

Youth and the Internet: Uses and practices in the home

Sofia Aslanidou *, George Menexes

School of Pedagogical & Technological Education, A. Papanastasiou 13, Thessaloniki 546 39, Greece

Received 25 October 2006; received in revised form 1 December 2007; accepted 23 December 2007

Abstract

The aim of the present research was to examine the relationship between Greek young people aged 12–18 and the Internet through their patterns of Internet use in the home. A particular objective of the study was the investigation of the possible effects of social stratification, gender and age on their domestic Internet use. A sample of 418 high school students selected from 17 schools in four Greek cities completed a structured self-reported questionnaire primarily concerned with Internet use (frequency, purpose and behaviour patterns) at home and the types of the parental supervision. The research was carried out during the period 2004–2005. The main findings of the study were the following: (a) Internet access remains at a very low level and is insufficiently used for school purposes, (b) younger students (aged 12–15 years) use it more frequently than older ones for information seeking concerning school work, (c) the Internet is an indicator of social and economic stratification since most young people with access to it come from family environments with a higher educational and socioeconomic background and live in urban and semi urban areas, (d) boys make up the majority of systematic users, mainly for entertainment purposes, (e) the Internet is a place and space safeguarding the “privacy” of young people with the majority of them preferring to surf alone, (f) parental supervision and monitoring seems to be absent largely from the relationship between youth and the Internet, and (g) in general, the frequency and type of Internet use are not significantly affected by students’ places of residence or the educational level and profession of their parents.

© 2008 Elsevier Ltd. All rights reserved.

Keywords: Secondary education; Computer-mediated communication; Country-specific developments; Navigation; Pedagogical issues

1. Introduction

For over a decade, the Internet has been at the heart of a public debate not only involving experts (psychologists, sociologists and computer scientists) but, as with television during the 70s, also parents, teachers and civil authorities (Greenfield, 2004; Gross, 2004; Livingstone, 2002; Mitchell, Finkelhor, & Wolak, 2003, 2001; Weber, Loumakis, & Bergam, 2005; Wilson & Atkinson, 2005; Ybarra & Mitchell, 2004). It lies at the core of teachers’ concerns due to its dynamic impact on education (Ingram, Hathorn, & Evans, 2000; Kuhlemeier &

* Corresponding author. Tel.: +30 2310283038.
E-mail address: saslan@otenet.gr (S. Aslanidou).

Hemker, 2007; Lu et al., 2007; Metzger, Flanagin, & Zwarun, 2003; Papastergiou & Solomonidou, 2005; Tsai, Lin, & Tsai, 2001) and its educational applications within the school environment (Ingram et al., 2000; Norris, 2001; Papastergiou, 2005; Tapscott, 1998; Yakimovicz & Murphy, 1995). It also concerns parents because it has more or less become a family affair (Mitchell, Finkelhor, & Wolak, 2005). Family relations, social and even emotional relations are structured or destructured around the Internet (Pasquier, 2005; Wolak, Mitchell, & Finkelhor, 2003).

From one point of view, the worldwide-web can be considered as a device that facilitates and promotes communication (Huffaker, 2004; Lombardo, Zakus, & Skinner, 2002; Maczewski, 2002; Mesch, 2001) but from another it could be characterized as a social barrier (Weber et al., 2005; Wilhelm, 2002; Wolak et al., 2003; Ybarra & Mitchell, 2004) and a risk factor leading to Internet addiction (Chou & Hsiao, 2000; Johansson & Götestam, 2004), gambling (Griffiths & Wood, 2000), social isolation (Sanders, Field, Diego, & Kaplan, 2000), loss of social skills (Maczewski, 2002; Wilhelm, 2002), gender, cultural and social inequalities or divisions (DiMaggio et al., 2001; Li & Kirkup, 2007; Norris, 2001). These domains are the focus of a debate among experts studying what the Internet promises to deliver to its users (Gross, 2004; Mesch, 2001). The most optimistic group see the worldwide-web like an “ancient agora”, where everything is exhibited publicly, while the pessimists perceive it as a danger to individual liberties and a threat to democracy (Maniere de voir, 1996). According to De Vreese (2007) young digital citizens are also politically active and the Internet becomes an important medium for political activities.

From time to time, the use of the Internet causes social upheaval, given the fact that the information disseminated through it is uncontrolled (Greenfield, 2004; Metzger et al., 2003; Mitchell et al., 2005; Ybarra & Mitchell, 2004) and is addressed to two generations with differing mentalities (Pasquier, 2005): one is marked by strong technophobic characteristics (Gilbert, Lee-Keley, & Barton, 2003) and thus a stranger to its use, while the other, the generation of the modern surfers, dives into an ocean of information on a daily basis, the management of which nevertheless requires judgment and, crucially, training (Berson & Berson, 2005; Best & Kellner, 2003; Metzger et al., 2003). Safe navigation on the Internet is a parameter currently being examined by modern research (Berson & Berson, 2005; Livingstone & Bober, 2004, 2005; Mitchell et al., 2003, 2005; Wishart, 2004). The Mass Media daily unearth events related to the distribution of pornographic material, child pornography and pages with a racist content, which destabilize the structure of society since they cannot be controlled (Buckingham, 2000). This relentless flow of information is precarious and often dangerous, since it knows no limits or boundaries (Berson & Berson, 2005; Best & Kellner, 2003). The new electronic environment imposes a new culture characterizing a generation of young people (“Net Generation”) who are growing up and living with the Internet (Tapscott, 1998; Maczewski, 2002; Rohall & Cotten, 2002; Wilhelm, 2002), a characteristic clearly differentiating it from the previous generation (Pasquier, 2005). The digital generation is being studied in many countries and efforts are being made to monitor its behaviour, and examine the use and practices of youth in their daily life at home and school (Gross, 2004; Li & Kirkup, 2007; Mumtaz, 2001; Papastergiou & Solomonidou, 2005).

Summarizing, past and contemporary research reveals that the Internet is a very important research field focusing on crucial topics, relative to its uses and implications, such as safe navigation, socialization, communication, education, and inequalities.

The Greek bibliography is still very new and fairly limited (Papastergiou & Solomonidou, 2005). It essentially began during the 1990s and mainly concerned non-scientific papers. In the mid 90s, research turned to the nature of social relationships occurring within the borders of the Internet and extended to many other fields in the late 90s, mainly related to educational and security issues surrounding the Internet (Kurti, 2003). Greece, in comparison to other countries, presents great differences in the spread and use of the Internet. In the European Union, the penetration of Internet use is greatest amongst youth in the so-called old countries, e.g. 64% in Denmark, the Netherlands and Great Britain, 63% in Sweden and 62% in Finland, but also in new member-states such as Estonia with 60%. In Greece, on the contrary, this figure barely reaches 15% (Eurobarometer, 2004). In the USA, the Internet access and use is increasing rapidly (Tufte, Rasmussen, & Christensen, 2005). Ybarra and Mitchell (2004) report that according to research conducted in 2003 the 97% of young people (12–18 years old) in USA were already Internet users. In 2001, through European Union funding, a transnational study was conducted with the participation of 12 countries, which studied the relation between youth and the Internet (Livingstone & Bovill, 2001). Two years later, in 2003, a similar study was

undertaken in Canada, known as JCMB¹ which aimed at examining the digital landscape and digital generation of Canada. In 2004, Livingstone and Bober (2005) reported the findings of a similar study in the UK, known as “Children Go Online”. In 2005, ten European countries including Greece, took part in the “Mediappro” research programme, which aimed to compare the use of the Internet and new technologies by young people aged 12–18 (European Research Project Mediappro, 2006).

The Internet remains a privileged space accessible only to certain categories of Greek citizens. According to data from the National Statistical Service of Greece (2004), Greek users of the Internet present the following characteristics:

The majority of the users (60%) are men. Half of the users (50%) live in large urban centres, have attended higher education and a further 39% are Secondary School graduates. The 40% of the users have a high income.

