The Young and the Internet: Revolution at Home. When the household becomes the foundation of socio-cultural change

Carlos Tabernero, Jordi Sánchez-Navarro & Imma Tubella,
Internet Interdisciplinary Institute (IN3) – Open University of Catalonia (UOC), Spain

Abstract

This study aims to understand current patterns of transformation in communication practices owing to the ever-increasing incorporation of Internet in people's everyday lives. By surveying a group of mostly experienced and intensive Internet users in a setting of intermediate Internet diffusion such as Catalonia, our study focuses on the processes of integration of habitual Internet operation into daily individual practices, and particularly on its impact on media usage and consumption. Considering Internet a powerful multimodal means of communication, the study probes it as a constitutive technology and no longer a novelty for the younger generations. In this sense, we test to what extent and in which manner the young, through the personalized and specialized use of the Internet, and above all within their home settings, are conducive of socio-cultural change through the introduction and gradual adjustment of their ever-renewing practices with their elders' established communication habits.

Keywords: internet; the young; technology-linked communication practices; household usage of technology and media; Catalonia.

Introduction

The different uses and functions with which citizens individually and collectively make use of the Internet, which allows, among other aspects, the migration online of many different kinds of activities, bring about decisive modifications in the quantity and quality of people's involvement in communication processes. Thus, considering communication processes, and media within them, as key elements in the unceasing building of social and cultural practices, it might be argued that these technologies and their applications are gradually and efficiently becoming basic instruments of socio-cultural change (Thompson, 1995; Castells, 1996; Wellman & Haythornwaite, 2002).

Upon these general premises, a growing necessity to further and thoroughly map and characterize Internet usage from the standpoint of its impact on individual daily life is becoming altogether apparent, in so far as its quick introduction in people's lives is taking place not only across cultural boundaries[1], and increasingly beyond the professional, institutional and educational spheres, but most importantly, and notwithstanding its escalating ubiquitous access through wireless and mobile connection, owing to its thriving incorporation

[1] See, for instance, Internet World Stats [http://www.internetworldstats.com]. Internet usage is swiftly spreading around the globe. True, only about 20% of the people in the world are currently Internet users, yet this is already the case for more than half of the population in many countries, above all in areas such as East Asia, Europe, North America and Oceania.

in the household environment[2]. Furthermore, in addition to the overall increase of Internet uptake, there is a noticeable growth in the intensity of its use, measured by frequency and the total time of connection, which has been widely associated to at least two aspects inherent to its rising diffusion: first, and once again, the mounting prevalence of home access; and second, the higher levels of user experience, according firstly to the total length of connection, that is, the amount of time users have been online, which obviously grows in relation to the increasing ratios of overall access. This is of particular importance among the young, as regards precisely the swift spreading of domestic Internet access, which involves the adoption of the Internet at increasingly earlier ages, so that it gradually becomes a constitutive element, and no longer a *novelty*, for the younger generations, as also arguably occurred with television for various generations of the second half of the 20th century.

In addition and significantly, in a context of relentless technological innovation, such as, for instance, the growth of broadband home connection, together with the rising degree of mobility and ubiquity of access, as well as the ever-renewing range of services and applications, the growth of experience brings about not only the above-mentioned increase of intensity of use, but also an associated broadening of practices among users, once again remarkably among the young[3], ranging from the opening out of innovative ways for multi-faceted interpersonal communication as well as search and consumption of content and information of all sorts, to a noteworthy expansion of individual multimodal and multi-purpose content creation, production and distribution practices.

Along these lines, the Internet, as an all-round means of communication, and as it has been the case with many other widespread media, is swiftly becoming embedded in the general texture of experience (Dickinson, Murcott, Eldridge & Leader, 2001), gradually yet seamlessly integrated in the natural processes through which human beings build and sustain their communities. The interlinked possibility for Internet users to contribute as well as access and consume information and content defines a horizontal flow of communication *from many to many*, and allows *mass self-communication*, in a way that the up-to-now considered as merely consumers also become producers, not requiring the mediation of any institutionalized media organization (Castells, 2007). This inevitably leads to the ultimate refutation of the traditional assumption of a passive, non-participant, submissive and dependent audience (watchers, listeners, and readers in a traditionally vertical flow of information), yet faithful-to-the-mediator (that is, the

