Society, Culture and Technology
at the Dawn of the 21st Century

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SOCIETY, CULTURE AND TECHNOLOGY AT THE DAWN OF THE 21ST CENTURY[1]

INTRODUCTION

Janusz Mucha and Katarzyna Leszczyńska

Relationships between social structures, symbolic culture (in all possible contexts), natural sciences and technology have long been a subject of systematic analysis: in this introduction, we shall briefly present some recent contributions to the scholarship. However, this discussion will be preceded by an outline of the broad context of the major currents, in our opinion, in the analysis of the abovementioned relationship. We shall also pay attention to the dominant topics of the respective panels at large international sociological congresses, such as the recent "Conference of the European Sociological Association" and at the "World Congress of Sociology", organised by the International Sociological Association. Our aim is to help to fill the gap between the so called "two cultures" (see Snow 2008), which means linking the humanities, and theoretical and practical natural sciences. Historical and contemporary research within the areas of philosophy of science, general methodology, sociology, socio-cultural anthropology, cultural studies, communication studies etc. is greatly diverse in the issues in which we are interested, and we are not able to refer to all strands of this research.

The controversy between "positivism" and "anti-positivism" regarding the hypothetical ontological and methodological specificity of social sciences started in the mid–19th century, with Auguste Comte and anti-positivist reaction in German idealistic philosophy of culture (Wilhelm Dilthey, Heinrich Rickert, Wilhelm Windelband). It was followed by classics of sociology of the late 19th and early 20th centuries (like Max

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1 In some paragraphs of this introduction, we partly draw upon the first author's publication on mutual relations between social structure, culture, and natural sciences and technology (Mucha 2009, 16–38).

Honour of Charles C. Moskos, edited by Giuseppe Caforio, Bibgley (UK): Emerald Group.

Shawhan, Jacqueline. 2005. The GLOCAL initiative: think global. act local. In *Glocalisation of Bulgarian Fashion*, ed. Lubomir Stoykov. Sofia: Almanac.

Van Dijk, Jan. 2002. *The Network Society*. London: Sage.

CHAPTER NINE

CHILDREN AND THE INTERNET IN PORTUGAL: A DIVERSIFIED PORTRAIT

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Ana Delicado
Nuno de Almeida Alves

Introducing the theoretical issues

In an age of widespread and intense diffusion of new media, namely the internet, both in schools and among families (particularly those with young children), traditional digital divides have tended to change since the late nineties. From inequalities in the access (to "have" or to "have not"), the focus is now moving towards the modes of appropriation, or the use of the internet by the individuals involved. The openness and the democratisation of the system on the outside seems to be counterbalanced by the existence, inside, of contrasted experiences and practices regarding the more or less proficient and elaborate manipulation by children of a tool such as the internet.

Much is discussed in literature about the negative or positive effects of new media on contemporary childhood (Buckingham 2006, 2007). Are they responsible for the death of childhood, condemning children to precocious machine dependency, isolation from socially significant bonds and the loss of cultural and humanistic values? Or are they, on the contrary, at the origin of a new skilled technological generation, in "a passionate love affair with computers", capable of transforming traditional reproductive modes of learning? (Tapscott 1998) Children would tend to become, for the former, passive, conformist and apathic; and, for the latter, pro-active and creative

intellectual innovators. Essentialist or one-dimensional perspectives, where technology is by itself perceived as a natural and autonomous force acting outside the social world, are problematic: social contexts of use matter and sociology has something to say about that.

Moreover, technological innovation and the privatisation of new media by families is a recent and dramatic change in daily life, and can be explained by two main factors. Educative mobilisation of the families towards school achievement, relevant to all social milieus, encourages parents to buy ICT tools for educational purposes. School work is followed up by individual homework, and computers are indispensable for children in this task. On the other hand, though, contemporary concerns for childs' safety in the public space, considered by many to be a dangerous outside world, push parents to create a home–made protective technological environment where children can play and spend their leisure times safely (Valentine and Holloway 2004). However, this strategy paradoxically gives the child a new autonomy in finding a place and new roles in the outside, cyberspace world, escaping parental control and surveillance. Traditional frontiers between private and public spaces are thus undermined and reconstructed, namely by means of new forms of intervention by children.