Despite the fact that the Internet is not as widely used in Greece as in other countries, it is nevertheless an important factor which is changing people’s lives, particularly among the young (Gross, 2004; Maczewski, 2002). It imposes new rules of communication that construct the social and emotional relations of youth on a different basis, complementary to other social activities and behavior (DiMaggio et al., 2001; Mesch, 2001). It is a new culture, which schools and families need to take into account. In spite of the fact that this new culture presents socio-economic variations in Greece (European Research Project Mediappro, 2006) and other countries (DiMaggio et al., 2001; Livingstone & Bober, 2004, 2005; Wilhelm, 2002) and defines a particular socio-economic category of young people, it still remains a culture of the masses and the people (Wilhelm, 2002). It mainly characterizes a generation that is connected rather than divided by the Internet (Gross, 2004). Although many young people coming from the lower economic classes do not have Internet in their homes, they still build their relations based on Internet communication, either by accessing the Internet at their friends’ homes or in Internet *Cafés*, which nowadays play a decisive role (European Research Project Mediappro, 2006).

In Greece, as mentioned in the previous paragraph, the relevant literature is quite scarce and limited. Papastergiou and Solomonidou (2005) investigated gender differences in Internet uses and behaviour among 340 Greek pupils (12–16 years) inside and outside of the school environment. From another perspective, Papastergiou (2005) examined whether high school students develop adequate mental models (utilitarian or structural) of the Internet, mainly at the beginning of the Informatics lessons. All high schools in Greece are connected to the Internet. According to data provided by the Ministry of Education in November 2002 (Papastergiou & Solomonidou, 2005), 100% of schools in secondary education and 46% in primary education had an Internet connection, while at the same time Internet *Cafés* are becoming very profitable businesses. Nevertheless, the use of the Internet and access from home are still at a very low level (National Statistical Service of Greece, 2004). This observation was one of the basic stimuli for the realization of this study. So, the “picture” of the uses, practises and behaviour of Greek youth using the Internet at home is as yet incomplete. In addition, there is not much information about the degree to which age, gender and socioeconomic factors affect Internet uses. Finally, the crucial topic of family raises its head in this context and its effect (Mitchell et al., 2003, 2005) needs to be investigated. These are some of the domains that the present study tries to examine.

The rest of the paper is organized as follows. First, the aim, the methodology and the results of a survey research conducted in 17 schools in Greece are presented. Next, the available data collected from 418 high school students are analyzed and the findings are discussed. Finally, concluding remarks are presented along with some recommendations and implications for further research.

2. The research

2.1. General aim and special objectives

The aim of the present research is to examine the relation of young people aged 12–18 with the Internet through the way they use it at home and their general knowledge of it. Since young people in this age group

¹ Available at: www.media-awareness.ca.

are still at school (Lower Secondary School-Gymnasio (12–15 years) is still mandatory in Greece) and very few young people do not finish Upper Secondary School-Lykeio (15–18years), the research took place at Gymnasia and Lykeia in Greece. Therefore, the term young person in this study refers to a student.

The particular objectives of this research were the following:

- (a) To examine the duration and types of Internet use at home.
- (b) To detect systematic behaviour patterns regarding its use, and factors formulated within the family environment at home which and may potentially affect the relation of youth to the Internet (e.g. parental control).
- (c) To develop a typology of students, in relation to Internet use at home, based on their types of uses and behaviour.
- (d) To study the possible effect of students' social and geographical stratification, gender and age on the domestic use of the Internet.

2.2. Method

2.2.1. Sample

The “target” population consisted of students aged 12–18 years. This age group was selected because it constitutes the digital generation par excellence which is growing up at home, school, and in the neighbourhood with the Internet. Young people of this age are usually the first and greatest consumers of technology. The Internet poses a challenge for everyone, for the young who “dive deep into its waters” as well as adults looking for the reasoning behind this challenge. The survey was carried out in a total of 17 selected Gymnasia and Lykeia according to the stratified random sampling scheme with representative replacement. More specifically, five schools in urban areas (Athens), six schools in semi-urban areas (Thessaloniki) and six schools in two Greek provincial towns in rural areas with populations of 40,000–50,000 people (three schools in the town of Katerini and three schools in Rethymno), were selected. The total sample of schools included two private schools, one in an urban area (Athens) and one in a semi-urban area (Thessaloniki). The sample included 418 Gymnasio, Lykeio and TEE (Technical-Vocational School) students aged 12–20 years ($M = 15.96$, $SD = 1.73$). Table 1 shows the distribution of students in regard to their place of residence and the educational grade they belong to. The 94.3% of the students were aged 12–18 years, while the 5.7% were aged 18–20 years. Students older than 18 years were attending TEE schools (a common situation in Greece). Of the 418 students, 234 (56.0%) were boys, with a mean age $M = 15.97$ years ($SD = 1.78$) and 177 (42.3%) were girls, with a mean age $M = 15.96$ years ($SD = 1.68$). Seven students (1.7%) did not fill in their gender. Eight students (1.9%) did not want to give details of their place of residence or educational grade.

Table 1
Students' sample distribution per geographical stratification and educational grade

Place of residence		Educational grade		
		Gymnasio	Lykeio & TEE	Total
Thessaloniki	Students	77	121	198
	%	38.9	61.1	100.0
Katerini	Students	28	34	62
	%	45.2	54.8	100.0
Rethymno	Students	6	39	45
	%	13.3	86.7	100.0
Athens	Students	35	70	105
	%	33.3	66.7	100.0
Total	Students	146	264	410 ^a
	%	35.6	64.4	100.0

^a Eight students did not report details of their place of residence or educational grade.

2.2.2. Instrument

In order to explore the students' Internet uses and practices a structured self-reported questionnaire was used (European Research Project Mediappro, 2006). The questionnaire included 39 multi-item close-ended questions (multiple-choice or binary-choice questions, multiple response questions and items with rank order answers) and one open question ("What does the Internet mean for you?").

The questionnaire was split into four basic units that included questions concerning the use of the Internet: (a) at home, (b) at school, (c) in Internet Cafés and (d) as a means of communication and of making friends. In addition, the students were asked to provide biographical data such as their gender, age and grade level, information about their parents' educational level and professional status, and some other family data. In the present paper, the findings of the first unit of the questionnaire which is relevant to the aims and objectives of the study are presented. This part comprised two sets of questions. The first set included the following general questions: Q10: "Do you have a PC at home? (one answer: Yes or No)", Q11: "Are you an Internet user? (one answer: Yes or No)", Q12: "Where did you use the Internet for the first time? (one answer: (a) At my home, (b) In an Internet Café, (c) At my school, (d) At a library, (e) At my parents workplace, (f) At my friend's/relative's home, (g) I don't remember, (h) In another place)", Q20: "Do you have Internet access from your home? (one answer: Yes or No)", Q20b: "How long have you had Internet access at home? (one answer: (a) Less than a month, (b) 1–6 months, (c) 6–12 months, (d) Over a year, (e) I don't remember)", Q21: "How often do you use the Internet at your home? (one answer: (a) Always, (b) Very often, (c) Often, (d) Rarely, (e) Never)", Q23: "How much time do you usually spend every day at home using the Internet? (one answer: (a) Less than an hour, (b) 1–2 h, (c) Over than 2 h)", Q24: "Do your parents put limits and bounds to your Internet access at home? (one answer: Yes or No)", Q25: "Do your parents want to know exactly what you are doing when you are connected to the Internet? (one answer: (a) Very often, (b) Often, (c) Sometimes, (d) Rarely, (e) Never)", Q26: "Does anyone else know how to use the Internet at home? (multiple answers: (a) My father, (b) My mother, (c) My brothers and/or my sisters, (d) Other persons)", Q27: "Which members of the family are using the Internet at home more often (systematically)? (multiple answers: (a) The children, (b) The parents, (c) Everyone, equally)".

