

Psychological applications on the Internet: A discipline on the threshold of a new millennium

AZY BARAK

University of Haifa, Israel

Abstract

The rapid developments in computers and information technology over the past decade has had an impact on psychology, which has moved in this context from local computer applications to network applications that take advantage of the Internet. This article critically reviews various psychological applications in use on the Internet, with special emphasis given to their promises and advantages as well as to their shortcomings and problems. Specifically, 10 types of psychological Internet applications are reviewed: information resources on psychological concepts and issues; self-help guides; psychological testing and assessment; help in deciding to undergo therapy; information about specific psychological services; single-session psychological advice through e-mail or e-bulletin boards; ongoing personal counseling and therapy through e-mail; real-time counseling through chat, web telephony, and videoconferencing; synchronous and asynchronous support groups, discussion groups, and group counseling; and psychological and social research. Following a discussion of ethical and related concerns, a call is voiced for intensive research and international brainstorming.

Keywords: Internet, Internet applications

The emergence of information technology over the past decade, its widespread use at a reasonable price throughout the world, and the relative success of “user-friendly computers,” which allow more people to use computers, are significantly reflected in the field of psychology. The technological advances initially affected local and individual operations in classes, laboratories, and clinics (e.g., teaching aids, storage of information, editing of documents, local experimentation); this quickly changed to include group and community activities through the introduction of computer networks. The formation of the Internet—a global computer network that connects ever-growing numbers of local networks and computers—has indeed created a “global village,” where people communicate and interact on-line with ease.

Computer-mediated communication, using utilities such as electronic mail (e-mail), open virtual discussion groups (e.g., newsgroups), forums (which usually refer to specified or restricted groups), real-time text correspondence (e.g., chat rooms), voice exchange (telephony), and face-to-face video communications (videoconferencing), has now become routine and a normal part of everyday operations for business, education, and pleasure alike. The evolution and success of multimedia-aided commerce, telmedicine, distance educa-

tion, newspapers, and play, all using rapidly developing communication technologies that reach out to many individuals, families, and communities, have created an ever-growing, self-reinforcing “magic circle” (Garton, Haythornthwaite, & Wellman, 1997; Jones, 1995; Morris & Ogan, 1996).

Psychology (and related professions) joined this trend modestly toward the end of the 1980s (see Zgodzinski, 1996, for a brief historical review) as a normal extension of the previous use of local computers for multiple functions (Ishak & Burt, 1998). Apart from e-mailing among professionals, psychological applications using the Internet, especially the World Wide Web (WWW), have appeared only relatively recently. Psychology is now discovering the great opportunities inherent in this medium, such as the use of the Net for approaching people more easily to initiate social change (Sampson, 1998), consulting with youngsters and adults (Casey, 1995), providing school counseling (Gray, 1997; Hartman, 1998), training and promoting team decision making (Kruger, Cohen, Marca, & Matthews, 1996), sexuality education (Barak & Safir, 1997; Cooper, 1998), and generally contributing to mental health care by means of consultation and supervision (H. A. Smith, 1998; Stamm, 1998).

The purpose of the present article is to critically review the literature on different psychological applications used on the Internet and to point out their strengths and weaknesses. At the present time, research is very limited in both the number and scope of studies. Consequently, this review is descriptive

Send correspondence and reprint requests to: Azy Barak, Department of Psychology, University of Haifa, Mount Carmel, Haifa 31905, Israel. E-mail: azy@construct.haifa.ac.il

and practically oriented in nature. It is hoped that additional reviews will soon complement this one to present a more scientific evaluation of these state-of-the-art psychological endeavors.

Types of Psychological Services Provided on the Internet

The Internet contains a variety of psychological means and services. This review is based on a typology of those functions, classified primarily by their purpose. As the Internet presents a dynamic phenomenon based on rapidly developing technology and evolving ideas, the list should not be considered final or closed; it is intended for presently valid descriptive purposes only.

Information Resources on Psychological Concepts and Issues

Numerous psychological information banks are available on the Internet. They include accumulated information and knowledge bases covering a variety of psychological phenomena, issues, symptoms, diseases, and concepts (see, for example, The Mental Health Net at <http://www.cmhc.com>). The archived materials contain descriptive text, frequently accompanied by graphics, pictures, statistical tables, and the like. In some cases, movie clips are available as are sounds clips where applicable. In addition, quite a few comprehensive indices are available that provide selected and prearranged hyperlinks to numerous psychology-related websites (see, for example, Online Dictionary of Mental Health at <http://www.human-nature.com/odmh/index.html>).

The psychological information banks and resources on the web (see a descriptive list of a wide sample of such resources by Tedjeske, 1997) differ from one another in several ways: (a) *Generality versus specificity*: There are websites that include *general* indices, catalogues that contain references to numerous psychological concepts (similar to an encyclopedia), and others that refer to a single concept or to a group of concepts in a certain psychological area. (b) *Professional level expected of users*: Information resources differ from one another in terms of the professional and/or intellectual level expected of their users. Some resources are highly professional and assume prior training (and even professional or academic education) in psychology or a certain psychological area, whereas others target the general public, students, and so on. (c) *Updating*: Some information resources, usually those provided by professional organizations, government agencies, or academic institutions, are updated on a regular basis, others are left relatively untouched as far as new knowledge and revisions are concerned. This creates a critical problem regarding the accuracy and credibility of the information provided, and users are often left to decide for themselves the degree to which they can rely on the validity of information in any given site. (d) *Theoretical orientation and discipline*: Similar to any writing in psychology, con-

cepts are described and analyzed differently, based on the psychological and/or philosophical school with which the writer identifies. (e) *Thoroughness*: Some databases provide minimum information or brief definitions or descriptions, whereas others provide extensive, detailed, and thorough discussions. (f) *Hypertextuality*: This feature is used in different degrees and at different levels of sophistication. The Internet enables a quick link and immediate connection to other references, and information resources regularly interlink with related concepts included in any given description, within the same webpage or website, or even with other websites. (g) *Use of multimedia*: Most databases include text or text and graphics; some include various forms of multimedia aids, from slide shows and animated graphics to sound and video clips. Multimedia is especially used for reviewing concepts, discussing subjects, or explaining a phenomenon, such as physiological terms, hypnosis, and descriptions of certain psychological experiments. Multimedia web applications are considered excellent vehicles for educational purposes.

Professional psychological information banks may be of value as a scientific resource for practicing psychologists, teachers of psychology, and lay people alike. Being a convenient, inexpensive (usually free), frequently updated, and efficient resource, psychological web-information bases are regularly and increasingly being used by psychologists and professionals from related professions (Wilson, 1995). In comparison with traditional professional resources—including books and journals—web resources have several advantages: They are available at anytime and from anywhere; relevant information can easily be copied, retrieved, or printed; and they include information in channels other than text and pictures that cannot be communicated by traditional resources. The digital nature of the text enables easy, fast searching of desired information without having to rely on a general index provided by books or journals. Although no empirical study is yet available, nonsystematic observations show that web-information resources covering a variety of subjects, from vocational information (Drake & Rudner, 1995) to medical-related topics (Fogel, 1998; Wood, 1997) are widely used by professionals and various kinds of user populations (Chapman & DiBianco, 1996).

Web-information resources are a source not only for valuable information, but for mistaken, biased, distorted, old, inciting, or fake information, too. Jadad and Gagliardi (1998), Silberg, Lundberg, and Musaccio (1997), and Wood (1997) discussed such a problem in the sensitive, related area of medicine. This situation may be especially problematic with young or naive users, who are likely to be less selective about information content. It is an acute problem that generally characterizes the Internet, because the materials in many cases are individually published and not professionally moderated or preselected. It seems that proper education, highlighting the sophisticated use of Internet resources, could reduce the possibly severe consequences of this problem. Other suggestions for dealing with this issue involve establishing

and enforcing standards for medical web publications (Mack, 1997) and instituting a specific code of conduct (Health on the Net Foundation, 1997).

Referring to the problems reviewed previously, several groups of researchers (DiBlassio et al., 1999; Doran et al., 1998; Morse et al., 1998) made impressive attempts to design a method of evaluating psychological and healthcare information-resources websites. These research groups developed an index, based on six categories (i.e., Promote Belonging, Practical Suggestions for Change, Feedback Mechanisms, Clear and Adequate Information, Promote Normalization, and Referral Mechanisms), by which the quality of a psychological-related website can be assessed. Using this index, the evaluation results of a broad sample of websites were less than impressive.

One of the more profound applications of web-based psychological-information resources has to do with users' vocational concerns (Drake & Rudner, 1995; Forrest, 1995; Lorenzen, 1996; Stevens & Lundberg, 1998). Numerous websites are available that include information on the nature of occupations, jobs and positions, training and education paths, application procedures, and the like. In attempting to help users become oriented within this mass of information, Doyle and Martorana (1997) described the types of information needed for an Internet-user job-seeker. The career-related information, however, is not the only possible benefit from using these data bases: Lundberg and Thirsk (1995) argued and demonstrated that the Internet is not only efficient in promptly retrieving relevant information, but it can also serve as a positive element in an individual's career development by helping in his/her reality orientation through broadening vocational horizons while narrowing focus. Chapman and DiBianco (1996) showed how the Internet may be efficiently used by high school students to explore employment and continuing-education opportunities. An example of a comprehensive, versatile, computerized career-information system is described by Imel (1996). The variety, scope, accuracy, and richness of information offered in an advanced system, although operating for different types of consumers for different purposes, offer proof that Internet technology may be employed as an efficient aid—though not a substitute—for career counselors and educators.