How do these broad theoretical questions apply in a modern late society like Portugal? (Viegas and Costa 2000) In comparison with central and northern European countries, Portugal entered into modernity late in the day. But the change took place in a very short period of time, during the last three to four decades, and at high speed. This introduces interesting elements to the general discussion. Change is not just a one dimensional or linear process, translated into a clear–cut distinction between "before" and "after". The past embodies the present; distinct fragments of history and time are intrinsically bonded in the same national ground, and therefore groups, regions, dimensions of reality (values vs. behaviours), are differently affected by change, its rhythms or intensity. On the other hand, change is not just a deducible copy, a natural process of diffusion from the centre to the periphery (where European countries are concerned) or from the upper to the lower levels of society, which would duplicate, imitate or adopt representations and practices first deployed by privileged others. One of the dramatic and more recent domains of change is precisely this sudden emergence of a technological family, and new childhood cultures associated with the intense use of new media. In order to examine this local

change, discussing it within the global theoretical framework provides the major motivation for our current work.

Presenting the research project

This article is based on an ongoing research project concerning children and the internet in Portugal. Inspired by contemporary sociological debates on childhood and information society, starting from children's perspectives, the main goal of this research project is to describe and explain the use and the appropriation of the internet by children and the values and representations they share. Two socialisation scenarios are considered: family and school. More specifically, the project aims to capture the ways in which knowledge about the internet is transmitted to children (moments, sources, places, individuals involved); to describe the daily contexts where it is used (places, time, rhythms, combinations with other technologies); to understand the objectives of its use (a school subject, school work, communication, information, entertainment or peer culture tools); to reconstitute childrens' representations about the internet and its impact in generational relationships; to understand and explain how usages and representations vary according to age, gender, family origins and regions.

This article presents and discusses some of the results of a survey launched in May–June 2008, applied to 3049 children (aged 8–17 years old) studying in the final grades of each level of compulsory education (4th, 6th and 9th grades) at Portuguese public and private schools located in contrasting areas of the country.

Defining the focus of the article

Contrasting with the situation ten years ago, computers and the internet are now reasonably widespread in contemporary societies, at least in Western ones. The digital divide (Servon 2002; James 2003), segregating the "haves" and "have-nots" in the emerging Information Society, has been significantly narrowed by a mixed recipe of public policies, family strategies and market–driven decreases in equipment and service prices

which have occurred in the last few years. The results on general access and use gathered by this survey constitute material proof that convincingly supports this last consideration: 99% of the children surveyed have already used the internet, 91% have at least one computer at home and 79% possess a domestic internet connection (Almeida, Delicado and Almeida Alves 2008).

The concern about the development of an Information Society has been transferred from having or not having access to computers and the internet, to the contrasting ways in which these tools are used by individuals and families in different environments and conditions (Livingstone and Bober 2005). Internet usage is still largely dependent on material, educational and cultural resources owned by individuals or by their families, especially in the case of the young children, which are the focus of this chapter. The empirical test of this close relationship between individual resources and internet use practices was performed by a set of different data analysis procedures, combining variable recoding processes and multivariate analysis. This effort constitutes, however, a preliminary approach to the identification of different profiles of young internet users. Further analysis of the database may provide a slightly different, but more clear-cut and substantially informative typology of young internet users.