The second set included four multi-item questions. The first one (Q28) consisted of 10 Internet related activities (see Table 3) and the students were asked to report on a five-category scale ("Always", "Very often", "Often", "Rarely" and "Never") how frequent they were involved in each activity at home. The same rating scale applied to the second (Q24b) and third question (Q22). The second question comprised five domains of parental prohibitions and controls regarding Internet use at home (see Table 4). The third question "Do you usually get on the Internet..." included five statements: (a) Alone, (b) With your friends, (c) With your siblings, (d) With your parents, and (e) With other persons. Finally, the fourth multi-item question (Q29) aimed at exploring the impact (negative, neutral or positive) of the Internet use on two favorable leisure activities of the students, one social and one related to their studying: (a) watching TV, (b) listening to music, (c) studying, and (d) going outside (of the home) for fun and entertainment with friends. The students were asked to rate the degree of their involvement in the previously mentioned four activities after having an Internet connection at home. More specifically, students were asked to rate on a three-category scale ((a) Less than before, (b) As much as before, and (c) More than before) the effect of Internet use on each activity.

2.2.3. Procedure

The study was carried out during the period 2004–2005. The functionality of the questionnaire used was tested during a trial research conducted in March 2004. One hundred students participated in this stage. The questionnaires were anonymous and distributed by the class teachers. The validity and the reliability testing of the pilot questionnaire did not reveal any serious threats. Minus corrections to the wording of some questions were made after the feedback from this trial. The final form of the questionnaire was distributed by class teachers to all class students during lesson time and involved 418 Gymnasio and Lykeio Greek students. The completion of the questionnaire took about 45–50 min. In each school, the classes were selected for convenience. In all phases of the research, the students participated after their parent's permission had been obtained.

2.2.4. Data analysis

Descriptive statistical indices were used for the presentation of the data (frequencies, averages and standard deviations). For the comparisons of means, *Tukey's HSD* test and *Dunnett's T3* test (Klockars & Sax, 1986; Toothaker, 1993) were applied as necessary. For the comparison of the frequency distributions and the correlation test between categorical variables, the independence test χ^2 was used. The observed significance level (*p*-value) of the χ^2 test was calculated using the Monte Carlo simulation method, so that any problems regarding the validity of the test would be eliminated (Mehta & Patel, 1996). In order to save space, only the results that found statistically and/or practically significant (differences in percentages $\geq 10\%$) are reported. For the same reason, out of the results of the statistically significant cross-tabulations, the only ones discussed and reported are the percentages for which the corresponding adjusted standardized residuals have an absolute value ≥ 2 and therefore are statistically significant at a significance level $\alpha = 0.05$ (Agresti, 1984; Haberman, 1973).

To explore the particular inherent structure of the Internet uses and practices at home the Multiple Correspondence Analysis-MCA method (Benzécri, 1992; Greenacre, 1993; Lebart, Morineau, & Warwick, 1984) was applied to the student's answers to the questions presented in Table 5. Only the questions with significant variation in their answers were used. The MCA is mainly considered as a descriptive multidimensional method, suitable for exploring the association between two or more categorical variables. It could be characterized as an extension of principal components analysis, which is suitable for the analysis of quantitative variables only. Although its results (numerical and graphical outputs) can reveal information on multiple levels, in the present paper only its optimal scaling properties will be used (Nishisato, 1980). The MCA can be characterized as a method used for the quantification of qualitative data with a simultaneous dimensionality reduction of the initial space in which the phenomenon under study is described. For each student, optimal scores on each of the two significant factorial axes emerging from the MCA were calculated as follows: first, the standardized coordinates of the students were calculated and then the principal ones, by multiplying the standardized coordinates by the square root of the inertia (generalized variance) of the corresponding axis (Gifi, 1996; Greenacre, 1984, 1993). For practical purposes, these scores transformed into a new scale from 0 to 100 according to the following formulae:

$$z_{ij} = \frac{f_{ij} - \min(f_{ij})}{\max(f_{ij}) - \min(f_{ij})} \times 100,$$

where f_{ij} is the score of student i on the j axis and z_{ij} is the new transformed score ranging from 0 to 100.

Finally, based on the optimal transformed scores, a typology of the students using Hierarchical Cluster Analysis (Aldenderfer & Blashfield, 1984; Everitt, 1993; Norusis, 1992) and K-means cluster analysis (Hair et al., 1995; Norusis, 1992; Sharma, 1996) was developed. In Hierarchical Cluster Analysis the square of the Euclidean distance was used as the (dis)similarity index between students, and the clusters were formed based on the Ward's criterion. The purpose of this analysis was to determine some initial cluster centres, and to examine the probable range of solutions, i.e. the satisfactory number of clusters. Following this, due to the large number of subjects, the K-means cluster analysis process was applied. The results of two solutions were tried and tested, one solution with three clusters and one with four clusters. The solution with the best natural interpretation was the one with three clusters. The resulted typology formed the basis for a more concise study of the effect of geographical and social stratification, gender and age on the domestic use of Internet.

The statistical analyses were implemented with the statistical package SPSS, with the addition of the modules categories (Meulman & Heiser, 2004) and exact tests (Mehta & Patel, 1996). The significance level of the statistical tests was predetermined at $\alpha = 0.05$.

3. Results

Initially, some basic findings regarding the Internet uses and practices are reported. Next, the results related to its use in the home are presented.

3.1. Internet uses and practices

The majority of the 418 students in the sample (70.6%) stated that they had a PC at home. However, only about half of the PC owners (52.8%) had Internet access at home. The geographical stratification was found to

be a significant parameter regarding the ownership of computers. A statistically significant difference was observed between young people living in large urban centres and those living in the Greek periphery ($\chi^2(3) = 50.998, p = 0.000$). The 80.85% of the young people living in Athens (capital city) and the 79.5% of those living in Thessaloniki (large urban city) have a PC at home, while the percentages for the students living in Katerini and Rethymno (small provincial towns of 40,000–50,000 people) are 37.1% and 54.8%, respectively.

Of the students that did have Internet access at home, 74% of them stated that they used it “Very often”. This means that the existence of the Internet in the home is an incentive for its use.

Regarding the Internet related activities it seems that students used it mainly for entertainment and communication purposes rather than for school use (see Table 2). An indicative example is the fact that 17.5% of the students reported using the Internet systematically (“Very often” & “Always”) when looking for homework information, while the percentages of systematic use for playing video games, communication, listening to music and searching for images were 33.7%, 31%, 46.5%, and 55.5%, respectively. It also appeared that the Internet constituted a means of satisfying young people’s personal inquiries and interests. The 74.3% of the students stated that they “Often” to “Always” use it when looking for information for their own personal use.

School seems to play an important role in the use of the Internet since 36.7% of the students, who had access to the Internet, reported that they first came into contact with it at school, 25.8% at home and 18.4% in an Internet *Café*. The family environment, in general, seemed to be a factor that was rather absent from the relation of young people to the Internet, since 64.4% of the young people using the Internet stated that their parents did not impose any limitation and bounds upon its use.

3.2. The use of the Internet at home

In the present section, the research findings related to the customary uses of the Internet by students who had access from their home, as well as the degree of parental supervision, are presented.

