The Internet as a Tool of Informal Learning: Greek Universities Students' Opinions

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Abstract

The aim of the present research is to record and study students' opinions on the effects of the Internet on (informal) learning. The sample of present research consisted of 775 University students of various Schools and Departments in Greece. Of them 315 (40.6%) were men and 460 (59.4%) were women. From the opinions of students of our research it comes out that the Internet - with its environment and content - influences more than anything else users' skills and their knowledge development. Also they refer that the use of the Internet is related to digital literacy and skills acquisition. Men and women's opinions on the above-mentioned remarks tend to coincide with the exception of the effect of the Internet on individuals' interpersonal relations. Moreover, from our research it comes up that there are two factors that influence individuals' opinions: freedom of access and years that individuals use the PC.

Keywords: Internet, Informal learning, Greek students, University

1. Introduction

The modern form of globalisation of society has been based on: (1) the enhancement of international institutions after the end of World War II; (2) the progressive fusion of local markets; (3) the freedom of capital distribution (Allen, 2005; Carnoy & Kastells, 2001); (4) the emergence of big multinational companies with flexible organisation and administration (Chtouris, 2004); (5) the appearance of the Internet; and (6) on the progress in telecommunications (Suárez-Orozco & Qin-Hilliard, 2004). The experiential world of the individual and his/her milieu neither are the local - familial environment nor are restricted to national frames (Bauman, 1998; Castells, 1998. Rifkin, 1996; Suárez-Orozco & Qin-Hilliard, 2004.). In the post-modern area emphasis is given to acquisition, storage, process, evaluation, transfer and diffusion of information (Alexiou, 2005). The timely and valid access to information is the main criterion of social development and success and its acquisition or not determines the post in the job market, whereas the management, the quality and the speed of information feature both as fundamental components of competitiveness of all industry and as a service to the final consumer (Raptis & Rapti, 2006; UNESCO, 2002)

The Internet - which is a world network of interlinked computers, using protocol TCP/IP – is not only a dynamic, active and creative environment of access to informative data but also an important tool of learning (Charp, 1998). In the Internet environment there are used not only a lot of tools (such as mobile telephones, computers palm (PDAs), Netbooks etc) but also communication applications such as blogs, wikis, podcasts, vodcasts, RSS feeds, Google Maps etc, combined with text, picture, sound and video with the use CoIP (Communications over Internet Protocol); these tools and applications generate an environment whose main features are: social networking and communication as well as the interaction among individuals. Apart from the above-mentioned, the Internet becomes more autonomous than ever from prefabricated comments and web pages, and the formation of its content rolls towards the simple user – the recipient of services or the consumer of products.

1.1. The Internet and informal learning

Learning is a dialogic-critical *constructive event, aiming at acquiring, transforming or modifying perceptions, attitudes and practices in social reality with the individual's participation* (Kossyvaki, 2003; Matsagouras, 2004). According to the definition given by Putnam & Borko (2000) learning is an "enculturation" of the society in which it occurs and goes along with the change of the context (Kelpanidis, 2002; Mylonas, 1998; Gravaris & Papadakis, 2005), while using as means the cognitive tools of the frame. The cognitive tools are the product of human and cultural history and delimit the frame of reference of human thought. These are not restricted by knowledge or not of their technology; they rather involve processes of development of cognitive competencies and influence the society (Jonassen, 2000). These cognitive tools influence and are influenced by individual behaviour as well as reflect and influence human development (Glassman, 2001; Salomon & Perkins, 1998; Young, 2008).

New and emerging pedagogies have been influenced by the potentials provided by ICT, a fact that has brought dramatic changes in the educational landscape, and has altered its breadth, depth and the opportunities it provides (Komis, 2005; Murnane, 1996). According to Gray (1999), the Internet can be considered as the most powerful cognitive tool of self-motivated – informal learning. The Internet differentiates the traditional model, where the formal education was the only way of literacy of the new social subject (Drotner 2007). The differentiation of informal learning from formal is that the former can be adapted in a more flexible way and penetrate in-depth post-modern developments. On the contrary, the latter needs time and political decisions so that the analytical curriculum is organised and the objectives of education are set up (Cedefop, 2008; Eraut, 2000; Foley, 1999; Swaminathan & Wright, 2003.).