[2] As reported by a considerable amount of studies pertaining to ICT, many of them readily available in the Internet and often brought up in newspapers and newscasts, which endeavor to describe ICT uptake patterns in many different contexts. See, for example, the reports by the PEW/Internet Research Center [http://www.pewinternet.org] and the Centre for the Digital Future [http://www.digitalcenter.org] on the US and international contexts, the Eurobarometer [http://europa.eu.int/information_society/policy/ecomm/info_centre/documentation/studies_ext_consult/index_en.htm] and Eurostat [http://epp.eurostat.ec.europa.eu] reports of the European Commission, or, as we shall see as particularly relevant for our research, the recurring surveys on the rapidly changing situation in Spain and Catalonia by the Spanish Institute of Statistics [INE, http://www.ine.es], the Spanish Association for the Research on Media [AIMC, http://www.aimc.es], the Catalonian Institute of Statistics [IDESCAT, http://www.idescat.net] and the Catalonian Foundation Observatory for the Information Society [FOBSIC, http://www10.gencat.net/dursi/ca/si/estadistiques.htm]. For a focused review, see also Tubella, I., Tabernero, C., Dwyer, V. (2007, 2008).

[3] See references in note 2.

producer, distributor, interpreter and/or knowledge administrator), on which devices and media at large (well-embedded in the political, institutional and economic structure) exert a wide-ranging array of effects, and fittingly to the consideration of media users as active participants in the whole of technology-mediated communication processes. Moreover, bearing in mind that a horizontal flow of communication entails the input and interplay of a large number of sources, which implies a dynamic of relentless adaptation to users' interests (Wolf & Choi, 2003), the Internet may be considered not merely as a *competitor* to established media organizations, as an alternative source of information and entertainment and a means of access to new and incessantly renewing channels and platforms, some of them provided yet again by those same *traditional* media, but just as well as a *tool*, available for multimodal usage not only by administrations and businesses including once more the same media corporations and organizations, but also by individuals, allowing the latter to contribute on an equal basis, that is, notwithstanding reasonable aim, economic, technical and expertise gaps, the development of innovative ways to communicate, inform and entertain.

From this perspective, the Internet provides investigators with a unique and, until not so long ago, unimaginable opportunity to examine in detail the special features of technology-mediated communication processes, above all and specifically as regards the nature and extent of individual/personalized contribution. Indeed, our research endorses a shift from the exclusive focus on conventional quantitative divides regarding the Internet, based upon absolute *access* ratios according to socio-demographic variables, to the increasing consideration of *use* concerns, assuming its gradually approaching across-the-board occurrence, and distinguishing, in any case, between the less experienced though mounting newcomers, who are not yet able to use these devices and applications at their full extent, and the long-connected, experienced users, who are able to make the most of technology, and, as it would seem, have successfully integrated Internet usage in their everyday lives[4].

We are concerned in the processes of integration of habitual Internet operation into daily individual practices, and particularly as to communication practices and its impact on media usage and consumption. To begin with, in view of the aforesaid Internet-enhanced consideration of media users as active participants in technology-mediated processes, comprising information and communication practices pertaining to essential life activities, such as social interaction, responsibilities, such as work and/or school, and leisure interests, such as entertainment-related content management, which would include media usage at large, it necessarily follows that media consumption, if, as argued above, audiences are considered as active rather than passive, is best tackled in context, i.e. where it takes place and how it fits in. Therefore, it becomes essential to take into account the broader communication environment of the

[4] See, for example: OECD (2004, 2006): Information Technology Outlook [http://www.oecd.org], as well as work related to the notion of *Web 2.0*, from its introduction (Tim O'Reilly, 2005), to research approaches such as: PEW Internet and American Life Project (2006b): *Riding the waves of Web 2.0* [http://www.pewinternet.org].

home created by the introduction of ICTs in a social and cultural setting where television is already fully appropriated, which implies that the household and the associated everyday domestic social processes becomes *the* particular site of empirical interest. Furthermore, it has been shown "how revealing a study of domestic relations could be for our understanding of the media's significance in everyday life". In this sense, "the concept of the 'moral economy of the household' [has been put forward] as an 'integrative frame' for thinking about household practices and relations, and the consumption and use of information and communication technologies. [...] '[T]o become functional, a technology has to find a place within the moral economy of the household, specifically in terms of its incorporation into the routines of daily life'" (Dickinson, Murcott, Eldridge & Leader, 2001, p. 241). In this regard, it is also important to note that arguably most households where the Internet is being introduced, at least in the areas where its access is quickly becoming close to constitutive, are media-rich scenarios where television viewing is paramount, as it is arguably the most highly diffused, home-embedded and time-consuming mass medium.

