

## Plan 9 From Cyberspace: The Implications of the Internet for Personality and Social Psychology

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*Just as with most other communication breakthroughs before it, the initial media and popular reaction to the Internet has been largely negative, if not apocalyptic. For example, it has been described as “awash in pornography,” and more recently as making people “sad and lonely.” Yet, counter to the initial and widely publicized claim that Internet use causes depression and social isolation, the body of evidence (even in the initial study on which the claim was based) is mainly to the contrary. More than this, however, it is argued that like the telephone and television before it, the Internet by itself is not a main effect cause of anything, and that psychology must move beyond this notion to an informed analysis of how social identity, social interaction, and relationship formation may be different on the Internet than in real life. Four major differences and their implications for self and identity, social interaction, and relationships are identified: one’s greater anonymity, the greatly reduced importance of physical appearance and physical distance as “gating features” to relationship development, and one’s greater control over the time and pace of interactions. Existing research is reviewed along these lines and some promising directions for future research are described.*

The growth of the Internet has been truly exponential over the past decade. Until recently there were relatively few nodes in that network to carry digitized information from one part of the world to another and relatively few people (mainly academics and government workers) accessing that network. Personal computers for the home were expensive and the interface used to view, send, and receive data over the Internet was not user friendly. However, in recent years personal computers have dropped drastically in price. Sophisticated Internet browser software, such as Internet Explorer and Netscape, is now readily available. Although the Internet is not yet a vital utility such as the telephone, it will not be long before having a connection to the Internet will be equally as important. Indeed, in a recent poll of 1,000 Internet users, 64% said that “using an online or Internet service is a necessity to me” (D’Amico, 1998, p. 1).

These developments have made it possible for the average person to become an active user of the Internet. Currently, several hundred million people are connecting themselves and their families to the Internet through their personal computer, telephone line, and portal company (e.g., America Online [AOL™], which has more than 15 million users worldwide). It is projected that 10% of the world’s population, 600 million people, will be regularly accessing information on the Internet by the year 2001 (“Making a business,” 1997), and that number will certainly grow.

More important, for personality and social psychology, the Internet is a place where people are engaging in social interaction. Indeed, the number one use of the Internet at home is for interpersonal communication (Kraut, Mukopadhyay, Szczypula, Kiesler, & Scherlis, 1998). People are increasingly turning to the Internet as a quick and easy way to maintain contact with family and friends who live far away. In the survey mentioned earlier, fully 94% reported that the Internet made it easier for them to communicate with friends and family, and 87% regularly use it for that purpose (D’Amico, 1998).

There are a wide variety of electronic venues available on the Internet for interpersonal communi-

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cation. There are thousands of Internet chat rooms, message boards, listservs, and news groups each dedicated to a specific topic or area of interest for those interested in taking part in group interactions. People can also communicate privately through the creation of private chat rooms, personal messaging, and of course electronic mail. Text-based online adventure games called Multi-User Dungeons (MUDs) and their more socially oriented relatives, the Mud Object Orienteds and Multi-User Shared Hallucinations, are attractive venues for many, particularly younger, Internet users.

### Fear and Loathing of the Internet

The public, however, is somewhat apprehensive about the changes the Internet may or will bring. This fear of the unknown is to be expected to some extent, and it has been a feature of the introduction of most previous technological breakthroughs that greatly affect nearly everyone's lives. Many people were reluctant to have telephones installed when they first became available because it was rumored that outsiders could listen in on the household through the mouthpiece, even when the phone was on the hook. It was also not uncommon for people to resist the installation of electricity because it might leak out of the outlets. Soon after television was invented and publicly demonstrated around 1930, Bela Lugosi made a horror movie called *Murder by Television* that capitalized on public fears of this emerging technology. More recently, there was an initial negative reaction to the introduction of microwave ovens, because of the possibility of escaping radiation, but today microwave cooking is a mundane feature of modern kitchens.

The Internet has fared no differently. For most of the 1990s most people only heard about the Internet in terms of being a dangerous conveyor of pornography to the unwitting eyes of children, or as causing "Internet addiction" (Young, 1998). Politicians responded to public fears of the uncontrolled dissemination of information on the Internet: The U.S. Congress has repeatedly passed legislation such as the Computer Decency Act (CDA) that seeks to censor or regulate the content of Internet Web sites, only to have such legislation ruled unconstitutional as a violation of the First Amendment by the courts. In fact, the CDA came about largely because of the furor in the media and in Congress caused by the publication, in 1995, of a study by a student at Carnegie Mellon University (Rimm, 1995) that purportedly showed that the Internet was awash in pornography, although this conclusion was "based on false premises and quickly discredited" (Caruso, 1998, p. C5; e.g., the

study was never subjected to peer review; see also Hoffman & Novak, 1995; Rossney, 1995).

More recently, another Carnegie Mellon study received U.S. national media coverage when it concluded that using the Internet leads to significant increases in loneliness and depression (Kraut, Patterson, et al., 1998). The participants in this study were people from the Pittsburgh area who had never been on the Internet before; in fact, most had never before used a computer at home. They were not randomly selected but recruited for the "HomeNet" study because their families included high school students, or an adult who was on a community board of directors. These participants had unusually large social circles at the beginning of the study, an average of 49 friends and associates each. Kraut, Patterson, et al. followed these families for 2 years, measuring among other variables the number of hours each individual was on the Internet per day, their levels of depression and loneliness both at the beginning and at the end of the 2-year period, and the number of people in their social circle at the end of the study.

Kraut, Patterson, et al. (1998) found a small but statistically reliable partial correlation of .15 between amount of Internet use and self-reported loneliness, accounting for less than 1% of the change in loneliness over the 2-year period. They also reported that using the Internet for as little as 2 hours per week over the 2-year period resulted in a reduction in the size of the average participant's *social network*—defined as the number of people in Pittsburgh with whom the participant socialized at least once a month—from 24 to 23 people. The authors also obtained a small but statistically reliable increase in level of self-reported depression (actually, self-reported dysphoric mood) with increased amount of Internet use, again accounting for less than 1% of the change in depression level over the 2-year period. The authors concluded that using the Internet causes increases in loneliness and depression, and this was the "sound bite" conclusion reported widely by the media.

It is one of the standard principles of journalism (and horror films as well) that "scare headlines sell newspapers": A threat, no matter how statistically rare and unlikely, to which nearly everyone is vulnerable, whether it be poisoned Tylenol tablets or mad-cow disease, is sure to capture the public's attention (e.g., Fuller, 1996; Gans, 1979). So the media play given the "Internet causes loneliness" conclusion is understandable; it is doubtful much coverage would have been given a study showing a slight but statistically significant decrease in loneliness and depression level with Internet use.

However, this becomes more than merely a hypothetical question, because such a decrease is, in fact, what the study did find.

For the entire group of participants, the average reported level of depression for participants after 2 years of being on the Internet was less than it had been before being on the Internet, and the average reported level of loneliness for this group was also lower at the end of the study than when the study began. Furthermore, whereas the average number of people in the local social network declined one person over the 2-year period, the size of the average participant's distant social network—defined as the number of people outside of Pittsburgh with whom the participant talked or visited at least once per year—substantially increased after 2 years of using the Internet, from 25 to 32. Thus, the total number of people in the average participant's social network in the Kraut, Patterson, et al. (1998) study actually increased over the 2 years, from 49 to 55. Of course, there could have been many other factors over the course of the 2 years in participants' lives besides Internet use that could have produced these decreases in depression and loneliness, and increases in number of friends and acquaintances, but because the Kraut, Patterson, et al. study did not include a control group of comparable people who were not given and did not use home computers over the same 2-year period,<sup>1</sup> the only known potential causal factor was participants' use of the Internet. The study's design provided no basis for concluding anything other than that the reason for these changes was the introduction of home computers and Internet access into participants' lives.