The Internet, as a cognitive tool, activates cognitive and meta-cognitive strategies of learning and facilitates constructivist learning (Salomon & Perkins, 1998). Furthermore, it supports and/or strengthens: critical thinking, the development of knowledge and skills of advanced level; it leads to superior cognitive levels. It offers multi-sensory opportunities of learning (Jonassen, 1996; Wilson & Lowry, 2000); it allows the developing individual to explore and develop his/her personal identity (Bers, 2001) and provides unlimited learning (Mason & Rennie, 2007). Thus, the user can navigate on the Internet according to his/ her interests or his/her particular knowledge needs, adapt his/her objectives or the level of his/her learning to his/her cognitive level, as well as s/he can assess his/her own actions (Althaus & Tewksbury, 2000; Anastasiadis, 2006).

Concepts, such as social exclusion, have been interconnected with the use of the Internet (Warschauer, 2003). Various researches have shown that accessibility to the formal educational framework from within or without the Internet and acquisition of specific skills of technological and digital literacy are crucial points for the effectiveness of the use of the Internet (Bawden, 2001; Katz, 2005; Raptis & Rapti, 2006), whereas issues with reliability and validity of information, compatibility of used softwares (Mason & Rennie, 2007) and skills of self-regulation and control that the user should acquire (Clarebout & Elen, 2006). The aim of the present research is to record and study students' opinions on the effects of the Internet on (informal) learning. The meaning that the Internet users lend to their pastime with this has an impact both on their interaction with ICT and on the world wide web and at the same time - according to Boshier and Pisutova (2002) – there has not made enough research that would explore the relation of the Internet with learning occurring outside the formal educational system.

2. Methodology

2.1. Participants

The sample of present research consisted of 775 University students of various Schools and Departments in Greece. Of them 315 (40.6%) were men and 460 (59.4%) were women. Most of the participants were in the fourth year (240 students - 40%) and in the third year (172 students – 22.2%) of their studies. 17.8% of the students (138 individuals) of the sample were in the fifth up to the eighth year of their studies, 17.2% (133 individuals) were in the second year of their studies and 11% (85 individuals) in the first year of their studies. Most students' parents are of an intermediate and advanced educational level. The majority of their parents did graduate from the Secondary Education [43.2% (335 individuals) - father and 44% (341 individuals) - mother], whereas equally high is the percentage of degrees from Higher Education and Technological Education [34.7% (269 individuals) - father and 29.3% (227 individuals) – mother]. In addition, a percentage of parents has completed obligatory education [22% (171 individuals) - father and 26.8% (207 individuals) - mother].

2.2. Questionnaire

To implement the research we used an impromptu questionnaire that concerns the use of new technologies and the Internet as well as their effects on the individual. Its construction was based on: (a) the results of PISA (2003, 2006); (b) both the questionnaires of National survey of informal learning (Livingstone, 1998) and the questionnaire of the research of Greek Cypriot Statistical Service on the use of ICT (CYSTAT, 2006); (c) the research of the Observatory for Information Society (2007); and (d) on the international and Greek bibliography for the research on the Internet and theoretical models for learning and, more particularly, informal learning (European Commission, 2000; Grigoriadou & Papanikolaou, 2000; Hakkarainen et al., 2000; Livingstone, 1999; Livingstone & Sawchuk, 2000; Marsick, Volpe & Watkins, 1999; Na & Chia, 2008; Smaller, Hart, Clark, & Livingstone, 2001). The questionnaire was given to thirty students, who evaluated the comprehension of the scale's questions. The questionnaire was also given to twenty experts in education and ICT, who evaluated the scale's questions regarding the relevance of the content in use of the Internet based on a five-point scale (1 = not relevant and 5 = completely relevant). An analysis of the results of evaluation (Mean = 4.97) showed the validity and adequacy of the content of the questionnaire.