As mentioned previously, only 52.8% of the students in the sample stated that they had Internet access at home. Of these students, 32.9% reported that they used the Internet for less than an hour a day, 43.5% for 1–2 h and 23.7% for over 2 h. The majority of the students (66.1%) had Internet access for over a year. Table 3 below presents the frequency of the various types of Internet uses and activities. This table shows that using the Internet was an activity mainly related to young people’s entertainment. There seemed to be very little use of

Table 2
Patterns of Internet use at school, at home and in Internet *Cafés*

Activities		Never	Rarely	Often	Very often	Always	Total
To look for information for my own use	Students	27	68	114	90	71	370
	%	7.3	18.4	30.8	24.3	19.2	100.0
To look for information for my homework	Students	91	140	71	45	19	366
	%	24.9	38.3	19.4	12.3	5.2	100.0
To play video games	Students	96	89	59	67	57	368
	%	26.1	24.2	16.0	18.2	15.5	100.0
To play video games with others	Students	166	72	37	38	41	354
	%	46.9	20.3	10.5	10.7	11.6	100.0
To communicate	Students	105	92	53	73	39	362
	%	29.0	25.4	14.6	20.2	10.8	100.0
To get computer information	Students	136	89	71	40	19	355
	%	38.3	25.1	20.0	11.3	5.4	100.0
To listen to music	Students	41	77	77	92	77	364
	%	11.3	21.2	21.2	25.3	21.2	100.0
To watch films	Students	108	91	63	55	44	361
	%	29.9	25.2	17.5	15.2	12.2	100.0
To buy products	Students	291	40	9	8	7	355
	%	82.0	11.3	2.5	2.3	2.0	100.0
To search for images	Students	35	60	69	111	93	368
	%	9.5	16.3	18.8	30.2	25.3	100.0

Table 3
Patterns of Internet use at home

Activities		Never	Rarely	Often	Very often	Always	Total
To look for information for my own use	Students	5	11	31	67	78	192
	%	2.6	5.7	16.1	34.9	40.6	100.0
To look for information for my homework	Students	39	61	42	34	12	188
	%	20.7	32.4	22.3	18.1	6.4	100.0
To play video games	Students	51	33	32	36	36	188
	%	27.1	17.6	17.0	19.1	19.1	100.0
To play video games with others	Students	83	34	17	27	27	188
	%	44.1	18.1	9.0	14.4	14.4	100.0
To communicate	Students	40	32	34	52	27	185
	%	21.6	17.3	18.4	28.1	14.6	100.0
To get computer information	Students	70	41	35	20	20	186
	%	37.6	22.0	18.8	10.8	10.8	100.0
To listen to music	Students	16	25	37	47	62	187
	%	8.6	13.4	19.8	25.1	33.2	100.0
To watch films	Students	55	43	28	32	30	188
	%	29.3	22.9	14.9	17.0	16.0	100.0
To buy products	Students	143	23	4	10	5	185
	%	77.3	12.4	2.2	5.4	2.7	100.0
To search for images	Students	17	22	32	61	58	190
	%	8.9	11.6	16.8	32.1	30.5	100.0

it for school requirements and generally for educational purposes. Although the 36.7% of the students stated that their first contact with the Internet was at school, it seems that the latter was never thoroughly involved in its exploitation in the classroom for educational purposes. The Internet remained a place where young people systematically (“Very often” and “Always”) looked for information for their personal use (75.5%), searched for images (62.6%), listen to music (58.3%), communicated (42.7%), played video games (38.2%) and watched films (33%). Only 24.5% of the students used it to search for information needed for school.

Students seemed to consider the Internet as a personal – individual space for action and expression, since 80.4% answered that they used it alone (“Very often” and “Always”) rather than with their brothers/sisters (23.1%) or parents (11.8%). A relatively high percentage of students (42.4%) reported that they “Very often” and “Always” used it with friends. The use of the Internet at home did not seem significantly to affect any of the children’s other activities. The majority of the students (71.3%) stated that they studied as much as they had done before the Internet connection was installed. In addition, 75.6% claimed that they went out as often as they had before. In contrast to this, students listened to more music (42.8%) and watched less television (39.0%) than previously.

Regarding parental supervision and control of Internet use, the following observations can be made: (a) only 35.65% of the young people noted that their parents set limits on the use of the Internet and (b) only 19% of the students stated that their parents wanted to know precisely what they were doing. The 56.7% of the children mentioned that their father knew how to use the Internet, while the relevant percentage for their mothers was lower at 35.5%. In addition, in Greece the Internet is a choice primarily of the young. As expected, children were more systematic users of the Internet (69.7%) than their parents (10.4%). Parental control, when exercised, was limited to the activities presented in Table 4.

From Table 4 it is evident that parental supervision mainly concerned the area of purchases. It is interesting that out of the total number of prohibitions, 45.7% of the young people stated that their parents did not allow them to purchase items through the Internet.

The intervention of parents in Internet use seemed to exhibit statistically significant differences according to their children’s educational grade. The 47% of the Gymnasio students noted that there was supervision from their parents, while the corresponding percentage was limited to 27.9% for the Lykeio (and TEE) students ($\chi^2(1) = 7.875, p = 0.007$). This intervention mainly concerned the amount of time the children spent on the Internet and consequently the financial cost (increase of family expenditure) from its use, rather than the content of the use itself.

Table 4
Parental supervision regarding Internet uses at home

My parents will not permit me to ...		Never	Rarely	Often	Very often	Always	Total
Use the Internet for too long	Students	23	20	17	23	22	105
	%	21.9	19.0	16.2	21.9	21.0	100.0
Chat with strangers	Students	45	20	12	4	23	104
	%	43.3	19.2	11.5	3.8	22.1	100.0
Buy things	Students	36	11	4	6	48	105
	%	34.3	10.5	3.8	5.7	45.7	100.0
Get into adult Web-pages	Students	42	10	12	9	32	105
	%	40.0	9.5	11.4	8.6	30.5	100.0
Play games	Students	71	12	8	4	8	103
	%	68.9	11.7	7.8	3.9	7.8	100.0

3.3. Effect of geographical and social stratification, gender and age on the domestic Internet use

In this section, some basic findings related to the effects of student's geographical and social stratification, gender and age on Internet use at home, are presented.

A statistically significant relation was found between the students' Geographical stratification and their ability to access the Internet from home ($\chi^2(3) = 37.283$, $p = 0.000$). Of the young people living in urban and semi urban areas (Athens and Thessaloniki), 67.4% and 57.8%, respectively stated that they had Internet access. The relevant percentages for the rural areas (Katerini and Rethymno) were 19.6% and 40.5%. The different ways in which the Internet was used in large and small urban centres is an even more characteristic example. The intellectual and cultural stagnation of small towns also emerges in relation to youth and use of the Internet. More specifically, a statistically significant correlation was observed between the students' place of residence and use of the Internet for entertainment through video games ($\chi^2(12) = 26.541$, $p = 0.008$). An indicative example is that 41.2% of the young people living in a rural area (Rethymno) stated that they did play video games, while the relevant percentage of young people in an urban area (Athens) was 27.2%. Of the latter, 44.1% did not play any video games, while the percentages for those living in rural area (Katerini and Rethymno) were 12.5% and 17.6%, respectively. It appears therefore that the Internet in the Greek provinces still remains a place and way to have fun, to escape, probably because of the absence of alternative forms of entertainment. The geographical stratification also seemed to affect other activities of the young, such as their studying ($\chi^2(6) = 14.407$, $p = 0.027$). Of the young people who used the Internet and lived in the Greek periphery (Rethymno), 47.1% believed that the Internet negatively affected their studying, i.e. that they studied less. The relevant percentages were significantly lower for urban (14.3%) and semi urban areas (13.9%), i.e. Athens and Thessaloniki, respectively.