Self-Help Guides

Numerous Internet sites are aimed at people in need of psychological help, and they provide guidance on how these people may help themselves. Self-help topics are various and numerous: eating disorders, parent-adolescent relationship difficulties, fears, vocational and educational decision making, certain learning difficulties, sexual dysfunctions, alcohol or smoking cessation, self-confidence, assertiveness, shyness, emotional disorders, and many more (see, for example, Healthy Devil On-Line's Depression self-help guide at <http://h-devil-www.mc.duke.edu/h-devil/emotion/depress.htm>; or YouthWork CareerQuest's career exploration

materials at <http://www.youthworks.ca>). Many sites offering guidance in self-help provide an assessment of the problem and an evaluation of its severity, information concerning the background and development of the problem, directions and possibilities for positive change, and a plan oriented toward a constructive goal. The emphasis is on self-helping behaviors, usually intended for individual use, in which the instructions provided in the website supply the sole guidance resource. In some cases, however, the website may recommend other media, such as certain books or pamphlets, as additional instructional resources.

Although self-help guidance is not a new psychological means of intervention (Adams, 1990; Gartner & Riessman, 1984), it seems that use of the Internet for this purpose indeed adds a significant step in enabling this service to be provided free (or for a relatively small fee) and in relative privacy. Previously people in need had to purchase relevant materials or consult with a librarian to retrieve them; now, with easy-to-use search engines and hypertextual indexed links, the Internet makes it possible to access relevant sources quickly, efficiently, and with full discretion.

An example of self-help intervention was provided by Kovalski and Horan (1998), who designed a website that identified girls' maladaptive career beliefs and offered self-monitored cognitive restructuring intervention to change them. In an empirical investigation, the authors found that the intervention had positive effects for Caucasian participants, but not for minorities. The possible reasons for this differential impact are still to be examined, but one may speculate that Internet-based interventions interact with personal characteristics. In another example, Finn and Lavitt (1994) showed that self-help guides for women who had experienced sexual abuse could be of great help. This special case is an example of how a psychological distress that is characterized by feelings of shame and interpersonal anxiety may be aided by an anonymous Internet service. Similarly, it seems that one of the advantages of such a psychological service is that it addresses special populations (e.g., children, celebrities, people with certain disabilities) that otherwise may not obtain psychological help. Pereira and Bruera (1998) recently showed how Internet resources and self-help guides may be of much assistance for palliative care and hospice patients—a patient population that typically avoids regular psychological self-help resources—though they highlighted the problem of the lack of editorial control and of a review process.

Psychological Testing and Assessment

Many websites include psychological tests and questionnaires whose aim is a psychological assessment of the user. Some of the tests focus on measuring very specific factors, such as IQ, a specific aptitude, emotional intelligence, or a certain attitude; others are more general and evaluate various personality characteristics, vocational interests, and the like (see an example of an Emotional Intelligence test at <http://www.utne.com/cgi-bin/eq>). Although many of the

tests are original—that is, created for use at a website—others are just electronic versions and adaptations of previously published paper-and-pencil tests. Some of the websites include complete tests (or scales), others are only examples of several items. Some websites enable submission of a filled-out test and obtaining results immediately; others provide this service through e-mailing the filled-out form and sending back the results only at a later time. Also, although many websites provide this service free, others charge for it. It should be noted that in order to prevent (or bypass) copyright violation, some tests published on the Internet are based on a variation of an original test. This step made to avoid legal problems might thus create significant damage to the quality of a test.

Psychological testing through computers is not a new endeavor, and it has some unique advantages, such as the use of adaptive testing and fast, accurate scoring (e.g., Sampson, 1995). The Internet as a medium for psychological testing, nonetheless, has several advantages, some identical to those of personal-computer testing and others that are unique. First, it enables fast, simple, convenient, and highly accessible testing. Second, because the user's responses are made electronically (through mouse clicks on the computer screen), they are ready for scoring (and other statistical use) as soon as the respondent has finished taking the test. Third, scoring is done electronically and, thus, is practically errorless. Fourth, updates of instructions, test items, scoring technique, and norms are easily made at a central location and are active immediately. Fifth, tests may be taken at any time and any place for maximum convenience. Sixth, there is a saving on expendable materials.

One additional and highly important advantage of Internet-based testing is related to a specific capability of the computer that is impossible in standard testing: the use of three-dimensional (3D), virtual reality, graphical interface. In cases in which perception is to be assessed, such as three-dimensional spatial-ability testing or subjective perceptions of reality (e.g., body image), a computer can be of much use. Riva (1998) discussed the use of virtual reality in psychological assessment and exemplified this feature with a specific assessment application to measure an individual's body image. As he noted, the application can be applied through the Internet rather simply.

Internet-based videoconferencing may be efficiently used for psychological assessment, too. This is particularly important in cases in which diagnostic experts are geographically far apart. Ball, Scott, McLearn, and Watson (1993) showed how an assessment of schizophrenia, depression, and movement disorders in psychiatric patients can reliably be conducted through videoconferencing.

There are several problems and disadvantages to Internet-based testing that might violate accepted psychological testing standards (American Psychological Association, 1985). First, many of the tests and questionnaires published on the Internet are nonprofessional or, at best, have not been devel-

oped or used according to accepted testing standards in terms of item construction and selection, internal consistency, test-retest reliability, and internal and external validity checks. This results in many invalid tests and testing procedures and, subsequently, in invalid assessment and evaluation. Moreover, typical Internet users have no way to determine the degree of validity of a given test, and hence they have to rely on their intuition. Many websites that include tests try to persuade users of the accuracy of the test results, though the tests are not necessarily based on rigorous scientific examination. Second, as described earlier, most testing websites are interactive; that is, they provide stimuli to which users actively respond. As a general rule, users' responses are accumulated by the website owners. Because many sites ask for personal identification and other personal details, there is a great problem of privacy in regard to highly sensitive information. Although some websites promise privacy, many do not refer to this ethical issue at all.

In contrast to regular test-taking procedures, the contact with test-takers using the web is indirect, and there is no way to confirm that they have understood instructions and/or items correctly or to provide them with ongoing guidance. This situation may distort the validity of the test results. Tests are published and offered to all web users, with no moderating as to who can, should, or may use a test. Many sites just ignore the question of the fitness of taking a test altogether. Test results and related assessment are provided to test-takers with no (or with minimum) support in terms of explanation and guidance concerning the meaning of the assessment, its accuracy, its implications, and so on. Moreover—and this omission is especially problematic in cases of negative feedback to test-takers (e.g., low IQ or ability-test scores, assessed negative or weak personality traits)—no emotional support is provided. The consequences of such processes may be very harmful personally. Also, the working assumption is that a test is taken under standard conditions by a certain individual (and not by collaborators), without any help or interference. This assumption may commonly be violated, and hence web-based tests cannot be presumed valid for *selection* purposes, and hardly so for counseling and guidance purposes, unless minimal monitoring is available.

Despite these serious limitations, the advantages of testing and assessment through the Internet do offer some positive opportunities. If provided by professionals or professional agencies in connection with ongoing counseling or therapeutic process, testing websites may offer a great improvement over and in addition to standard testing and assessment procedures because of the speed, efficiency, and greater access inherent in the former. A basic question, however, concerns the extent to which a paper-and-pencil test preserves its psychometric quality when administered on-line. In a recent study, Pasveer and Ellard (1998) compared a self-trust questionnaire administered in both versions to college students. Generally, they found that psychometric values were comparable; the only significant difference was that scale variance

was larger in the Internet version of the test, but no explanation for this finding is yet available. In another study, Bicanich, Slivinski, Hardwicke, and Kapes (1997) compared the results of vocational tests administered through paper-and-pencil and/or through the Internet to secondary and post-secondary vocational education students. The authors reported that Internet delivery was as easy as conventional testing, that students showed positive attitudes toward and an actual preference for Internet testing, and that the on-line tests required less administration and preparation time; they could save money if administered to a minimum number of examinees. Their conclusion was that the Internet represented a viable, cost-effective alternative to paper-and-pencil testing.

Help in Deciding to Go into Therapy

Many websites provide information whose purpose is to help users decide whether they need therapy, which type of therapy is best for them or for their individual problem (e.g., individual versus group, type of therapeutic approach), what therapist may fit their needs and desires, and so on (see, for example, "Just The Facts" by the American Psychological Association's at: <http://www.apa.org/practice/psychotherapy.html>, or a registry of therapists offered by Psyfidential at: <http://www.clinicalregistry.com/registry.html>). This information has an educational function that may be of great importance for people who are ignorant about psychology or psychotherapy by helping to make their expectations more realistic, as well as to offer them practical help. Moreover, these sites may actually improve the therapist (or clinic)-patient match in that potential patients may choose therapists who better suit their personal preferences and are more capable of helping them with their personal problems. However, in order to prevent ethical and/or legal problems, information provided by these sites should be fully neutral and valid, and there should be no attempt to solicit clients or influence them by inaccurate or exaggerated information. Tacit or implied solicitation, based on unknown validity is, however, quite common in mental health Internet sites. Hence, it seems that to fulfill professional ethics expectations such websites should be promoted through a professional association (e.g., APA) or another independent body that would be able to play a neutral role and avoid commercial considerations.

Information About Specific Psychological Services

Numerous psychological agencies, clinics, institutes, and services advertise through a website. Normally information on such sites includes technical details, such as location, telephone numbers, e-mail address, operating hours, details about specific services provided, and staff (see, for example, The Student Development Centre of The University of Western Ontario, at: <http://www.sdc.uwo.ca>). Many services also include information about deciding on a clinician or a clinical procedure and supply a diagnostic questionnaire. These

advertisements may thus provide information not found in a phone book. Moreover, additional information may easily be attained through e-mail correspondence, which is available from practically all of these sites. Hsiung (1997) collected 200 "virtual pamphlets" from 52 university counseling centers and created a "Student Counseling Virtual Pamphlet Collection" for use as a multiple resource for students in need of information and related decision making. The end product of this rich data base can be observed and used at: <http://uhs.bsd.uchicago.edu/scrs/vpc/vpc.html>. Zalaquett and Sullivan (1998) reported on the use of an Internet-based computer program that provided educational and mental health information to students referred to a counseling center. A 3-year follow-up on program impact showed that users found it very helpful and indicated they would recommend it to others.