The questionnaire contained a rather long list of different activities related to a diverse set of internet use practices that the respondents should reply to through dichotomous yes/no answers. Although informative, this set of variables revealed itself quite inadequate for further analysis, especially when crossed with socio-demographical variables. The first option was to perform a multiple correspondences analysis on the original set of variables. The second was to try the same procedure on a recoded set of variables, after reducing the original sixteen items to a group of five (see Table 9.1.). Both procedures have not produced the expected outcomes, resulting in an inadequate performance of the multiple correspondence analysis procedure due hypothetically to a lack of variance between the different groups of internet practices. The probable cause is the relative homogeneity of internet practices performed by the young population surveyed. The alternative strategy was to reconstruct this set of variables into five different internet use indexes—communicative practices, educational practices, informational practices, entertainment practices, and other practices. Each index was developed by dividing the number of internet practices (stated as) performed in each category (0 to 2, 3 or 5,

depending on the number of activities integrated in each category) by the total number of activities performed by each child (0–16). The indexes vary between 0 and 1, expressing the weight of each practice in the global use of the internet; a final global index calculates the diversification of internet practices (0–5).

Table 9.1. Recording of Children's internet practices

Send and receive emails Participate in online chats Use an instant messaging service (e.g. MSN, Skype) Use an instant messaging service to make voice calls Upload texts, images, music or videos on my weblog or webpage (Hi5, MySpace, Facebook)	Communicative practices
Access my school's website Doing essays in cooperation with my classmates	Educational practices
Search for information that I need for my homework Search for information on subjects that interest me	Informational practices
Download music, movies, games or other software Share files (Emule, Limewire) Play online games with my friends	Entertainment practices
Buy things (e.g. music, books, cinema tickets, watches) Sign Petitions Answer questionnaires, quizzes, online voting polls	Other practices

With this new set of quantitative variables it was possible to devise a strategy aimed at identifying the diverse combinations of electronic practices carried out by children in their daily use of the internet. Resorting to a factor analysis[1] procedure, we were able to identify three factors that explain the variance of internet use practices: the first aggregates communicative, informational and educational practices; the second the entertainment practices; and the third the other practices. A cluster analysis was finally performed on the three new variables that originated from the scores of the factor analysis procedure. Three different clusters or profiles of internet use practices were identified, resulting in the following typology of young internet users (being the profiles named after the dominant activity executed by the young users included in each cluster): "diligent students"; "committed gamers"; and "all-round cybernauts".

Table 9.2. Mean of internet activities performed by the typology of young internet users (0–1)

	Diligent students (13%)	Committed gamers (18%)	All-round cybernauts (69%)
Communicative	0.1	0.3	0,7
Informational	0.9	0.9	0.9
Educational	0.6	0.4	0.7
Entertainment	0.2	0.8	0.7
Other	0.1	0.1	0.3

The typology of young internet users illustrates the differences of internet use practices between children, although their size is unequal. "All-round cybernauts" constitute a clear majority of the surveyed children, underlining a very diverse use of the internet with significantly high

1   Principal components extraction, varimax rotation, KMO=0.7; Sig :0.000; total variance explained: 82%.

frequencies in almost all activities. The most frequently practiced activities are the informational ones (0.9), as in the other user profiles, emphasising the fundamental virtue of the internet: a powerful way to search for information. Communicative (0.7), educational (0.7) and entertainment activities (0.7) are also significantly used by these children, expressing a highly diversified index of internet use (3.2, in a scale of 1 to 5). The "committed gamers" is a much smaller group, a little less than a fifth of the total population. They have a twofold range of interests: informative practices (0.9) and online games (0.8); all other practices, especially educational and communicative ones are less often carried out than in the case of the "all-round cybernauts", corresponding also to a significantly lower index of diversification of internet use (2.5). The third group, the "diligent students", shows a rather narrow array of electronic activities: only informational (0.9) and educational (0.6) practices rise to meaningful numbers. In this case, the diversification of internet use index is only 1.9.

So far, it can be established that there are different modes of internet use by children according to diverse blends of electronic practices. But is this typology sociologically meaningful? Do these different combinations of internet practices correspond to diverse socio-demographical groups? Are there significant differences between sexes, age groups, and social classes of origin or representations of the use of the internet within the groups present in the typology?