Unfortunately, the take-home sound bite message reported by the media was the opposite one. For instance, the headline on the front page of the *New York Times* read "Sad, lonely world discovered in cyberspace" (Harmon, 1998), and that on the front page of the American Psychological Association's (APA) *Monitor* for that month was similar ("Isolation increases with Internet use"; Sleek, 1998). Due to the great deal of publicity the study received, both within APA and in the national and international media, it is widely accepted by psychologists and public alike that Internet use leads to depression and social isolation.

In the previous case of the Internet pornography study (Rimm, 1995), the (entirely false) conclusion that 83.5% of pictorial content on the Internet was pornographic (and that much of this was child pornography) received immediate media fanfare (most notably

the cover of *Time* magazine, before the actual article had appeared), and was a major reason for the passage of CDA in 1996. Although that study was quickly debunked for its gross distortions and its extremely inadequate methodology (e.g., Hoffman & Novak, 1995; Rossney, 1995), these problems were not reported in the media (if at all) to anything approaching the extent of the initial (false) report.

It may well be that the "sad, lonely Internet" conclusion will similarly influence public policy decisions about Internet access and regulation. This would be despite the facts that, according to several large-scale national and international surveys of Internet users, the great majority of respondents consider Internet use to have improved their lives (D'Amico, 1998; Katz & Aspden, 1997; McKenna & Bargh, 1999a), that a substantial proportion (over 50%) of over 600 Internet users surveyed had brought an Internet relationship into their real life (i.e., met in person), and that over 20% of those respondents had formed a romantic relationship and were now living with or engaged to someone they met on the Internet (McKenna, 1998).

This article is unlikely to correct public opinion on this important issue, but our goal is nevertheless to set the record straight among personality and social psychologists about the actual social and interpersonal consequences of the Internet—both as to what the existing body of research has found, and as to what further research is likely to find.

The first important point is that there is no simple main effect of the Internet on the average person (e.g., as to make the individual lonelier or more depressed). Like everything else learned in the past 25 years of personality and social psychology research, situational variables such as modes of Internet communication interact with individual differences or "person" variables to produce psychological and behavioral outcomes (e.g., Mischel, 1973). One of the central messages is an old one in communications research (known widely as the *uses and gratifications model*; Blumler, 1979; Blumler & Katz, 1974; Katz, 1959): How a person is affected by a given communications medium depends on that person's reasons and goals for using that medium (Bargh, 1988). People use the Internet for a variety of reasons and motivations (see McKenna & Bargh, 1999b), and will thus use it differently and it will have different effects on them accordingly. There is, in short, no simple sound bite for how using the Internet will affect an individual.

The related second point is that the Internet per se is neither entirely good or entirely bad as to the kinds of interactive social effects it can have on individuals. Although in this article the positive aspects and outcomes are emphasized (but at the same time point to the potential downsides to Internet communication),

<sup>1</sup>This is a design problem that, in addition to the nonrepresentative and nonrandomly selected sample of civic leaders and their teenage children (with very few people between the ages of 22–40 years old) who as of 1995 had no computer in the home (Kraut, Kiesler, Mukhopadhyay, Scherlis, & Patterson, 1998), makes it quite difficult to draw any conclusions about the social consequences of Internet use for the general population (see also Caruso, 1998).

this is motivated by the need for a corrective to the overly negative portrayals that have received so much emphasis to date. Television can link a world together and help bring down the Berlin wall (Friedman, 1999), but it is also fertile ground for the cultivation of couch potatoes. The Internet can bring people of like interests and minds together in ways heretofore unseen, but those similarities can range from a past history of sexual abuse among people in great need of anonymous social support, to virulent hatred of other racial groups.

### How is the Internet Different?

To personality and social psychological researchers, the Internet as an emerging domain of research creates a situation similar to that of 10 or so years ago, with the emergence of cultural psychology (e.g., Markus & Kitayama, 1991; Shweder, 1990). Theories and models of psychological phenomena that were developed from research performed mainly within a single culture (i.e., North American and Western European societies) were assumed to hold universally, yet this assumption was rarely tested. As the world has grown smaller, cross-cultural research collaborations have multiplied, and much is and will continue to be learned about cultural moderators of important psychological processes (e.g., Brewer & Gardner, 1996; Iyengar & Lepper, 1999; Rhee, Uleman, & Lee, 1996; Rhee, Uleman, Lee, & Roman, 1995). In a similar fashion, the Internet is a virtual world that is the same in some ways but different in others from the one traditionally studied. How well will existing theory apply to the world of the Internet?

We begin, therefore, by considering how communication and interaction on the Internet may be different from that in real life. There are four major differences that are likely to be important moderators. First, it is quite possible to be anonymous while on the Internet. For many of us, our names appear in our e-mail addresses, and even if they do not, our identity (and much other information about us) can be ascertained through "fingering" programs and other means. However, it is quite possible, such as on AOL™ and other Internet service providers, to have an anonymous e-mail name. Moreover, even when using one's real name one is relatively anonymous when interacting with people from other cities and countries.

That physical distance, or propinquity, does not matter on the Internet means that one can interact with, and meet, people from all over the world, at least those who speak the same languages. Physical distance is the major determinant of who one will meet and form relationships with in the real world,

but the Internet vastly expands the range and variety of interaction partners.

Also, unlike in real life, physical appearance and visual cues more generally are not present and not an influential factor on the Internet. As these are powerful determinants of initial attraction and the potential for relationship formation, as well as strong cues for stereotype and other social categorization processes, their absence on the Internet should alter the course of interactions and relationship formation.

Finally, time becomes relatively immaterial on the Internet. Not only can an individual engage in a social exchange without the other person being online at the same time but also he or she has far greater control over his or her side of the interaction than is possible in a conversation by telephone or in person, because there is no need for an instantaneous response. An individual can take all the time he or she needs to formulate a response, perhaps polishing and editing the phrasing until it seems perfect in his or her eyes, rather than having to respond off the cuff.

To summarize, people via the Internet are engaging in largely anonymous but repeated interactions with others who are equally anonymous. They are forming close relationships with others sight unseen. They are also able to construct and reconstruct their identity in numerous ways on the Internet—something not possible for the average individual in non-Internet life. People can and are thus engaging in very different behaviors on the Internet than they do in the real world.

### The Effects of Anonymity in Cyberspace

The Internet's nature allows for an individual to be anonymous if he or she wishes, through anonymous remailers, commercial accounts (such as Prodigy™ and AOL™) and anonymity-enabling software. Indeed, even those who interact on the Internet non-anonymously (i.e., "nonymously," with their real names present on their newsgroup posts, or where their identity can be obtained by fingering their nickname on Internet Relay Chat) tend to feel relatively anonymous. When an individual posts an article in a newsgroup or enters a chat room full of strangers, he or she may well feel that his or her actions will be submerged in the hundreds (or thousands) of other actions taking place there. It is not surprising then that deindividuation and the negative results that often accompany it (e.g., Zimbardo, 1970) readily occur on the Internet (see Mendels, 1999). However, other, more positive effects are also produced because of this very same anonymity.

## Deindividuation

When an individual's self-awareness is blocked or seriously reduced by environmental conditions (e.g., such as darkness, presence of large numbers of other people), deindividuation can occur (Diener, 1980; Zimbardo, 1970). Anonymity, feelings of close group unity, a high level of physiological arousal, and a focus on external events or goals are conditions that have been shown to encourage, and often produce, deindividuation. Some of the outcomes produced by deindividuation include a weakened ability for an individual to regulate his or her own behavior, reduced ability to engage in rational, long-term planning, and a tendency to react to immediate cues or based largely on his or her current emotional state. Furthermore, an individual will be less likely to care what others think of his or her behavior and may even have a reduced awareness of what others have said or done. These effects can culminate in impulsive and disinhibited behaviors (Zimbardo, 1970).

