

## 6 Exposure in Cyberspace as Means of Enhancing Psychological Assessment

*Azy Barak and Liat Hen*

### Introduction

For those who regularly surf through cyberspace and experience it as a parallel and not unusual social environment – whether this takes the form of online forums, chat rooms, or personal communication through instant messaging (IM) – it is customary to encounter various types and exhibitions of human behavior. Many Internet surfers, in the beginning, are convinced that most other surfers impersonate, lie, cheat, or at the very least attempt to pull your leg; later, however, it occurs to them that this basic premise is generally wrong. After spending much time in virtual communities, publicly and privately interacting with numerous anonymous individuals, many people start to realize that their behavior in cyberspace reflects their actual personalities or mood states. To their astonishment, as they observe over time other people's gestures, behavioral patterns, writing styles, frequency and intensity of involvement in group situations, personal associations, vocabulary, choice of verbal expressions, netiquette, and other features of their online behavior – all based on textual communication – laypeople realize that they can learn a great amount about themselves and about others. Moreover, it occurs to them that under these circumstances, they could learn *even more* about many people's personality dispositions, attitudes, moral values, sensitivities, habits, needs, and preferences than in an offline, face-to-face (F2F) environment. This intuitive recognition by many Internet users is consistent with what behavioral theorists and researchers of cyberspace have argued in regard to the emergence of self in cyberspace. That is, in contrast to common belief, we now know that many people, when immersed in cyberspace, remove their everyday, offline masks and games and expose their more authentic selves, revealing their longer-term personality dispositions and traits or their current mood and emotional state (McKenna, 2007; also see McKenna, Chapter 10).

This chapter takes another step in this knowledge direction. Under the assumption that people not only tend to express and reflect themselves in online situations but also usually feel comfortable doing so, the idea advanced here is that the online environment may constructively be used to assess and evaluate people in professional terms. Because psychologists so widely use and need assessment and evaluation activities – for clinical, educational, vocational, and other purposes – cyberspace may be professionally exploited to

enhance traditional methods of assessment and evaluation. This, in turn, might increase the level of assessment validity or, at least, expand its perspectives, on the one hand, and generate improvements in location convenience (i.e., assessment from a distance) and perhaps even time elasticity (i.e., asynchronous assessment), on the other. This chapter attempts to provide this new approach with some firm grounding and offers examples of its possible application. It should be noted that the emphasis of this chapter is on Internet-based assessment rather than stand-alone computer-assisted testing; for elaboration of the distinctions between these procedures, see Reips (2002, 2006).

### Psychological Assessment

Psychological assessment is considered a regular activity conducted by psychologists for various clinical assessments and diagnostic purposes involving the need to measure, compare, characterize, and evaluate clients. Assessment is normally based on psychological testing, professional interviewing, and behavioral observation. Traditionally, these three major approaches require F2F contact between professional and client to enable the implementing of a certain assessment procedure. The methods conducted for assessment – though prevalent and highly standard – usually yield reasonable to mediocre assessments in terms of criterion-related validity.

In recent years, psychological assessment has been conducted through online instruments and procedures for many purposes, among them clinical diagnostics of a variety of problems and concerns (e.g., Andersson, Carlbring, Kaldo, & Strom, 2004; Carlbring et al., 2007; Emmelkamp, 2005; Hyler, Gangure, & Batchelder, 2005; Luce et al., 2007); neuropsychological and rehabilitation assessment needed to enhance a therapeutic technique (e.g., Erlanger et al., 2003; Medalia, Lim, & Erlanger, 2005; Schatz & Brownlyke, 2002); educational assessment needed to evaluate learning, school-related adjustment, and the selection of candidates for specific study programs (Wu & He, 2004); vocational, organizational, and career-related assessments needed for job selection work-related assessment among applicants or employees (e.g., Bartram, 2004; Konradt, Hertel, & Joder, 2003; Whitaker, 2007); career counseling assessment for identifying personal abilities, interests, values, and personality characteristics relevant for choosing and developing specific career paths (Barak & Cohen, 2002; Jones, 2004; Kleiman & Gati, 2004); group and social assessment to identify and detect specific factors at work in the group, focus group, community, or organization (Bartram, 2004; Reid & Reid, 2005); family assessment conducted to identify interpersonal patterns that might interfere with family relations and functioning (Bischoff, 2004); and the like. In this regard, a recent meta-analysis performed by Hyler et al. (2005) found no differences between assessment conducted by telepsychiatry and in-person psychiatric assessment.

