

## Blogs: On the Cutting Edge of the Next-generation Web

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*This article analyses a number of social and cultural aspects of the blog phenomenon with the methodological aid of a complexity model, the New Techno-social Environment (hereinafter also referred to by its Spanish acronym, NET, or Nuevo Entorno Tecnosocial) together with the socio-technical approach of the two blogologist authors. Both authors are researchers interested in the new reality of the Digital Universal Network (DUN). After a review of some basic definitions, the article moves on to highlight some key characteristics of an emerging blog culture and relates them to the properties of the NET. Then, after a brief practical parenthesis for people entering the blogosphere for the first time, we present some reflections on blogs as an evolution of virtual communities and on the changes experienced by the inhabitants of the info-city emerging from within the NET. The article concludes with a somewhat disturbing question; whether among these changes there might not be a gradual transformation of the structure and form of human intelligence.*

**Keywords:** Blogosphere, Blogs, DUN, Internet, NET, Web 2.0.

### 1 Introduction

In October 2005 we published a monographic issue of the journal TELOS [5] in which we addressed the various facets of the blog phenomenon as one of the most visible and lively examples of a New Techno-social Environment (hereinafter referred to by its Spanish acronym, NET, or *Nuevo Entorno Tecnosocial*), also described in greater detail in a book [13] and very

briefly in this same journal [14]. The October 2005 issue of UPGRADE described the phenomenon as being in a state of ebullience, and also commented on its emergent nature, responsible for the appearance of new opportunity spaces in all areas of an information society that, by the free initiative of citizens, has proved to be capable of asserting itself over an institutional society in which politicians insist on making budgetary allocations before having any real understanding of what is going on around them or

why the business models and mindsets of such a recent past are no longer valid.

Among other easily observable trends in this turbulent scenario created by the emergence of the NET, we are seeing the convergence of social networks, successive waves of digital natives [9], and a Digital Universal Network (DUN) which take a step beyond the basic infrastructures of the information society, the Internet and the Web. These new developments are enveloping us in a networked socio-tech-

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nical infrastructure capable of transforming from our social context to our psychosocial systems or, as some intellectuals [16] and neuroscientific researchers [17] believe, the brain functionalities of digital natives, an aspect that we will return to later. In any event, we suggest that the DUN, that technological fabric of an ever increasing density and capillarity, is the origin and the cause of the new boundary conditions for our activities and ways of life within the NET. In 1999, the Spanish philosopher Javier Echeverría had already authored a pioneer essay on what he dubbed the *Third Environment*, E3, which was the conceptual forerunner of our NET [2].

Along the lines that we ourselves first put forward in the synthesis commissioned the web page of the AUI (Association of Users of Internet, Spain, <<http://www.aui.es>>) in December 2005, throughout 2006 we saw how the number of contributions to the analysis and study of the blog phenomenon grew, increasing the wealth of "blogology", a term we will use to describe the hybrid and heterodox discipline devoted to the study, from a socio-technical viewpoint, of a reality that continues to affect every aspect of our social life, both on and off the Web. The blog phenomenon affects every-

thing from companies viewed as corporate environments, or academic institutions, to Public Administrations that are evolving beyond e-Government towards a sort of Governance 2.0 [6].

## 2 What is a Blog, and Who Cares anyway?

Apart from the definitions to be found in dictionaries which, as is pointed out in [5], may be more or less ambitious, correct, or peculiar, if we limit ourselves to the evolution of the Spanish blogosphere, we can find a number of definitions from some of the people involved in the development or analysis of the blog phenomenon, which corroborate our original argument about how the mediatic power of the term "blog" has the effect of concealing the reality of a phenomenon that has a much greater reach (see Figure 1).

The impact that blogs have had on the media, augmented by the visibility that media exposure inevitably leads to, has sparked a debate in a great many forums about whether blogs can be considered as media, and whether bloggers can be expected, at some time, to adopt a number of ethical rules such as those governing journalists. Such a simplistic idea, clearly the result of

media slant, should give us pause for thought about the social effect of technology, in this case the Web, the importance of which seems to go beyond its mere use as a tool.

The nature of a blog should be defined on the basis of the use that is made of it within the various realms of application open to it. It is a technology that provides unprecedented ease of use of the Web; one which, as we said earlier, has generated a great many opportunity spaces which will take us time to fill with innovations .