Diligent students

The first profile emerging from the multivariate analysis has been christened as the "diligent students". It accounts for 13% of the sample (397 cases) and it is characterised by an over-representation of girls (60%) and younger children (84% are under 13 years of age). A little over half of the children in this profile are enrolled in the 4th grade (52%).

Regarding the parents' educational capital, this profile is concentrated on both extremes of the spectrum: 34.5% of parents attended higher education (the higher proportion among the three profiles), 23.6% elementary education (likewise). Accordingly, 39% are professionals and 26.6% blue collar. The large majority of children in this profile live in two-parent households (71.1%).

Concerning the uses of the internet, this profile is marked by a relatively recent and infrequent use. The majority have been using the internet for no more than two years and uses it less than an hour per day on weekdays. A higher proportion of children in this group stated that they were taught how to use the internet by their parents and that they use it mostly for educational and informational practices (searching for information on issues that interest them or that can be used for schoolwork). Most of them do not use it at all for communicating: only 23.4% send and receive emails and 12.3% use instant messaging services.

Regarding the type of websites they visit, videogames[2] and videos are at the top of the list, but to a far lesser extent than other profiles (67.9% and 57.8%, respectively). They are much more interested in websites concerning geography, education, sciences, than their counterparts in the following profile. When asked to name their favourite websites, they are more likely to indicate search engines, educational WebPages and television sites than children in the other two profiles.

As to their web surfing habits, the diligent students use search engines and suggestions made by friends, but to a lesser extent than the other children. They are more likely to follow suggestion from teachers than children in the following profile.

Despite their label, these children seldom use the internet at school (possibly because most are very young and in primary education): 30.7% never use it during classes and 56.6% only sometimes. They also seldom access the internet from other places, such as libraries, friends and relatives' houses or cybercafés. Only 61.7% have internet access at home. In most cases, the computer is located in the living room or the study, not in the child's bedroom. When asked to name the most intensive internet users in the household, the majority of these children choose their parents or their siblings.

Concerning the regulation of internet use, 58.6% state that their parents have established rules for internet use (mainly regarding what types of pages can be viewed, with whom they can communicate, and for how long they can use the internet) and two thirds state that parents or older siblings supervise Internet/email use. 60.8% discuss with their parents what they have seen on the internet.

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2   Although they have not reported online gaming in the internet activities performed.

Although only 17.2% of children in this profile declare that they have felt fearful whilst using the internet, this value is higher than in the other two profiles. Nevertheless, the reasons for feeling fear relate mostly to technical problems (viruses, computer breakdown, damaging files).

As for the representations of the internet, diligent students are more likely than their counterparts to agree with statements such as "Most things in the internet don't interest me" (43.2%) and "My parents think it's dangerous for me to use the internet" (42.1%). On the other hand, they appear to be less confident in their abilities to use the internet, less concerned with the impact of internet use on other activities (playing, reading books, watching TV), less convinced of the emancipatory potential of the internet and less enthusiastic about the peer–sociability made possible by the internet.

Committed gamers

The second profile of children classed according to their internet practices has been named "committed gamers". It represents 18% of the sample (525 cases) and it is made up mainly of boys (63.9%), belonging chiefly to the younger age groups (two thirds below 13 years of age). Their family background is quite diverse: their parents come from all educational ranks and all social strata, with a slight blue-collar dominance. Though most live in two-parent households, there is a minor predominance of extended families (16.7%), considering the other two profiles.

As their label implies, and although their internet practices are quite diversified, they record the highest rates of downloading (91.4%), playing online games (82.1%) and sharing files (59.4%). They name their favourite websites as being the ones dedicated to videogames (86.7%), videos (79.8%) and sports (55.5%). Committed gamers have been using the internet for the past two to three years and do it often: 61.1% use it for at least one hour on weekdays and 56.9% for two or more hours on weekends. Close to one-third claim to have learned by himself/herself how to use the internet. They rely mainly on search engines (81.7%) and friends suggestions (71.9%) for navigating the web.

