CYBERPSYCHOLOGY JUST A TESTING GROUND

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Contents

Summary

This article has been divided into five sections. The first analyzes the emergence of cyberspace as a counter culture emphasizing distinctive backgrounds such as fictional universe, built-up intelligentsia, networked scenarios, and economic survival kit. The second analyzes the emergence of cyberspace within the contexts of military and political interests in the United States and the European Union. The third analyzes the transition from the Gutenberg to the Cyberia culture by remarking on 12 opposing pairs. The fourth analyzes the concept of cyberpsychology by paying attention to six different notions in the background: instrumental, dimensional, process-based, pragmatic, biased towards psychopathology, and knowledgeable. The fifth introduces an operational framework of cyberpsychology as continuing education, as doing research, and as knowledge-based expertise once psychologists become functionally literate in new information and communication technologies (NICT).

1. Cyberpsychology

The word *logos* has been a password traditionally used to gain admission to recondite shrines of advanced knowledge in Western European culture. The variety of professional groups making use of the word *logos* as a distinguishing mark is large enough to emphasize that they selectively exploit expert knowledge to deal with scientific and technological problems or challenges. The following disciplines are just examples: ecology, lexicology, musicology, neurology, pharmacology, psychology,

sociology, and toxicology. By the last decade of the twentieth century the ending *-logos* or *-logy* became an unimaginative final part to any brand new denomination. A fashionable expression, "knowledge management," has been fostered as a distinctive alternative to the recurrent use of *logos*. Both allude to correct reasoning, valid argumentation, sound judgment, true propositions, and reliable discourses. In the past, for *logos* the background has been the cosmos, the spiritual principle, or a sophisticated way of identifying God; at the beginning of the twenty-first century, the background for knowledge management is organization, continuous learning, and the Internet. *Logos* and knowledge management are two sides of the same coin or two parallel metaphors.

The emergence of concepts such as cyberpsychology and knowledge management took place in the same decade, the 1990s, and has provoked quite similar reactions of acceptance or rejection among scholars and students of psychology. For many, both are just in-vogue expressions; for some, both point to a postmodern worldview that has already started to change the way psychological research is carried out as well as what might be considered "normal" or "abnormal" in the behavior and performance of individuals and groups. For instance, should a group of computer-illiterate subjects be considered an appropriate sample for the study of normal or abnormal daily-life functioning? Another example: virtual reality programs allow rotations of 360 degrees from the eyes of the viewer, up and down or front and back at will. Should this kind of perceptual whirling be considered natural or anomalous? This is a question that cannot be set aside by psychological researchers since many people born after 1970 were rocked in the arms of their parents or got off to sleep while watching T.V. cartoons and video clips rich in special effects. In other words, must the multimedia and the Internet be regarded as a tool or a new surrounding? Some people consider cyberspace the seventh continent still not fully discovered.

It is convenient to clarify first what is meant by cyberspace as a prolegomenon to the notion of cyberpsychology. This seems to be a new term, but in fact it was used increasingly during the 1990s among those scholars and practitioners who were becoming stable dwellers in cyberspace.

2. Cyberculture

Norbert Wiener (1894–1964) coined the term "cybernetics" in 1948, as a title for his book. The original word in classical Greek, *kybernetikos*, means "steersman" or "helmsman." That is, the person who steers a machine, the pilot who steers a ship, a job that requires independence and self-reliance. Soon after World War II, cybernetics became a widely accepted label for a discipline devoted to studying the processing of information and communication systems as well as the functioning of control systems when applied to machines, animals, and organizations. Initially it was a technological discipline because it was rooted in system-engineering techniques but later crossed the borders of science when applied successfully to the analysis and understanding of certain neurological problems. The focal point in this discipline is studying the flow of information within a system, and so keeping some distance from other disciplines revolving around the study of energy or materials and its derivatives. The exchange rate is the use of feedback to get the intended impact on goal-directed activities cropping up in technological artifacts as well as living organisms. For decades the prodigal son of

this discipline has been artificial intelligence (A.I.), an insatiable consumer of public and private funding, because it is committed to take as its model the complex functioning of the human brain when involved in problem analysis and problem-solving strategies. Some outcomes have been huge and impressive such as teaching machines to solve problems or to behave as an artificial limb.