Thus, the question "What is a blog?" should be answered eclectically: "A blog is whatever we want it to be". Which gives us a clue with regard to the other question in the title to this section, "Who cares?", which is a posed as a metaphorical question to hammer home the first answer. In the sense that a blog is the focal point of our studies, we analysts and observers of blogs and the blogosphere, and of the communication subspace generated by the Net itself, do care what a blog is, in the sense that is relevant for our projects. But we need to bear in mind that the blog, as a format or evolutionary state of the Web, is no more than a step – albeit a relatively important one – towards the construction of a new "textuality". This

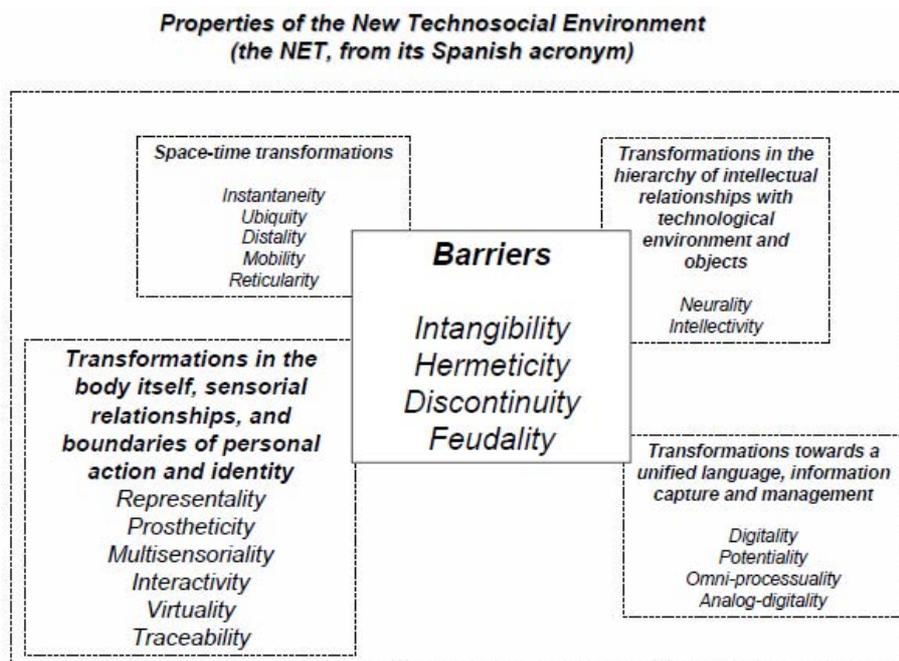


Figure 1: What is a Blog?

## Characteristics of the blog culture

*Extracted from the observations published in (Le Meur, 2005)*

<i>The willingness and desire to share thoughts and experiences with others</i>
<i>The growing importance of knowing what others think about an idea or an opinion</i>
<i>Bloggers help each other a lot</i>
<i>Need for daily information from a large number of sources</i>
<i>Bloggers want to be in control of how they read the news</i>
<i>Bloggers tend to be "world citizens"</i>
<i>Bloggers want to meet in real life</i>
<i>There is a "common code": a vocabulary, a way to write posts, and codes of behaviour</i>
<i>Bloggers get so used to providing feedback themselves that they are very frustrated when they read, listen or view MSM as they are not able to comment on them</i>
<i>Bloggers invest so much time in their blogs, time usually stolen from MSM, leisure time, and sleep time; this irresistible will to share with others is a strong common point</i>
<i>The culture of speed: the need to post or react instantantly</i>
<i>A need for recognition</i>

**Figure 2:** Characteristics of the Blog Culture.

new textuality is multimodal (by moving beyond a text format towards a visual and multimedia format), and fragmentary (in its content, but also in its processes of creation or distribution), is only fitting for a new generation of digital natives who do not need to be aware of its existence.

### 3 The ABC of the Blog Culture, with the Aid of the "Netoscope"

In May 2005, L  ic Le Meur published a "blog post" (a term referring to a content fragment making up the basic structural element of a blog) in which he proposed a characterization of what appeared to be a sort of blog culture (which actually is technically a sub-culture). This reminded us of other formalizations of the emerging dynamic in online communities of what was then an emergent Web, such as that made by Himanen in his classic work "The Hacker Ethic". The defining characteristics of the blog culture which we reproduce in abbreviated form in Figure 2, help us to reach some conclusions about the environment encountered by numerous groups of digital immigrants when they enter, as some ATI members will now be able to do thanks to Nov  tica's blogs, in a space which not only does not follow the rules of our normal environment, but also seems to embrace it and radically modify it. (Prensky [9] distin-

guishes between digital natives and digital immigrants, a distinction which is a trifle imprecise due to the rapid evolution of technology, albeit very appealing).