Taking this into account, our research starts from the observation that television audience in Catalonia is being progressively lost to the Internet (Castells, Tubella, Sancho, Roca, Díaz de Isla & Wellman, 2007), above all among the young, which indeed is of special importance in relation to our aim to study the impact of the steady introduction of Internet in everyday life as regards communication practices, concerning in this particular case, among other aspects, the nature and extent of individual/personalized contribution within communication practices associated to technology and media usage and consumption. However, we cannot assume that the gradual incorporation of Internet to people's lives, particularly as regards its swift introduction in the household environment, unavoidably leads to the abrupt ceasing of any specific communication practice, yet rather occurs in agreement with a dynamic interactive relationship between distinct and reciprocal social, technological and human communication factors. Notwithstanding system and social factors, pertaining to regulation, policy, industry trends, market competition, opinion leadership and a minimum mass of users (Lin, 2003), which provide the necessary social, political and economic structure for communication technology diffusion, including mass media by and large, and the Internet in particular, our research is primarily concerned at this point with audience, technology and use factors. These firstly revolve around the strong interconnection between people's perception, comprehension and adoption of communication technology according to their individual needs, beliefs and attitudes, as predicted by the *theory of reasoned action* (Fishbein, 1980). Second, we must consider the escalating supply of technical innovations, among which we may lay emphasis on four significant categories of characteristics for users' assessment of communication technologies: constraints, bandwidth, interactivity, and network factors. And third, all these features unfold within the aforesaid highly competitive market structure, coupled with the

growing level of users' experience, which in turn have some bearing on their evaluation, in terms of the perceived balance between expectations and gratifications in the use of a particular technology (Lin, 2003). We certainly know that the gradual intensification of the use of the Internet is bringing about changes related to its associated mounting range of possibilities for individuals' contribution in a broad spectrum of technology-mediated communication processes, yet we do not know *how* these transformations are taking place. Thus, taking into account the seeming importance of the household environment in view of the across-the-board rising levels of home Internet access, in conjunction with audience, technology and use factors pertaining to both technology adoption models and communication practices, in particular as regards technology and media use and consumption patterns and the aforementioned young's potential special relationship with the Internet concerning their increasingly early adoption of this technology, we hypothesize that:

> H1: the young are conducive of Internet-associated personalization and specialization trends within a home-based dynamic of coexistence and gradual adjustment between established and ever-renewing technology- and media-related communication practices.

Method

Bearing all this in mind, we conducted our research in Catalonia, being, as far as our aims are concerned, an especially meaningful setting to map and characterize ongoing socio-cultural changes, owing to its unique interweaving of two distinctive features which rather establish it as a transition context as regards Internet uptake and usage: (a) its current intermediate levels of Internet diffusion and use; and (b) the recent particular evolution concerning its telecommunication, media and audiovisual sectors on account of, among other aspects, its peculiar historical and cultural traits[5] and their weight on its socio-demographic and economic structure[6]. A thorough review of the data provided by major Spanish and Catalonian official statistics agencies[7] show a rapid and steadily-growing incorporation of Internet in Catalonians everyday life through the last decade, as well as the consistent integration of its applications in the home environment as an increasingly personalized tool for the completion of a wide variety of daily undertakings. As of 2007, about 56% of Catalonians were Internet users, and about 51% of its households were connected to the

[5] Above all, concerning the relatively recent advent of democracy in Spain and the subsequent explicit and legal acknowledgment of Catalonia's distinct historical and cultural attributes.

[6] References in note 2, together with Telefónica Foundation [http://www.fundacion.telefonica.com/publicaciones], the Catalonian Audiovisual Council [CAC; http://www.audiovisualcat.net], the Communication Institute of the Autonomous University of Barcelona, and TNSofres, provide an account for a high time-consuming, greatly arranged, generalized and socio-demographically mostly undifferentiated consumption of TV, whose audiences have only recently had access to a wide range of channels and are gradually moving from broad-spectrum to more specialized programming. An analogue dynamic can also be identified as regards other media, such as the radio and the press at large, however showing different traits as regards socio-demographic and consumption patterns. See Tubella, Tabernero & Dwyer (2007, 2008).