Single-Session Psychological Advice Through E-Mail or E-Bulletin Board

Numerous websites offer advice to users on personal questions and problems and on various psychological topics. Such a service is specific, centering on one problem area (e.g., sleep disorders, sex) in some websites, but broad and general in others (see, for example, Columbia University's Go Ask Alice, at: <http://www.goaskalice.columbia.edu/index.html>). In certain websites, users are asked to identify themselves personally, but in most they may retain anonymity (or use pseudonyms). Although some websites charge for such a service, many others provide it free. There is no accepted standard as to the length and depth of an answer, further correspondence and follow-up questions, use of references, and so on. There is also no standard relating to a decision as to when a user should be referred to personal counseling; often, users are in fact encouraged to refer to actual therapy for the problem they have presented.

In many cases, the correspondence between user and advisor is fully discrete. In other cases, the question and the answer are published on a public electronic bulletin board so that other users may benefit. As a general rule, this procedure is known to users prior to their sending in questions, and they give their consent to this practice after reading the instructions by allowing their questions to be published. In these cases, pseudonyms are usually employed to prevent personal identification.

Browsing through numerous relevant websites leads to the impression that psychological advice is provided by various types of advisors: psychologists (of various specialties), psychiatrists, social workers, and counselors, as indicated by their self-presentation; however, many advice services are provided by advisors coming from a wide variety of backgrounds, some professional and others not: nursing, medicine, teaching, management, healing, and religion. In most cases, advisors provide some kind of self-presentation, apparently to make their advice credible; some websites, though, give no such presentation or only a very general description.

No reliable statistics are available as to the actual use of web advice or single-session counseling. Web counters (Internet-based software that counts entries to a webpage) attached to websites cannot be considered reliable as their totals include multiple entries by single users. According to information published in some websites, the same users do refer very often to their services; obviously, this claim cannot be regarded as a reliable source of data. Important questions remain to be answered: To what degree do users read the questions and answers, assimilate the information provided, and are influenced by them? Is the use of single-session consulting effective in terms of psychological help? Does reading questions and answers on a virtual bulletin board have a personal impact? Empirical research is needed to answer these questions.

Ongoing Personal Counseling and Therapy Through E-Mail

One of the most prevalent, but highly controversial, psychological-related applications on the Internet is that of ongoing personal counseling and therapy (see an index of e-mail therapy providers, mostly American, and related information at: <http://www.metanoia.org/imhs>). In principle, this type of service provides treatment through e-mail correspondence without face-to-face communication. The process is generally similar to a face-to-face psychotherapy session as far as basic therapy ingredients, the nature of communication, and verbal exchanges are concerned (see L. J. Murphy & Mitchell, 1998, and Polauf, 1998, for detailed descriptions and analyses). There are, however, several essential differences between this type of therapy and the traditional type: (a) No face-to-face interaction exists, hence nonverbal communication is very limited and almost entirely nonexistent (except for nuances, which may be expressed in writing style or format). (b) In contrast to standard therapy, in which a therapist and a patient meet periodically (e.g., once a week) and hardly (if ever) communicate between sessions, the rate of communication exchanges in e-mail therapy may vary and be rather highly responsive. This rate—whether daily or even more than once a day, or just once or twice a week—differs among therapists, among patients, or along the therapy process, as agreed upon between a therapist and a patient. (c) Therapeutic exchanges may include quotations from current or previous messages. As opposed to traditional therapy, this option is rather easily available because all verbal expressions are documented; earlier messages are accessible because they have been stored in the client's and counselor's computers. Similarly, a therapist (or client) may easily quote other electronically based resources, such as any text that may be of relevance to the therapeutic conversations. (d) Messages may be unspontaneous, as the delayed-correspondence technique enables thinking, planning, and editing of any message.

Clearly, this type of psychological counseling has advantages and disadvantages that are different from traditional

therapy. On the positive end, one may list (a) the possibility of making the intensity of interaction flexible vis-à-vis the severity or urgency of the client's problems or needs; (b) a simple, efficient use of accumulated verbal exchanges between the therapy partners, which may be used to compare, confront, or remind clients (or counselors) of things they had expressed; (c) an easy and valid way to supervise counselors, as all the therapy material is readily available to supervisors; (d) easy access for people in need of therapy who refrain from using conventional psychological services for a number of reasons, whether older age, difficulties in transportation, personal handicap, need for anonymity, shyness or the fear of face-to-face disclosure or interaction, sickness, having no free time for therapy during regular working hours, and living in a remote place (Childress, 1998; Cutter, 1996a; Huang & Alessi, 1996; Sampson, Kolodinsky, & Greeno, 1997; Uecker, 1997). For example, Gerler (1995) showed that Internet-based counseling may be of special importance for youngsters and, thus, advance school counseling services; (e) opportunity for therapeutic exchanges when time is available, whether to patients or therapists, independent of the time of the day; (f) the impact on people who a priori like, prefer, or are impressed by written messages over spoken ones; and (g) the offer of simulated therapy, accompanied by appropriate guidance and supervision, as an effective training tool (Galanter, Keller, & Dermatis, 1997).

On the negative end, one may note several significant factors, as well (Ainsworth, 1997; Childress, 1998; Ingram, 1998; Sleek, 1995): (a) The absence of regular face-to-face interaction and of eye contact between therapist and patient causes nonverbal cues to be unavailable for developing better interpersonal communication. This refers to the ability both to transmit messages through nonverbal cues—body language and voice characteristics—and to receive them whether on the part of the counselor or the client. This limitation should not be regarded as marginal, because well-documented findings point to the significance of nonverbal cues in interpersonal communication in general and counseling interactions in particular. (b) The absence of direct contact between therapist and patient and the seemingly formal format of a relationship based on an exchange of typed letters might seriously limit the counselor's ability to show care and positive regard or the perception of the counselor in that regard. Rice (1997), summarizing several criticisms of e-mail therapy, concluded that it should at most be considered "advice-giving" rather than "real therapy." (c) Regular e-mail correspondence is not considered to be confidential and private as the possibility of tapping electronic messages is relatively easy. Recent developments in web cryptography, however, will soon help solve this problem (Zimmerman, 1998).

Although these negative factors may present obstacles to conducting effective counseling through e-mail, it seems that their actual impact is rather small. Walther and Burgoon (1992) found that the emotional experiences of participants in face-to-face versus computer-mediated interactions were minimal and

disappeared after time. In a study of a group situation, Colon (1996) found that although interactions and communication were made solely through the mediation of computers, group members easily developed real feelings toward one another. Walther (1996) argued that Internet communications are guided by specific rules and norms that make them "hyperpersonal." This characteristic may have an advantageous aspect in therapeutic relationships. That is, the tendency of Internet users to use self-presentations and to supply highly selective, magnified feedback to others can create accelerated dynamics of virtual interpersonal relations (Walther & Boyd, 1997; Wellman, 1997). In addition, the ability of therapists to develop and show care and warmth through e-mail interactions and to enhance necessary therapeutic relationships and bonding should still be thoroughly examined (Robson & Robson, 1998; Sanders & Rosenfield, 1998). A recent, unique survey (Powell, 1998) attempted to gather information from on-line therapists about their therapeutic experiences with patients; however, as only 13 of the 50 sampled therapists (26%) responded, drawing conclusions might prove erroneous.

Nevertheless, there are several unique advantages to e-mail counseling over traditional, face-to-face counseling. First, as noted previously, full counseling dialogues are easily archived and documented as well as readily accessed for use by either the counselor or the client. This capability may be of special importance to both parties in referring to past interactions and using accurate quotations. The archived information, furthermore, may easily be employed for the sake of research or supervision (Myrick & Sabella, 1995). Second, as with bibliotherapy (e.g., Doll & Doll, 1997), reading and writing through e-mail may involve a unique personal mechanism that facilitates self-disclosure, ventilation, and externalization of problems and conflicts and that promotes self-awareness. Third, the asynchronous nature of the therapeutic communication allows receiving (reading) and transmitting (writing) messages when convenient and needed, unrestricted by external confinement, such as session timing and length. Fourth, convenient browsing through messages, the ability to send multiple copies and to forward messages, easy use of quotations, options for back search and fast retrieval, and easy editing combine to make e-mail-based therapy unique. E-mail-based counseling may thus be very effective, especially in certain circumstances, as was exemplified by King, Engi, and Poulos (1998) for family therapy, Stevens and Lundberg (1998) for career counseling, and Jerome (1997) for adolescence. Because of the controversial nature of this service and the professional, ethical, and practical problems and limitations involved, Binik, Cantor, Ochs, and Meana (1997) advocated that Internet and computer technology should be used as an *accompaniment or support* for traditional psychotherapy. Lack of empirical research makes it impossible at this stage to provide an objective evaluation of the effectiveness of on-line therapy. Preliminary results of a survey conducted by King and Moreggi (1998) generally support its success; however, a small sample size (35 con-

sumers and 30 providers of on-line therapy) and the nature of that study do not allow valid conclusions.

Real-Time Counseling Through Chat, Web Telephony, and Videoconferencing

Although e-mail-based counseling is asynchronous and allows counselor and client to be in touch not only while in different locations but also at different times, this method undermines spontaneous and immediate reactions and the inclusion of their input in the therapeutic endeavor (see Suler, 1998, for brief descriptions and Internet links). Several methods are available that make synchronous communications through the Internet possible: (a) Chat, which enables Internet users to communicate (in writing) on-line, in real time, through a virtual chat room or a particular software (e.g., ICQ: a friendly, free Internet chat software that enables text chat between two online Internet users); (b) Web telephony, which makes real-time speaking over the Internet possible, using a microphone and speakers; and (c) videoconferencing, which allows real-time interactivity by video equipment installed in each party's computer station (see Crowcroft, 1997). All these methods are widely available and permit a relatively high (and still improving) level of quality of communication. It is important to note that whereas web chatting and telephony allow almost complete anonymity, videoconferencing involves an element of personal identification because it permits the viewing of participants. All these methods are, in principle, similar in many ways to regular phone-based conversations; as such, they are exposed to similar limitations as therapeutic devices (King et al., 1998; Sanders & Rosenfield, 1998). Still, these applications are relatively new and are presently undergoing significant technical upgrades to improve quality and speed of communications. As a result, quite a few psychological uses have been proposed and practiced with them, such as language disorders (Kuster & Poburka, 1998), applications of psychoanalytic therapy making special use of the virtual nature of cyberspace and spontaneous interactions (Lajoie, 1996), work-related consulting (Buxton, Sellen, & Sheasby, 1997), assessment of schizophrenia (Zarate et al., 1997), general psychiatric disorders (Ball et al., 1993), and neuropsychological services (Troester, Paolo, Glatt, Hubble, & Koller, 1995).