74.5% of children in this profile have internet access at home and close to one–third have the computer in their own room. They claim to be among the most intensive users of the internet at home, surpassed only by their siblings.

Only half of the committed gamers state that they have rules at home regarding internet use (this profile has a slightly higher rate of rules concerning internet shopping) and a little over half assert that their parents or siblings do not control their usage. Brothers and sisters are the preferred confidents for discussing things seen on the internet by 41.8% of these children.

Experiencing fear while using the internet is quite uncommon (declared only by 11% of children in this profile) but the dread of being caught breaking the rules shows a higher rate of response (10.4%) than in any other profile. Regarding representations on the internet held by these children, they do not differ substantially from the following profile.

All-round cybernauts

The third profile, labelled as "all-round cybernauts", is by far the largest, encompassing 69% of the sample (2063 cases). Perhaps surprisingly, it contains slightly more girls (51.1%) than boys and the average age is higher than in the other two profiles (43.2% are 13 or over). 38% of children in this profile are already in the 9th grade, the final year of compulsory education.

With regard to family background, most of the parents of these children have attained intermediate levels of education, and they belong to the medium–high social strata (14% are managers and 38.6% professionals). Single-parent (10.9%) and reconstructed households (7.3%) are represented slightly more often than in the other profiles.

As the label indicates, these are the most extensive and prolific internet users. The majority has been using the internet for at least three years and tends to use it for over two hours at weekends. 39.8% state that they have learned to use the internet by themselves. All-round cybernauts reach high rates in almost all internet practices but with a clearer distance from the other two profiles in terms of communication (emails, instance messaging), blogging, doing essays in collaboration with classmates, and answering quizzes. Their communication behaviour is quite different from the other profiles: a higher proportion of these children communicate with all groups named (friends, parents, siblings, other relatives, school mates, teachers and strangers). As to their preferred websites, they lead the responses in almost all categories, but especially in social networks (76%), entertainment

(53.6%), news (48.5%), services (48.2%) and computers (45.8%). They also tend to make use of a more diverse range of web–surfing techniques: using search engines, friends, parents and teachers' suggestions, following links in WebPages, checking web addresses indicated in newspapers and television programmes.
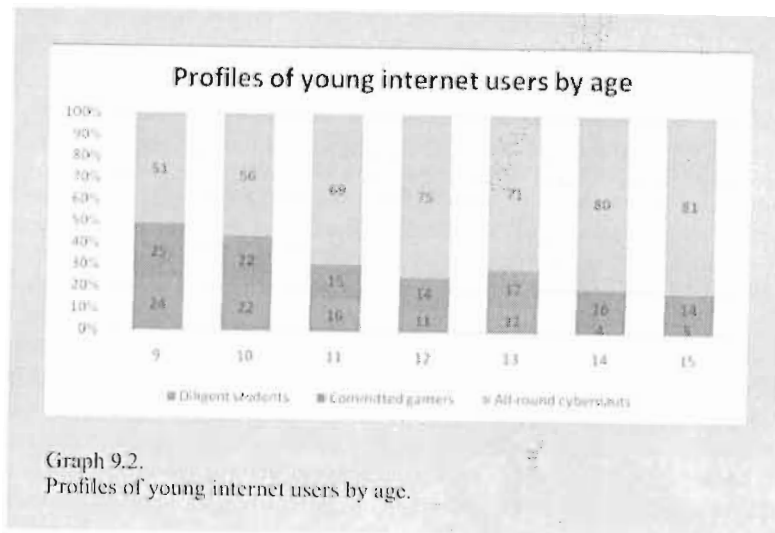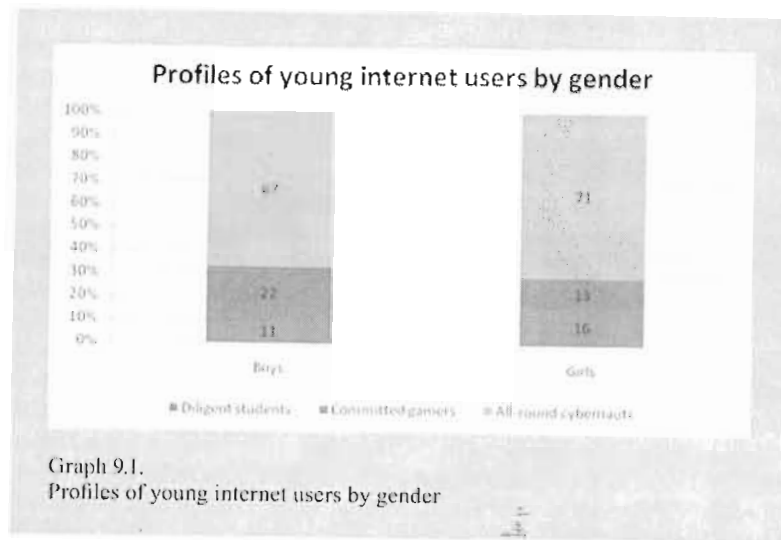
They also declare higher rates of internet use in all locations: at school, in friends and relatives' houses, in public places, and at home (84.7%). The majority can use the computer in their rooms, either as a primary location (31%) or because they have laptops (34.2%). All-round cybernauts and their siblings are the main internet users in their households.