Among the many interactions and means of communicating on the Internet, such conditions leading to a lessening of an individual's self-awareness occur either singly or in conjunction with one another. For instance, a person may anonymously participate in an Internet newsgroup and come to feel a sense of unity with the other members of the group (see McKenna & Bargh, 1998, Study 1). A situation may then occur that raises his or her physiological arousal (perhaps someone has posted a statement with which this individual strongly disagrees or finds upsetting). He or she then may experience deindividuation and react ferociously—responding in the heat of the moment by attacking the offending statement (and its author) with a highly volatile, angry, and offensive post of his or her own. On the Internet, such newsgroup posts are known as “flames” and, as more people in the group join in, entire “flamewars” can erupt and involve several hundred arguing, largely anonymous, deindividuated participants.

The negative, deindividuating effects of anonymous communication via the Internet have been among the most discussed aspects of computer-mediated communication to date. Researchers have found that people tend to behave more bluntly when communicating by e-mail or participating in other electronic venues such as newsgroups, than they would in a face-to-face situation. Moreover, misunderstandings, greater hostility and aggressive responses, and nonconforming behavior are more likely to occur in computer-mediated interactions than in interactions that take place face to face (Culnan & Markus, 1987; Dubrovsky, Kiesler, & Sethna, 1991; Kiesler, Siegal, & McGuire, 1984; Siegal, Dubrovsky, Kiesler, & McGuire, 1986). Re-

searchers have also found that under some conditions computer-mediated communication can foster an inability to form group consensus, increased verbal hostility and impersonalization, and an inability to become task focused (Siegal et al., 1986).

More alarmingly, racists and members of hate groups have used the cloak of anonymity afforded by the Internet to harass minority group members through sending hateful or threatening e-mail (Mendels, 1999). For example, the perpetrators of the recent shootings at Columbine High School in Colorado had disseminated racist views anonymously on personal Web pages (Clausing, 1999). The publicity and notoriety of such cases of abuse have led to federal and state legislative efforts to outlaw anonymous Internet (e-mail, newsgroup) communications.

At the same time, the anonymity of the Internet played a major role in getting accurate information about the conflict in Kosovo out to the rest of the world despite heavy Serbian government censorship, and many give the Internet credit for the grass roots communication that facilitated the independence movement in Indonesia (Frankel & Teich, 1999). The powerful effects of anonymous communication on the Internet, both positive and negative, resulted in a recent conference on the topic cosponsored by the American Association for the Advancement of Science (AAAS) and the U.S. National Science Foundation (Mendels, 1999). This article returns to their considered assessment of the situation, but first other recent psychological research indicating positive consequences of Internet anonymity are related.

## Positive Effects of Anonymity

In the social and personality psychology literature, less research has been done on the positive effects that may result from anonymous communication on the Internet and anonymous communication in general. In part, this lack of research stems from the fact that, prior to the advent of the Internet, anonymous interpersonal communication between individuals (as opposed to individuals interacting as a part of a larger group) tended to occur mainly in fleeting, relatively impersonal exchanges (e.g., conversations with one's unknown seatmate on an airplane or a train, polite—or not so polite—exchanges with the latest telemarketer). Such interactions are generally limited to a one-time occurrence and are of short duration. By contrast, on the Internet, people are commonly communicating with others over time behind the shroud of anonymity.

Deindividuation, as through anonymity, does not by itself produce negative behavior. Rather, it decreases the influence of internal (i.e., self) standards of or

guides to behavior, and increases the power of external, situational cues (Johnson & Downing, 1979). If those external cues are associated with negative and antisocial behavior, such as Ku Klux Klan hoods, behavior will be negative (Zimbardo, 1970), but if those same hoods are portrayed as those worn by recovery room nurses, the resultant behavior of the person hidden under it is more positive than normal (Johnson & Downing, 1979). A classic example of the positive effects of anonymity is a study by Gergen, Gergen, and Barton (1973), in which individuals who met and conversed in a situation where they could not see one another, sitting in the dark, disclosed much more intimate details of their lives and of the self than did those who met and conversed in a lighted room. Indeed, those who were in the darkened condition left the encounter feeling more positively about the other person, compared to a control condition in which people interacted with the lights on.

Communicating with another via the Internet is much like being in a darkened room in that one cannot see the other person, nor can one be seen. The relative anonymity of Internet communication may allow individuals to take greater risks in making disclosures to their Internet friends than they would with someone they met in a more traditional, nonymous setting. Under the protective cloak of anonymity users can express the way they truly feel and think (Spears & Lea, 1994). If individuals do share more intimate confidences and do so earlier in a potential Internet relationship than in a potential real-life one, Internet relationships should develop intimacy and closeness more quickly than do offline relationships. As is discussed in a later section, this does seem to be the case.

The assurance of anonymity gives one far greater play in identity construction than is conceivable in face-to-face encounters. One can, for instance, change one's gender, one's way of relating to others, and literally everything about oneself. Even those who do not log in from an anonymous account experience almost as much freedom in identity construction. On the Internet, where one can be anonymous, where one does not deal in face-to-face interactions, where one is simply responding to other anonymous people, the roles and characters one maintains for family, friends, and associates can be cast aside. One very important and interesting direction for future research, then, concerns the implications of this greater freedom in identity construction for the individual. As Turkle (1995) argued, the Internet provides a kind of experimental laboratory in which one can try out various possible selves (Markus & Nurius, 1986) and different roles in a safe and risk-free manner. Would doing so increase self-knowledge, or enable better perspective taking ability for other groups or roles (e.g., a man portraying

himself as a woman, and being treated as one, in a chat room or news group)?

**Role identity.** Individuals define themselves, and are defined by others, by the social roles that they perform (see Burke, 1980; Burke & Tully, 1977; Stryker & Statham, 1985). Considerable research has shown that those individuals who claim multiple roles or aspects of self (i.e., a woman who feels that she is a good wife and mother, is successful professionally, a wonderful gardener, etc.) enjoy many more benefits than do those who have only a few defining identities. Sarbin and Allen (1968), for instance, observed that people who have a larger number of self-defining identities are better prepared to face changes and stresses in life. The "role rich" also experience better health (Linville, 1985; Verbrugge, 1983, 1986) and greater satisfaction with their lives (Spreitzer, Snyder, & Larson, 1979).

Furthermore, other lines of research have shown that it is quite difficult for a person to effect changes in his or her self-concept when the surrounding social environment (i.e., one's network of acquaintances, colleagues, family, and friends) remains static. When an individual attempts to make such changes, his or her peers may be unwilling to accept, acknowledge, and provide validation for these new self-aspects, and unless and until they do so, the new role or identity does not become real for the individual (Gollwitzer, 1986). Moreover, features of one's physical appearance (e.g., gender, age, weight, race) are strongly associated with social categories, roles, and stereotypes (e.g., Bargh, 1994; Brewer, 1988) in the perceiver's mind, and so additionally constrain one's ability to successfully adopt alternative roles or personalities.

Changes in self-esteem, therefore, are most likely to coincide with catastrophic changes in one's social environment such as moving to a new city, going off to college, or changing jobs (Harter, 1993; Ruble, 1994). As has been previously noted, when an individual begins to take part in the social outlets on the Internet (e.g., newsgroups, MUDs, and chat rooms), he or she is acquiring a new peer group that has no ties to his or her offline social group. Thus, interacting with others on the Internet may provide individuals with the opportunity to successfully implement wished for changes in their self-concept, and indeed this has been found to occur and to result in increased feelings of self-worth and acceptance (McKenna & Bargh, 1998, Studies 2-3).