Internet access seemed to be directly related to the socio-economic category of students' parents. The educational level of the parents was highlighted as an important factor affecting both the existence of a PC at home and access to the Internet. A statistically significant correlation was identified between the educational level of the father ($\chi^2(5) = 34.783$, $p = 0.000$) and mother ($\chi^2(5) = 57.816$, $p = 0.000$) and the existence of a PC in the home. More specifically, of the students who had a PC, 47.1% came from a family environment where the father had completed Higher Education (Technological Institute degree, University degree or Masters), while only 8% stated that their father had finished Primary School. The 48.2% of the students who had a PC reported that their mother had received a degree from Higher Education, while only 6.6% answered that their mother was a Primary School graduate. Similar statistically significant associations were observed between the educational level of the father ($\chi^2(5) = 45.783$, $p = 0.000$) and mother ($\chi^2(5) = 56.864$, $p = 0.000$) and the possibility of accessing the Internet at home. Of the young people with an Internet connection, 54.3% stated that their father had attended Higher Education, while only 7.7% that he was a Primary School graduate. The relevant percentages for the mother's educational level were 54.3% and 5.1%, respectively.

As mentioned in the previous section, the Internet was a rather personal affair for young people, since they generally preferred to navigate alone. It was not something they liked to share with their parents, unlike other

media such as television. It was easier for them to share the Internet with their friends rather than their parents. Differentiations in the young people's previous behaviour and preferences were observed in relation to their educational grade and age. A statistically significant differentiation was detected between the Gymnasio (average age 14) and Lykeio students (average age 17) as regards their preference for individual-private use (navigation) of the Internet ($\chi^2(4) = 10.809, p = 0.025$). The students' educational grade was statistically significantly linked to their degree of socialization. More specifically, 50.6% of the Gymnasio children mentioned that they preferred to surf the Internet alone, while the relevant percentage for Lykeio students was 39.5%. For the children not preferring to surf alone, the Gymnasio students presented a comparatively higher degree of socialization, since 22.5% preferred to use the Internet with friends, while only 5.1% of the Lykeio students stated a similar preference ($\chi^2(4) = 16.235, p = 0.002$).

The Gymnasio students also differed statistically significantly from the Lykeio students in relation to the reasons they used the Internet, particularly with regard to searching for information concerning school work ($\chi^2(4) = 16.549, p = 0.002$). The 38% of the Gymnasio students stated that they used the Internet for that purpose in contrast to 14% of the Lykeio students.

Finally, statistically significant correlations were found between the students' gender and the various ways they used the Internet at home. More specifically, a correlation emerged between gender and (a) searching for information for school use ($\chi^2(4) = 11.963, p = 0.016$), (b) searching for images ($\chi^2(4) = 13.810, p = 0.007$), (c) entertainment through video games ($\chi^2(4) = 24.232, p = 0.000$), and (d) watching films ($\chi^2(4) = 14.351, p = 0.005$). The strongest differentiation between boys and girls can be summarized in the following points: the 29% of the boys never used the Internet to search for information regarding school work, while the relevant percentage for girls was 11.5%. Of the boys, 38% used the Internet to search for images, 26.9% to play video games and 24.1% to watch films. The relevant percentages for the girls were 21%, 8.4% and 6%, respectively.

3.4. Students' latent behavior structure in domestic Internet use

In order to examine the latent structure of the use and behaviour of students who had access to the Internet at home, Multiple Correspondence Analysis to the questions relevant to the use of the Internet at home was applied (Table 5).

The analysis highlighted two significant factorial axes that explain 72% of the total useful inertia (generalized variance or information). The first axis *F1* explains 41% of the total inertia and has a Cronbach's internal consistency reliability coefficient $\alpha = 0.75$. The second, *F2*, explains 31% of the total inertia and has an internal consistency coefficient $\alpha = 0.65$. As a rule of thumb, reliability indicators of around 0.70 (Nunnally, 1978) or even around 0.60 and above (Malhotra, 1996) are considered satisfactory. In Table 5, the discrimination measures-DM of the questions (variables) per axis are presented, which can be interpreted as squared loadings similar to those produced by the principal components analysis.

The first axis is mainly characterized by question Q28 (3, 4, 5, 6, 7, 8, and 10), concerning the types of Internet use, and question Q23, concerning the time children spent on the Internet at home. This could be identified as the factor "systematic use of the Internet at home". The second axis is mainly loaded by questions Q24, Q24b.1 to Q24b.4 and Q25, which relate to parental control and supervision of Internet use, as well as questions Q20 and Q21 which concern the access time and frequency of entry into the Internet. The second factor could be named "parental supervision and frequency of Internet use at home".

The mean students optimal transformed score on *F1* was found equal to 43 ($SD = 20$) and on *F2* equal to 32 ($SD = 21$). On the first axis *F1*, the maximum score 100 corresponds generally to a systematic and frequent use of the Internet at home, while on *F2* expresses strong parental supervision with relatively recent access (i.e. "Less than 6 months") and a medium frequency (i.e. "Often") of entries to the Internet.

3.5. Typology of the students

In order to develop a typology of the students who had access to the Internet from home ($N = 202$) based on their scores on the two factorial axes ("systematic use of the Internet at home" and "parental supervision and frequency of Internet use at home"), emerging from the MCA, the process of Hierarchical Cluster Anal-

Table 5
Discrimination measures (DM) of the questions per factor

Questions	<i>F1</i> *	<i>F2</i> *
Q20b: How long have you had Internet access at home?	.014	.202
Q21: How often do you use the Internet at your home?	.178	.317
Q22: Do you usually get on the Internet ...		
Q22.1: alone	.153	.202
Q22.2: with your friends	.239	.059
Q22.3: with your siblings	.057	.097
Q22.4: with your parents	.036	.166
Q23: How much time do you usually spend every day at home using the Internet?	.397	.092
Q24: Do your parents put limits and bounds to your Internet access at home?	.025	.487
Q24b: My parents will not permit me to ...		
Q24b.1: Use the Internet for too long	.082	.456
Q24b.2: Chat with strangers	.067	.415
Q24b.3: Buy things	.078	.331
Q24b.4: Get into adult Web-pages	.091	.357
Q24b.5: Play games	.058	.240
Q25: Do your parents want to know exactly what you are doing when you are connected to the Internet?	.021	.356
Q27: Which members of the family are using the Internet at home more often (systematically)?	.151	.030
Q28: Do you use the Internet at home ...		
Q28.1: to look for information for my own use	.129	.102
Q28.2: to look for information for my homework	.031	.113
Q28.3: to play video games	.570	.099
Q28.4: to play video games with others	.456	.080
Q28.5: to communicate	.300	.140
Q28.6: to get computer information	.347	.090
Q28.7: to listen to music	.429	.023
Q28.8: to watch films	.538	.054
Q28.9: to buy products	.127	.013
Q28.10: to search for images	.310	.071
Q29: Since you have had Internet access at home ...		
Q29.1: Do you watch TV280	.052
Q29.2: Do you listen to music170	.048
Q29.3: Do you study189	.038
Q29.4: Do you go out167	.026
<i>Mean</i>	43	32
<i>Standard deviation</i>	20	21

**F1*: “systematic use of the Internet at home”, **F2*: “parental supervision and frequency of Internet use at home”.

ysis was applied first. The results showed that a solution would have to be sought between three and four clusters.

Following this, the K-means cluster analysis process was applied. The results of two solutions were tried and tested, one solution with three clusters and one with four clusters. The solution with the best natural interpretation was the one with three clusters. The results are given in Table 6. The resulting typology formed the basis for a more concise study of the effect of geographical and social stratification, gender and age on the domestic Internet use.

Based on the values of the coefficient of determination R^2 it seems that the most important role in the cluster formation is played by factor *F1* (“systematic use of the Internet at home”), since 60% of the variance of the students optimal scores on *F1* can be justified by the differences between the three clusters. The relevant percentage for *F2* (“parental supervision and frequency of Internet use at home”) is 43%.

Based on the data in Table 6, three student clusters can be identified as follows:

- S1: It includes 47 students (23.3%) who were systematic users (above the mean) and had low parental supervision (below the mean) when using the Internet at home.
- S2: It includes 86 students (42.6%) who were not systematic users (below the mean) and had low parental supervision (below the mean) when using the Internet at home.