It is interesting to note that an Internet version of *Eliza*—an automatic, robot-like counseling program—is available for free use (accessed on-line at: <http://www.planetary.net/robots/eliza.html>). As indicated by Odell and Dickson (1984), a personal dialogue with *Eliza* may provide some relief to on-line users, though cautions are documented, too (Dewdney, 1985; J. W. Murphy & Pardeck, 1988). *Eliza* may also be used as an efficient teaching tool (Suler, 1987), especially its Internet version.

Synchronous and Asynchronous Support Groups, Discussion Groups, and Group Counseling

The Internet easily allows efficient group communications, in which a person may deliver messages to a number

of people in real time (i.e., synchronous communication) or in receiver-initiated time delay (i.e., asynchronous communication). These options have facilitated group communication in Internet applications known as Newsgroups (Usenet), Chat Rooms, Discussion Groups, and Web Forums, each defined by specific technological and/or functional characteristics, but all allowing the formation of group discussions over the Internet. Newsgroups—which existed initially for an exchange of information on numerous technical topics among Internet users—have now formed a number of forums in which participants share personal experiences, vent emotions, and present ideas as well as offer advice and emotional support (see a general introduction to virtual support groups by Henry, 1997). It is believed that the first pre-designed computer-mediated support (or mutual-help) groups emerged as early as the late 1980s and beginning of the 1990s. These were support groups for senior citizens (Furlong, 1989) and AIDS patients (Bosworth & Gustafson, 1991; Brennan, Ripich, & Moore, 1991), and they generally followed the intensive use and accomplishments of face-to-face support groups (see Gartner, 1998). On-line support groups can easily be found and accessed through Internet search engines, numerous Internet indices, and printed guides (e.g., Grohol, 1998; White & Madara, 1998). The capability offered by virtual communication on the Internet of being in touch with other Internet users while maintaining anonymity seems to have a unique influence on participants. For instance, the use of pseudonyms that prevent personal identity (and even personal gender) increases exposure and openness (Jaffe, Lee, Huang, & Oshagan, 1995). Moreover, as was found by McKenna, Katelyn, and Bargh (1998), anonymous participation in focused virtual groups helps facilitate participants' self-identity and self-acceptance.

Studies of support groups, such as one dealing with depression (Salem, Bogar, & Reid, 1997), have revealed that people communicate in them in ways that are characteristic of face-to-face communications; that is, with high levels of support, acceptance, and positive feelings. Moreover, more men than women were found to participate in this particular group, which fostered the assumption that on-line groups might provide a unique form of support for persons who are not likely to use traditional forms of professional help. Aware of the psychological capabilities of these on-line functions, psychologists and related professionals have initiated virtual group services, paralleling those offered in traditional face-to-face intervention modes, and advocated their use (e.g., Madara, 1997). Even participating in a play-like virtual group, such as MultiUser Dungeons (MUDs) or The Palace (a multimedia-enhanced virtual chat environment), may constitute a psychotherapeutic process and help in constructing a positive self-identity as well as in working on emotional problems (Suler, 1996a; Turkle, 1996). Numerous support groups have been created, offered, advertised, and executed in various problem areas: women with breast cancer (Sharf, 1997; Weinberg, Schmale, Uken, & Wessel, 1996; Weinberg, Uken,

Schmale, & Adamek, 1995), recovering addicts (King, 1994) sexual-abuse survivors (Finn, 1995; Finn & Lavitt, 1994), bereaved parents and those coping with death (Schwab, 1995; Sofka, 1997), career exploration (Herman, 1997), social phobia and avoidant personality disorder (King & Poulos, 1998), obsessive-compulsive disorders (Stein, 1997b), medical concerns (Davison & Pennebaker, 1997), suicide (J. K. Miller & Gregen, 1998), single mothers with infants (Dunham et al., 1998), parents of children with special needs (Mickelson, 1997), and eating disorders (Winzelberg, 1997). They are also available for people without a focused concern (Colon, 1996). Although most support groups are asynchronous (i.e., based on exchanges of e-mails), synchronous groups exist as well through Internet relay chat (IRC). As argued by M. W. Miller (1997) after reviewing cancer patients' support groups, the real-time nature of the communications in some cases may have a unique significance for the impact of the support.

Despite the remote, technical nature of computers and the fact that on-line communication commonly operates among people who have never met in person, people who participate in on-line group interactions can develop a sense of community and are able to offer a virtual shoulder (Jones, 1995; Spinney, 1995; Sudweeks, McLaughlin, & Rafaeli, 1998; Wellman, 1997; Wellman & Gulia, 1995; Wellman, Salaff, Dimitrova, Garton, Gulia, & Haythornthwaite, 1996). This virtual community is similar to a real community in some ways, and very different in others. For instance, people who engage in on-line groups tend to feel uninhibited in many ways, a feeling that facilitates fast, intimate disclosure and frank, authentic responses, on the one hand, but aggression and lack of order, on the other (Huang & Alessi, 1996; Sproull & Kiesler, 1995). In participating in an on-line group, people also find a great opportunity to satisfy their voyeuristic needs by "lurking"; that is, being present but as unknown, passive observers of the group's intercommunication. Regardless of what needs are satisfied, and what expectations are met, it seems that participation in on-line groups, especially those that function as self-help or mutual-help groups, is important for both individuals and the society (Humphreys, 1997). Interestingly, it was found that a content analysis of written messages among on-line support-group members may be used as a valid diagnostic indicator of emotional and mental state (Fekete & Osvath, 1997).

As with individual on-line therapy, support groups are not without problems and pitfalls (King & Moreggi, 1998; Lebow, 1998). In addition to uninhibitedness, which may lead to aggression and lack of order (Reid, 1994), various other difficulties and limitations are common. For example, the intensive and potentially limitless use that the Internet enables may cause the development of dependence and even of addictive-like behaviors (Brenner, 1997; Griffiths, 1997; Young, 1996). Participants may mislead others in regard to their background, experience, or expertise and cause disturbance or even damage. Unsatisfied psychotherapy clients may advocate against professional help or certain profes-

sionals (Chambliss, 1996). Finally, the nature of text-only communication engenders many misunderstandings. Among negative descriptions of the use of Internet support groups, Krumboltz and Winzelberg (1997) reported that an eating-disorders on-line group was problematic because of an overestimation of clients' computer knowledge and skills and because of violations of privacy. Pingree (1996), who monitored the use of a health-related-concerns Internet support system that targeted AIDS patients, discussed the problem of economic barriers, which causes people in disadvantaged social groups (e.g., minorities, women) to have fewer opportunities to obtain this type of support.

Professional discussion groups (through ListServ—an e-mail distribution list—or other Internet utilities and functions) have become a common practice for professionals in numerous specialties both for consultations and for keeping one another informed of various professional matters. These discussion groups provide an opportunity to post messages, ask for opinion and advice, provide consultation, share data and information, and so on (see, for example, a list of professional virtual forums at: <http://www.shef.ac.uk/~psysc/InterPsych/inter.html>). The use of the Internet makes these activities easy to access and offers fast, broad communication with a large number of other professionals worldwide. The emergence of these discussion groups in various areas in psychology and related professions (usually classified by specialization, focus of topic of interests, or language), has led to the creation of a huge number of active groups. Their number is continuously increasing, and surveys usually report much success with such groups (e.g., Myrick & Sabela, 1995; Rust, 1995). In addition, professionals consistently report the contribution of these groups to training in such areas as rehabilitation (Gilbride, Breithaupt, & Hoehle, 1996) and career counseling (Sherman, 1994).

Psychological and Social Research

As a human-interactive environment, the Internet may be used for various kinds of psychological and social research. Initially the Net was used in this area as a means to solicit participants for research or conduct surveys; it then gradually also became a framework for laboratory studies. Enabling objectivity, convenient manipulation and control if desired, monitoring and follow-up, and standardization, and characterized by its relatively low-cost and efficient operation, the Internet is thought to offer excellent research opportunities. Schmidt (1997a) outlined the benefits and advocated the use of the Internet to conduct survey research, especially when the proper utilities are employed, despite several disadvantages (Schmidt, 1997b; see also Mehta & Sivadas, 1995).

One of the major methodological concerns is that Internet users, and those who volunteer to respond to a survey, may present a biased sample; that is, one that does not represent a survey's target population. As shown empirically by M. A. Smith and Leigh (1997), though, a random sample drawn from their research population generally resembled a sample

of Internet respondents. Yet, Swoboda, Muehlberger, Weitkunat, and Schneeweiss (1997) found that an Internet-drawn survey sample may not validly represent a target population, though the benefits involved in this method of data collection compensate for this weakness. Stanton (1998) administered identical questionnaires to a web-generated sample, through an on-line survey, and to a regular sample, who filled out a paper version of the same survey. Finding similar covariance structures among the tested variables, he then discussed access controls to improve Internet-generated sampling and data collection. Nevertheless, for researchers who prefer to use a "real" sample for a survey, an on-line survey technology may be an efficiently gathered set for secondary analysis (Clark & Maynard, 1998).