56.3% have rules at home concerning internet usage, but a similar percentage state that they are not supervised whilste using the internet: nobody sees which pages they visit or views their emails. Very few have been afraid while using the internet (12.3%), but in these cases the fear of strangers is the most common (48.1%), which is not surprising, considering the intensity of their communication practices online. Accordingly, 6.7% of all-round cybernauts have arranged to meet someone they only had made contact before online.

With regard to the representations that they hold of the internet, they are at a greater distance from the other profiles regarding sociability facilitated by the internet (90.2% agree that it allows them to talk more with their friends, 55.3% that they met new friends through the internet) and in their self–perceived proficiency in using the internet: 91.9% agree that using the internet is very easy, 73% consider themselves more skilled in internet use then their parents, 69.7% help them in computer and internet related matters, 63.2% think that adults have more difficulties in dealing with the internet.

Main dimensions

To sum up this descriptive approach, we can highlight some relevant dimensions. Age and gender, linked to specific socio-family contexts, appear as sharp differentiators.

Profiles of young internet users by gender

Graph 9.1.
Profiles of young internet users by gender

Profiles of young internet users by age

Graph 9.2.
Profiles of young internet users by age.

"Diligent students" and "committed gamers" tend to be younger, as if these were the stages for gaining one's first experience of the internet, either centred around educational/informational, or gaming activities. Gender specialisation is clear between both: girls, typically very close to the school project, are dominant in the first cluster; boys, by contrast, motivated by leisure practices and online competition with peers, in the second. Almost half of these younger children declare there are rules at home concerning access or use of the internet, but only the "diligent students" admit that they are controlled by their parents, who were meanwhile the ones who introduced them to, and taught them to use this new media. It is as if all the family intensely participates in this home-based technological environment and shares its potential. On the contrary, "committed gamers" portray a different family reality, certainly associated with lower educational and cultural resources: ego and siblings are the first (only?) users of the internet at home, and they very frequently assume they were "self-taught" on the subject. While the profile of the "diligent students" points to an intergenerational sharing of new technologies, "committed gamers" reveal a scenario where a generational gap exists, founded in the unequal access to and knowledge of new technologies between parents and children.