The Internet provides the opportunity for individuals to engage in greater identity and role construction than is possible in the non-Internet world. The identities an individual is able to express and to claim are all, to some extent, constrained by that person's cur-

rent roles and relationships (Stryker & Statham, 1985). That is, others have certain expectations about the way one will behave and the kinds of identities that one should express based on the roles they perceive one to fill. On the Internet, however, an individual is in effect gaining a new peer group that is unrelated to those he or she knows in the non-Internet world. The members of this new Internet peer group have no prior conceptions or expectations about the kinds of identities or roles to which this person should adhere. Starting out as a blank slate, the individual is then free to construct him or herself in any number of different ways. As Turkle (1995) pointed out, the Internet offers an alternative playground for testing out personality and identity aspects with no fallout for the individual.

This ability to carve out different identities or roles may be particularly important for those who are role poor (i.e., they have few self-defining roles and identities) and for those who feel that important aspects of their identity are constrained in the relationships they maintain in the non-Internet world. People have a need to present their true or inner self to the outside world and to have others know them as they know themselves (e.g., Gollwitzer, 1986; McKenna & Bargh, 1998; Swann, 1983). When an individual is unable to do this in his or her current relationships, there is likely to be a strong motivation to establish relationships in which those needs and preferences can be expressed and accepted. The Internet makes it much easier for an individual to establish such new relationships and express these important aspects of identity without the risk of upsetting the balance of their offline relationships. We therefore expect to observe a great deal of the taking on of inner personae in Internet social interactions.

Numerous case studies demonstrate that individuals do indeed engage in a great deal of role playing and the expression of multiple identities on the Internet (e.g., Rheingold, 1993; Turkle, 1995). In a survey and in in-depth interviews hundreds of Internet participants described how they try on different personalities and aspects of personality on the Internet that they feel are closed to them in their non-Internet relationships and situations (McKenna, 1998). What is not yet known are what possible consequences may result from such expression of multiple roles and identities online. For example, do individuals who express multiple roles and self-aspects on the Internet experience the same benefits of better health, greater life satisfaction, and the ability to better deal with stressful life changes as do those who can do the same in the non-Internet realm? Under what conditions are individuals motivated or willing to incorporate their online identities into their offline world?

In stressing the potential positive effects of anonymity for the expression and development of possible selves, one must also consider the potential negative consequences. For example, if the various aspects of self are not well integrated, there is the possibility of a loss of coherent sense of self, such as in split or multiple personalities (e.g., Donahue, Robins, Roberts, & John, 1993). Fantasy selves may become well developed under safe, online circumstances but without experience in dealing with the possibly negative or distancing reactions that could well occur in real life if such a self were to be expressed. Finally, there is the clear possibility that rewarding experiences with a fantasy online self may become decompartmentalized: generalized to the offline or real world, causing, in the worst case, delusions and unrealistic behavior. (One is reminded of the perhaps apocryphal story of actor George Reeves, who played Superman on the television series, and who jumped to his death from a tall building under the delusion that he really could fly.) The Internet creates a powerful virtual realm in which to experiment with one's self-concept, but the ultimate effects of such experimentation are uncharted territory at present; just as with similar experimentation on the self through use of mind altering drugs in the 1960s, one should proceed with caution. The consequences of persona tryout on the Internet for self-understanding and emotional and mental health is a critically important domain for further research.

**Marginalized social identities.** The ability to engage in anonymous interactions on the Internet allows individuals to explore aspects of identity and to interact with members of socially sanctioned groups, such as lesbians and gay men or fringe political groups. The most popular method of participating in these groups on the Internet is through newsgroups, in which a person can post their thoughts or feelings for others to read and perhaps reply, within what is called a *topical thread* (see McKenna & Bargh, 1998).

Over 30,000 of these newsgroups on often quite specialized topics and interests now exist, and many concern mainstream and nonstigmatized issues and topics, such as parenting and coin collecting. However, the existence of these groups has proved especially important for individuals who possess concealable stigmatized identities (see Frable, 1993), for whom finding others in real life who share this self-aspect can be difficult, if not impossible. Due to the fact that those with concealable stigmatized identities tend to do just that—conceal the identity at all costs—it is difficult to identify them in society (Frable, 1993), and the potentially embarrassing nature of the identity and fear of

the possible consequences of disclosure keep these people from seeking out similar others.

However, under the protective cloak of anonymity on the Internet, individuals can admit to having marginalized or nonmainstream proclivities that they must hide from the rest of the world. Through newsgroups and other venues (Web sites, listservs, and chat rooms) they can find others who share the marginalized identity. By doing so, these individuals are able to reap (for the first time and in the only way possible to them) the considerable benefits of joining a group of similar others (McKenna & Bargh, 1998): feeling less isolated and different, disclosing a long-held secret part of one's identity, and gaining emotional and motivational support (see Archer, 1987; Derlega, Metts, Petronio, & Margulis, 1993; Jones et al., 1984). It was found that active participation in newsgroups (as opposed to passive lurking by reading posts and not contributing oneself) that were concerned with marginalized aspects of identity caused the individual to eventually bring the concealed identities into the open, telling his or her family and friends about it for the first time.

Pennebaker (1989, 1990) found that revealing previously concealed and perhaps shameful aspects of oneself in an experimental session significantly reduced reported health symptoms in a long-term follow-up, even when the confession was entirely anonymous. The parallels between Pennebaker's "confessional" research and the anonymity of Internet newsgroups and chat rooms are obvious. Therefore, would the same benefits of increased health accompany such disclosures if they are made anonymously in a virtual setting?

**The downside.** As McKenna and Bargh (1998) concluded, what may be beneficial for the individual in terms of self-expression may not be so for society at large. This would certainly seem to be the case for newsgroups and Web sites devoted to the hatred of other ethnic or racial groups, and for the advocacy of violence against others (see Clausen, 1999). Not only are one's negative social beliefs reinforced by the positive feedback and support given by others of similar mind but also there is a reasoning fallacy perhaps unique to the Internet that may be termed the *illusion of large numbers*. For example, the fact that 4,000 people visit a particular Web site or subscribe to a given news group seems like a lot of similar others because they are experienced to be at the same place in virtual space (see next section), just as if those 4,000 people showed up in the local park. However, in terms of the actual percentage of Internet users this number represents far less than a tenth of 1%. The result is that individuals may come to grossly

overestimate how many other people share their views, and fail to realize just how different and unusual are their beliefs from the mainstream.

**Summary.** The anonymity of Internet communication is a special and important difference between it and other forms of social interaction. Although some individuals hide behind it to propagate hate, for many others it is a liberating mode of communication, especially where social or government sanctions exist for the expression of those ideas or beliefs. The Internet seems to be a powerful means by which individuals can overcome totalitarian governments' control over communication media, and through which people can gain social support for stigmatized or embarrassing aspects of their identity. At the aforementioned AAAS conference on the consequences and effects of Internet anonymity, the organization's directory of science and policy programs concluded that "while there are clearly ways [anonymity] can be misused, the beneficial uses outweigh the negative uses" (Mendels, 1999, p. 1), and the overall recommendation of the conference participants was that governments not attempt to restrict the anonymity of Internet communication (Frankel & Teich, 1999).

### Turning the Tables on Attraction

Considerable research has shown that physical appearance plays a major role in determining whether a relationship will even start between two people. If initial attraction is not there, that is often the end of the story (Hatfield, Aronson, Abrahams, & Rottman, 1966)—not only for potential intimate relationships but also for possible friendships as well (Hatfield & Sprecher, 1986).

On the Internet, however, physical attractiveness cannot be assessed, at least initially. Due to the fact that one cannot see the interaction partner, physical appearance does not stop potential relationships from getting off the ground. Liking, attraction, and friendship on the Internet, therefore, must be based on different grounds, such as similarity, values, and interests, or an engaging conversational style. As these are also powerful determinants of friendship and attraction (Byrne, 1971; Byrne, Clore, & Smeaton, 1986), the Internet may foster the formation of relationships that never would have begun in real life. In fact, relationships formed at these deeper levels may be more durable and important to the individual than those that form based on more superficial physical features, and this is another important issue for further research.