The reliability coefficient for the split-half test was .92 and internal consistency reliability coefficient was .95. The first part of questionnaire consists of basic socio-demographic characteristics, as such: sex, year of studies and parents' educational level. The second part of the questionnaire includes questions about individuals' accessibility both to the PC and the Internet. The third part has questions about the use of the Internet, and the fourth part incorporates questions about socio–emotive and cognitive changes that the Internet causes.

3. Results

Likert scale questions were analysed with factors in 14 questions of the questionnaire. The method of main components and the orthogonal rotation of axes were used. The eigenvalues and a diagram of factors were used for the determination of the number of factors with factor loadings which are bigger than .40. The size of the sample is at least forty times the sum of the questions of the questionnaire and the KMO (.86) and Bartlett's sign (<.01) showed that the data was suitable for factorial analysis and the analysis in components make sense. By using the factor analysis for the questions and based on the eigenvalues that ought to be bigger than 1 as well as on the diagram of factors, a solution of four factors was adopted. The four factors explain 56.482% of variance. More specifically, the following factors were selected: (a) *Skills development*, (b) *Change in teaching practice*, (c) *Interpersonal relations*, and (d) *knowledge development*. The first factor, *Development of skills*, interprets 18.341% of variance. It includes five questions which were of the following kind: "It improves research skills" and "It improves the user's critical thinking".

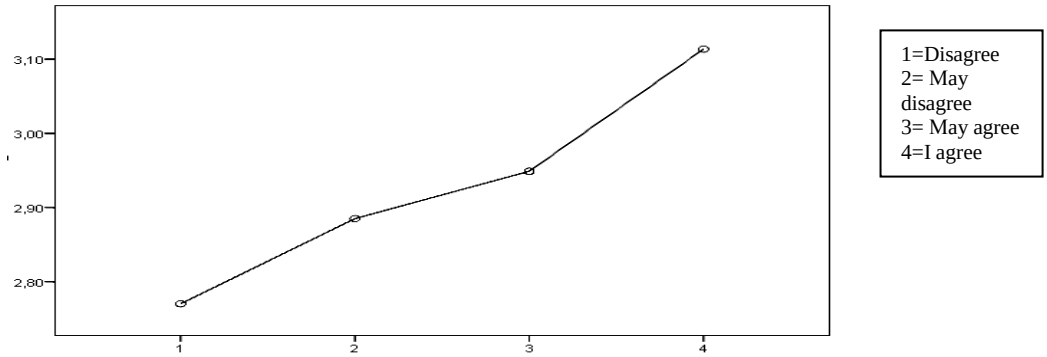
The indicator of internal consistency of Cronbach's alpha was .92. The second factor, *Change of teaching practice*, interprets 13.42% of variance. It includes three questions which were of the following kind: "It changes teacher's role", and "It improves teaching methods" The indicator of internal consistency of Cronbach's alpha was .95. The third factor, *Interpersonal relations*, interprets 12.527% of variance. It includes three questions which were of the following kind: "It helps me to get to know new individuals" and "It increases the positive interaction with the rest of fellow students". The indicator of internal consistency of Cronbach's alpha was .87. The fourth factor, *Knowledge development*, interprets 12.18% of variance. It includes three questions which were of the following kind: "It helps me acquire new knowledge that I could not it take from the educational system", and "It helps me supplement my knowledge of what I study". The indicator of internal consistency of Cronbach's alpha was .87.

Table 1: Means and Std Deviation of factors

	Skills development	Change of teaching practice	Interpersonal relations	Knowledge development
Mean	2.949	2.770	2.885	3.114
Std. Deviation	.62	.76	.76	.63

Means were examined in relation to whether there were differences between them. In order for means to be compared a multivariate analysis of variance with repeated measures was used; this criterion was found statistically important: Hotelling's Trace, $F(3.\ 769) = 53.56$, $p<.001$, $\eta^2 = .57$.