In addition to surveys, other research designs have been used on the Internet. Riva and Galimberì (1997) argued that the Internet represents a typical social environment, where people exchange information and interact in many ways while the computers mediate these communications. They advocated the use of this social environment—cyberspace—to study characteristics of human interactions, especially the place of context as a link between cognition and interaction, and to examine models of human communicative interactions. In this vein, Suler (1996b) demonstrated a unique viewpoint in studying human dynamics at The Palace through participant observation research. The following four examples illustrate the capabilities of psychological research through the Internet: (1) Michalak (1998) investigated the nature and characteristics of seasonal affective disorder (SAD). To examine and enhance a generalization of the phenomenon across cultures and geographical regions and to be able to correlate SAD with latitude, he apparently preferred to use an unrepresentative Internet sample over a local sample of research participants; (2) Stern and Faber (1997) tested the classic attitude-behavior relationship question in replicating Milgram's (1977) famous lost-letter technique by using e-mails in two experiments; (3) Krantz, Ballard, and Scher (1997) studied factors contributing to perceived women's attractiveness by using as research participants Internet surfers, who responded to female images on the web under certain experimental conditions. In order to examine the validity of this experiment, the authors replicated the same study in a research lab, using students from an introductory psychology course as research participants. The results showed consistency between the two forms of data collection, thus contributing to the validity of Internet-driven experimental research; (4) Lukoff, Lu, Turner, and Gackenbach (1995) showed how spiritual practices, mysticism, dreams, and myths can be investigated effectively through qualitative analyses of newsgroups, mailing lists, and databases.

Growing numbers of experiments are taking place on-line (see an on-line research example conducted at the School of Psychology, University of St. Andrews, Scotland, at: <http://monty.st-and.ac.uk/expt2>). Progress in web technology creates new and innovative research opportunities, such

as JavaScript applications (Harriott, 1997), multimedia (Welch & Krantz, 1996), and Common Gateway Interface (CGI) scripts—computer programs running on the user's machine that enable interactive communication (Morrow & McKee, 1998; Schmidt, 1997b). Morris and Ogan (1996) advocated the use of the Internet for social research as a unique opportunity to conduct interdisciplinary, comprehensive studies of multiple aspects of human behavior from psychological, sociological, legal, technological, anthropological, economic, and philosophical aspects. Still, conducting research through the Internet is not problem-free, even apart from methodological limitations. A growing number of researchers are concerned with the special characteristics of this medium for approaching research participants because of possible misusing information and difficulties in maintaining privacy (e.g., Bier, Sherblom, & Gallo, 1996). These, as well as other concerns (e.g., participants' inclusion and exclusion criteria, obtaining informed consent) have facilitated the generation of special research guidelines in regard to ethical as well as practical issues (Childress & Asamen, 1998; Hewson, Laurent, & Vogel, 1996; King, 1996b; Michalak & Szabo, 1998).

Ethical and Related Concerns

Various ethical concerns have been raised in regard to the professional use of the Internet. Professional associations have published ethical guidelines concerning the use of the Net in providing services (see, for instance, American Psychological Association, 1997; National Board for Certified Counselors, 1997). These guidelines have an additional special role, which is to clarify standards of care (see Shapiro & Shulman, 1996; Sleek, 1995). One of the most prevalent ethical problems has to do with examining the licensing and certification of Internet-based psychology-service providers, whether of therapy, testing, or mere information. Lloyd (1996) and Uecker (1997) pointed out that the Internet is very fragile in these terms, affording relatively easy opportunity for charlatanism and even for harming people, on the one hand, and for damaging the integrity and professionalism of quality service, on the other. Stricker (1996), in a case study of on-line counseling, demonstrated different problems, such as those concerning the training and expertise of the therapist, secrecy, and maintaining client confidentiality. He proposed several strict precautions when applying on-line therapy. Bloom (1998) and L. J. Murphy and Mitchell (1998), who reviewed and analyzed numerous ethical problems, advocated the adoption and maximum enforcement of strict guidelines for on-line therapy, as well as appropriate training for on-line therapists.

It seems that several main ethical problems are of concern to professionals. First is the issue of secrecy and privacy. Although this subject has received much attention recently, especially because of the massive amount of commercial transactions over the Net, practically all providers of psychological services (e.g., information resources, therapy, testing) use unsecured websites. This means that session in-

formation—typically highly private and sensitive—may be tapped and intercepted by strangers or system operators, either somewhere on the Net or from a computer where this information is saved unprotected. A related problem has to do with individuals who hesitate to disclose information because of their justified concerns about confidentiality. Second, the use of the Internet makes it easier for charlatans, or for professionals without sufficient credentials, to offer psychological services. The user has very little chance to be able to examine true and full information about a service provider; consequently the user is left unprotected. Because it can be very difficult to identify, detect, or track website owners, the potential for fraud and exploitation is great. The inability to impose censorship, monitoring, or regulation of the Net is an invitation for charlatanism and even thievery (of information). As thoughtfully noted by Thomas, Forcht, and Counts (1998), the Internet cannot rely on laws alone to keep order; it also needs ethical operators.

Third, because of the exceptional nature of the Internet as a therapeutic mode, it is important that mental health help providers have the *specific* training and experience needed to perform counseling through, or with the assistance of, the Net. This is especially critical in e-mail therapy (either with individuals or with groups) because of the text-based nature of the relationships established. For instance, as mentioned earlier, hyperpersonal communications created may invoke emotions and behaviors that are atypical in normal therapeutic situations; therapists should be prepared. Fourth, the limitations of the medium to assess accurately a person's emotional and mental state create another ethical issue. A psychologist should be aware of these limitations, as well as know how to cope with them, in order to provide a quality service. Fifth, technical difficulties and the need for special skills make an on-line service quite different from traditional psychological sessions. On-line psychological-service providers should thus receive appropriate training and use special skills in providing their services. Sixth is the issue of an Internet user who has to face individually relevant psychological information without immediate (face-to-face or on-line) support. This is true for mere information about a psychological problem as well as for the results of a test. In both cases, the information may be hard to accept and cause emotional difficulties.

The foregoing present only a few, typical examples of ethical issues that worry professionals and associations alike (Bloom, 1998; Lloyd, 1996; L. J. Murphy & Mitchell, 1998; Sampson, Kolodinsky, & Greeno, 1997; Shapiro & Schulman, 1996; Sleek, 1995; Stricker, 1996; Uecker, 1997). In regard to the provision of on-line therapy, a solution to the question of checking a therapist's credentials was offered by Ainsworth and Grohol (1997), representing two major on-line psychological organizations. They offered on-line therapists the opportunity to register with them and to have their credentials (e.g., education, experience) checked, after which these therapists would receive a special icon to post on their websites. Users could contact the originators to verify the authenticity of their therapist.

Provision of psychological services over the Internet indirectly promotes the use of computers. This may be considered somewhat antisocial, because it is in contrast to voices calling for the reduced or limited use of the Internet owing to its alleged negative influence. In addition to preliminary findings concerning possible deteriorating emotional and social effects on families and individuals (Kraut et al., 1998; Sherer, 1997), two other key problematic, negative issues have been expressed. First, intensive use of the Internet is commonly thought to expose users to “negative materials” easily found on the Net, such as pornography, and this exposure may cause an attraction that could prove harmful (see Barak & Fisher, 1997; Barak, Fisher, Belfry, & Lashambe, 1999; Binik et al., 1997). Second, intensive use of the Internet, particularly in active and interactive communication, may cause addiction (see Brenner, 1997; Fenichel, 1997; King, 1996a; Young, 1996). This phenomenon might especially characterize on-line support services—an activity that reinforces itself (Huang & Alessi, 1996; Stein, 1997a; Woo, 1996). These are serious issues, and the professional community of on-line psychologists certainly will have to identify and examine ways to cope with them.

Conclusions

Psychological applications on the Internet flourish. They are multiple in nature and initiated by various individuals and or-

ganizations to deal with a variety of problems and needs. Because this area is relatively young, it is premature to make generalizations concerning impact, utility, importance, effects, costs, applicability, and the like. Issues that were voiced several years ago (e.g., Cutter, 1996b) still remain highly controversial, such as the ability to offer e-mail-based therapy. Although empirical research has consistently been advocated, actual research—especially studies with strict methodologies—is only just beginning. It seems that the psychology discipline is at the stage of observing developments in the field and communicating some general messages that mainly have to do with precautions and recommendations. Obviously, protecting potential users, as well as professionals, from hazardous activities is welcome but insufficient. A recently formed group—International Society for Mental Health Online (ISMHO) (see <http://www.ismho.org>)—has devoted itself to promoting these objectives and been occupied with intensive discussions and constructive resolutions. Still, investment in extensive research, on the one hand, and in educating Internet users and service providers, on the other, should be given high priority. Psychology, on the threshold of a new millennium, is driving on a superhighway that is taking the world to an unknown destination. To avoid potholes in this road, cautious considerations, international brainstorming, and intensive attention to this new, unprecedented development may maximize the social benefits and minimize the costs of the journey.

