1 Reflections on the Psychology and Social Science of Cyberspace

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Personal computers and computer networks began to take over offices and increasingly the public in the 1980s, but the extensive adoption of the Internet did not come about until the introduction of the first browsers and the overwhelming acceptance of Microsoft Windows and Apple systems – equipped with advanced graphics – both in the mid-1990s. The world changed in many ways for numerous people from that point, as both social institutions and individuals have witnessed and participated in another social revolution: the availability and accessibility of information of all kinds and the dramatic innovation in interpersonal communication. With the assistance and encouragement of governments and many organizations (acting out of a variety of reasons), computers, linked to ever-growing networks, penetrated the general public rather quickly and relatively easily. It did not take long before numerous technological firms around the world, acknowledging significant improvements in a broad array of personal, work-related, social, business-related, and government-related activities, joined a competitive race for this line of business, marked by its creativity and high potential. Accordingly, they advanced and reinforced more intensive use of computers and numerous computer-related activities. This race, in turn, brought about fantastic technological developments that have changed people's world order and lives in many ways, from seeking and using information on any topic to shopping and trading, from communication with acquaintances and with strangers to virtual dating and a love life, from learning and teaching to doing research, from helping others and being helped to improved use of medicine and other facets of health care, from entertainment and leisure to self-expression. These changes in exposure to numerous areas, patterns of behaviors, and priorities are dynamic and continuously emerging, as technology is still developing rapidly and people are not only more open to such changes, but in fact expect them.

Although not all societies or all parts of a society have taken part in this revolution, because of "the digital divide" (see Warschauer, 2003), the Internet era has penetrated homes, workplaces, schools, and communities, as well as public institutions and businesses. No statistical picture of usage may validly be cited to provide an accurate picture of the current state of the art, as statistics relating to computer and Internet use vary rapidly, and data are diverse and highly inconsistent around the world. However, surveys show that in developed

countries, such as the United States, Great Britain, Germany, Australia, Japan, and Canada, home penetration of the Internet has exceeded 75 percent. Even in developing countries, such as in Africa, recent years have witnessed a huge increase in computer penetration (see continuously updated figures by Internet World Stats, at http://www.internetworldstats.com/stats.htm). Indeed, the availability and affordability of the Internet have been the cause of personal and social changes. There has been a dramatic increase in the number of human activities that have moved from physical, face-to-face meetings to contacts enabled by online, distant communication (see continuously published surveys by Pew Internet Research, at http://www.pewinternet.org conducted in the United States), thus changing human culture, habits, priorities, governing, parenting, and so on. Other factors have accelerated the rapid and broad adoption of the Internet, such as its growing social acceptability and endorsement (Bargh & McKenna, 2004; Haythornthwaite & Hagar, 2004; King, 1999), as well as its more personally originated motivators, such as anonymity, escapism, perceived privacy, and solitude (Amichai-Hamburger, 2005); the Internet also provides a ready source and outlet for fun and pleasure (Chen, 2006).

Obviously, there are clear psychological aspects to the evolving changes in the widespread use of computers to substitute for what formerly was done face-to-face and in physical ways. It seems that these aspects are twofold. On the one hand, people experience and behave in the new cyberspace environment in a way that requires fresh, innovative psychological conceptualizations, which entails exploiting old psychological knowledge, as well as formulating new ideas, to understand and explain human behavior and experience in cyberspace. On the other hand, using the computer's and Internet's advanced capabilities to enhance various activities traditionally performed offline by psychologists necessitates revolutionary ideas to harness these new psychological applications.

These two major objectives formulate the aim and scope of an emerging field in psychology, still in its embryonic stage: cyberpsychology, or the psychology of cyberspace (Barak, 1999; Sassenberg, Boos, Postmes, & Reips, 2003; Suler, 1996–2007). Research in this field, conducted by investigators from a variety of disciplines – not just psychology (and its various areas) but also from communication, medicine, social work, education, psychiatry, nursing, sociology, management, and others – has been nonsystematic and lacking leadership and direction. Scientific publications dealing with cyberpsychology have appeared in numerous – usually undedicated – online and offline outlets. The first printed books on the subject were published in the late 1990s (e.g., Fink, 1999; Gackenbach, 1998; Wallace, 1999), whereas a dedicated online book made its appearance, too, at this time (Suler, 1996–2007). In this chapter, we will try to lay some foundations to this new and innovative field of psychology.