Table 6
Clusters' profile description

	Clusters	Mean	SD	<i>n</i>
<i>F1</i> ^a	S1	69 a	13	47
	S2	28 c	12	86
	S3	43 b	13	69
	Total <i>R</i> ² = 0.60	43	20	202
<i>F2</i> ^b	S1	26 b	20	47
	S2	20 b	11	86
	S3	52 a	19	69
	Total <i>R</i> ² = 0.43	32	21	202

^a Means followed by different letter are statistically significant different, at $\alpha = 0.05$, according to *Tukey's HSD* test.

^b Means followed by different letter are statistically significant different, at $\alpha = 0.05$, according to *Dunnnett's T3* test.

S3: It includes 69 students (34.2%) who were average users and had high parental supervision (above the mean) when using the Internet at home.

In order to make a deeper analysis of the particular characteristics of the clusters thus produced, the effect of geographical and social stratification, gender and age on the profiles of the clusters was examined. In Table 7, only the statistically significant findings relative to the extended clusters' profiles are presented.

A statistically significant difference was found between the three Clusters in relation to the distribution of the students' gender ($\chi^2(2) = 14.122$, $p = 0.001$), educational grade ($\chi^2(2) = 12.051$, $p = 0.004$) and age ($F(2, 194) = 6.623$, $p = 0.002$).

No statistically significant differences were detected between the three Clusters as regards the place of students' residence–Geographical stratification ($\chi^2(6) = 5.320$, $p = 0.510$), the father's profession ($\chi^2(12) = 15.661$, $p = 0.204$), the mother's profession ($\chi^2(12) = 18.038$, $p = 0.106$), the father's educational level ($\chi^2(10) = 9.836$, $p = 0.456$), the mother's educational level ($\chi^2(10) = 4.975$, $p = 0.899$) and the existence of siblings ($\chi^2(2) = 0.925$, $p = 0.645$).

From the above-mentioned results it can be deduced that Internet use was at a low level. Only in cluster S1 was systematic use above the mean, however the percentage of young people belonging to this cluster was relatively low (23.3%). Out of the three clusters, S3, i.e. the average users, experienced the highest levels of parental supervision. In clusters S1 and S2, parental supervision did not seem to be strong. This observation concerns 65.9% (23.3% + 42.6%) of the young people in the sample.

Boys make up the majority of systematic and average users (clusters S1 and S3). In S1 the percentage of users who are boys is 78.3%, while the relevant percentage in S3 is 55.1%. Only in S2, i.e. the non-systematic users, are the girls the majority (55.8%). From these figures, it can be deduced that the Internet is mainly a male preserve. It is not something that girls are systematically involved with.

In relation to the students' educational grade, the majority of young people (73.3%) in cluster S2 are Lykeio and TEE students, which means that the corresponding mean age is higher (16.32 years) compared to the other

Table 7
Clusters' second level profile

	S1	S2	S3
Boys	36 (78.3%)	38 (44.2%)	38 (55.1%)
Girls	10 (21.7%)	48 (55.8%)	31 (44.9%)
Gymnasio	21 (44.7%)	23 (26.7%)	37 (53.6%)
Lykeio and TEE	26 (55.3%)	63 (73.3%)	32 (46.4%)
Age ^a	15.73 ab (± 1.57)	16.32 a (± 1.90)	15.25 b (± 1.86)

^a Means followed by different letter are statistically significant different, at $\alpha = 0.05$, according to *Tukey's HSD* test.

clusters. As mentioned in the *Sample* Section, TEE's are also attended by students older than 18. Among the average users of cluster S3, there is a slight predominance of Gymnasio students (53.6%). In cluster S1 the majority (55.3%) are Lykeio and TEE students.

4. Discussion and conclusions

In the research presented above the use of the Internet by young people aged 12–18 in Greece was studied.

It was found that although the Internet marks a whole era, its use in certain societies, such as the Greek society, delimits generations, characterizes whole communities, and defines social strata.

The present study has shown that:

The PC has entered the Greek family in force. However, Internet access still remains at a very low level. According to the National Statistical Service (2004), high connections costs and the lack of information from the state and the educational system are the main reasons for the unsatisfactory levels of access.

The Internet in Greece has an age. It is identified more with young people. This finding confirms previous studies reporting a negative correlation between age and Internet use (Livingstone & Bober, 2005; Mesch, 2001). In the Greek family, the most systematic users are the younger members as opposed to their parents.

The Internet has a socio-economic identity. It is an indicator of social and economic stratification. The Internet has already created a generation divided between information-rich and information-poor people (DiMaggio et al., 2001; Wilhelm, 2002). Internet connections in Greece are expensive, and no measures have been taken by the state to aid the economically weaker social classes. The Internet is also an indicator of "intellectual" stratification. Most young people, who have access to the Internet, come from family environments with a higher education background. The same finding, based on a longitudinal research in USA, has been reported by Juster, Ono, and Stafford (2003). Higher education often leads to a more comfortable financial situation for people, which is the reason why PC ownership and Internet use still constitute indicators of social and economic stratification, even in countries that are more advanced in New Technologies (Livingstone & Bober, 2005; Wilhelm, 2002). Studies conducted in Europe which present comparative statistical data verify the above-mentioned observations. For example, a study conducted in France in 1998 showed that 15% of the young people who had access to the Internet came from the higher economic classes, while only 3% belonged to the lower ones (Pasquier, 2005). Differences have also been observed in the United Kingdom, where 88% of the children aged 9–19, who had access to the Internet at home, belonged to the middle class, while only 61% of working class children had the possibility of using the Internet at home (Livingstone & Bober, 2004). This means that broader educational and political planning is required, in order to convince other social classes of the usefulness and effectiveness of the Internet. The Internet has geographical stratification characteristics. The observed variation between large and small urban areas is a characteristic of Greek society, where the lack of information, structures and financial decline is strongly felt in provincial areas (National Statistical Service of Greece, 2005). Also, according to official data from the same source (2004), 45.5% of people aged 16–74 state that they do not have Internet access due to the high equipment costs and 36.55% due to the high connection costs. The Greek provinces are neither aware nor convinced of the value of the Internet. This of course is also related to the economic decline and cultural isolation which primarily affects regional areas. The intellectual and cultural stagnation of small towns also emerges in relation to youth and use of the Internet. In small towns the Internet is mainly a medium for entertainment.

The Internet is of "male" gender. The differences in its use between boys and girls are intense. They can be seen in relation to its use: boys use it more to play games, as opposed to the girls. Such differences are visible in the preferences and interests of the two genders (Mumtaz, 2001), and have also been observed in other research concerning various communication media (Koroneou, 1992). Gender differences in Internet use have been reported by Li and Kirkup (2007) who investigated Chinese and British students in a cross-cultural frame. In Greece, Papastergiou and Solomonidou (2005) also found differences between high school boys and girls within and outside of the school environment. The differences in the use of the Internet by the two genders can also be seen in relation to the fact that according to the results to the present study the majority of the students stated that their father used the Internet more in the family environment.

The Internet is a means of entertainment for young people in Greece. Few of them seem to use it for their school work. Generally, computers (Mumtaz, 2001) and the Internet are used mainly for entertainment pur-

poses by teenagers (Pasquier, 2005). In Greece, this is certainly due to the School Curriculum, which is greatly lacking as regards teaching of the Internet. A qualitative analysis of 26 interviews with Greek young people aged 12–18, within the framework of the [European Research Project Mediappro \(2006\)](#), showed that all the interviewees stated that they used the Internet at school only for entertainment and pleasure. Students reported that Teaching of the Internet was purely at the discretion of the teacher of Informatics. Everyday practise in Greek school reveals that the computer room is not accessible to the whole educational community of the school and this serves to discourage a broader use and dissemination of the Internet ([European Research Project Mediappro, 2006](#)). There are no other spaces (e.g. libraries or special classrooms) where students and teachers can surf the Internet. It has not yet been made clear to the Greek educational system that the Internet must be considered part of the educational process.