The reference to the characterizations made by the famous French blogger and entrepreneur, Le Meur [7], was by way of a reflection on how we can sum up the values, norms, and artefacts (broken down into the various constructs of ideological, sociological, and technological subsystems) as defining elements of the blog culture [5]. In these terms, we can might say that "blogculture", if the reader will accept the term, hinges on the values of hacker ethics which, in some way, may be legitimized by the statement (usually attributed to Lawrence Lessig) that "code is law", a sentiment that is enthusiastically seconded by a legion of 'pronetarians' (a category of info-citizens opposed to info-capitalists who want to dominate the info-citizens by controlling a number of media which are becoming ever more social). The pronetarians, a term coined by Jo  l de Rosnay [12], playing on the words 'net' and 'proletariat', have encountered a Web 2.0 in which the very collaborative filtering which drives the dynamic of online communities is becoming a de facto regulatory process.

In pursuit of a more socio-technical line of analysis we will now focus

on the properties of the New Techno-social Environment. Figure 3 shows twenty properties of the NET according to S  ez-Vacas [13], to which one more has been added, traceability. These properties show the many and varied dimensions along which human activities (of a clear socio-technical nature) can be performed, thanks to the more or less intensive and extensive use of the technologies and tools of the Digital Universal Network (often the Internet, in particular). Consequently, these properties act as a set of lenses – which their author has metaphorically dubbed netoscope – to observe the transformed reality in a more selective, accurate, and methodical manner.

It should be noted that, among the countless human activities based on current info-technology, part of that transformed reality, what we call the blogosphere, which lives on the Web (or on the Internet, however you like to call it), and all foreseeable activities originating from advances brought about by Web 2.0, make up only a subset, albeit one experienced intensely by many millions of info-citizens, of all those that are grouped together virtually into social networks supported by relatively easy to use, day-to-day technologies.

In order to provide a thumbnail sketch of the ABC of the blog culture,

## What is a blog?

Definitions from some Hispanic 'blogologists' and bloggers

"A blog is whatever looks like a blog"  
(V́ctor Ruíz, Six Apart)

"A (multi)format for Web publishing"  
(Fernando Sáez Vacas, UPM)

"A (web) publishing tool for dummies"  
(Alberto Knapp, La Coctelera)

"(...) a kind of 'personal' artifact useful for 'chatting' with your colleagues  
(and with others) (...)"  
(Adolfo Estalella, UOC)

"It's the first native web format (...) Internet was the dynamite, and blogs  
are probably the fuse (...) The revenge of 'amateurs'"  
(Julio Alonso, Weblogs, S.L.)

Figure 3: The New "New Techno-social Environment" (NET).

we go on to comment briefly on a number of the properties of the NET. In this sketch we will look at the five categories into which those properties were originally classified, and we will see how barriers and transformations on the boundaries of personal action and identity are of greater importance than space-time transformations, forms of information capture and management or hierarchies of intellectual relationships with technological environments and objects.

### 3.1 Transformations in Unified Language, Forms of Information Capture and Management

This category contains the properties of digitality, potentiality, omni-processuality and analog-digitality. For the purposes of our analysis of blogs and the blogosphere, we will concentrate on the last-mentioned property.

**Analog-Digitality:** Conversation – the supposed dialogical paradigm underlying the blogospheric dynamic - is not a property of the Internet, but continues in, and feeds back from, the face-to-face interaction of the physical world. This has the effect of blurring the traditional boundary between "cyberspace" and the real world, and innovative opportunities spring up from the exploitation of this now fuzzier boundary. There are paradigmatic examples that move our material world closer to the virtual environ-