In Europe another term was coined during the 1980s—"telematics"—to identify a sub-discipline examining and making the most of information sciences and technologies based on the long-distance transmission of digital information. In Euro-English telematics is a short name for "tele-informatics," which may be derived, as one wishes, from the French word *informatique*, the Russian *informatika*, or the Spanish *informática*, which is used to identify the processing of digital data for storage and retrieval. By the beginning of the twenty-first century the expression telematic space was being used to fence in that territory where people wander when they are connected online. There is, thus, an overlap with the term cyberspace that will be commented on later.

Alvin Toffler coined the term "cyborgs" in 1970, in his book *Future Shock,* where he devoted several pages to analyzing the possibilities of human-machine integration and the interaction of human brains and databases through networked communication. A cyborg is a person whose physiological functioning is aided by mechanical or electronic devices built into the body to extend beyond normal some abilities or to compensate for some disabilities. Psychological expertise is often demanded in the design process to optimize the levels of performance or to smooth the training process for the cyborgs. Often support from health psychologists is requested after the surgical implant of devices to facilitate the psychological adjustment of the cyborgs and relatives. Also, a related concept "cyborg consciousness" starts to elbow its way through the human experience of being "a sentient high-tech interface" between an organism and a mechanism. In more conventional terms associated with cross-cultural psychology, it is an advanced modality of "mestiza consciousness." In movies such as *Star Trek*, *Star Wars*, *Robocop*, *Terminator*, and *Artificial Intelligence*, the scriptwriters introduced good examples of cyborg heroes that cannot find their character because they know that they go halves in a "mechanic" and an "organic" identity. In the dialogs they speak as "hardwired subjectivities" evidencing symptoms of double self and fuzzy cyborg consciousness.

During the 1980s, fine artists and graphic designers crossed the line of gender representations of cyborgs and pushed their art into the awareness of the sexual impact of cyberbodies. Female and androgynous cyborgs started to look sexy, often undressed, exposing to view sexual poses. Cyberbodies made of metal and ceramics became the subject of posters spread out and unveiling cyborgs with naked breasts or almost revealed, sensuous facial features, enhanced contours of her sex, sculpted feet in high-heeled shoes, and phallic symbols somewhere around. It turned out that cyborgs could be created for pleasure.

The term "cyberpunk" started to be used as an argot among computer-literate writers in counter cultural circles in the mid 1970s as witnessed by John Brunner in his novel *Shockwave Rider* published in 1975 and by William Gibson in several science fiction

stories issued first in magazines and afterwards collected in 1984 in the book *Neuromancer*. These people started to call themselves cyberpunks, stressing that they used computers and video games as a way of self-expression, personal pleasure, net profit, and a sense of duty. In fact they ascribed the role of main or secondary characters to "first-generation cyborgs" in stories where the narrative occurred in post-industrial and information-governed settings. They set up the basic cyberpunk code "think for yourself, question authority," bringing to the fore an anarchist cultural background melting away into a high-tech mood and open-minded attitude. In this genre of literature, cyberpunks are often depicted as skilful people who know how to take advantage of the new information and communication technologies (NICT) to attain intended and often malevolent goals. The distinguished marks of insurgent characters were also enacted among cyberpeople.

These fiction writers also realized that they had developed a set of beliefs about the existence of some kind of actual space behind the screen, "a place that you cannot see but you know is there." This world of lucid dreaming beyond a T.V. or a computer screen started to be named cyberspace.

Initially the brand new root *cyber-* started to suggest the idea of computer memory and networked communication systems. Later it was used as a short name for computers and for networked computers. "Space" alluded to a multidimensional but virtual space. Together, both forms molded into the term cyberspace, sowing the seeds of different meanings and nuances.

