( <i>Skype</i> )	46	54
for web conferencing (e.g. using a webcam)	54	46

Table 4. The students' answers on using the web

After considering the results of the above table, we can reach to some very interesting instructive results. First of all, all the students access Moodle platform, a learning

content management system that is used by the European University Cyprus to support face-to-face teaching. Almost all participating students access the web to send and receive emails, to gather general information and to participate in the different social networks. While social networks (and mainly Facebook) have engaged all students, very few of them use the web to download music and videos or share digital material. Finally, quite popular are all the phone calls through the web and the web conferencing. Before starting the interpretation of the above results, it is important to mention that 76% of the participating students has mentioned that has used most of the above technologies and application in the context of the course «Educational Technology and Computers», while more than half of them mentioned that even if they were using some of the above mentioned application they didn't have a good knowledge of them until their enrollment in this course. The last question of the survey was an open one, where students were asked to mention a list of technology based tools that consider useful in their university studies and also in their professional career as educators. Almost all participants agreed that some necessary tools and applications are those that facilitate the creation of digital documents and multimedia presentations, the access to a learning content management system (virtual learning platform) and the search for information. In addition, many participants agreed on the importance of the mobile phones' possibilities to access information from the web and communicate with other people, as well as for sending and receiving emails. Finally all participants recognized, after experiencing it in the context of the course «Educational Technology and Computers», the importance of creating personal web pages (blogs) for the communication between people and the exchange of opinions and news.

## 5. Discussion

This study of the 4th year university students' digital profile can have significant implications for the Cyprus Higher Education sector. More analytically, when we plan to enhance new learning experiences, we shouldn't take into consideration only the fact that today's students are considered «Digital Natives», but this should be both evidence based and empirically informed.

The results of this study highlight the lack of homogeneity of the participating students with regards to technology despite their homogeneity in terms of age and social characteristics. While some students have embraced the newer features of technologies and applications, this cannot be said for all the students. When one moves beyond entrenched technologies and tools (e.g. computers, mobile phones, email), the patterns of access to, use of and preference for a range of other technologies show considerable variation. The level of technological diversity revealed in this paper is starting to be acknowledged by educational technology researchers (Kennedy et al., 2008). It is increasingly recognized that while the majority of university students possess a core set of technology based skills, beyond those a diverse range of skills exist across the student population (see Caruso & Kvavik, 2005). Moreover, it is considered that core technology based skills do not necessarily translate into sophisticated skills with other technologies or general information literacy (Kennedy et al., 2006). Kirkwood and Price (2005) argue that "few students have high levels of competence across a wide range of applications" and that "familiarity with the use of email does not imply expertise in rigorous online debate and discussion" (p. 271). Clearly we cannot assume that being a «Digital Native» is synonymous with knowing how to employ technology based tools strategically to optimize learning experiences in university settings (Kennedy et al.,

2008:121). Given this diversity within three cohorts of 4th year undergraduate students, the challenge for educators and university administrators is how to cater for the broad range in students' levels of access to, familiarity with, and preference for different technologies and technology based tools (Kennedy et al. 2008). This study clearly provides sufficient evidence to negate the 'one size fits all' approach to the integration of ICTs into university curricula of Cyprus, but further research is needed to this direction. On the other hand, despite the overall message of diversity among students, there is a selection of tools and technologies for which use and access border on being both universal and uniform. More analytically, the degree to which students are using of some emerging technologies and tools does point to a number of promising opportunities for integrating innovative technologies into university curricula. More research is needed to determine the specific circumstances under which students would like the technologies they use in their everyday life to be adapted to their university setting and to facilitate their learning. The positive association between students' use of technology and their preference for its use at University leaves unanswered the question as to whether students' everyday skills with emerging technologies will correspond to skills associated with beneficial, technology based learning (Kennedy et al. 2008).

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