[7] See references in note 2.

web. In this context, Internet-associated communication practices pertaining to needs and interests in connection with social relations, work, learning, and leisure, naturally including multi-faceted information- and entertainment-related content management, gradually spread throughout the social, economic and cultural milieu of Catalonia.

Once established the context of the study, and within the frame of the Catalonia Internet Project[8], a survey containing 37 questions was used to address, among other features, the impact of Internet on the management of daily activities, laying emphasis on media practices. For the purposes of this study, the survey instrument, through 6 of its questions comprising a total of 47 items, specifically tackled the different kinds of activities participants carry out through the use of the Internet. In order to facilitate the participants' completion of the questionnaire, and also to avoid any conditioning related to the subsequent analysis, the 6 questions in the questionnaire were designed to correspond with the following 6 categories of activities: communication, information, professional and school tasks, government and banking services and procedures, purchasing, and miscellaneous activities (including the downloading and consumption of music, films, games and software, as well as net surfing without a particular purpose). Later on, for analytical purposes, these activities were regrouped into 4 new categories: information and content consumption; communication; participation and content generation; and everyday responsibilities and practical chores, including professional and school tasks, government and banking services and procedures, and purchases.

In order to ensure Internet users as participants, the survey was conducted via an online survey service[9] through 3 websites related to high-audience Catalonian media: *Televisió de Catalunya* (Catalonia's Televisión[10]), *3xl*[11], and *El Periódico de Catalunya* (Catalonia's Newspaper[12]). A total of 364 people, 77.5% currently living in Catalonia, successfully completed the questionnaire [13] (table 1 summarizes the participants' basic socio-demographic and Internet use characteristics). Among them, 96% had Internet connection at home, 59% had been Internet users for at least 5 years, 89% were daily Internet users, and 75% were online more than 10 hours a week (i.e., about 85 minutes a day), among whom 42% spend online more than 30 hours a week (i.e., about 257 minutes a day), thus constituting a group of self-selected mostly intensive and experienced Internet users.

Owing to the survey procedure, the study had an open, undirected and non-representative character so that the issue of oneness of response, crucial for the subsequent analysis, had to be properly addressed. Hence, participants were given the option to provide an email address in order to be promptly informed of

[8] http://www.uoc.edu/in3/pic/cat/index.html
[9] Soluciones Netquest de Investigación, S.L. http://www.netquest.es.
[10] http://www.tv3.cat: the public Catalonian television website.
[11] http://www.3xl.cat: an online virtual community, mostly made up of young people, and associated to Catalonia's Televisión website.
[12] http://www.elperiodico.cat: online edition of the Catalan and Spanish versions of this newspaper.
[13] Surveys typically took about 16-19 minutes to complete.

the study's results, yielding a satisfactory result of 82% responses. In any case, given that the group of participants was not aimed to mirror either the Catalonian population at large or its Internet users, significant results regarding Internet-associated multitasking practices in relation to socio-demographic and user-experience traits were therefore interpreted in terms of illustrative trends to guide future research endeavors.

Table 1

Descriptive statistics for participants' basic socio-demographic and Internet use characteristics

Variables	**Categories**	**N**	**%**
		708	100,0
Gender	**Males**	494	69.8
	Females	214	30.2
Age	**30 or less**	312	44.1
	More than 30	396	55.9
Education level	**Higher**	438	61.9
	Other	270	38.1
Work status	**Full time employed**	423	59.7
	Students	114	16.1
	Other	171	24.2
Family structure	**Living with partner/spouse**	168	23.7
	Living with partner/spouse and children	199	28.1
	Living with parents and/or siblings (without children)	206	29.1
	Not living with relatives	117	16.5
	Other	18	2.6
Internet connection			
Location	**Home**	679	95.9
	Work	518	73.2
	School	141	19.9

Length of connection	**More than 5 years**	414	58.5
	5 years or less	294	41.5
Frequency	**Daily**	633	89.4
	Weekly or Monthly	75	10.6
Time	**10 hours or more**	529	74.7
	Less than 10 hours	179	25.3

Results

A significant weight of the Internet as a source of information is clearly noticeable, both concerning immediate personal interests, as revealed by the high levels of search for local, sports/entertainment and TV-related information (81.5%, 57.3% and 42.6% of participants, respectively; table 2), and in order to remain in touch with what is happening around in general terms, as shown by the high levels of press reading online (83.5%) and of search for international information (65.8%). In this sense, it is also worth mentioning the youngest participants' appreciable level of search for information about their favorite books, comics and games (47.4%).