•   Cyberspace as an imaginary and fictional universe where sensory experiences take place and in which the mind is absorbed and the person experiences oneness with the set of stimuli, challenges, and performances elicited. It generates a trancelike experience, actual and genuine. "Consensual hallucination" was the assertion coined by cyberpunk writers.

•   Cyberspace as built-up intelligentsia where individuals are welcome if they know how to stroll along boundless passageways getting in and out of intellectual creations of a very large nature made available online. It is a conceptual realm where words, human relationships, data, links, and meeting rooms are at the disposal of a highly discriminatory club of people using computer-mediated communication channels. It is a World III structure in the terminology launched by Sir Karl Popper (1902–1994).

•   Cyberspace as a networked scenario in which people share cognitive and emotional cues when they communicate and interact, when they exchange images and voices, when they bring forth a large variety of sensory experiences. They stay connected through a physical network but do have access to uncharted regions without sharing the same time and space. The online behavior of individuals becomes a part of the Internet psychological environment.

•   Cyberspace as an economic survival kit for people determined to maintain rather eremitic but productive life standards, somewhere in the countryside, far from any large or medium-sized cities and neighborhoods. It is a gateless gate for those who want to stay outside but, from time to time, need to emerge ephemerally by clicking on a mouse. It is a survival kit based on telework and telebusiness. It is irrelevant to know if employees stay in the office, in a prison, in a monastery, or at home.
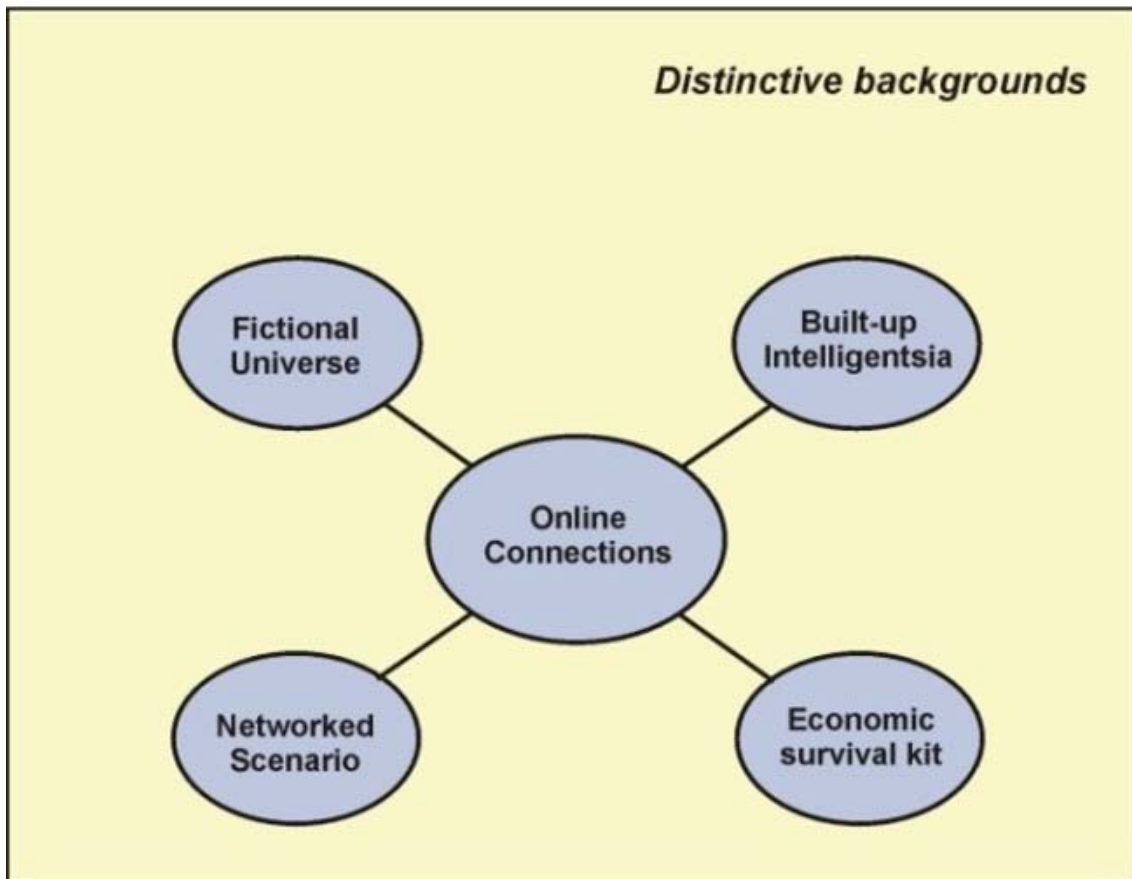
Figure 1. Cyberspace: the seventh continent