ment, such as Second Life <<http://www.secondlife.com>>, a multi-player online game (MMORPG, Massively Multi-player Online Role-Playing Game) without any predetermined objective, which, at the time of writing, has more than 700,000 registered users, with a monthly registration growth of 20% [18]. This has prompted a great many real world enterprises to open branches in this virtual world (e.g. Toyota, Adidas, American Apparel), and well-known artists (such as Suzanne Vega, Duran Duran, and U2) have put on exclusive performances on such a stimulating stage. Even some academics have decided to give lectures or conferences in "presentual" (presential and virtual at the same time) environments over the Internet, and some therapists use it to help autistic children. An example closer to home, which is an example of cyberspace moving towards the material world, is the case of Beers&Blogs, <<http://www.beersandblogs.es>>. This involves informal meetings of bloggers which, having operated for just a year in Madrid, has not only expanded all over Spain and part of Latin America, but has also become established as a meeting and debate forum for innovative projects arising in a scenario that has barely recovered from the consequences of the financial disaster at the start of this century, best known as the bursting of the dotcom bubble.

### 3.2 Space-time Transformations

Instantaneity, ubiquity, distality, mobility and reticularity make up this basic set of properties determined by the nature of the DUN. For our study of the blogosphere, the reticularity (or networkedness) of its structure is perhaps what should interest us most.

**Reticularity:** A structural property created by the Digital Universal Network itself that generates and supports the emergence of the NET which expands and replicates itself, in the manner of a fractal architecture, affecting our entire socio-technical environment. We live in an intricate fabric of technological and social networks which give us enough coverage for us to transfer our most "traditional" social metaphors on to the Internet. In fact, social networking is one of the most characteristic services of what we know as social software [1], alongside blogs, wikis, or *folksonomies* (a neologism from the words *folks* + *taxonomies*, meaning popular collaborative semantic tagging services).

### 3.3 Transformations in the Body itself, Sensorial Relationships, Boundaries of Personal Action and Identity

Of the five properties quoted by the author - representality, prostheticity, multisensoriality, interactivity, and virtuality - those referring to the boundaries of personal action and iden-

tity will be the most useful for the purposes of our analysis of the blog and its natural ecosystem, the blogosphere.

**Representality:** Our identity on the Internet is constructed as a "representation" of our own physical identity (real or imagined, in the form of an avatar, for example) and psych-social identity (characterized not only by our contacts, but by the dynamics of exchange, publication, sharing...). This is important, even from the most pragmatic point of view, because on the Internet, just as in the physical world of face-to-face and short distances, we construct our social environment and express ourselves socially. In other words, we are not only the Internet; we are networks too.

**Virtuality:** The NET is structured more like a "a very real virtuality" than an extended virtual reality, due at least in part to a kind of sense of presential ubiquity, defined as the "effect of the analog-digitality nature of a New Techno-social Environment which envelops us and transforms us..." Our interactions in the NET, do not only transform our psych-social identity, but also construct a reflection – albeit transitory and distorted - of our psych-social identity on the Internet. A kind of "avatar" is built, not by the recreation of a virtual character to represent us in that space, which can sometimes even have an "autonomous" life thanks to presential (presential and virtual) teleaction, but more out of a combination the way we interact with other identities and contents related to those identities. That is to say, such a pseudo-avatar would be based on the fabric of interconnections of our own social network, built, say, from a personal blog and its more or less copious links with other blogs and/or online/offline networking services <<http://comodios.blogspot.com/2006/09/ubicuity-presential.html>>.

**Interactivity:** Having evolved from the "simple" interaction between man and machine, interactivity is now moving towards interoperability between a growing number of "social machines", which aims to be a reflection of the supposed "conversational" dialectic and, in its most simplistic version, has become a leitmotiv of the

blogospheric dynamic. It comes as no surprise that there is already a book proposing the property of interactivity as the basis for a category of society [23].

### 3.4 Barriers

We need to examine the four barriers in the original model of the NET proposed by Sáez- Vacas, even if only briefly, to draw readers' attention to a number of risks that tend to be missed at first sight.

**Intangibility:** Users' incapacity to understand real technological complexity which, while it has become practically invisible, has paradoxically given rise to the reactive principle behind the design of usable tools. This is the key to paradigmatic user-friendliness that, as we have said, is the most sought after paradigm for convinced bloggers today.

**Hermeticity:** The effervescent moment that is still alive in the blogosphere cannot hide that its origin comes from the fora of super-users who, being well versed in technology and having been elevated to the status of quasi-media technological opinion leaders by the Internet, continue to maintain a certain degree of inscrutability which, while it does not prevent the incorporation of a growing number of digital immigrants to the info-city, does ultimately exclude the digitally impaired.