Figure1: Hierarchical classification of the means of factors of the questionnaire



1= Change of teaching practice; 2= Interpersonal relations; 3= *Skills development;* 4= *Knowledge development.*

The means of four factors are presented in ascending numerical order in Figure 1. The students hold that the Internet influences the least teaching practice and interpersonal relations in contrast with skills and skills development. In any case, means are above those of scale. The difference between the means of two individual groups (men - women) in relation to the factors of questionnaire did not show statistically important differentiations in the factors: "Skills development" (t772 =-.37, p=0>.05,),

"Change of teaching practice" (t772 =-1.33, p=0>.05), and "Knowledge development" (t772 =-.12, p=0>.05). With the aforementioned t-test analysis, a statistically significant effect was found only on the factor "Interpersonal relations" (t772 =2.043, p=0<.05). Male students, in contrast with female students, believe more in a statically important difference that the Internet influences acquaintances, positive interaction and the collaboration among individuals. The difference of the means of the two individual groups (individuals with restricted access to the Internet - individuals with free access to the Internet) showed statistically important differentiations in the factors: "Skills development" (t772 =-6,458, p=0<.01), "Change of teaching practice" (t772 =-3.677, p=0<.01), "Interpersonal relations" (t772 =-5.994, p=0<.01) and "Knowledge development" (t772 =-6.481, p=0<.01). In Table 2 it is illustrated that individuals with free access to the Internet believe – in contrast with those students with restricted access to the Internet, with statistically important difference - that the Internet helps them develop their skills, influences teaching practice and interpersonal relations between individuals and strengthens knowledge development.

Table 2: t-criterion of accessibility

Factors	Accessibility to the Internet	N	Mean	Std. Deviation	t	df	Sig. (2-tailed)
Skills development	Restricted Accessibility	365	2.799	.627	-6.458	772	.00
	Free Accessibility	409	3.084	.599			
Change of teaching practice	Restricted Accessibility	365	2.664	.788	-3.677	772	.00
	Free Accessibility	409	2.864	.730			
Interpersonal relations	Restricted Accessibility	366	2.714	.798	-5.994	772	.00
	Free Accessibility	408	3.038	.703			
Knowledge development	Restricted Accessibility	366	2.961	.636	-6.481	773	.00
	Free Accessibility	409	3.251	.609			

The effect of variable "Years of use of PC" on the factors of the questionnaire "Skills development" (F2.771 = 19.779, p<.05, η^2 =.05), "Change of teaching practice" (F2.771 = 17.859, p<.05, η^2 =.06) "Interpersonal relations" (F2.771 = 11.348, p<.05, η^2 =.59) and "Knowledge development" (F2.771 = 15.935, p<.05, η^2 =.05) is statistically important. Using Scheffé's method of multiple comparisons it was found that: (a) those students that use a PC more than five years are differentiated with statistical importance in relation to those who used PC fewer years; the former persist more on that the Internet helps in skills development, influences teaching practice by changing its fundamental components, have impact both on establishing and developing interpersonal relations as well as acquiring and developing knowledge; and (b) that those students that use computer from 3 to 5 years are differentiated with statistical importance in relation to those who use a PC fewer years (i.e. up to 3 years); the former persist more on that the Internet helps in the skills development and influences teaching practice, whereas - with regard to establishment and development of interpersonal relation as well as knowledge development – there is no statistically important differentiation of their opinions; see Table 3.

Table 3: One-way Anova of "Years of the use of a PC"

Factors	Years of the use of a PC	Mean	Std. Deviation	F(2.771)	Sig.
Skills development	Up to 3 years	2.73	.667		
	3-5 years	2.92	.621	19.779	.00
	From 5 years and beyond	3.07	.580		
Change of teaching practice	Up to 3 years	2.51	.801		
	3-5 years	2.77	.711	17.859	.00
	From 5 years and beyond	2.90	.740		
Interpersonal relations	Up to 3 years	2.70	.752		
	3-5 years	2.82	.782	11.348	.00
	From 5 years and beyond	3.01	.744		
Knowledge development	Up to 3 years	2.93	.716		
	3-5 years	3.07	.616	15.935	.00
	From 5 years and beyond	3.24	.579		