Figure 1 identifies the distinctive backgrounds of this seventh continent inhabited by people evidencing a virtual state of mind who use networked computers in the process of creating an unacknowledged society and a culture where tonnes of bits of information are ready-made by-products or services. Furthermore, cyberspace is an unimaginary site and has a universal time system, without time zones or geographical borders. The unit is called the beat. The 24 hours of a day have been divided into 1000 beats, each beat being equivalent to 1 minute and 26.4 seconds. Twelve noon is equivalent to @500. The meridian time coincides with the European wintertime. This system has been proposed by Swatch (*http://www.swatch.com/internettime/*) and was inaugurated on October 23, 1998. This system is now in the process of dissemination, using special converters that may be downloaded to computers or with watches using both systems. The great advantage is that all the digital watches mark the same time all over the world, be it night or day. It has certain advantage in classifying hyperdocuments in cyberspace.

3. The Emergence of the Seventh Continent

It is very convenient to highlight several landmarks in the emergence of this seventh continent known as cyberspace, the virtual surrounding where cyberpsychology as a sub-discipline has grown.

• Platforms known as computers and the Internet are a by-product of espionage and counter-espionage during World War II and the Cold War as well as of knowledge management and exchange programs between military intelligence and think tanks on

university campuses or avant-garde research laboratories. The framework was confidentiality and strategic advantage to inflict a defeat on the rival. The consequence was reducing to a minimum the degree of compatibility in the hardware and software invented and refined. It was the point of departure of NICT.

• In the late 1960s the need for a generic coding system and of a comprehensive catalog of tags to facilitate the editorial structure of documents started to be discussed in Canada and in the U.S. In 1969 the first draft of a generalized markup language (GML) was launched: it allowed the editing and formatting of texts as well as the retrieval of documents shared by people working on different computers and in different platforms. In 1986 the final version (renamed standard and generalized markup language (SGML)) was tested at the European Particle Physics Laboratory in Switzerland; it was approved and published on October 15, 1986 as ISO 8879:1986. SGML is the pivotal framework clearing the way for the exchange of digital documents among users operating in cyberspace.

• Hypertext markup language (HTML) is the first well-known scion of SGML. It was released as an authoring language and distribution system for producing and exchanging electronic documents integrating text, pictures, sounds, and animations plus hypertext links among documents or among sections of the same document. The direct consequence was the materialization of the World Wide Web in 1990.

It is convenient to make the contrast between the access and use of the Internet before and after the creation of the HTML standard. Before 1992 online users were a tiny minority in American, Canadian, and European universities under the umbrella of NATO. Commands, instructions, and addresses were copied in notebooks managed by scholars somehow literate in programming languages and information technologies. Once the hypertext approach was developed first in Geneva and later in Champaign, a user-friendly browser called Mosaic, made available in 1993, opened the way to computer-literate but also to computer-illiterate scholars ready to move around cyberspace by clicking on a hypertext link.

• Another important landmark was the period 1992–1996. Jacques Delors, as president of the European Union (E.U.) Council, and Al Gore, as vice-president of the U.S., met and encouraged the visualization of new information highways as the essential infrastructure setting the pace for the advancement of science, technology, and quality of life during the twenty-first century. Both contributed to burying the "Stars Wars" military plan of action sponsored by Ronald Regan and George H.W. Bush during the 1980s and early 1990s. The leading role of Delors and Gore influenced the assignment of funding to new information technologies programs, the consolidation of cyberspace as a common and fertile land, and the expansion of the Internet throughout university campuses in the U.S. and the E.U. Public and private funding and investment in computer rooms, programming languages, innovative approaches generating learning, and knowledge-based infrastructures increased exponentially as a direct consequence of policies backed at the top of the respective governmental pyramids. Al Gore was defeated in the 2000 elections and the first decision of the new U.S. president, George W. Bush, Jr. was to re-launch the "Star Wars" project. Once again candidates backing learning and cultural programs came off second-best after those favoring military programs.