School seems to play an important role in the relation of young people to the Internet, since a relatively large percentage of students stated that they first came into contact with the Internet at school. This fact is an important argument against those who believed that New Technologies can replace or undermine the role of the school ([Dieuzeide, 1994](#)). It appears however, that the Internet is not exploited further at school, since very few students use it for school purposes. It is used more for school work at home by Gymnasio students, and this is justified by the fact that they experience more parental control due to their younger age, and are possibly more focused on their school work. The school must ensure that young people are given the opportunity for a critical use of the Internet so that what the family and socio-economic environment cannot provide is compensated for by offering equal access to knowledge at school. Thus, the conditions will be created for safe and critical navigation at home too.

The Internet is a place and space that safeguards the “privacy” of young people. The majority of students view it as an individual field of action and expression. This is the reason why adults, and mainly parents, often protest and claim that the Internet makes young people more isolated and less sociable. It must be admitted, however, that teenagers have always looked for ideas and places that would provide them with some moments of solitude ([Herbert, 1989](#)). They have always liked to share their small secrets with a few friends, rather than their parents ([Livingstone & Bober, 2005](#)). The fact that they prefer to navigate alone on the Internet does not mean they are becoming less sociable. Safeguarding “privacy” does not necessarily mean that social contact has been replaced by social isolation. Through the Internet, they maintain their personal space, which they know well, far from the gaze of their parents who cannot intervene because they do not know how to; a place where they can conceal their concerns, communicate with their peers, and express themselves as they like ([Gross, 2004](#)).

Greek parents seem to be absent from the relation of youth to the Internet because they do not know how to use it or because they are not aware of the risks. Students’ reported that their parents mainly did not allow them to buy goods through the Internet. It should also be pointed out that the Greek banking system does not permit young people under 18 to have credit cards, and this fact certainly discourages buying over the Internet. Furthermore, data from the [National Statistical Service of Greece \(2004\)](#) also shows that purchases over the Internet in Greece are at a very low level even among the adult population. Lack of parental supervision also appears in other studies that concern the European experience ([European Research Project Mediappro, 2006](#)). The parents of these children, over whom no substantial control is exercised, represent a generation of digital illiterates who are not aware of the use or dangers of the Internet. Digital culture is what divides this generation from the previous one, where television predominated ([Pasquier, 2005](#)). The parents who grew up with television are digitally illiterate and do not have the knowledge required to check or impose limitations upon their children ([Livingstone & Bober, 2005](#)). The present study revealed some limited parental intervention only with Gymnasio children, which mainly concerned the amount of time their children spent on the Internet. Parents obviously see the Internet as a medium that “steals” time away from their children’s school duties. On the contrary, [Mitchell et al. \(2003\)](#) reported that parents in the USA exaggerated their level of supervision and monitoring aimed at preventing the exposure of their young children to unwanted sexual material on the Internet.

Research findings constitute not only academic contributions but also have practical implications in high school computer education since many of the risk factors linked with Internet uses can be avoided by proper training and instruction. For decision-makers and civil authorities it is important to realize that the new environment that has evolved through the Internet requires flexible computer literacy curriculums and training

programs that will increase the motivation and the skills of all those involved in its use, young people and adults, teachers and parents. In particular, young people must learn how to profit from this digital “arena” in order to transform data to information, to develop its effective use, and participate to “learning” communities (Dresang, 1999) and other social cohorts.

The new environment that has evolved through the Internet requires a degree of computer literacy that will provide an “ecological” nest for all those involved in its use. This computer literacy will offer the necessary cognitive tools for safer navigation and more effective use of the Internet at home and in the school environment. It will make teaching a more active process and help teachers become more creative. Thus, instead of entertainment being a goal of Internet use, it would become a medium – a tool, that will transform the pedagogical atmosphere within the classroom and the educational functionality of the Internet, even during its domestic use. Its dynamic arrival in Greek schools carries a hope that it could be used to smooth social and intellectual divides.

The results presented in this paper should be considered to have some unavoidable limitations. The available sample cannot be considered representative of the whole of Greece. Nevertheless, the sampling procedure attempted to take into account the views of a broad socio-economic category of young people, through the geographical division and selection of schools. The findings of the present study are based only on quantitative research. A future qualitative approach would illumine the hidden depths of Internet uses and practices by young people at home. Finally, it may be relevant for future research to replicate the present study in broader sampling regions in order to reveal the behavior of youth on the Internet. Longitudinal and/or quasi-experimental research designs might be employed to address issues of causality and enhance our understanding of the dynamic nature of the factors affecting the domestic use of Internet by young people.

References

- Agresti, A. (1984). *Analysis of ordinal categorical data*. New York: John Wiley & Sons, Inc.
- Aldenderfer, M., & Blashfield, R. (1984). *Cluster analysis*. Beverly Hills: Sage Publications.
- Benzécri, J.-P. (1992). *Correspondence analysis handbook*. New York: Marcel Dekker, Inc.
- Berson, I., & Berson, M. (2005). Challenging online behaviors of youth: Findings from a comparative analysis of young people in the United States and New Zealand. *Social Science Computer Review*, 23, 29–38.
- Best, S., & Kellner, D. (2003). Contemporary youth and the postmodern adventure. *The Review of Education, Pedagogy, and Cultural Studies*, 25, 75–93.
- Buckingham, D. (2000). *After the death of childhood: Growing up in the age of electronic media*. Cambridge: Polity Press.
- Chou, C., & Hsiao, M.-C. (2000). Internet addiction, usage, gratification, and pleasure experience: The Taiwan college students' case. *Computers & Education*, 35(1), 65–80.
- De Vreese, C. (2007). Digital renaissance: Youth consumer and citizen? *The Annals of the American Academy of Political and Social Science*, 611, 207–216.
- Dieuzeide, H. (1994). *Les nouvelles technologies: outils d'enseignement*. Paris: Nathan.
- DiMaggio, P. et al. (2001). Social implications of the Internet. *Annual Review of Sociology*, 27, 307–336.
- Dresang, E. (1999). More research needed: Informal information-seeking behavior of youth on the Internet. *Journal of the American Society for Information Science*, 50(12), 1123–1124.
- Eurobarometer (2004). *Illegal and harmful content on the Internet*. Brussels: European Commission.
- European Research Project, Mediapro (2006). *The appropriation of new media by youth, safer Internet*. Brussels: European Commission, Information Society and Media.
- Everitt, B. (1993). *Cluster analysis*. London: Edward Arnold A division of Hodder & Stoughton.
- Gifi, A. (1996). *Non-linear multivariate analysis*. Chichester: John Wiley, Inc.
- Gilbert, D., Lee-Keley, L., & Barton, M. (2003). Technophobia, gender influences and consumer decision-making for technology-related products. *European Journal of Innovation Management*, 6(4), 253–263.
- Greenacre, M. (1984). *Theory and applications of correspondence analysis*. London: Academic Press.
- Greenacre, M. (1993). *Correspondence analysis in practice*. London: Academic Press.
- Greenfield, P. (2004). Developmental considerations for determining appropriate Internet use guidelines for children and adolescents. *Applied Developmental Psychology*, 25, 751–762.
- Griffiths, M., & Wood, R. (2000). Risk factors in adolescence: The case of gambling, videogame playing, and the Internet. *Journal of Gambling Studies*, 16(2/3), 199–225.
- Gross, E. (2004). Adolescent Internet use: What we expect, what teens report. *Applied Developmental Psychology*, 25, 633–649.
- Haberman, S. (1973). The analysis of residuals in cross-classified tables. *Biometrics*, 29(1), 205–220.
- Hair, J. et al. (1995). *Multivariate data analysis with readings*. New Jersey: Prentice-Hall International, Inc.