**Discontinuity:** The fact that most services are provided free of charge and are first marketed using a purely advertising based business model, together with the institutionalization of "the permanent beta" as a natural state of things, if anything aggravates the situation of a Web that, viewed as a whole, is no more than a continuum of services and technology, the provision of which is highly discontinuous. While we may not yet have reached the scenario foreseen by Herman Maurer in [8] for the end of the 21<sup>st</sup> century, it is clear that today we are experiencing all kinds of discontinuities, from access to the Web itself, to our PC or mobile device.

**Feudality:** Even supposing that the Next-Generation Web (Web 2.0) can be seen as part of the natural evolution

of the Web towards a "people's Web", as opposed to the "data Web" (Web 1.0), or the information Web (the Semantic Web), the economic dynamic of an information age that is now long in the tooth insists on encouraging the emergence of de facto pseudo-oligopolies in a Web which the players involved continue to see as an "industrial" sector. This situation is backing us into untenably isolated positions from which to defend some decidedly anachronistic value propositions which all too often end up degenerating into clear cases of feudalism. A situation in which the "Lords of the Air" (a term popularized by a Spanish philosopher, Javier Echeverría, in the title of one of his books), generally info-capitalists, live at the expense of an increasingly large info-proletariat. The novelty is that these "pronetarians" seem to be ready and willing to rise up and exercise the technological power that they wield as info-citizens, articulating their rebellion through the use of such powerful tools as blogs; pure communication for some or a simple tool for others.

### 4 A Practical Parenthesis: Recommendations to Future Bloggers

From the brief analysis of some of the properties of the New Techno-social Environment relevant to the blog culture, we can draw a number of useful recommendations for the digital immigrant wishing to try his or her hand at being an author in the blogosphere. With the community of users who may be attracted to Novática's new blog service in mind, and hoping to avoid repeating the many and varied (and clichéd) "blogging tips" to be found in the blogosphere itself, we offer readers the following guidelines (the sole responsibility of the first mentioned of the authors of this article who is a blogger of many years' experience).

**Generosity:** It is always better to give than to receive... The mere exercise of "verbalizing", in other word to codify the knowledge that an "expert" is assumed to have in his or her field, is, of itself, interesting to the author. "Unshared knowledge is lost knowledge".

**Professionalism:** A blogger's performance has an influence; it brings us bloggers closer to the work of information professionals and hones the author's communication skills.

**Dialogic:** "Participating in the conversation" means being able to be there with a human voice, a voice distinct from the pedantic and unnecessarily baroque discourse of traditional scientific literature. That familiar and personal voice detracts from neither the quality nor the reach of a job well done.

**Flexibility:** In the face of current legislative constraints (in processes and the results of those processes, e.g. the Intellectual Property Law), "prudent non-compliance" is called for.

**Hypertextuality:** The medium itself is crying out for it. Link! LINK!!

**Identity:** Cyberspace is a thing of the past; we are networks and the Web is all of us. Everything we do online forms a component part of our identity, in a conscious or unconscious process of personal branding.

**Community:** Socially significant networked structures may (both individual and collective) emerge on the Web giving rise to the formation of online communities on a *quid pro quo* basis: (social) feedback is not an option.

**Ubiquity:** The people who read and comment on your blogs help to define the way you are represented on the Web, in the same way that those who "converse" with you in the physical world shape your personality. Our interaction in the NET produces the dual effect of being presential (face-to-face) and virtual at the same time. In other words we may speak of a certain degree of "presential" ubiquity in info-citizens' lives.

**Aesthetics:** The poetry of an unfinished work is a predominant aesthetic principle in the blogosphere, which is why our particular "ten useful tips" finishes on this, the ninth ... "Relax and enjoy yourself!"

## 5 Blogs and Virtual Communities

Since Rheingold first coined the term "virtual community" [10], the amount of research on the dynamics of and the type of relationships to be

found in the various kinds of online communities has grown incessantly. Blogs are no exception and, as happened with forums in their day, they are shaping up to become catalysers for the emergence of new kinds of communities functioning within the NET.

One of the first serious approaches to the study of such communities was the work of Nancy White in a recent article [22] in which she begins by arguing the existence of three types of blog communities, which will help us exemplify the first steps in the evolution of the blogosphere, that "communication subspace" on the Internet. White speaks of Single Blog/Blogger Centric Communities, Central Connecting Topic Communities, and Boundaried Communities.