• The commercialization of Windows 95 marks another no-return event and the direct consequence was that many users started to have access to a large variety of protocols and programs integrated under the umbrella of a single operating

environment. In the past the integration of programs and standards turned into a contest between manuals, hardware, and software plus "Aha!" exclamations. Some three out of four breakdowns in Internet connections take place on desktop personal computers (PC) running under Windows 3.1.

• Two students at Stanford University created in 1994 a database with all the Internet addresses they considered of real interest for life on the campus and the challenge of updating the database led to the invention of search engines, the first being Yahoo!

• In Spain there was another landmark. In 1996 the Spanish Psychological Association (Colegio Oficial de Psicólogos) started to provide gratis access to the Internet and free homepages to every associate as a service included in the membership fee. The aim of this initiative was to reduce the differential ratios of accessibility to the Internet between Spanish psychologists who were scholars and practitioners. Other professional associations in Spain backed this initiative, and together created a foundation focused on supplying free connection to individual members. This did not happen in the rest of the world and so access to the Internet passes through many intermediaries. In 1996 the estimate of Internet users in Spain was 350 000 (13.770.000 users in 2006) and about 15% to 20% of these were practitioners with an Internet account facilitated by the above-mentioned foundation.

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Biographical Sketches

José M. Prieto is senior professor of industrial psychology at the Complutense University, Madrid, Spain, where he teaches and does research in the area of human resources training and development. In the early 1990s he introduced new information and communication technologies as a basic tool in the classroom in such a way that psychology students lacking the necessary competence for dealing successfully with Internet tools and protocols were invited to enrol in another course. He is secretary general of the International Association of Applied Psychology (1998–2002) and he has been actively involved in national and international organizations dealing with psychology as a scientific or a technological discipline. He is fluent in English, French, and Spanish and has written about 140 articles and chapters on psychology related issues published in national and international journals, textbooks, and handbooks.

Pedro Sanz was born in Madrid. He holds a predoctoral degree in psychology, with a major in industrial and organizational psychology. He has entered the Ph.D. program at the Complutense University of Madrid and the focus of his doctoral dissertation is the analysis and testing of the psychological background of competency models in the area of human resources. At present he is head of the Personnel Selection and Development Department at the Spanish Foundation for Continuous Professional Training of Employees (FORCEM: http://www.forcem.es/). He has been involved in research projects at the Complutense University under the framework of personnel psychology. For three years he has been an associate lecturer at the university in subjects such as personnel selection or personnel training and development. He has written several articles in Spanish and English on topics related to personnel assessment and training that have been published in scientific journals, books, and magazines.

Angel Barrasa is working is his PhD *Doctor Europeus* in Work and Organizational Psychology from Complutense University of Madrid with the thesis 'Integrating leadership behavior and climate perceptions in teamwork: Antecedents, structure, and influence in work groups' innovation, satisfaction, and effectiveness in organizations' (expected September 2006). He took part in the Inter-University doctorate programme by Universities of Valencia, Barcelona, Seville, Jaume I of Castellon, and Complutense University of Madrid. Sponsored by the Spanish Department of Education and Science, he worked as predoctoral fellow at State University of New York at Albany, Michigan State University, and Aston University supervised by Gary A. Yukl, Steve W. J. Kozlowski, and Michael A. West, respectively. He is member of TEAMWORK Management, leadership and teambuilding Research Group at Department of Social Psychology of the Complutense University of Madrid since 2001. His research is focused on leadership for innovation, team climate, virtual teams, and team effectiveness (http://www.ucm.es/info/teamwork/abarrasa)