REFERENCES

- Adams, R. (1990). *Self-help, social work and empowerment*. Houndmills, UK: Macmillan.
- Ainsworth, M. (1997). *Issues in mental health services* [on-line]. Available (February, 1999): <http://www.metanoia.org/imhs/issues.htm>
- Ainsworth, M., & Grohol, J. (1997). *Credentials check* [on-line]. Available (February, 1999): <http://www.cmhc.com/check>
- American Psychological Association. (1985). *Standards for educational and psychological testing*. Washington, DC: Author.
- American Psychological Association. (1997). *Services by telephone, teleconferencing, and Internet: A statement by the Ethics Committee of the American Psychological Association* [on-line]. Available (February, 1999): <http://www.apa.org/ethics/stmnt01.html>
- Ball, C. J., Scott, N., McLearn, P. M., & Watson, J. P. (1993). Preliminary evaluation of a Low-Cost Video Conferencing (LCVC) system for remote cognitive testing of adult psychiatric patients. *British Journal of Clinical Psychology*, *32*, 303–307.
- Barak, A., & Fisher, W. A. (1997). Effects of interactive computer erotica on men's attitudes and behavior toward women: An experimental study. *Computers in Human Behavior*, *13*, 353–369.
- Barak, A., Fisher, W. A., Belfry, S., & Lashambe, D. R. (1999). Sex, guys, and cyberspace: Effects of Internet pornography and individual differences on men's attitudes toward women. *Journal of Psychology and Human Sexuality*, *11*, 63–92.
- Barak, A., & Safir, M. P. (1997). Sex on the Internet: An Israeli perspective. *Journal of Sex Education & Therapy*, *22*, 67–73.
- Bicanich, E., Slivinski, T., Hardwicke, S. B., & Kapes, J. T. (1997). Internet-based testing: A vision or reality? *Technological Horizons in Education (T.H.E.) Journal* [on-line]. Available (February, 1999): <http://www.thejournal.com/magazine/97/sep/feat3.html>
- Bier, M. C., Sherblom, S. A., & Gallo, M. A. (1996). Ethical issues in a study of Internet use: Uncertainty, responsibility, and the spirit of research relationships. *Ethics & Behavior*, *6*, 141–151.
- Binik, Y. M., Cantor, J., Ochs, E., & Meana, M. (1997). From the couch to the keyboard: Psychotherapy in cyberspace. In S. Kiesler (Ed.), *Culture of the Internet* (pp. 71–100). Mahwah, NJ: Erlbaum.
- Bloom, J. W. (1998). The ethical practice of WebCounseling. *British Journal of Guidance and Counselling*, *26*, 53–59.
- Bosworth, K., & Gustafson, D. H. (1991). CHES: Providing decision support for reducing health risk behavior and improving access to health services. *Interfaces*, *3*, 93–104.
- Brennan, P. F., Ripich, S., & Moore, S. M. (1991). The use of home-based computers to support persons living with AIDS/ARC. *Journal of Community Health Nursing*, *8*, 3–14.
- Brenner, V. (1997). Psychology of computer use: XLVII. Parameters of Internet use, abuse and addiction: The first 90 days of the Internet use survey. *Psychological reports*, *80*, 879–882.
- Buxton, W. A. S., Sellen, A. J., & Sheasby, M. C. (1997). Interfaces for multiparty videoconferences. In K. E. Finn, A. J. Sellen, & S. B. Wilbur, *Video-mediated communication: Computers, cognition, and work* (pp. 385–400). Mahwah, NJ: Erlbaum.
- Casey, J. A. (1995). Developmental issues for school counselors us-

- ing technology. *Elementary School Guidance and Counseling*, 30, 26–34.
- Chambliss, C. (1996). *Peer consultation on the net: The problem of ex-clients who stalk therapists*. Greensboro, NC: ERIC Document Reproduction Service No. ED 393 048.
- Chapman, L., & DiBianco, P. (1996). Beyond high school: College and career guidance online. *Multimedia Schools*, 3(5), 26–30.
- Childress, C. (1998). *Potential risks and benefits of online psychotherapeutic interventions* [on-line]. Available (February, 1999): <http://www.ismho.org/issues/9801.htm>
- Childress, C. A., & Asamen, J. K. (1998). The emerging relationship of psychology and the Internet: Proposed guidelines for conducting Internet intervention research. *Ethics & Behavior*, 8, 19–35.
- Clark, R., & Maynard, M. (1998). Using online technology for secondary analysis of survey research data—“act globally, think locally.” *Social Science Computer Review*, 16, 58–71.
- Colon, Y. (1996). Chatter(ing) through the fingertips: Doing group therapy online. *Women and Performance: A Journal of Feminist Theory*, 9, 205–215.
- Cooper, A. (1998). Sexuality and the Internet: Surfing into the new millennium. *CyberPsychology*, 1, 187–193.
- Crowcroft, J. (1997). Supporting videoconferencing on the Internet. In K. E. Finn, A. J. Sellen, & S. B. Wilbur (Eds.), *Video-mediated communication: Computers, cognition, and work* (pp. 519–540). Mahwah, NJ: Erlbaum.
- Cutter, F. (1996a). The Internet and the pursuit of happiness. *Perspectives: A Mental Health Magazine*, July-August 1996 [on-line]. Available (February, 1999): <http://www.cmhc.com/perspectives/articles/art07965.htm>
- Cutter, F. (1996b). Virtual psychotherapy? *PsychNews International*, 1(3) [on-line]. Available (February, 1999): <http://www.cmhc.com/pni/pni13b.htm>
- Davison, K. P., & Pennebaker, J. W. (1997). Virtual narratives: Illness representations in online support groups. In K. J. Petrie & J. A. Weinman (Eds.), *Perceptions of health and illness: Current research and applications* (pp. 463–486). Singapore: Harwood.
- Dewdney, A. K. (1985). Artificial insanity: When a schizophrenic program meets a computerized analyst. *Scientific American*, 252, 14–20.
- DiBlassio, J., Simonin, D., DeCarolis, A., Morse, L., Jean, J., Vassalotti, L., Franks, K., & Chambliss, C. (1999). Assessing the quality of psychological healthcare sites available on the Internet [on-line]. *Perspectives*. Available (February, 1999): <http://www.cmhc.com/perspectives/articles/art12982>
- Doll, B., & Doll, C. (1997). *Bibliotherapy with young people*. Englewood, CO: Libraries Unlimited.
- Doran, M., Simonin, D., Morse, L., Smith, A., Maloney, C., Wright, C., Underwood, M., Hoppel, A., O'Donnell, S., & Chambliss, C. (1998). *The asymmetrical quality of psychological Internet resources for addressing common versus rare problems*. Greensboro, NC: ERIC Document Reproduction Service No. ED 415 478.
- Doyle, C., & Martorana, J. (1997). *Constructing career connections: Building a webpage for the job seeker* [On-line]. Available (February, 1999): <http://www.library.ucsb.edu/universe/doyle.html>
- Drake, L., & Rudner, L. M. (1995). *Internet resources for guidance personnel*. Greensboro, NC: ERIC Clearinghouse on Counseling and Student Services. (ERIC Document Reproduction Service No. ED 391 988).
- Dunham, P. J., Hurshman, A., Litwin, E., Gusella, J., Ellsworth, C., & Dodd, P. W. D. (1998). Computer-mediated social support: Single young mothers as a model system. *American Journal of Community Psychology*, 26, 281–306.
- Fekete, S., & Osvath, P. (1997). Az Internet mint az informáciok uj forrasa az oengyilkossaggal, depresszioval es a szorongással kapcsolatban: Elozetes kozlemeny./The Internet as a new source of information about suicides, depression and anxiety: Preliminary study. *Psychiatria Hungarica*, 12, 209–216. [Hungary]
- Fenichel, M. (1997). “Internet addiction”: Addictive behavior, transference or more? [On-line] . Available (February, 1999): <http://web0.tiac.net/biz/drmike/addiction2.shtml>
- Finn, J. (1995). Computer-based self-help groups: A new resource to supplement support groups. *Social Work with Groups*, 18, 109–117.
- Finn, J., & Lavitt, M. (1994). Computer based self-help groups for sexual abuse survivors. *Social Work with Groups*, 17, 21–46.
- Fogel, S. C. (1998). HIV-related Internet news and discussion groups as professional and social support tools. *Health Care on the Internet*, 2, 79–90.
- Forrest, M. R. (1995). JobWeb is here, busy and beckoning. *Journal of Career Planning and Employment*, 55(4), 3, 9.
- Furlong, M. S. (1989). An electronic community for older adults: The SeniorNet Network. *Journal of Communication*, 39, 145–153.
- Galanter, M., Keller, D. S., & Dermatis, H. (1997). Using the Internet for clinical training: A course on network therapy for substance abuse. *Psychiatric Services*, 48, 999–1000, 1008.
- Gartner, A. (1998). Professionals and self-help: The uses of creative tension [on-line]. *Perspectives*. Available (February, 1999): <http://www.cmhc.com/perspectives/articles/art06984>
- Gartner, A., & Riessman, F. (1984). *The self-help revolution*. New York: Human Sciences Press.
- Garton, L., Haythornthwaite, C., & Wellman, B. (1997). Studying online social networks. *Journal of Computer-Mediated Communication*, 3(1) [On-line]. Available (February, 1999): <http://jcmc.huji.ac.il/vol3/issue1/garton.html>
- Gerler, E. R., Jr. (1995). Advancing elementary and middle school counseling through computer technology. *Elementary School Guidance and Counseling*, 30, 8–15.
- Gilbride, D., Breithaupt, B., & Hoehle, R. (1996). The use of the Internet to support both on- and off-campus learners in rehabilitation education. *Rehabilitation Education*, 10, 47–62.
- Gray, R. A. (1997). A tour of the World Wide Web for school counselors. *Technological Horizons in Education (T.H.E.) Journal* [On-line]. Available (February, 1999): <http://www.thejournal.com/journal/magazine/97/sep/exclu1.html>
- Griffiths, M. (1997). Psychology of computer use: XLIII. Some comments on “Addictive use of the Internet” by Young. *Psychological Reports*, 80, 81–82.
- Grohol, J. M. (1998). *The insider's guide to mental health resources online* (rev. ed.). New York: Guilford Press.
- Harriott, J. S. (1997). Using JavaScript to build a psychology practice exam. *Behavior Research Methods, Instruments & Computers*, 29, 232–236.
- Hartman, K. E. (1998). Technology and the school counselor. *Education Week*. Available (February, 1999): <http://www.edweek.com/htbin/fastweb?getdoc+view4+ew1998+1630+0+wAAA+%26%28in>