### **Self-Presentational Consequences of Anonymity and Lack of Physical Cues**

Tice, Butler, Muraven, and Stillwell (1995) found that when two strangers meet for the first time and the meeting takes place in the absence of any other friends or acquaintances, they tend to behave with less modesty. That is, they tend to present more of their ideal self-qualities to strangers than they do to their friends. The presence of a friend at the meeting provoked more modest self-presentation. Thus, when the information presented had little chance of being called into question by another person, the tendency was to present an idealized version of self.

When interacting with unknown others on the Internet, individuals also present idealized versions of self. McKenna and Bargh (1999a, Study 2) conducted a laboratory study comparing stranger dyads who communicated either face to face or in an Internet chat room. Those who interacted on the Internet were able to more successfully present their ideal qualities (i.e., those attributes the individual would ideally like to possess) than were those who interacted face to face. When the paired participants were asked to assess one another at the end of the study, they described their partners more in terms of that partner's previously reported ideal self than his or her reported actual self. Those who interacted face to face, on the other hand, provided assessments that dovetailed with the partner's reported actual self. Thus, it seems that on the Internet people are indeed seen as they wish to be seen.

The Internet would seem to open up new and high-quality possibilities for individuals who have the self-presentational motive of "constructing a certain image of self and claiming an identity for oneself" (Baumeister, 1998, p. 704). For instance, those individuals for whom the ideal self is an important self-guide (see Higgins, 1987) will be highly motivated to incorporate these ideal attributes into the actual self. For this to happen, however, an individual must make these attributes a "social reality" (Baumeister, 1998; Gollwitzer, 1986). That is, an individual feels the need to have these attributes acknowledged and affirmed by others before he or she can feel fully convinced that he or she really possesses these ideal qualities. Such an individual is therefore quite likely to adopt a self-presentational strategy that highlights these attributes. As McKenna and Bargh (1999a, Study 2) showed, they are going to have greater success gaining the needed affirmation and acknowledgment through their Internet interactions than they will through face-to-face interactions. Social feedback has been shown to have a great impact on whether or not an individual will be able to succeed in changing his or her self-concept (Harter, 1993; Heatherton & Nichols, 1994).

### **Liking and Attraction**

McKenna and Bargh (1999a, Study 3) found that in first-time encounters an individual will be liked better if the encounter takes place in an Internet chat room than if the two strangers were to meet face to face. Furthermore, this greater liking continued to hold (and indeed significantly increased for those who had first met on the Internet) after the interaction partners met a second time, this time in person. That is, those who first met on the Internet and then talked face to face liked one another more than did those who met face to face in both encounters. Even when participants thought that they had met two different people, one on the Internet and one face to face, they significantly liked the person they talked with on the Internet better: In actuality, these participants had talked with the same person both times.

What causes this increased liking and attraction when people meet on the Internet rather than face to face? Is it simply because physical appearance and nonverbal cues are absent and thus more attention and importance is placed on what the other person says than the way the other person looks? Research has long shown, of course, that first impressions are critical to subsequent interactions and that people are reluctant to change their initial assessment even when presented with new information (Asch, 1946; Belmore, 1987; Higgins & Bargh, 1987). Thus, one may speculate, if physical appearance does not interfere with initial liking and so a positive impression is formed, then once Internet interaction partners meet in person and physical appearance does come into play, it may carry far less weight. However, other factors may contribute or cause this increased liking—for example, the greater intimacy and consequent liking established through self-disclosure (Collins & Miller, 1994) due to the relative anonymity of the Internet relative to the face-to-face initial meeting. Teasing apart the causes for liking and attraction on the Internet will tell us not only about how and why Internet relationships form but also a great deal about the role played by physical attraction for relationships in general.

### **The Shared Virtual Space of the Internet (The Negation of Physical Proximity)**

A considerable body of research has demonstrated that people are much more likely to begin relationships with others who are regularly in close physical proximity, and far less likely to do so with those who are even a short additional distance away (Festinger, 1950; Hays, 1984, 1985; Segal, 1974; Whitbeck &

Hoyt, 1994). Similarly, Brockner and Swap (1976) found that the more a person had seen, but not interacted with, another person, the more likely he or she was to initiate an interaction. Berscheid and Reis (1998) noted that familiarity is the most basic determinant of attraction.

When taking part in social gathering places on the Internet (e.g., newsgroups, chat rooms, and MUDs) a person cannot physically see the other people present, but he or she nonetheless becomes familiar with these people through their nicknames, e-mail addresses, or character names. If one regularly joins a particular chat room or news group, one will begin to notice others who frequently post messages or pop in to chat and in turn will be noticed by others. The mere exposure effect (Zajonc, 1968) would predict that repeatedly being exposed to these Internet personae, perhaps even by just seeing their names again and again in the list of posters, will lead to positive feelings about the person behind the name. Despite the fact that these people may live on the far corners of the earth, when they are all gathered in this shared virtual space they may well be perceived and experienced as being in much closer proximity. After all, people often talk about how they get together to chat in a chat room, and use phrases such as “when I am in the MUD with my friends” as if they were all in one physical locality.

Research has shown that we tend to be more attracted to those who are similar to us and who share our opinions (Byrne, 1971; Newcomb, 1961). Indeed, even within married couples the more similar two people are the more compatible they are (Houts, Robins, & Huston, 1996) and the more likely they are to remain married (Byrne, 1997). When individuals begin to get to know one another in the traditional way, however (i.e., not via the Internet), it generally takes some time for them to establish if they have anything in common and to what extent. Hill, Rubin, and Peplau (1976) followed more than 200 dating couples who stated that they were “in love” for a period of 2 years. By the end of the 2 years, nearly 50% of the couples had broken up and the main reason given for the breakup was that they discovered that they had, in fact, different interests and attitudes.

On the Internet, however, the unique structure of newsgroups and Internet relay chat allows individuals to easily find others who share highly specialized interests. There may be, for example, 50,000 people in the world who share one’s special passion, but these people are scattered across all five continents and dispersed among over 5 billion human beings. The Internet enables all of them (who have connections to the Internet) to come together in the same virtual space, transcending the problems of physical distance and wide dispersion, and of finding each other. Espe-

cially in more rural areas, if it were not for the Internet many people would never have the opportunity to share these important interests and passions with another person.

Thus, when a person enters a chat channel devoted to discussions about exotic butterfly collecting, he or she is already aware of sharing a base of knowledge and interest with the others who are on the channel. This allows them to cut to the chase (so to speak). They do not have to spend time discovering if they have any interests in common with the other participants, but rather can move quickly forward to find out what other key interests they may share. As one person who took part in a series of in-depth interviews put it:

It seems to be easier to recognize who is similar to you and who you’ll like on the net. Maybe this is because chat rooms and newsgroups are more personalized (i.e. the “golf room” or “ferret lovers”) and so you come into the room knowing you have something in common. (McKenna, 1998, p. 57)

### **A Time and Pace Unlike Face to Face**

The timing and the pacing of social exchanges on the Internet differ from face-to-face and telephone interactions in several ways. First of all, it is not necessary for the other person to be online at the same time for a conversation to take place. Rather than having to engage in a groggy telephone conversation in the middle of the night to reach a friend who lives overseas, for instance, one can simply send an e-mail before going to bed and a reply is likely to be waiting in the morning. It is not unusual when engaging in an exchange via e-mail to wait minutes, hours, or days to receive the next piece in the conversation.

Unlike conversations that take place in person or on the telephone that require immediate and spontaneous responses, an individual can take as much time as he or she needs to respond to another person on the Internet. In an e-mail message or newsgroup post, individuals are able to carefully select what they want to say and how they want to say it. They can change and edit their messages before sending them. In contrast, in verbal exchanges, as soon as someone opens his or her mouth the cat is out of the bag and cannot, at least not easily, be put back in.