Cyberspace as a Psychological Space

With the advance of computers and online networks, a new dimension of human experience emerged: cyberspace. The term has become so commonplace that it may at this point seem trite and commercialized. However, the realm created by the Internet can be understood as a very new and, in many ways, unique psychological space. When they power up their computers, launch a program, write e-mails, or browse a website, people often feel – consciously or subconsciously – that they are entering a "place" that is filled with a wide range of meanings and purposes. For this reason, the online experience involves many expressions that convey the sensation of dimension and place: "worlds, domains, sites, windows, rooms."

On a deep psychological level, people often experience their computers and cyberspace as an extension of their minds and personalities – a "space" that reflects their tastes, attitudes, and interests. In psychoanalytic terms, cyberspace may become a type of "transitional space" (Suler, 1999; Turkle, 1995), that is, an extension of the individual's intrapsychic world. It may be experienced as an intermediate zone between self and other that is part self and part other. As they view the e-mail, webpage, or instant message written by an online companion, some people truly feel that their minds are connected to or even blended with the minds of the others.

The ability of the mind to create and project a realm of meaning and purpose, to shape that realm with spatial/physical metaphors, is powerful. By itself, this ability accounts for much of the universal, perhaps even archetypical experience of cyberspace as a psychologically human space. However, some important features of the Internet have accelerated that process. Its historical transition from a text-only to multimedia environment made it a much more compelling world that encouraged not just the creation of meaning and purpose but also meaning and purpose within a visual and auditory context that resonates with the human experience of the "real" world. Compared with books, radio, or TV, cyberspace is much more interactive. If people can shape their experience of a realm by how they choose to move through it, and if they can alter the appearance of that realm and contribute to it, then that realm becomes all the more powerful as a psychological space. Because the Internet also includes the opportunity to interact with other people, a collective shaping of meaning and purpose elevates cyberspace into a social space that psychologically transcends traditional media.

Psychology in Cyberspace

As cyberspace has gained prominence, so has the scientific study of it. Because it became a realm for manifesting meaning, behavior, and

interpersonal relationships, psychologists naturally and quickly rose to the task of investigating it. A decade ago, psychological publications about the Internet were rare. Sometimes they were viewed in academia as esoteric or frivolous projects. Today, such research is commonplace and more widely accepted. Entire journals are now devoted to it. Many accept "cyberpsychology" as a new field unto itself. This change reveals the undeniable impact of cyberspace as a powerful influence on the psychology of the individual, interpersonal relationships, group behavior, and culture.

Over the course of the past decade, the variety of cyberpsychological studies has expanded in parallel to the rising complexity of cyberspace. Reflecting social anxieties about this surprisingly contagious phenomenon, the early studies that attracted the most attention were those that focused on pathological Internet use and "addiction" (Greenfield, 1999; Kraut et al., 1998; Young, 1998). Dwelling on the frightening aspects of cyberspace has always been a media predilection, but cyberpsychological studies eventually expanded into explorations of the positive as well as the negative aspects of life in cyberspace. The topics that evolved became as diverse as the discipline of psychology. Researchers from all branches of psychology became interested in cyberspace, including cognitive, social, educational, organizational, personality, clinical, and experimental psychologists. After all, asking, "What is psychology in cyberspace?" is like asking, "What is psychology in real life?" All topics in psychology apply: sensation and perception, learning, motivation, personality theory, interpersonal relationships, mental health and illness, group behavior, leadership, and cultural and cross-cultural dynamics.

As psychology delved deeper into cyberspace, some very basic questions quickly became apparent. Will traditional concepts and theories suffice in our understanding of online behavior? Will we have to modify those theories? Will we need to develop new ones?