- Health on the Net Foundation. (1997). *Health on the Net Foundation code of conduct for medical and health web sites* [On-line]. Available (February, 1999): <http://www.hon.ch/HONcode/Conduct.html>
- Henry, N. I. (1997). Getting acquainted with support and self-help groups on the Internet. *Health Care on the Internet, 1*, 27–32.
- Herman, S. (1997, August). *Career HOPES: Online career exploration groups*. Paper presented at the 105th annual convention of the American Psychological Association, Chicago.
- Hewson, C. M., Laurent, D., & Vogel, C. M. (1996). Proper methodologies for psychological and sociological studies conducted via the Internet. *Behavior Research Methods, Instruments, and Computers, 28*, 186–191.
- Hsiung, R. C. (1997). The Student Counseling Virtual Pamphlet Collection: An innovative resource. *Behavior Research Methods, Instruments and Computers, 29*, 154–157.
- Huang, M. P., & Alessi, N. E. (1996). The Internet and the future of psychiatry. *American Journal of Psychiatry, 153*, 861–869.
- Humphreys, K. (1997). Individual and social benefits of mutual aid/self-help groups. *Social Policy, 27*(3), 12–20.
- Imel, S. (1996). *Computer-based career information systems*. Columbus, OH: ERIC Clearinghouse on Adult, Career, and Vocational Education. (ERIC Document Reproduction Service No. ED 395 216)
- Ingram, J. (1998). *Cybertherapy: Pariah or promise?* [on-line]. Available (February, 1998): <http://cybertowers.com/selfhelp/ppc/viewpoint/cybpapr.html>
- Ishak, W. W., & Burt, T. (1998). Computer applications in psychiatry: Role in patient care, education, research, and communication. *CyberPsychology, 1*, 147–150.
- Jadad, A. R., & Gagliardi, A. (1998). Rating health information on the Internet: Navigating to knowledge or to Babel? *Journal of the American Medical Association, 279*, 611–614.
- Jaffe, J. M., Lee, Y. E., Huang, L., & Oshagan, H. (1995, July). *Gender, pseudonyms, and computer-mediated communication: Masking identities and baring souls*. Paper presented at the 45th Annual Conference of the International Communication Association, Albuquerque, New Mexico. Available on-line (February, 1999): <http://research.haifa.ac.il/~jmjaffe/genderpseudocmc>
- Jerome, L. (1997). E-mail therapy. *Journal of the American Academy of Child and Adolescent Psychiatry, 36*, 868.
- Jones, S. G. (Ed.) (1995). *Cybersociety: Computer-mediated communication and community*. Newbury Park, CA: Sage.
- King, S. A. (1994). Analysis of electronic support groups for recovering addicts. *Interpersonal Computing and Technology: An Electronic Journal For the 21st Century, 2*, 47–56.
- King, S. A. (1996a). *Is the Internet addictive, or are addicts using the Internet* [on-line]? Available (February, 1999): <http://rdz.stjohns.edu/~storm/iad.html>
- King, S. A. (1996b). Researching Internet communities: Proposed ethical guidelines for the reporting of results. *Information Society, 12*, 119–127.
- King, S. A., Engi, S., & Poulos, S. T. (1998). Using the Internet to assist family therapy. *British Journal of Guidance and Counselling, 26*, 43–52.
- King, S. A., & Moreggi, D. (1998). Internet therapy and self help groups—The pros and cons. In J. Gackenbach (Ed.), *Psychology and the Internet: Intrapersonal, interpersonal and transpersonal implications* (pp. 77–109). San Diego, CA: Academic Press. Also available on-line (February, 1999): <http://www.concentric.net/~Astorm/Chapter5/index.html>
- King, S. A., & Poulos, S. T. (1998). Using the Internet to treat generalized social phobia and avoidant personality disorder. *CyberPsychology & Behavior, 1*, 29–36.
- Kovalski, T. M., & Horan, J. J. (1998, August). *The effects of Internet-based cognitive restructuring on the irrational career beliefs of adolescent girls*. Paper presented at the annual convention of the American Psychological Association, San Francisco.
- Krantz, J. H., Ballard, J., & Scher, J. (1997). Comparing the results of laboratory and World-Wide Web samples on the determinants of female attractiveness. *Behavior Research Methods, Instruments & Computers, 29*, 264–269.
- Kraut, R., Patterson, M., Lundmark, V., Kiesler, S., Mukopadhyay, T., & Scherlis, W. (1998). Internet paradox: A social technology that reduces social involvement and psychological well-being? *American Psychologist, 53*, 1017–1031.
- Kruger, L. J., Cohen, S., Marca, D., & Matthews, L. (1996). Using the Internet to extend training in team problem-solving. *Behavior Research Methods, Instruments, and Computers, 28*, 248–252.
- Krumboltz, J. D., & Winzelberg, A. (1997). Technology applied to learning and group support for career-related concerns. *Career Planning and Adult Development Journal, 13*, 101–110.
- Kuster, J. M., & Poburka, B. J. (1998). The Internet: A bridge between research and practice. *Topics in Language Disorders, 18*, 71–87.
- Lajoie, M. (1996). Psychoanalysis and cyberspace. In R. Shields (Ed.), *Cultures of Internet: Virtual spaces, real histories, living bodies* (pp. 153–169). London, UK: Sage.
- Lebow, J. (1998). Not just talk, maybe some risk: The therapeutic potentials and pitfalls of computer-mediated conversation. *Journal of Marital and Family Therapy, 24*, 203–206.
- Lloyd, M. G. (1996). Have you had a long-distance therapeutic relationship? You will. *Ethics and Behavior, 6*, 169–172.
- Lorenzen, E. A. (Ed.) (1996). *Career planning and job searching in the Information Age*. Binghamton, NY: Haworth.
- Lukoff, D., Lu, F., Turner, R., & Gackenbach, J. (1995). Transpersonal psychology research review: Researching religious and spiritual problems on the Internet. *Journal of Transpersonal Psychology, 27*, 153–170.
- Lundberg, D. J., & Thirsk, R. W. (1995). *Cruising the information highway for jobs: On-line career development*. Greensboro, NC: ERIC Clearinghouse on Counseling and Student Services. (ERIC Digest No. ED 405 534)
- Mack, J. (1997). Quality of medical information on the Internet. *Journal of the American Medical Association, 278*, 632.
- Madara, E. J. (1997). The mutual-aid self-help online revolution. *Social Policy, 27*(3), 20–26.
- McKenna, K. Y., Katelyn, Y. A., & Bargh, J. A. (1998). Coming out in the age of the Internet: Identity “demarginalization” through virtual group participation. *Journal of Personality and Social Psychology, 75*, 681–694.
- Mehta, R., & Sivadas, E. (1995). Comparing response rates and response content in mail versus electronic mail surveys. *Journal of the Market Research Society, 37*, 429–439.
- Michalak, E. E. (1998). The use of the Internet as a research tool: The nature and characteristics of seasonal affective disorder (SAD) amongst a population of users. *Interacting with Computers, 9*, 349–365.

- Michalak, E. E., & Szabo, A. (1998). Guidelines for Internet research: An update. *European Psychologist, 3*, 70–75.
- Mickelson, K. D. (1997). Seeking social support: Parents in electronic support groups. In S. Kiesler (Ed.), *Culture of the Internet* (pp. 157–178). Mahwah, NJ: Erlbaum.
- Milgram, S. (1977). *The individual in a social world: Essays and experiments*. Reading, MA: Addison-Wesley.
- Miller, J. K., & Gregen, K. J. (1998). Life on the line: The therapeutic potentials of computer-mediated conversation. *Journal of Marital and Family Therapy, 24*, 189–202.
- Miller, M. W. (1997). Cancer support groups migrate to Internet Relay Chat. *Health Care on the Internet, 1*, 83–89.
- Morris, M., & Ogan, C. (1996). The Internet as mass medium. *Journal of Communication, 46*, 39–50.
- Morrow, R. H., & McKee, A. J. (1998). CGI scripts: A strategy for between-subjects experimental group assignment on the World-Wide Web. *Behavior Research Methods, Instruments & Computers, 30*, 306–308.
- Morse, L., Doran, M., Simonin, D., Smith, A., Maloney, C., Wright, C., Underwood, M., Hoppel, A., O'Donnell, S., & Chambliss, C. (1998). *Preferred psychological Internet resources for addressing anxiety disorders, parenting problems, eating disorders, and chemical dependency*. Greensboro, NC: ERIC Document Reproduction Services No. ED 414 538.
- Murphy, J. W., & Pardeck, J. T. (1988). Technology and language use: Implications for computer mediated therapy. *Journal of Humanistic Psychology, 28*, 120–134.
- Murphy, L. J., & Mitchell, D. L. (1998). When writing helps to heal: E-mail as therapy. *British Journal of Guidance and Counselling, 26*, 21–32.
- Myrick, R. D., & Sabella, R. A. (1995). Cyberspace: New place for counselor supervision. *Elementary School Guidance and Counseling, 30*, 35–44.
- National Board for Certified Counselors. (1997). *Standards for the Ethical Practice of WebCounseling* [on-line]. Available (February, 1999): <http://www.nbcc.org/ethics/wcstandards.htm>
- Odell, J. W., & Dickson, J. (1984). Eliza as a “therapeutic” tool. *Journal of Clinical Psychology, 40*, 942–945.
- Pasveer, K. A., & Ellard, J. H. (1998). The making of a personality inventory: Help from the WWW. *Behavior Research Methods, Instruments, and Computers, 30*, 309–313.
- Pereira, J., & Bruera, E. (1998). The Internet as a resource for palliative care and hospice: A review and proposals. *Journal of Pain and Symptom Management, 16*, 59–68.
- Pingree, S. (1996). Will the disadvantaged ride the information superhighway? Hopeful answers from a computer-based health-crisis system. *Journal of Broadcasting and Electronic Media, 40*, 331–353.
- Polauf, J. C. (1998). *Psychotherapy on the internet: Theory and technique* [On-line]. Available (February, 1999): <http://www.nyreferrals.com/psychotherapy>
- Powell, T. (1998). *Online counseling: A profile and descriptive analysis* [On-line]. Available (February, 1999): <http://netpsych.com/Powell.htm>
- Reid, E. M. (1994). *Cultural formations in text-based virtual realities*. Unpublished Master's thesis, University of Melbourne, Australia. Available on-line (February, 1999): <http://people.we.mediaone.net/elizrs/cult-form.html>
- Rice, V. (1997). *Cyberpsychology: Therapy for the 1990s* [On-line]. Available (February, 1999): http://www.zdnet.com/zdvt/the/site/0597w5/life/life179_052997.html
- Riva, G. (1998). Virtual reality in psychological assessment: The body image virtual reality scale. *CyberPsychology and Behavior, 1*, 37–44.
- Riva, G., & Galimber, C. (1997). The psychology of cyberspace: A socio-cognitive framework to computer-mediated communication. *New Ideas in Psychology, 15*, 141–158.
- Robson, D., & Robson, M. (1998). Intimacy and computer communication. *British Journal of Guidance and Counselling, 26*, 33–41.
- Rust, E. B. (1995). Applications of the International Counselor Network for elementary and middle school counseling. *Elementary School Guidance and Counseling, 30*, 16–25.
- Salem, D. A., Bogar, G. A., & Reid, C. (1997). Mutual help goes on-line. *Journal of Community Psychology, 25*, 189–207.
- Sampson, J. P., Jr. (1995). *Computer-assisted testing in counseling and therapy*. Greensboro, NC: ERIC Clearinghouse on Counseling and Student Services (ERIC Document Reproduction Services No. ED 391 983)
- Sampson, J. P., Jr. (1998). The Internet as a potential force for social change. In C. C. Lee & G. R. Waltz (Eds.), *Social action: A mandate for counselors* (pp. 213–225). Alexandria, VA: American Counseling Association.
- Sampson, J. P., Jr., Kolodinsky, R. W., & Greeno, B. P. (1997). Counseling on the information highway: Future possibilities and potential problems. *Journal of Counseling and Development, 75*, 203–212.
- Sanders, P., & Rosenfield, M. (1998). Counselling at a distance: Challenges and new initiatives. *British Journal of Guidance and Counselling, 26*, 5–10.
- Schmidt, W. C. (1997a). World-Wide Web survey research: Benefits, potential problems, and solutions. *Behavior Research Methods, Instruments & Computers, 29*, 274–279.
- Schmidt, W. C. (1997b). World-Wide Web survey research made easy with WWW Survey Assistant. *Behavior Research Methods, Instruments & Computers, 29*, 303–305.
- Schwab, R. (1995). Bereaved parents and support group participation. *Omega, 32*, 49–61.
- Shapiro, D. E., & Schulman, C. E. (1996). Ethical and legal issues in e-mail therapy. *Ethics and Behavior, 6*, 107–124.
- Sharf, B. F. (1997). Communicating breast cancer on-line: Support and empowerment on the Internet. *Women & Health, 26*, 65–84.
- Sherer, K. (1997). College life on-line: Healthy and unhealthy Internet use. *Journal of College Student Development, 38*, 655–665.
- Sherman, D. (1994). Career counseling in cyberspace. *Journal of Career Planning and Employment, 55*, 29–32 & 62–63.
- Silberg, W. M., Lundberg, G. D., & Musaccio, R. A. (1997). Assessing, controlling, and assuring the quality of medical information on the Internet. *Journal of the American Medical Association, 277*, 1244–1245.
- Sleek, S. (1995, November). Online therapy services raise ethical questions. *APA Monitor*, pp. 22–23.
- Smith, H. A. (1998). Telepsychiatry. *Psychiatric Services, 49*, 1494–1495.
- Smith, M. A., & Leigh, B. (1997). Virtual subjects: Using the Internet as an alternative source of subjects and research environment. *Behavior Research Methods, Instruments & Computers, 29*, 496–505.