This initial classification, while necessarily not comprehensive, based as it is on the observation of a phenomenon that is still growing, does provide us with some clues as to what is going on. In a way, blogs have inherited the legacy (in life) of forums, in terms of the functionality of the comments they inspire. Blog centric communities are the first to appear: the functional structure of the blog platforms encourage the promotion of certain blogs and/or bloggers which, legitimized by their status as technological opinion leaders, seem to preach to a horde of readers hungry for "authoritative" information. Communities of this type or populated by "commentators" who may eventually decide to publish their own blog.

Central connecting topic communities must still be considered, at least in part, as a natural extension of CoP (Communities of Practices) within a different socio-technical context. The most interesting aspect of this evolutionary step is perhaps the emergence of a different dynamic in which we will see the effective integration – one which is yet to occur – of the blog as a format and vehicle for personal expression and communication.

The concept of the boundaried community, leaving aside any considerations regarding the formation and nature of that boundary from a systemic viewpoint, is markedly technological in nature – given that it owes its existence to a "closed" platform

which provides a number of additional services. In some ways it is an example of an intermediate evolutionary stage which we must expect to evolve as the blog segment consolidates.

From all the above we can conclude that, in all likelihood, the social organization of online communities will hinge on domain and relationships (as is the case of connecting topic communities) as a reflection of the process of "socialization" that the Internet is experiencing. In other words, the blog, as a tool of expression and communication, allows us to transfer an increasing number of social metaphors to the Web, while creating new ones expressly for the NET.

Finally, blogger centric communities should serve to question the goodness and/or relevance of the metrics that we have borrowed from the traditional media and that, generally speaking, are still used to measure the impact of a set communication tools and spaces that – based on their supposed conversational dynamic – go beyond the concept of "audience" as we understand it.

## 6 Beyond the Blogosphere: Life in the New Techno-social Environment

We believe we have dropped enough hints in this article on the socio-cultural aspects of the blogosphere for the reader to understand that the blogosphere is just another part of the overwhelming socio-technical undercurrent which is responsible for many of the forces that are ever increasingly transforming our lives. We shall devote this section to giving some more clues in this respect.

A few days before writing these lines, the well-known researcher, Sherry Turkle, suggested that constant connection to social networks through, say, instant messaging, Wi-Fi, mobile phones, etc., is changing human psychology. And Amanda Geffer, in the same publication devoted to social networking revolution, underlined the fact that "Socialization, rather than information, has emerged as the primary use of the Internet" [19].

There are indeed increasingly more people who "live" most of their time

in what Sáez- Vacas has called the info-city [15]: "*An informational space where humans of developed societies use terminals with various buttons, keys, screens, passwords, and identifiers to communicate with one another and carry out a growing percentage of their day-to-day activities, together with a great many new ones, which have been converted into non-material signs, symbols, languages, and processes, supported by a powerful networked technological infrastructure*". Of course, the procedures involved in the day-to-day activities of people and organizations are increasingly being transferred to the digital world. They may be economic processes (digital economy), administrative (e-government), commercial (e-commerce), media (digital press), or some other kind of activity from another sector, or even processes involving human relationships and leisure. But whatever the activity, it already catered for in the info-city. As the level of digital integration of our society grows, a percentage of our citizens will "emigrate" and become info-citizens, if they have not already been born into info-citizenship; in other words, they will acquire a more digital mentality, while another percentage will resist the change and will not accept the emigration-transformation process.

When speaking about the socio-technical undercurrent we will avoid going into the subject in too much depth. Instead we will limit ourselves to the impact of technology on normal citizens, who by definition make use of day-to-day technologies. By this we mean that they are neither programmers nor computer, electronic, or telecommunication engineers. Nor are they tireless campus party-goers, nor experts in production lines or graphic design, nor specialists in any branch of info-technology. To be even more drastic in our approach, let's imagine they are simply users (end-users to use the technical jargon), part of the hundreds of thousands, or millions, of users of a technology or a technological application. Users of multi-functional mobile phone terminals; of various web pages or websites, with their wide range of operational possibilities, in-

cluding blogs; of PDAs; of all-purpose personal computers; of digital cameras; of videogames on consoles or computers; of more or less complex mp3 players; of DVD players or recorders; of GPS SatNavs, etc. This type of user is obviously to be found in a great many averagely well-off, tech-savvy families in Spain. And the children who have been born into these family environments in the last ten years of society's mad rush to adopt info-technology, gradually and naturally integrate in the New Techno-social Environment. And they do so from the moment they reach the tender age of 16 or 18 months, in a more or less intensive manner depending on the level of digital integration of their particular environments. These are now the true digital natives.