- Herbert, M. (1989). *Living with teenagers*. Basil: Blackwell.
- Huffaker, D. (2004). Spinning yarns around the digital fire: Storytelling and dialogue among youth on the Internet. *Information Technology in Childhood Annual*, 63–75.
- Ingram, A., Hathorn, L., & Evans, A. (2000). Beyond chat on the Internet. *Computers & Education*, 35(1), 21–35.
- Johansson, A., & Götestam, G. (2004). Internet addiction: Characteristics of a questionnaire and prevalence in Norwegian youth (12–18 years). *Scandinavian Journal of Psychology*, 45, 223–229.
- Juster, T., Ono, H., & Stafford, F. (2003). *Changing times of American youth: 1981–2003*. Institute for Social Research, University of Michigan.
- Klockars, A., & Sax, G. (1986). *Multiple comparisons*. Newbury Park: Sage Publications.
- Koroneou, A. (1992). *Youth and mass media*. Athens: Odysseas (in Greek).
- Kuhlemeier, H., & Hemker, B. (2007). The impact of computer use at home on students' Internet skills. *Computers & Education*, 49(2), 460–480.
- Kurti, E. (2003). *Communication in Internet*. Athens: Greek Letters (in Greek).
- Lebart, L., Morineau, A., & Warwick, K. M. (1984). *Multivariate descriptive statistical analysis: Correspondence analysis and related techniques for large matrices*. New York: John Wiley, Inc.
- Li, N., & Kirkup, G. (2007). Gender and cultural differences in Internet use: A study in China and the UK. *Computers & Education*, 48(2), 301–317.
- Livingstone, S. (2002). *Young People and New Media: Childhood and the Changing Media Environment*. London: Sage Publications.
- Livingstone, S., & Bober, M. (2004). *UK Children Go Online. Surveying the experiences of young people and their parents*. (July Report). Economic & Social Research Council and e-Society. <<http://personal.lse.ac.uk/bober/UKCGOsurveyexec.pdf>>.
- Livingstone, S., & Bober, M. (2005). *UK Children Go Online. Final Report of Key Project Findings* (April Report). Economic & Social Research Council and e-Society. <<http://personal.lse.ac.uk/bober/UKCGOfinalReport.pdf>>.
- Livingstone, S., & Bovill, M. (Eds.). (2001). *Children and their changing media environment: A European comparative study*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Lombardo, C., Zakus, D., & Skinner, H. (2002). Youth social action: Building a global latticework through information and communication technologies. *Health Promotion International*, 17(4), 363–371.
- Lu, E. et al. (2007). Wireless Internet and student-centered learning: A partial least squares model. *Computers & Education*, 49(2), 530–544.
- Maczewski, M. (2002). Exploring identities through the Internet: Youth experience online. *Child & Youth Care Forum*, 31(2), 111–129.
- Malhotra, N. K. (1996). *Marketing research. An applied orientation*. New Jersey: Prentice Hall.
- Maniere de voir. (1996). *Le Monde Diplomatique*, N° 11.
- Mehta, C., & Patel, R. (1996). *SPSS exact test 7.0 for windows*. Chicago: SPSS, Inc.
- Mesch, G. (2001). Social relationships and Internet use among Adolescents in Israel. *Social Science Quarterly*, 82(2), 329–339.
- Metzger, M., Flanagin, A., & Zwarun, L. (2003). College student Web use, perceptions of information credibility, and verification behavior. *Computers & Education*, 41, 271–290.
- Meulman, J., & Heiser, W. (2004). *SPSS categories 13.0*. Chicago: SPSS, Inc.
- Mitchell, K., Finkelhor, D., & Wolak, J. (2001). Risk factors for and impact of online sexual solicitation of youth. *Journal of American Medical Association*, 285(23), 3011–3014.
- Mitchell, K., Finkelhor, D., & Wolak, J. (2003). The exposure of youth to unwanted sexual material on the Internet: A national survey of risk, impact, and prevention. *Youth & Society*, 34, 330–358.
- Mitchell, K., Finkelhor, D., & Wolak, J. (2005). Protecting youth online: Family use of filtering and blocking software. *Child Abuse & Neglect*, 29, 753–765.
- Mumtaz, S. (2001). Children's enjoyment and perception of computer use in the home and the school. *Computers & Education*, 36(4), 347–362.
- National Statistical Service of Greece. (2004). *Social Statistics*.
- National Statistical Service of Greece. (2005). *Social Statistics*.
- Nishisato, S. (1980). *Analysis of categorical data: Dual scaling and its applications*. Toronto: University of Toronto Press.
- Norris, P. (2001). *Digital divide: Civic engagement, information poverty, and the Internet worldwide*. New York: Cambridge University Press.
- Norusis, M. (1992). *SPSS professional statistics 6.1*. Chicago: SPSS, Inc.
- Nunnally, J. C. (1978). *Psychometric theory*. New York: McGraw Hill Book Co.
- Papastergiou, M. (2005). Students' mental models of the Internet and their didactical exploitation in Informatics education. *Education and Information Technologies*, 10(4), 341–360.
- Papastergiou, M., & Solomonidou, C. (2005). Gender issues in Internet access and favourite Internet activities among greek high school pupils inside and outside school. *Computers & Education*, 44, 377–393.
- Pasquier, D. (2005). *Cultures lyceens*. Paris: Autrement.
- Rohall, D., & Cotten, S. (2002). Internet use and self concept: Linking specific uses to global self-esteem. *Current Research in Social Psychology*, 8(1)<<http://www.uiowa.edu/~grpproc/crisp/crisp.8.1.html>> .
- Sanders, C., Field, T., Diego, M., & Kaplan, M. (2000). The relationship of Internet use to depression and social isolation among adolescents. *Adolescence*, 35, 237–239.
- Sharma, S. (1996). *Applied multivariate techniques*. New York: John Wiley & Sons, Inc.
- Tapscott, D. (1998). *Growing up digital: The rise of the NET generation*. New York: McGraw-Hill.
- Toothaker, L. (1993). *Multiple comparison procedures*. Thousand Oaks: Sage Publications.

- Tsai, C.-C., Lin, S., & Tsai, M.-J. (2001). Developing an Internet attitude scale for high school students. *Computers & Education*, 37, 41–51.
- Tufte, B., Rasmussen, J., & Christensen, L. (2005). *Frontrunners or copycats*. Copenhagen: Business School Press.
- Weber, L., Loumakis, A., & Bergam, J. (2005). Who participates and why?: An analysis of citizens on the Internet and the mass public. *Social Science Computer Review*, 21, 26–42.
- Wilhelm, A. (2002). Wireless youth: Rejuvenating the net. *National Civic Review*, 91(3), 293–302.
- Wilson, B., & Atkinson, M. (2005). Rave and straightedge, the virtual and the real: Exploring online and offline experiences in Canadian youth subcultures. *Youth & Society*, 36, 276–311.
- Wishart, J. (2004). Internet safety in emerging educational contexts. *Computers & Education*, 43(1–2), 193–204.
- Wolak, J., Mitchell, K., & Finkelhor, D. (2003). Escaping or connecting? Characteristics of youth who form close online relationships. *Journal of Adolescence*, 26, 105–119.
- Yakimovicz, A., & Murphy, K. (1995). Constructivism and collaboration on the Internet: Case study of a graduate class experience. *Computers & Education*, 24(3), 203–209.
- Ybarra, M., & Mitchell, K. (2004). Youth engaging in online harassment: Associations with caregiver-child relationships, Internet use, and personal characteristics. *Journal of Adolescence*, 27, 319–336.