Table 2

Descriptive statistics for participants' Internet activities

Type of activity	**Activities**	**%**
Information and content consumption	**Local information**	81.5
	International information	65.8
	Sports and entertainment information	57.3
	Information about television	42.6
	Information through blogs	31.4
	Information about favorite books, comics and games[a]	47.4
	Reading the press	83.5
	Listening to the radio	51.6
	Watching television	17.5
	Listening to music	50.8
	Watching films	26.7
	Video on demand	22.0
	Videogames	19.5
	Netsurfing	71.2

Communication	**Email**	98.3
	Instant messaging (messenger)	61.7
	Sending files	79.1
	Sending images	51.7
	Downloading	65.7
	Telephone calls	28.6
Participation and content generation	**Uploading images**	32.7
	Participation in blogs	25.1
	Generation of blogs	18.1
	Participation in radio / TV programs	19.4

[a] In this case, the percentage exclusively corresponds to the participants through the *3xl* website, being all of them 30 or younger, and 56% 18 or younger.

The high degree of aimless netsurfing (i.e. the unspecified, open-ended consumption of any kind of content online, 71.2% of participants) also suggests a considerable importance of the Internet as a source of entertainment. In addition, it is also remarkable the use of the Internet as a tool for text- and sound-based *traditional* media consumption, that is, besides the aforementioned press reading, such as in radio and music listening (51.6% and 50.8%), as opposed to the lower levels of traditional image-based consumption, such as in TV and film watching (17.5% and 26.7%). In this regard, it is also necessary to point out, on the one hand, that the high level of press reading online, considered in contrast to the lesser degree of information search in more independent, exclusively online websites, such as blogs (31.4%), suggests a sort of *initial* preference for established and/or institutionalized sources; and on the other, that the analogous levels of VOD and videogame consumption (22% and 19.5%), as compared with the above-mentioned more *traditional* TV and film watching, suggest, to start with by paying attention to technical differences, a logical differential use of Internet regarding image-based consumption, however tending towards a more personalized, immediate choice-driven usage.

As expected, according to international and localized (Spanish and Catalonian) available data[14], emailing is the most common communication practice among the participants in the study (98.3%; table 2). However, considering the high percentage of experienced and intensive Internet users among the participants, a trend towards the efficient use of technical means offered by the Internet as regards a higher degree of

[14] See note 2.

individual contribution to the distribution and management of content is clearly noticeable, as shown by the high degree of activities based upon the direct and immediate contact with other people and groups who share the same type of interests or needs, such as instant messaging (61.7%) and the use of applications to send text and image files (79.1% and 51.7%) or to download them (65.7%).

Activities such as the uploading of image files, the creation of and contribution to blogs, and the participation in radio or TV programs, as compared to the information and communication activities summarized above, imply a stronger will to actively contribute to communication processes, and they require the development, at the individual level, of a minimum of technical and content-generation skills. As expected, these activities are not as common among the participants (32.7%, 18.1%, 25.1% and 19.4%, respectively as cited) as the aforementioned, exclusively associated to information, content consumption and direct, interpersonal communication, yet they illustrate the growing personalization trend associated to the gradual increase of experience as to Internet use.

Finally, as a necessary control for the assessment of communication practices in a context of increasing ICT-linked multipurpose, multimodal choice of content and services, the high degree of online carrying out of professional and school tasks, government and banking services and procedures, and purchases, clearly show the growing, experience-associated importance of the Internet as a crucial tool for the execution of everyday responsibilities and practical chores (data not shown). Among the participants in the study, this is the case, above all, as regards the search for professional, schoolwork (i.e. online libraries, encyclopedias, etc.), administrative and purchasing information (51.7%, 69.6%, 63.6% and 60.4%, respectively), as well as concerning banking and government procedures (68.6% and 53.9%), entertainment and travel purchases (54.9% and 59%), and homework in the case of the youngest participants (72.5%).

With all these data in hand, bearing in mind the small size and non-representative character of the sample, and in order to test our hypothesis, we conducted a regression analysis aimed to characterize these practices in terms of their odds ratio with respect to the participants' basic socio-demographic features and their correspondence with specific Internet use/experience attributes, consequently encompassing essential traits related to the different activities carried out online (table 3).