Finally, in electronic exchanges, a person can “hold the floor” to an extent quite unusual in verbal conversations. Relatively short explanations are the norm in spoken conversations and people often interrupt one another in midsentence. In e-mail or a newsgroup post, however, an individual can say as much or as little about a subject as he or she pleases,

without fear of interruption before being able to fully make his or her point (McKenna, 1998). (This is not to say that the individual always takes advantage of the relative lack of time pressure in making one's points; although the person has greater control over the timing and the expression of content in such Internet communications, another operating force is the anonymity of the communication [see earlier], which can cause the individual to feel more free to react quickly and sometimes angrily, as in "flamewars.")

These differences in timing and pacing provide an individual with a great deal more control over his or her side of a conversation. This higher degree of control, coupled with anonymity, seems to contribute to individuals taking greater risks and chances with making self-disclosures to those with whom they talk on the Internet compared to real life (McKenna, 1998). Moreover, as individuals begin to incorporate their Internet relationships into their non-Internet lives, they engage in a presence-control exchange. That is, they start the relationship from a position of relatively high control over their side of the encounter (via e-mail), and gradually, as their comfort level and greater knowledge of the other person increases, exchange or trade that control gradually for physical closeness in a series of stages (McKenna, 1998).

This seems to be the Internet equivalent of the progression of real-life relationships from superficial acquaintances to close and even intimate relationships, which, according to Altman and Taylor's (1973) social penetration theory, occurs when individuals trade acts of self-disclosure with each other. As real-life relationships develop, the disclosures become more revealing and personal and cover a wider area of each other's lives. The partners are exchanging sensitive information in a gradual way because of their mutual vulnerability. In the same way, on the Internet people tend to trade control over the interaction for greater physical reality of the relationship. Their first offline step is either to write a letter by mail or talk on the telephone. Those who exchange letters then move on to telephone conversations. Only after telephone contact has been made are individuals likely to take the final step of meeting in person (McKenna, 1998).

### **Individual Differences: Who Is More Likely to Go to the Net?**

As mentioned earlier, the Internet does not affect everyone in the same way. People vary as to what goals they have, or needs to be met, while using the Internet. In this focus on social interaction and relationship formation, the question becomes: Who will be more likely

than others to seek out interactions and to form relationships with others on the Internet?

### **Social Anxiety**

Forging social connections is quite difficult for those individuals who experience high levels of anxiety when in social situations (see Leary, 1983; Leary & Kowalski, 1995). Those who become anxious when meeting new people, talking to individuals they find attractive, or engaging in social group activities (e.g., parties or work-related social affairs), may be barred from the benefits of close personal relationships and group membership. Their basic needs for belonging and intimacy (Baumeister & Leary, 1995; Brewer, 1991) may therefore go unmet. On the Internet, however, many of the situational factors that foster feelings of social anxiety (e.g., talking to someone face to face, having to respond on the spot with verbal exchanges) are absent. Socially anxious individuals may thus be motivated to turn to the Internet as a means through which they can make social connections and meet these needs. Due to the absence of many of the anxiety-enhancing factors that exist in face-to-face interactions, they may then find it easier to form relationships on the Internet.

Indeed, recent research (McKenna & Bargh, 1999a, Study 1) has found that social anxiety is a strong predictor of who will be likely to form Internet relationships. Those who scored highly on the Interaction Anxiousness Scale (Leary, 1983) were found to be significantly more likely than their more socially comfortable counterparts to form relationships with others via the Internet. Moreover, socially anxious individuals were more likely to have formed very close Internet friendships and romantic relationships as opposed to weaker relationships (e.g., acquaintanceships).

What is not yet known, however, is whether the formation of such close relationships in the "virtual" realm will have the downstream results of lessening feelings of social anxiety in the offline realm. It may be that the successful formation of relationships in an online setting will lead to increases in the individual's feelings of self-confidence and self-efficacy. He or she may then become more confident of his or her social abilities when placed in face-to-face settings. As one participant who took part in a series of in-depth interviews (McKenna, 1998) stated

I used to be a complete disaster when it came to talking with women. In fact, I was so nervous about it that I would go to great lengths to avoid having to meet or talk with them, especially if I found them pretty or intelligent. On the Internet I discovered that talking with women was much easier and not only that, many of

them seemed to really like me, found me humorous, and sought *me* out to talk to. I have become so much more confident with women and not just on-line. (p. 85)

Concluding that the Internet is a positive source of interactions for those who are socially anxious as a means for overcoming anxiety in meeting people assumes that the individual is still trying (and perhaps often failing) to interact with people in real life, outside of the Internet. As the McKenna and Bargh (1998) and McKenna (1998) research showed, in general people are motivated to bring their newly gained Internet identities and relationships into their real-life world. However, it may prove too seductive for some, perhaps the most socially anxious individuals, to escape the trauma of real-life interactions almost entirely, and live their entire social life on the Internet (see Green & Brock, 1998). Again, here is an important avenue for further Internet social research: Is it the case that for some set of identifiable individuals (e.g., extremely socially anxious) under certain circumstances the Internet becomes an escape from real-life interactions, with the consequence that these individuals do withdraw from their offline social sphere?

### **Loneliness**

Although socially anxious individuals are often also lonely, it is also the case that there are many individuals who are lonely but not socially anxious. In some cases, loneliness may be a temporary condition, occasioned perhaps by changing jobs or moving to a new city. In others, it may be more chronic (e.g., for the homebound, for single working mothers with small children and little or no time left over for socializing). Loneliness is another individual difference that predicts who will form online relationships (McKenna & Bargh, 1999a, Study 1). The Internet would seem to be double edged when it comes to loneliness; lonely people may meet others over the Internet and so decrease their degree of loneliness, but protracted time on the Internet necessarily takes time away from one's existing, non-Internet relationships and could thus impact those, thus increasing loneliness eventually for some individuals (Kraut, Patterson, et al., 1998). This is an important set of issues about the Internet that needs further research. Another critical question concerns the quality of relationships that currently lonely people form on the Internet, and their duration and quality.

### **Relationship Formation on the Internet**

The culmination of these various forces can be found in data on the formation of acquaintanceships,

friendships, and even intimate relationships on the Internet. Due to the greater anonymity, differences in self-presentation, lack of physical gating features that prevent people from getting to know each other better, the fact that physical distance is no longer a barrier to meeting someone, and that the virtual shared space of the Internet brings together far-flung individuals with core shared interests and passions, one may expect the Internet to be a fertile ground for the formation and establishment of relationships. It is indeed that (McKenna, 1998; Parks & Floyd, 1995; Parks & Roberts, 1998). Parks and Roberts (1998), for example, found that 94% of surveyed participants in online text-based games had formed close friendships or romantic relationships with other players. A separate survey conducted with 600 randomly selected news group participants also showed that the formation of strong relationships is quite common on the Internet, with 51% reporting that they had formed close friendships and 35% that they had forged romantic relationships with others on the Internet (McKenna, 1998). It is important to note that, fully 79% of the survey respondents considered their Internet relationships to be as close, as real, and as important as their non-Internet relationships.

Two conclusions should be drawn from the aforementioned. First, far from being solely a cause of loneliness and isolation, people can and do use the Internet to meet others with similar interests and values, and get to know them in a safe environment at their own preferred pace. Second, these relationships are not of lesser quality than real-life relationships; instead, they become real-life relationships. People tend to bring their Internet friends and romantic interests into their real life by talking on the telephone, exchanging pictures and letters, eventually meeting many of them in person, and in many cases moving in with them. It is too early in the Internet game to tell, but it is possible that relationships formed on the Internet are deeper, more stable and lasting than those formed in the real-world environment in which physical attractiveness and proximity are such powerful constraining and determining forces. We believe this will be an important question for relationship research in the near future.