Such questions developed out of the recognition that cyberspace, as a psychological realm, might be quite different from face-to-face environments. Geographical boundaries are transcended. Almost everything is recordable. The boundaries of "privacy" are more complex. Social interactions can be synchronous, asynchronous, or something in between. Under partial or near complete anonymity, people might become more disinhibited than usual, or they might experiment with different identities. Sensory experience might be reduced to text-only communication or expanded to multimedia experiences, with the sights and sounds of highly creative fantasy.

All of these features of online environments have been mixed and matched and combined in a variety of ways over the past decade. Future designers of cyberspace realms will continue to do so, as well as invent entirely new communication and informational tools. "Cyberspace" or "Internet" is far from being a monolithic entity. Nor is it, by any means, static. It is a multiplicity of environments, all of which are changing and evolving at a seemingly unrelenting and unpredictable pace. To keep up, psychology will need to be equally swift

and flexible in its methods of research and theoretical frameworks. It will need to identify the basic psychological building blocks of online environments and social interactions – the core, elemental features of cyberspace experiences that do not change much over time are relevant to all types of psychological studies and form the core foundation for an integrated cyberpsychology. However, it will also need to assimilate and accommodate new developments. To understand the cyberspace worlds of today and tomorrow, psychology must be ready to embrace the unexpected. It must remain open-minded about the strengths and limitations of its methods and theories. Cyberspace is not simply a new topic of research for psychology. It is a new realm of human experience that can transform psychology itself, as quite a few researches and application projects have indeed shown.

Psychology is also challenged to do more than simply study cyberspace. As an applied science, it also faces the task of using cyberpsychological knowledge to address practical issues. How can education be improved with online resources? How can groups and organizations function more effectively? What kinds of online human services can we develop to advance the causes of mental health and social welfare? Psychotherapists are exploring the options of conducting their work via online synchronous and asynchronous communication. Many websites offer information about a variety of social and mental health issues. Online resources now include self-help programs, psychological testing, and various interactive games and programs that address psychological topics. Psychologists are pressed to conduct research to validate these activities and resources, to participate in their development, and to provide education to the public about them. Ideally, the knowledge base of cyberpsychology will become effective to the point where designers in the business sector will employ the expertise of cyberpsychologists in the development of new online environments, communities, and various psychological applications.

Embracing Cyberspace as a Scientifically Legitimate Social Environment

As mentioned, the scientific study of cyberspace – or a virtual social environment characterized by computer-mediated communication – began over two decades ago. Researchers, at first mostly from the field of communications, sought to apply communication and social psychological models to understand, to explain, and to predict human behavior, while interacting through the mediation of computers. These attempts, however, have been only partially successful, as in quite a few instances findings concerning various types of behaviors could not be described and explained by traditional psychological theory when applied in various online conditions. Examples of such cases include group behavior (e.g., Thatcher & De La Cour, 2003), selling

and buying behavior (Galin, Gross, & Gosalker, 2007), or more general social behaviors (Yao & Flanagin, 2006). It seems, therefore, that the new means of communication not only provided a new vehicle for people to interact with one another but also introduced new psychological factors into the formula. For instance, the very ability of users to freely choose between synchronous and asynchronous alternative communication modalities, the combination of text-based communication and anonymity, unidentifiability, and lack of eye-contact, or perceived privacy, are all new components, unknown and unaccounted for by old psychological theoretical approaches. Moreover, the very new, unprecedented experiencing of a virtual environment, which is created in a person's mind and in which people may perform various activities through a computer, led to a feeling – supported by growing research – that traditional psychology had no valid tools to deal with this environment. Thus, new, creative, and innovative conceptualizations, or significant upgrades of older ones, had to be formulated to better account for people's behavior in cyberspace. Cyberpsychology thus attempts to encompass human behavior and experiences in cyberspace by observing psychological phenomena indigenous to cyberspace and relating them to people experiencing this emerging environment.