Table 3

Regression analysis for online activities and participants' socio-demographic features

Type of activity	Activities	Odds Ratio (category A relating to category B)[a]			
		Gender	Age	Work Status	Family Structure
		A: Males B: Females	A: 30 or less B: More than 30	A: Students B: Full-time employed	A: Living with parents and / or siblings B: Rest of participants
Information and content consumption	Local information	2.4		0.4	0.6
	International information	2.3	0.7	0.5	0.5
	Sports and entertainment info.		1.5		
	Information about TV	0.5	2.9	2.6	2.3
	Information through blogs	2.3	1.5		
	Reading the press	2.4		0.3	0.6
	Listening to the radio	1.6	2.0		
	Watching television	1.8	2.4		1.6
	Listening to music		3.2	2.6	2.7
	Watching films	1.6	3.6	3.6	2.7
	Video on demand	2.2	1.8		
	Videogames		3.3	2.9	2.7
	Netsurfing		1.6		
Communication	Email	3.3			
	Instant messaging (messenger)	0.5[b]	3.3	7.0	2.9
	Sending files		1.5		
	Sending images		1.7	1.6	
	Downloading	1.9	2.6	2.7	2.6
	Telephone calls				0.7
Participation and content generation	Uploading images		1.6		
	Participation in blogs	2.6	1.6		
	Generation of blogs	2.4	2.2		
	Participation in radio / TV		2.5		2.2

[a] In all shown cases, $p < 0.05$, with a probability interval not including 1. Empty cells mean absence of significant differences. Values under 1.0 indicate a higher probability for category B as regards the given activity.

[b] Only for 30-or-less participants, especially those between 18 and 30, both ages included.

As regards gender, the cross points between the socio-demographic characteristics and the participants' Internet experience traits (length of connection, frequency and intensity of use) showed an overall view within the group of participants in which males are more experienced (2.6 is the odds ratio value for males relating to females as regards having been connected for more than 5 years), frequent (0.6, as described above and concerning weekly or monthly connection as opposed to daily utilization) and intense (0.5 and 2.1, once again as denoted, regarding, respectively, Internet usage of less than 10 hours a week and more than 30 hours a week) Internet users than females. Bearing this in mind, the cross points between the socio-demographic characteristics and the participants' answers on the activities carried out online illustrate a correlation between experience and a more diversified and specialized use of the Internet. Thus, males within the group are more likely than females to use the Internet (1) as a source of information, (2) as a tool for *traditional* (the press, radio, films and TV) and more specialized (VOD, blogs) media consumption, (3) as a means for multipurpose communication aims (emailing and the use of applications to download different kinds of files and software, (4) as an instrument allowing participation in technology-mediated communication processes and content generation (creation of and contribution to blogs), and (5) as a tool for the execution of a number of everyday responsibilities and practical chores (banking and purchasing, as well as working at home; data not shown). Conversely, participant females are more likely than males to use the Internet to search for TV information, and as a tool for instant messaging and for the search for information about purchases (data not shown).

Concerning age, participants of 30-or-less are more frequent and intense Internet users than the older-than-30 members of the group (0.5 and 0.6 are the odds ratio values for participants of 30-or-less relating to participants older-than-30 concerning, respectively, weekly or monthly connection as opposed to daily utilization, and Internet usage of less than 10 hours a week). Taking this into account, and notwithstanding differences that can be attributed to purchasing power and the consequent the quality and degrees, on the one hand, of accountability concerning everyday responsibilities and practical chores, and on the other, of access to technology, we once again find a correlation between intensity of Internet use and a more diversified and specialized contribution to multipurpose, multimodal technology-mediated communication processes. For accuracy purposes, we are focusing on age at this point, as regards the regression analysis, because, as expected, it shows a strong socio-demographic correlation with work status and family

structure features, namely: the younger the participants, the more students living with their parents and siblings; and the older the participants, the more employed and living with their partners and children (Tubella, Tabernero & Dwyer, 2007); nevertheless, some significant variations concerning the resultant correlations are pointed out and discussed below. Accordingly, participants of 30-or-less are more likely to engage in online information and content consumption, communication, participation and content generation activities than their older counterparts, with the exceptions of searching for local information, press reading, emailing and the use of Internet for phone calls, which show no significant overall age-related differences, and searching for international information, which is more likely for older-than-30 participants. These latter, on the other hand, are more likely than the younger participants to use the Internet for practical purposes concerning everyday responsibilities and practical chores (data not shown).