The potential of social change, whether for good or for bad, and the turbulence created by the already visible conflict between a world that is being born and another that is resisting death, should prompt us to prioritize our reflections on and research into socio-technology. Our fields of study should be the co-evolution of humanity and technology, processes of technological maturing and techno-cultural learning of the users, the new social patterns arising as a result, and other such things.

Technology always creates a crisis zone in the transformation of social structures. The job of socio-technologists is to observe, study, and reflect on the clash between emerging and declining social patterns in the fields of communication, culture, the economy, education, etc. Let us give one example of the many possible. Educators need to pay special attention to the analysis of the conflict between the consumerism culture typical of personism [20] which, apparently, gives rise to a mentality of fast and superficial knowledge to the detriment of learned culture (from books, typical of the E2 environment), traditionally based on in-depth and effortful knowledge, the basis of our current education system. What has all this got to do with technology? Let's read Verdú.

He writes that our ways of life, of enjoyment, and knowledge have been

disturbed by the new technologies, the mass media, etc. and that a form of "extroverted behaviour, the culture of consumerism, of conversation, conversion, and translation" has taken hold. This is personism, already a characteristic of many young digital immigrants (or quasi-natives). His mentions of blogs as opportunities to converse with others; of wikis; of smart mobs [11]; his statement that a characteristic that differentiated personism from hyper-individualism is cooperation, connection; his description of the planetary weave of person to person relationships and his unequivocal chapter entitled "orgy of connection" invite us, at the very least, to bear in mind the proposals of this sociologist and essayist and apply them to the field of socio-technology.

We will close this briefest of sections on conceptual suggestions with a disturbing question: In addition to changing social patterns, might the New Techno-social Environment not also be changing mental patterns; in other words, the structure and form of human intelligence? In a post published recently in A. Fumero's blog, Sáez-Vacas posed this question and gave it a name: noomorphosis digital [16]. Noomorphosis, based on Greek etymology (noos -intelligence- and morphosis - formation-), means "formation of intelligence". If this hypothesis were correct, and there are all the signs that it may be, we would be looking at a phenomenon of enormous importance: the change of mental structures and, therefore, of the very form of intelligence of a rapidly growing number of our young humans, those we have been referring to as digital natives, due to their intensive immersion from an early age in an increasingly more dense and extensive infostructure, the Digital Universal Network. Below we quote a couple of extracts from that post

"Important? If social observation and neuro-scientific experiments were to confirm such a hypothesis, human relationships, education, political and economic organization, communications, the very concept of being human, etc., would be stood on their head, because intelligence is the true measure

of a human being. If we give the intimate link with a new social, mental, and ethical ecology its due consideration, it is in digital noomorphosis where lies the true, enormous dimension of the digital divide, that concept that we bandy about with such ease".

*"It is not that the intensive use of info-technology helps to shape a greater or lesser intelligence -for example, that children become cleverer, as some say (Verdú, 2006)-, but we are looking at a functionally – and perhaps neurally – different intelligence, an intelligence equipped with certain capabilities that have been especially developed to live and operate in the New Techno-social Environment (NET) created by that info-technology."*

To close the loop, having expressed the view that socialization, and not information, may be at the heart of the info-technological function, and stressed the growing emphasis on person-to-person relationships, before mooted the idea of the emergence of a new form of intelligence –a digital intelligence as opposed to an analogue intelligence– (and not forgetting that one of the properties of the NET is its neutrality) we now wish to take you, the reader, into the realms of psychology and neurosciences. The latest book by Daniel Goleman, "Social Intelligence", has just been published in the USA. In this book he reveals that "we are designed for sociability, constantly engaged in a 'neural ballet' that connects us brain-to-brain with those around us". Thanks to mirror neurons?, In *Tendencias Científicas*, Vanessa Marsh writes that "neuroscientists have proved that the human brain not only perceives the activity of others, but can also analyze what motivates one's actions. They have verified that the part of the brain where mirror neurons fire during the execution and observation of action, can also add intentions to those actions displayed in a given context".

*Translation by Steve Turpin*

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