Our accumulated knowledge on cyberspace tells us that although some psychological phenomena that exist offline are similar, if not identical, to what happens in the online environment, other phenomena are different and unique to cyberspace. For example, research shows that some important dimensions of self-disclosure in the offline and online environments are very similar: people disclose more personal, intimate, and sensitive information about themselves to those they can relate to (Barak & Gluck-Ofri, 2007; Leung, 2002); that group norms affect the level of self-disclosure (Dietz-Uhler, Bishop-Clark, & Howard, 2005); and that interpersonal self-disclosure is reciprocal (Barak & Gluck-Ofri, 2007; Joinson, 2001; Rollman, Krug, & Parente, 2000; Rollman & Parente, 2001).

However, research has also found that people in cyberspace make more, deeper, and faster disclosures about themselves to others in that environment than in their physical environment (Barak & Bloch, 2006; Beck, 2005; McCoyd & Schwaber Kerson, 2006); this is apparently due to the unique effects of online disinhibition (Suler, 2004). Another example has to do with situation ambiguity and uncertainty: as in the offline environment, ambiguity that characterize the online environment in many cases affects people's behaviors and emotions so that they rely more on their imagination, cognitive processes, and personality dynamics than on actual, valid external information (Barak, 2007; Mantovani, 2002; Suler, 1996; Turkle, 2004). The elevated ambiguous environment typifying cyberspace, however, results in more intensive behaviors and emotions, as the role of personal processes becomes more central. This has a direct effect on people's experiences in the particular online environment, especially concerning personal engagements, from online dating (Norton, Frost, & Ariely,

2007), online interpersonal relationships (Levine, 2000) to sex (Whitty & Carr, 2006), as well as group behavior (McKenna & Seidman, 2005).

It is important to note that the field of cyberpsychology is not confined to specific *modes* of communication (e.g., e-mail, chat, forum, VoIP [Voice over Internet Protocol], webcam), *purposes* for using the computer and Internet (e.g., playing solitary or group games, learning, shopping, seeking information, undergoing psychotherapy), or *types* of online environment (e.g., information website, social network, chat room). Cyberpsychology, in other words, aims at detecting and understanding specific factors responsible for human behavior in cyberspace across and in interaction with specific dimensions of communication. Identifying psychological rules, as substitutes for or additions to general theories held in regard to human behavior offline, may contribute to a better understanding of people, on the one hand, and better exploitation of cyberspace toward this end, on the other.

Cyberpsychology – an Evolving Field

Serious consideration has to be given, however, to quite a few factors that significantly affect the development of behavior in cyberspace but – with rapidly developing, sometimes revolutionary, technology – that are impossible to predict. Projecting from the past several years, we now know that the introduction of what is known as Web 2.0 (O'Reilly, 2005), including blogging, podcasting, Wikipedia and other wikis, and photograph and video sharing, all of which emphasize users' creations and communications (as opposed to previously less users' created applications) as one of the major functions of the Internet, has actually had significant impact on cyberspace, in terms of purpose and intensity of use, interpersonal interactions, and the influence of online on offline experiences. Another example: The invention of content syndication through RSS has dramatically changed users' immediacy and mediation of exposure to both publicly and privately created content. This technological innovation, which influences what people are exposed to, has made a significant change in the use of the Internet for many and, naturally, makes online published contents more influential. Yet another example: Wireless Internet has become almost standard in many workspaces, schools, public places, and homes in recent years. This "simple" innovation, providing more flexibility of practical use than ever before, has profoundly changed the way many people communicate. If we add to this collection of advances the rapid, revolutionary development of Internet-enabled cellular phones, we can observe an unpredictable course of social changes. Nobody can yet predict what the open-source movement (see http://www.opensource.org) will bring about (in terms of human behavior), but perhaps it is part of another upcoming revolution. These examples show that cyberpsychology, unlike traditional areas of psychology, must employ hands-on technology and keep up with emerging

changes; findings, conclusions, and implications yielded at a certain point in time might be totally erroneous at another point.