### **Methodological Techniques for Internet Research**

How does one go about researching the psychology of the Internet? There are several ways to study social interactions and the other psychological phenomena previously discussed, such as conducting surveys within newsgroups, interviewing people "live" in chat rooms, analyzing readily available ar-

chival records of newsgroup posts, qualitative research (e.g., intensive interviews, case histories), and even laboratory experiments. Each of these approaches are later described, but before doing so it is emphasized that each single technique has both strengths and weaknesses. For instance, there may well be a self-selection problem with survey responses, but if a laboratory experiment with random selection and assignment to condition produces converging evidence, this helps to rule out the possible confound. Similarly, it may be problematic to generalize from the behavior of introductory psychology students in a subject pool to Internet users (of all ages), but if broadband surveys and qualitative interviews produce converging evidence, one can feel more comfortable in generalizing from the more controlled laboratory study. Thus, we recommend a metamethodological strategy of “triangulation” in which one uses a variety of approaches in testing a given hypothesis when studying social and psychological phenomena on the Internet.

### **Natural Experiments and Archival Research**

The Internet presents a unique opportunity to study individuals and groups as they interact in a naturalistic setting, without the intrusive presence of a researcher. One can test hypotheses about the behavior of the group or the individual given certain events or occurrences by observing and coding the verbal content of chat room responses or newsgroup posts. For example, in Study 1 of McKenna and Bargh (1998), the hypothesis that the posting frequency of individuals in a particular newsgroup would be affected by the feedback of other group members was tested (i.e., more posting if positive feedback, less if negative), but only if membership in the newsgroup was important to the individual’s social identity. Each post was coded over several weeks in terms of the positivity or negativity of the posts of others responding to it, and then the number of subsequent posts by that individual over the next month was counted. Another useful feature of the Internet is that it enables the easy collection of data on individuals’ or groups’ reactions to naturally occurring historical events, such as the death of John F. Kennedy, Jr., or the war in Kosovo.

One need not wait for events to happen, or wait weeks or months while data is being collected, because there exist archives of newsgroup posts. There is a wealth of data available on the Internet through the DejaNews archive (<http://www.dejanews.com>). This archive contains hundreds of thousands of posted messages dating back to Spring 1995 and conveniently or-

ganized by the newsgroup, date, and time the article was originally posted. Additionally, these archives are searchable. One can thus find all posts that have been written on a particular topic, by a specific author, or (within a specific newsgroup) that were contributed within a particular time frame. Internet chat rooms can also be studied by logging the publicly made comments (but not those conversations that are being privately made between participants in a chat room through what is called personal messaging) contributed to specific Internet chat rooms; logging chat room conversations is a feature of standard and readily available software needed to access and participate in chat rooms.

It can be argued that because of the anonymity afforded by the Internet, one may gain an understanding of people’s real goals, ideas, and behaviors, unmuddied by demand effects that can occur when an individual is aware of being under study, or by self-presentational concerns when his or her public responses are not anonymous. However, it could be counterargued that precisely because of the reduced concern with social sanctions afforded by anonymity, the individual will exert less effort or control over the communication, and so it may be more affected by temporary states such as mood, emotion, or recent experience (e.g., priming effects) and so be less, not more representative of the person’s true attitudes and beliefs. The very existence of stable and decontextualized true attitudes is a complex and controversial issue in itself (e.g., Wilson, *in press*), one beyond the scope of this article; nevertheless, the possibility that Internet communications may be a more accurate or bona fide source of individuals’ opinions and beliefs is certainly deserving of further research scrutiny.

### **Surveys**

There are several reasons why one may want to conduct a survey over the Internet. First, one may be interested in studying the characteristics, beliefs, behaviors, and so on of Internet users as such, and it is clearly easier to find them on the Internet than by first having to ask many more people over the telephone or through the mails if they use the Internet. More interestingly, the Internet provides an excellent venue for cross-cultural research, because it obviates the need to travel or to be personally located in each of the countries or cultures studied (also greatly reducing the expenses of such research). By the same token, findings of Internet surveys in general are not as restricted to a given culture or country given that Internet users are worldwide (although one must keep track of respondents’ nationalities as the majority of

Internet users at present are North American). This being said, one must take steps to ensure that survey respondents are representative of the country or culture being studied. In many countries today, Internet users are mainly academics or the wealthier citizens. (This is changing, however, with more and more of the general population coming online daily.) Dealing with the problem of sample representativeness is one of several difficulties and disadvantages associated with Internet surveys that is discussed in the next section in the context of each of the Internet venues in which surveys can be conducted (newsgroups, chat rooms, and MUDs).

To conduct survey research on the Internet, one must first identify the population to be studied. Users of newsgroups, chat rooms, and MUDs may differ in important ways from each another and from the average Internet user. For example, if one wishes to generalize findings to the Internet population as a whole, it would be unwise to conduct a survey of just those participants who use MUDs, as they tend to be much younger than the average Internet user and to enjoy cloak and dagger role play. On the other hand, MUD users are an excellent population to study if one is interested in phenomena such as gender bending, fantasy and motivation, and role playing. Therefore, it is recommended to go beyond the notion of the average Internet user and focus instead on the particular Internet communication mode of interest, and if one does wish to generalize across all of these modes, to include each (or at least several) of them in the study, along with a non-Internet control group.

**Newsgroups.** If one wants to study newsgroups in general (as opposed to groups with a particular content focus, such as parenting or a sports team), then the first step is to randomly select from the population of available newsgroups. There are currently more than 30,000 Internet newsgroups available on the Internet. However, not every Internet provider (e.g., AOL™, Freenets, university servers) gives access to a complete listing of all newsgroups. Providers differ in the kinds and number of newsgroups one can view (e.g., some providers block newsgroups that are not considered suitable for children). One may therefore wish to obtain lists of available newsgroups from two or more servers prior to selecting which newsgroups to study.

Newsgroups themselves often differ in terms of user composition and the kinds of posts that are contributed to them. Some newsgroups are comprised almost entirely of advertisements (called *spam* in the Internet vernacular). It is also often difficult to tell from the subject header of a post if it is a message posted by a legitimate member of that newsgroup or

by an advertiser. Newsgroups in the alternative hierarchy are particularly targeted by spammers and many newsgroups have been completely abandoned by their members because of the pervasiveness of the advertisements. Other newsgroups (including many of those in the society or social hierarchy) consist mainly of messages that are simultaneously posted to a large number of different newsgroups at once (called *cross posts*). The replies to the original message (called *threads*) can originate from members in any of the different groups in which it was posted, so that within a particular newsgroup the replies to threads can come from people who have never looked at the particular newsgroup one is studying. Massively cross-posted messages and spam may give the illusion that a particular newsgroup is used by many members who actively post, when the opposite is actually the case. Therefore, when selecting newsgroups to survey—particularly if one is studying group dynamics, social identity, or social interaction processes on the Internet—it is a good rule of thumb to select those groups in which at least 50% of the posts are “on topic” (i.e., made by the members of that particular newsgroup and posted only to that newsgroup).

Once the newsgroups to be studied have been identified and prior to electronically mailing surveys to their members, a message should be posted in each of the selected newsgroups briefly describing the study, informing participants that surveys will be sent out to randomly selected members of that newsgroup and that participation is entirely voluntary. Following Internet etiquette (known, naturally, as *netiquette*) in this way helps to increase response rates and decrease the chances that members will view one’s e-mail to them as unsolicited spam. To further increase incentive for participation (and honesty of responses), participants should be informed that results from the study will be made available to them at the conclusion of the study, either directly through e-mail or through posting the results on a specified Web site. Particularly when studying members of groups that are marginalized by society (e.g., lesbians, gay men, epileptics), a researcher may need to take great pains to assure participants that he or she is conducting a legitimate scientific study and that the purpose of the study is not to present these individuals as abnormal or in a negative light (see McKenna & Bargh, 1998, Studies 2 and 3).