Discussion

The growing diffusion and consolidation of ICTs as basic infrastructures for the management of fundamental aspects of daily life, such as those concerning sociability, work and leisure, as well as the subsequent increase of user experience, allow the gradual and simultaneous transformation of individual, social, professional and cultural technology-mediated communication practices, together with the associated interests and decisions concerning the usefulness and need of the different devices and applications that concurrently become available in the market. Thus, beyond the exclusive consideration of overall access rates as ICTs gradually become widespread in modern societies, and taking into account distinct individuals' levels of experience with technology, as shaped, above all, by the length, frequency and intensity of usage[15], the possibility to directly contribute to content management, up to the level of its generation and distribution, as offered by the technical features of ICTs, leads to an internationally observed increase in the quantity and complexity of individual communication practices, according to a trend towards an enhanced self-reliance and specialization in the management of information and communication.

Among other aspects, this dynamic also entails a increasing requirement by users of improved levels of interactivity, namely: from what we might denote as *consumption interactivity*, already available as regards *traditional* media, insofar as its defining trait is the steady increase in the choice of content through the multiplication of channels, platforms and devices; to its coexistence with an *exchange interactivity*, which allows a more active input regarding content management through the customized sharing of all kind of available content, in terms of interpersonal communication as well as within different kinds of social

[15] See note 4.

networks, such as those defined by P2P file sharing applications; and finally leading to the development of a *production interactivity*, which requires the contribution of users' creativity in order to directly participate at the level of content generation.

Accordingly and unsurprisingly, the growing importance of the Internet simultaneously as both a source of information and entertainment and as a tool to carry out all kinds of everyday activities brings about the gradual generation of new, personalized, multilayered, multimodal, multipurpose and reciprocal ways to inform, communicate and entertain (Castells, 2007), as active contribution is realized by individuals' increasingly frequent and intensive use of applications allowing the generation, edition, distribution, sharing, exchanging and consumption of all kinds of content and files, text-, sound-, and image-based. In this context, the detailed socio-demographic mapping of the activities carried out with the Internet at many different levels, yet particularly as regards content management, by a discrete group of mostly intensive and experienced Internet users living in a medium-level Internet diffusion environment such as present-day Catalonia, helps us not only, as it happens, to further confirm the changes in communication practices that are being described both at the international and local levels, but to determine as well *how* these transformations are taking place.

In this sense, our results verify that experience with the Internet and its applications, as defined above, is essential for the development of more versatile and participative technology-mediated communication practices, as illustrated by the differences detected between males and females, among the participants in our study, concerning consumption, communication and content generation activities. This inequality is undoubtedly related to the fact that males within the group are more experienced, frequent and intense Internet users than females. However, beyond the evidence of female participants as more likely to use the Internet as a tool to search for information about television, the fact that among participants of 30 or younger, females are more likely to use it as a tool for instant messaging and for the search for information about purchases unequivocally shows that the regrettable gender Internet access gap described both at the international level, and also particularly within Catalonia, is fortunately decreasing as well at the level of use, as females are gradually engaging in more personalized and specialized activities.

On the other hand, the participants in our study show that the young, 30-or-less, mostly students and living with their parents, given widespread home Internet connection (as shown for our group in table 1), which allows them early-age access and thus a swift gaining of experience, are successfully and proficiently featuring the use of Internet in their daily lives as a constitutive tool, according to their needs and interests regarding interpersonal, community-wise and world-wise technology-mediated communication practices. These results are not only apparent as a function of the cross points between the participants' age and Internet experience/use traits, but also as a product of the correlation between these data and the results