Another powerful effect on human behavior in cyberspace might come from a totally different area: the legal arena. Changes in laws concerning computers and the Internet are taking place all over the world, particularly in regard to pedophilia, spamming, phishing, and hacking (Engel, 2006) but also in regard to online gambling and gaming. Consequent to the legislation is its implementation by enforcement agencies. Such moves may affect people's behavior online because, for example, a reduced sense of anonymity, even requirements to identify oneself in many online environments. As anonymity constitutes one of the major factors in determining people's behavior online (e.g., Suler, 2004; Tanis & Postmes, 2007), a lessening of this feature might significantly change online behavior patterns. In addition, probable changes in copyright laws may dramatically change people's use of online music, movies, books, and so on, consequently altering many of their offline behaviors, too.

The significant technological and legal changes, as well as the continued penetration of the Internet into varied aspects of people's lives, will undoubtedly affect their daily experiences and their general behavior, as well as the complexity of cyberpsychology theory. Unlike many other areas of psychology (and contrary to other disciplines), in which the field of study is relatively static and researchers concentrate on deepening its understanding, cyberpsychology is highly dynamic. This aspect creates added scientific challenges; what is considered a pioneering stage might last for many years, as long as new frontiers are established. Moreover, developments in the understanding of cyberspace and its possible exploitation for various psychological applications (Barak, 1999) will affect, in turn, many other fields of psychology, from counseling and therapy, diagnostics and assessment, and the study of cognitive processes to social interactions and relationships, and indeed research methodology.

The Future of Cyberpsychology

The future of cyberpsychology rests on synergistic collaborations. As a field that expands across all psychological disciplines, cyberpsychology will be most effective when experts from different fields work together. The cyberspace experience is multidisciplinary, drawing on all types of experts in the social sciences, as well as those in the technical fields of human-computer interactions. To join the pioneering of the science of cyberspace, psychologists must embrace the opportunity to work side-by-side with these other disciplines.

The future of cyberpsychology also rests on its understanding of the juxtaposition and interpenetration of online and offline living. How does online behavior affect offline behavior and vice versa? To maximize the well-being of individuals, groups, and societies, how should we balance and integrate online and offline lifestyles? The answers to such questions will do more than just

enhance our understanding of cyberspace. They will enhance our understanding of the human experience itself.

Summary and Conclusions

We have tried to define and characterize a new, evolving field in psychology, cyberpsychology. One of the main issues affecting this field of study has to do with the dynamics and rapid changes that distinguish it and that are caused by its very dependence on fast-growing technology, which in turn affects individuals and society in adopting this technology. This characteristic of cyberpsychology is quite unique compared with other fields of psychology, which typically refer to more static and stable subjects of research. Moreover, although we expect changes and, relying on technological projections and plans, have some clues concerning future developments of computers and the Internet, the past has taught us that even more technological breakthroughs are indeed inevitable. Consequently, cyberpsychology will have to refocus and adjust to these changes, which will likely have further significant effect on human behavior. For example, what is now only in very preliminary stages of development, such as Semantic Web (Antoniou & van Harmelen, 2004), ambient intelligence-embedded agents that operate complicated systems for the sake of the elderly, disabled, and sick people (Weber, Rabaey, & Aarts, 2006), advanced virtual reality (VR) therapeutic applications (Riva, Botella, Légeron, & Optale, 2004; Riva et al., 2007), advanced three-dimensional (3-D) social network systems to provide highly elevated virtual community and live gaming experiences, and the addition of senses of taste and smell into online communication – all such innovations unavoidably will have great effect on people and, hence, on the field of cyberpsychology.

To understand people's behavior in cyberspace and to apply this understanding in introducing actual changes – such as educating netiquette, fostering preventive behaviors, applying e-therapy, and conducting online learning – knowledge from traditional psychology might not be sufficient. In fact, reliance on such knowledge might be misleading in many instances. Exploration of new rules of behavior is needed, together with the formulation of new conceptualizations to more validly account for people's experiences in cyberspace. Although such attempts are in progress (e.g., Suler, 1996–2007), it seems that additional scholars from psychology and related fields who join this emerging field of cyberpsychology will contribute to crystallizing new ideas and conquering a new scientific frontier.

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