Newsgroups may contain hundreds and even thousands of posts each day, so it may not be practical to include all group members in one’s survey. One may therefore wish to randomly select a subset of members. When a person contributes a post to a newsgroup, his or her e-mail address appears in the header of the post. Participants can thus be randomly se-

lected (e.g., mailing the survey to every fifth poster). Again to increase response rates, surveys should be sent singly to each participant, not as a carbon copy (or "cc") or as a group mailing; although doing it this way is more time consuming, recipients are less likely to respond if they are treated as just one person in a large group. (They also feel that their responses are more important to the study.) Researchers should be aware that spam is increasingly being sent not only to newsgroups but also to people's e-mail addresses. Over the past few years this has had the unfortunate effect of lowering potential survey participants' willingness to cooperate with a study. Many people now view any unsolicited e-mail as spam and are quite likely to so categorize even a legitimate scientific survey. Under these circumstances, following the aforementioned steps has become even more important to attain a sufficient response rate.

**Chat rooms and MUDs.** To study chat rooms and MUDs, one first needs an access program (known as a *client*). There are many client software programs available; we recommend mIRC (<http://www.greifswald-online.de/vccom/software/32bit.html>). Using a client, one can connect to the various nets available (e.g., the Undernet, the Ethernet) and obtain a list of all the available chat rooms in operation at that time (generally several thousand). Each chat room will have an identifying name (e.g., *newbies*). The number of chat rooms vary by the minute as any user can create a temporary chat room at any time, but there are also permanent chat rooms. Some chat rooms are private and "invitation only," however, and researchers will not be able to enter those.

One can randomly select chat rooms to survey from the entire list available at that moment, or identify those chat rooms that revolve around a topic or group one is interested in studying and select from that subsidiary list. Once in a chat room one can see a list of all the participants in that particular room. (Note, however, that because chat rooms operate in real time, the time of day one studies the room matters a great deal as to the characteristics [e.g., age, nationality] of the people one will find there. At 11 a.m. on a school day, one will find few children and teenagers but this changes dramatically once school is out, and in the evenings. At 2 p.m. in New York one will find many Europeans but not at 10 p.m.; by 2 a.m., there are few New Yorkers but many Californians in the chat rooms, and so on.) Unlike in newsgroup posts, chat room users are not identified by their e-mail addresses but rather by a chosen nickname. One must, therefore, contact each potential participant (again, they should be randomly selected from the list of people in the room) with a private

message explaining that a survey is being conducted and asking him or her to provide an e-mail address if they are willing to participate. It is a good idea to simultaneously have a mail program open and to send the survey immediately after obtaining each participant's address, inserting the participant's nickname at the top of the survey.

Lists of MUDs that are currently in operation can be obtained via the World Wide Web (<http://mudlist.eorbit.net/~mudlist/>). Using telnet or, preferably, a MUD client (ZMUD is recommended, available at <http://www.zuggsoft.com/zuggsoft/index.cfm>), one can enter each of the MUDs selected for study from the MUD list by connecting to the given Internet address. In each MUD one must go through the character generation process and create a character before being able to obtain a list of those who are playing at that time. As with chats, MUD users are identified by the name of the character he or she is currently playing. It is not possible to obtain a list of all the players in a particular MUD, but only those players who are currently online. MUDs differ in the commands one needs to use to talk with other players or to obtain a list of those playing, although typing the word *who* will generally provide a list of the current players. Each MUD has a list of help files providing information on the social mores of the MUD and commands to use and it is strongly recommended that these help files be read prior to contacting any potential participants. (It should be noted that a growing trend in many MUDs is to do away with the "who" command so that one is not able to detect what players are currently online, to increase the sense of realism within the MUD.) As with the chat room users, a researcher should plan on approaching each MUD user separately to explain the study and to obtain his or her e-mail address.

**A note on participant observation.** When conducting surveys on the Internet it is often beneficial to participate for a while oneself in some of the newsgroups, chat rooms, or MUDs selected for study. Taking part in the groups under study aids in gaining the trust of the members of the group, and can substantially increase response rates. This potential gain must be weighed against some negatives, however, when deciding whether or not to participate. First of all, one must be careful not to influence or otherwise affect the responses participants may make to the survey by one's own postings and contribution to the group. This possibility can be checked to some extent by comparing survey results between groups in which one did versus did not participate.

A second problem is ethical. For instance, to increase the near-zero initial survey response rate in the study of conspiracy and White supremacist news-

groups (McKenna & Bargh, 1998, Study 3), participation took place for a time to convince group members researchers were not government law enforcement officers. The participation significantly increased the response rate to a respectable final 34%. In doing so, any statements making or expressing agreement with racist remarks were avoided, but instead only statements neutral in tone and content were contributed, usually on neutral group discussion topics.

### Experimental (Laboratory) Studies

There is no reason that the Internet cannot be studied under the controlled conditions of the experimental laboratory. This approach to the study of the social and personality aspects of the Internet has all of the traditional advantages of controlled experiments—random assignment of individuals to conditions, the inclusion of control conditions to rule out alternative explanations, and so forth. All that is needed are computers in the experimental rooms with separate direct connections to the Internet. This enables one, for example, to study behavior within chat rooms by logging each participant into the same chat room. One could compare relationship formation in chat rooms to real life in this way, by having pairs of participants meet initially one way or the other, and then collect the outcome variables of interest (e.g., impressions of each other, degree of liking; McKenna, 1998). The important methodological point is that any manipulation that can be performed in a real-life or face-to-face social interaction or group behavior study can also be used to study the same phenomenon on the Internet. One could (explicitly or implicitly through priming) give participants expectations or interpersonal goals regarding the upcoming interaction, could manipulate participants' moods, and so on.

### In-Depth Interviews

In-depth interviews of Internet users about their experiences, particularly when used in conjunction with one or more of the methodologies discussed previously, can provide valuable insight and rich data about the given phenomenon. Interviews enable more free responding than do preconfigured surveys and thereby provide information that surveys and the other data collection methods might miss. To give one example, it was not foreseen prior to conducting in-depth interviews that single working mothers with young children—because of their often extreme shortage of time for socializing outside of work and

the home—would be prime candidates for turning to the Internet to make and maintain friendships and romantic relationships (McKenna & Bargh, 1999b). This interview finding was later confirmed through inclusion of questions concerning marital status and ages of children in an Internet survey (McKenna & Bargh, 1999a).

### Conclusions

*Plan 9 From Outer Space* was Bela Lugosi's final movie (actually, he died while making it). Its rather simple plot was that aliens were trying to conquer the earth by turning freshly deceased humans into zombies that they could control by remote control (thanks to their advanced technology). What does this have to do with this article? Simply that the Internet does not, contrary to current popular opinion, have by itself the power or ability to control people, to turn them into addicted zombies, or make them dispositionally sad or lonely (or, for that matter, happy or popular), and neither does the telephone, or television, or movies. Rather, the Internet is one of several social domains in which an individual can live his or her life, and attempt to fulfill his or her needs and goals, whatever they happen to be (see McKenna & Bargh, 1999b).

We sought in the first part of this article to identify and highlight the key situational variables that make the Internet a unique and special social domain: anonymity, the mitigation of physical proximity, and physical attractiveness as gating features to relationship formation, and the enhanced personal control over the time and pacing of interpersonal interactions and communications. These are important situational variables but they do not operate in isolation, as main effects on all Internet users; rather, they have their effect in interaction with the individual's needs and purposes. So that is where Internet social research will be most profitably directed—toward identifying the critical individual differences that will mediate and moderate the Internet's powerful situational forces to determine whether the effect on the self, social identity, relationship formation and maintenance, social interactions, organizational functioning, and mental health will be positive and fulfilling or negative and destructive. Like the communications advances before it, the Internet will always and only be what individuals make of it.

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