- Sofka, C. J. (1997). Social support "internetworks," caskets for sale, and more: Thanatology and the information superhighway. *Death Studies, 21*, 553–574.
- Spinney, L. (1995). A virtual shoulder to cry on. *New Scientist, 148*, 36–40.
- Sproull, L., & Kiesler, S. (1995). Computers, networks and work. *Scientific American, 6*, 128–139.
- Stamm, B. H. (1998). Clinical applications of telehealth in mental health care. *Professional Psychology: Research and Practice, 29*, 536–542.
- Stanton, J. M. (1998). An empirical assessment of data collection using the Internet. *Personnel Psychology, 51*, 709–725.
- Stein, D. J. (1997a). Internet addiction, Internet psychotherapy. *American Journal of Psychiatry, 154*, 890.
- Stein, D. J. (1997b). Psychiatry on the Internet: Survey of an OCD mailing list. *Psychiatric Bulletin, 21*, 95–98.
- Stern, S. E., & Faber, J. E. (1997). The lost e-mail method: Milgram's lost-letter technique in the age of the Internet. *Behavior Research Methods, Instruments & Computers, 29*, 260–263.
- Stevens, D. T., & Lundberg, D. J. (1998). The emergence of the Internet: Enhancing career counseling education and services. *Journal of Career Development, 24*, 195–208.
- Stricker, G. (1996). Psychotherapy in cyberspace. *Ethics and Behavior, 6*, 169, 175–177.
- Sudweeks, F., McLaughlin, M., & Rafaeli, S. (Eds.). (1998). *Network and netplay: Virtual groups on the Internet*. Boston: MIT Press.
- Suler, J. R. (1987). Computer-simulated psychotherapy as an aid in teaching clinical psychology. *Teaching of Psychology, 14*, 37–39.
- Suler, J. (1996a). *Life at the palace: A cyberpsychology case study* [On-line]. Available (February, 1999): <http://www.rider.edu/users/suler/psyber/palacestudy.html>
- Suler, J. (1996b). *One of us: Participant observation research at The Palace* [On-line]. Available (February, 1999): <http://www.rider.edu/users/suler/psyber/partobs.html>
- Suler, J. (1998). *Online psychotherapy and counseling* [On-line]. Available (February, 1999): <http://www.rider.edu/users/suler/psyber/therapy.html>
- Swoboda, W. J., Muehlberger, N., Weitkunat, R., & Schneeweiss, S. (1997). Internet surveys by direct mailing: An innovative way of collecting data. *Social Science Computer Review, 15*, 242–255.
- Tedjeske, J. (1997). Public and consumer mental health resources on the World-Wide Web. *Health Care on the Internet, 1*, 61–72.
- Thomas, D. S., Forcht, K. A., & Counts, P. (1998). Legal considerations of Internet use—Issues to be addressed. *Internet Research: Electronic Networking Applications and Policy, 8*, 70–74.
- Troester, A. I., Paolo, A. M., Glatt, S. L., Hubble, J. E., & Koller, W. C. (1995). "Interactive video conferencing" in the provision of neuropsychological services to rural areas. *Journal of Community Psychology, 23*, 85–88.
- Turkle, S. (1994). Constructions and reconstructions of self in virtual reality: Playing in the MUDs. *Mind, Culture, and Activity: An International Journal, 1*, 158–167.
- Turkle, S. (1996). Parallel lives: Working on identity in virtual space. In D. Gordin & T. R. Lindolf (Eds.), *Constructing the self in mediated world* (pp. 156–175). Thousand Oaks, CA: Sage.
- Uecker, E. Z. (1997). Psychodynamic considerations of online counseling. *Perspectives: A Mental Health Magazine, January-February 1997* [On-line]. Available (February, 1999): <http://www.cmhc.com/perspectives/articles/art01971.htm>
- Walther, J. B. (1996). Computer-mediated communication: Impersonal, interpersonal, and hyperpersonal interaction. *Communication Research, 23*, 3–43.
- Walther, J. B., & Boyd, S. (1997, August). *Attraction to computer-mediated social support*. Paper presented at the annual meeting of the International Communication Association, Montreal.
- Walther, J. B., & Burgoon, J. B. (1992). Relational communication in computer mediated interaction. *Human Communication Research, 19*, 50–88.
- Weinberg, N., Schmale, J., Uken, J., & Wessel, K. (1996). Online help: Cancer patients participate in a computer-mediated support group. *Health & Social Work, 21*, 24–29.
- Weinberg, N., Uken, J. S., Schmale, J., & Adamek, M. (1995). Therapeutic factors: Their presence in a computer-mediated support group. *Social Work with Groups, 18*, 57–69.
- Welch, N., & Krantz, J. H. (1996). The World-Wide Web as a medium for psychoacoustical demonstrations and experiments: Experience the results. *Behavior Research, Instruments & Computers, 28*, 192–196.
- Wellman, B. (1997). An electronic group is virtually a social network. In S. Kiesler (Ed.), *Culture of the Internet* (pp. 179–205). Mahwah, NJ: Erlbaum.
- Wellman, B., & Gulia, W. (1995). Net surfers don't ride alone: Virtual communities as communities. In P. Kollock & M. Smith (Eds.), *Communities in cyberspace*. Berkeley, CA: University of California Press.
- Wellman, B., Salaff, J., Dimitrova, D., Garton, L., Gulia, M., & Haythornthwaite, C. (1996). Computer networks as social networks: Collaborative work, telework, and virtual community. *Annual Review of Sociology, 22*, 213–238.
- White, B. J., & Madara, E. J. (1998). *The self-help sourcebook: Your guide to community & online support groups* (6th ed.). Denville, NJ: Northwest Covenant Medical Center.
- Wilson, F. R. (1995). Internet information sources for counselors. *Counselor Education and Supervision, 34*, 369–384.
- Winzelberg, A. (1997). The analysis of an electronic support group for individuals with eating disorders. *Computers in Human Behavior, 13*, 393–407.
- Woo, J. (1996). *The hazards of staying on the Net for too long* [On-line]. Available (February, 1999): <http://home.hkstar.com/~joewoo/hazard.html>
- Wood, E. H. (1997). Consumer health on the World-Wide Web: Gold or gilt? *Health Care on the Internet, 1*, 59–72.
- Young, K. S. (1996). Psychology of computer use: XL. Addictive use of the Internet: A case that breaks the stereotype. *Psychological Reports, 79*, 899–902.
- Zalaquett, C. P., & Sullivan, J. R. (1998). Counseling center help screens: Students' use and evaluation of an Internet-based program. *Journal of College Student Development, 39*, 494–498.
- Zarate, C. A., Jr., Weinstock, L., Cukor, P., Morabito, C., Leahy, L., Burns, C., & Bear, L. (1997). Applicability of telemedicine for assessing patients with schizophrenia: Acceptance and reliability. *Journal of Clinical Psychiatry, 58*, 22–25.
- Zgodzinski, D. (1996). Cybertherapy. *Internet World, 96*, 50–53.
- Zimmerman, P. R. (1998). Cryptography for the Internet. *Scientific American, 297*, 110–116.