In the later stages of maturity the "all-round cybernauts" emerge, with a slight predominance of girls (51% / 49%). This profile contains the more proficient and multifunctional users of the internet, fairly autonomous in relation to their parents (who are educated and situated in the medium–high social strata), and who consider themselves very skilled experts in an extremely diversified use of the tool. Communication and information activities are relevant. The individual use of the computer (located in the child's bedroom) becomes a privilege of the older children and the boys. On the contrary, younger children and girls access the internet in a common family room, a location that makes it easier for adults to watch over their children, controlling the time spent in using the internet, and the practices performed on it.

Final remarks

Massification and democratisation of the internet amongst Portuguese children and their families, as well as its universal presence in schools, are demonstrated by the empirical evidence found in the survey. The internet is not just an important educational resource, upon which parents and educators construct high expectations concerning childrens' scholarly achievement. Its uses also include information, gaming, and communication activities that shape new family and intergenerational relations, build peer cultures, disturb previously established frontiers between private/public spheres and reinforce the home as an informal, but decisive, learning centre.

"Digital apartheid", in the domestic sphere, affects 20% of the children in our sample, but alternatives to private home-based access to the internet do exist in schools, in relatives' or friends' homes, and so total exclusion from the cyber world is not a frequent situation. However, the number and diversity of home media, as well as their individual appropriation, distinguish the upper classes from the lower classes. Children with highly educated parents, who themselves are intensive and professional internet consumers, enjoy more diverse, sophisticated and proficient uses of the internet. Children from more deprived social backgrounds, residing in non-urban areas, whose parents are distanced from internet knowledge and potentialities, are restricted to its more basic uses.

The three clusters described and explained constitute another interesting illustration of this internal diversity of the sample, caught at an individual level. The "diligent students", the "committed gamers" and the "all-round cybernauts" emerge as three distinct profiles, synthesising different modes of appropriation of the internet by the children. They are internally consistent and related to specific socio-demographic variables (for example: gender, age, parents' educational backgrounds or professions), styles of use, or frameworks of rules and representations. Technological innovation, on its own, cannot be discussed as a neutral or isolated factor powerfully shaping reality or childhood. Technology integrates itself into a complex scenario where families, groups and children occupy different and unequal social places, and possess distinct resources. This is the ground from where diversified representations and practices are (re)constructed in original, but explainable, combinations.

References

Almeida, Ana Nunes de, Ana Delicado and Nuno Almeida Alves. 2009. *Crianças e internet: usos e representações, a família e a escola* (research report). Lisbon: ICS.

Buckingham, David. 2006. *After the death of childhood. Growing up in the age of electronic media.* Cambridge: Polity Press.

Buckingham, David. 2007. *Beyond technology. Children's learning in the age of digital culture.* London: Polity Press.

Facer, Keri, Ruth Furlong and Rosamund Sutherland. 2003. *Screenplay. Children and computing in the home.* London: Routledge.

James, Jeffrey. 2003. *Bridging the Global Digital Divide.* Cheltenham-Northampton: Edward Elgar Publishing.

Livingstone, Sonia. 2002. *Young people and new media.* London: Sage Publications..

Livingstone, Sonia and Magdalena Bober. 2005. *UK children go online. Final report of key project findings.* London: Media@LSE.

Livingstone, Sonia et al., eds. 2008. *EU Kids go online. Comparing children's online opportunities and risks across Europe* (report). London: LSE.

PIC. 2004. *School in the network society. The internet in the area of non-university education.* Barcelona: UOC.

Prout, Alan. 2005. *The future of childhood.* London and New York: Routledge.

Servon, Lisa. 2002. *Bridging the Digital Divide.* Oxford-Malden: Blackwell.

Tapscott, Don. 1998. *Growing up digital. The rise of the net generation.* New York: McGraw Hill.

Valentine, Gill and Susan Holloway. 2004. Transforming cyberspace. Children's interventions in the new public sphere. In *Children's geographies—playing, living, learning,* ed. Susan Holloway and Gill Valentine, 156–173. London: Routledge.

Viegas, José M. L. and António F. Costa, eds. 2000. *Crossroads to Modernity: Contemporary Portuguese Society.* Oeiras: Celta Editora.