4. Discussion

Learning is not provided only by formal education but also by and within other frameworks (i.e. family, work, free time etc), where individuals acquire new knowledge, skills and adapt their behaviour, attitudes and perceptions - while interacting with other individuals daily - to structures, institutions and practices of socio-cultural framework they live in. ICT and the Internet play important role in the formation of socialised environment that contributes to the formation of a new model of social construct. The Internet can be considered as a cognitive tool of self-motivated learning, which activates cognitive and meta-cognitive learning strategies and facilitates constructionist learning. From the opinions of male and female students of our research it reveals that the Internet - with its environment and content - influences more than anything else users' skills and their knowledge development. The use of the Internet is related to digital literacy and skills acquisition – apart from traditional skills that are required for formal education (reading skills, reasoning, memory etc) – such as using a PC and the Internet, finding, managing and analysing information, learning ICT communication code etc. Moreover, it is illustrated from the above that the Internet influences the least teaching practice. International findings emphasise that education seems to be unable to follow rapid social and technological changes and has difficulty with integrating ICT with teaching practice and methodology (Fischer, 2003; Foley, 1999; Swaminathan & Wright, 2003).

The differentiation of the Internet from formal education is that it can be adapted in a flexible way to the individual's requirements, professional and social needs and interests (Eraut, 2000; Livingstone, 2000; Lohman &Woolf, 2001), while updating knowledge and giving opportunities - with its dynamic environment - so that complex skills compatible with the meta-modern environment can be developed. Men and women's opinions on the above-mentioned remarks tend to coincide with the exception of the effect of the Internet on individuals' interpersonal relations, where male students, in contrast with female students, place more emphasis on the fact that the Internet affects acquaintances, positive interaction and the collaboration with the other individuals. This finding is in accordance with enough research findings, according to which there are differentiations between two friends so much for social networking (Bonebrake, 2002) as for using the Internet (Harman et al., 2005). Here, we can notice that, although the students of our research claim that the least influenced by the Internet are their interpersonal relations, in researches it has been found that the use of the PC and the Internet has a catalytic effect on phenomena such as isolation, depression and change of behaviour of an individual (Beard, 2005; Papanis, 2010).

Moreover, from our research it comes up that there are two factors that influence individuals' opinions. Thus, the more is the freedom of access, unrestricted, to the Internet and the more are the years that individuals use the PC, the more positive is their opinion on the effect of the Internet. Familiarization and freedom of the use of the object of learning in the framework of self-motivation shape a positive attitude toward this and illustrate how its aspects are generated (Raptis and Rapti, 2006). Moreover, individuals' self-actualisation, their pace of approach to knowledge (Trilianos, 2004; Xatzidimou, 2007) and their usefulness for daily practice are motives to spend one's spare time with the Internet (Alachiotis, 2002; Slavin, 2007). Factors that affect the generation of the above-mentioned conditions are the family and the educational system (Bourdieu, 1994; Fragkoudaki, 1985; Mylonas, 1998). Male and female students are supported by their parents to acquire those productive tools that in modern social framework play a dominant role to get one a post in the job market. Bourdieu (1994) holds that, on the one hand, there is "massive agreement" between parents' will and the child's orientation, and, on the other hand, there is the educational system.

Concluding, we can note that, according to male and female students, the Internet - as a cognitive tool - affects more skills development and the pastime with this so that they can acquire knowledge that is not provided by the formal educational system, while there has not been a satisfactory framework of ICT integration in the school framework. Interpersonal relations seem to be influenced the least by all the other sectors. In the above, factors as time and the way one spends one's spare time with the Internet contribute decisively to male and female students' conceptualisations. Society and its institutions need to accelerate the processes of effective integration of a dynamically developing cognitive tool that it has permeated all events of the individual's everyday routine shaping another model of social interaction, social networking and development of values and relations of confidence and reciprocity. The educational system should upgrade its structures and get away from the instrumental use of the PC and the Internet, face its dynamic and flexible form and integrate it as a primary or as an alternative way of learning in certain disciplines, taking into consideration informal forms of learning through the Internet that influence individuals' both professional and social biography.

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