regarding work status and position within the family structure. The young's gaining of experience runs coupled with their enhanced sense of ownership, as revealed by the fact that the younger the participants, the more they locate all kinds of technological devices, including mobile ones, such as cell phones and laptops, in their own room within the household (Tubella, Tabernero & Dwyer, 2007, 2008; Telenor, 2003; Rompaey, Roe & Struys, 2002). In this sense, we might firstly argue that the higher level of use of the Internet on the part of the young as a source of entertainment implies not necessarily a substitution, but a certain degree of modification of their elders' previously established information and content consumption habits (in fact, the complexity of relations established by users as regards different media and technologies as seen through both the displacement and enhancement hypotheses has been previously discussed in relation to household communication practices; Lee, Tan & Hameed, 2006), such as in radio and music listening, film and television watching, and the search for information on sports and entertainment. Moreover, we may mention the young's higher level of aimless netsurfing, which suggests that the Internet itself has become an ordinary, obligation-free source of entertainment, as the epitome of a natural, constitutive way of introduction of this technology in everyday life. On the other hand, while the search for local or international information through press reading is the noteworthy exception, the association of a higher likelihood to carry out these activities with full-time employment suggests a fundamental difference between the introduction patterns to Internet use within distinct age groups, namely that older-than-30 participants have started their use of Internet, and even brought it home, primarily in relation with their obligations and responsibilities, such as work-linked.

Second, the young are also the forefront as regards the use of Internet applications allowing immediate contact with other users, as well as an active participation in the distribution and sharing of content, as in instant messaging, the sending of images, and the downloading of all kinds of content and applications, such as music, films, videogames and software, which entails, among other aspects, the use of P2P file sharing tools. Conversely, participants living with their partners and children (i.e. mostly heads of households, parents) are the less active cluster among the participants concerning this kind of activities, while they lead the use of Internet as a substitute for the phone, once again linked to more strictly practical, daily communication habits.

And third, it is clearly noticeable within the group that the advanced use of the Internet for specific participation and content generation purposes comes out primarily as a function of age, as in the uploading of images, the search for information, participation and creation of blogs and the participation in radio and/or television programs, certainly, in this case, with the aid of the Internet, as asked in the questionnaire. However, with the exception of the latter activity, these differences do not show a correlation with data concerning work status and position in the family structure. These results may be

attributed to, in the first case, to the higher weight of the more Internet-experienced male participants, in relation to females, as aforementioned, as regards full-time employment; and in the second instance, to the younger age average among participants living with their parents (as opposed to the whole of 30-or-younger cluster), which implies a natural shorter length of connection, as well as a plausible, more controlled environment pertaining to what parents allow in terms of media and technology usage.

In all, it seems that the seemingly natural, constitutive introduction of the Internet by the young in their everyday lives, mainly on account of their early home access, makes it truly become an essential infrastructure for communication practices, not only as a competitor to *traditional* media, as explicitly revealed, among other aspects, by the aforementioned progressive loss of television audiences to the Internet, but also simultaneously as a tool for the multimodal, individualized and specialized contribution to technology-mediated communication processes. In this sense, the Internet becomes as well, as a function of experience, yet above all for the young, a veritable media gateway, that is, both a window for them to the world and a window for the world to self-broadcasting, and always in accordance to their concerns and wants. Needless to say, the coupling of communication processes at large, and specifically of technology-mediated communication practices (i.e. including all kinds of media usage), with the increasing spreading and importance of ICTs worldwide, and with individual and collective interests and needs, is significantly essential in relation to the socio-cultural evolution of modern societies. In this context, we must necessarily consider all these factors distinctively to the extent that young individuals are concerned, insofar as evidence places them as active agents of transformation as regards ICT-linked communication practices, bearing in mind the significance of their patterns of appropriation of media and technology in relation to essential features of their daily endeavors, such as the development of social skills, identity traits and learning processes, and with regard to the self, the family and the different communities where their lives unfold (Bryant, Sanders-Jackson & Smallwood, 2006; Heim, Brandtzaeg, Kaare, Endestad & Torgersen, 2007; Livingstone, 2003; McMillan & Morrison, 2006; Valkenburg, Schouten & Peter, 2005; Lee, 2005).

Upon these premises, the young may be considered as crucial constituents of community development, on the one hand, for the information, communication and knowledge management processes they growingly contribute to through their use of ICTs, and of the Internet in particular, are fundamental for the construction and consolidation of the communities we live in; on the other, since their strong emergence as a widely diversified and efficient developing and modifying force of technology-mediated communication processes is nearly subversive, well understood: while they are citizens in their own right, they are usually left out of the social, economic and cultural management of our societies, as under aged, dependant, and somehow *unproductive*; and finally, because they develop their early communication practices in the home

environment, where they may successfully question their elders', and thus, society's long-established communication and cultural practices.

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