### **Problems in Traditional Psychological Assessment**

Conventional psychological assessment has more than a few limitations and drawbacks. Although scholars educate for and foster valid assessment procedures, it is no secret that even in the best-case scenario, most assessment tools reach but a mediocre level of criterion-related measurement validity. It seems that many practitioners are impressed more by the face validity of a test, especially when it is accompanied by impressive theory and good marketing (e.g., Rorschach Inkblot Test; Draw a Tree) than by rigorous empirical research and complicated statistics, particularly if findings prove inconsistent with beliefs. In many cases, moreover, psychologists adopt an assessment method they are familiar with, have in their possession, or learned and became accustomed to using rather than what meets basic psychometric and methodological requirements and, consequently, professional and ethical expectations. Likewise, many practitioners tend to ignore (or downplay) that their interviews are, in principle, biased, thus leading to invalid impressions of interviewees in many cases. Many practitioners also disregard “contaminating” factors or do not give them significant weight when assessing people. Therefore, they may come away with erroneous evaluations just because a person undergoing assessment may at the time be anxious, nervous, depressed, tired, or distracted by personal issues. Although textbooks and study programs teach and emphasize this crucial possible error, it seems that in reality, an assessment does become invalidated because of it.

A comprehensive review of the numerous problems and limitations of traditional psychological assessment would be too exhaustive to cover in the framework and context of this chapter. Its weaknesses are many, however, despite the natural unwillingness of professionals to admit to it. Traditional, paper-and-pencil psychological testing is a typical example. Although standard textbooks (e.g., Aiken, 2003; Anastasi & Urbina, 1996) list numerous serious threats to the quality of measurement in this type of assessment, practitioners in the field disregard them in many cases as though diagnostics based on such tests are fully valid and reflect people accurately. Among these threats to quality are the use of invalid or inappropriate tests, use of obsolete versions of tests (now even sold through online auctions; LoBello & Zachar, 2007), the lack of the use of updated test norms; uneasiness and anxiety that many people experience when taking tests, especially in public; unreliable scoring; and more. These problems not only limit the validity of test results but also, in many cases, cause a highly invalid assessment.

Another major vehicle with which to conduct psychological assessment is interviewing. Although an interview enables direct contact with and impressions of a person – in the context of psychiatric evaluation, clinical diagnostics, job application, or screening applicants for study program – and therefore offers an added value over written psychological tests, personal interviews suffer from many weaknesses, too (e.g., Eder & Harris, 2005; Sommers-Flanagan &

Sommers-Flanagan, 2002). These range from the inconvenience of scheduling personal appointments, the need to travel (sometimes for very long distances), many interviewers' unavoidable biases pertaining to certain personal characteristics of interviewees, rehearsal by interviewees to improve their impression, to the inevitable significant effects of the interview setting and atmosphere.

A third major tool in psychological assessment has to do with situation testing, usually as part of an assessment center (AC), where people – in individual, dyad, or group settings – are asked to perform certain tasks because some of their personality characteristics are reflected in their behavior and are evaluated by professional, trained observers (Thornton & Rupp, 2005). Although this approach may overcome major limitations of paper-and-pencil tests and allow trained raters to observe actual behaviors in challenging situations, it has the disadvantages of inconvenience, high cost, and possibly biased raters' judgments.

Most applications of psychological assessment take part in certain locations and facilities. Exploiting the Internet in this regard enables independence from this binding conception and the adoption of an innovative approach, one that calls for disconnection from the preconception of a common physical *place*, and sometimes *time*, in the context of assessment. The first rule of this new approach states that a person undergoing assessment does not have to be in the same physical location as the assessor. The possible, and highly probable, result is that client and therapist (or assessor) does not have to be in a F2F situation. The second rule states that these two people do not have to interact with each other at a given time but may each operate on his or her own time schedule. If this rule is known and accepted in advance, along with certain guidelines pertaining to it, then communication might not only be uninterrupted but even lively and more immersive. This is not the typical manner in which psychological practitioners are trained to interact with clients, nor is common in typical, normal, and close human interaction. However, perhaps *because* of its atypicality, the new conception may enhance and elevate assessment to new, much-improved levels.

The following sections will make an attempt to show how the Internet can be harnessed to overcome some of the shortcomings of the three main methods of psychological assessment: testing, interviewing, and situation testing. It is important to note that the use of the Internet is being advocated not only for what is now obvious, namely, convenience, availability, affordability, and acceptability of computers and the Internet as a prevalent means of communication. Beyond these important advantages, the unique psychological environment created by the Internet enables professional psychological assessment to advance to a new level and attain *greater validity*, not just more efficiency. The contention here is that applying assessment procedures in cyberspace, given that they are executed in a way that is consistent with recent scientific knowledge and understanding about cyberspace as a social environment and

given people's experiences in it, will result in a significantly improved means of assessing and diagnosing people for a variety of purposes.

### Cyberspace as a Social Environment

The Internet was first thought to provide a convenient and efficient communication network. With its innovative technical developments and the public's awareness of the capabilities and advantages of this technology, the Internet has become much more than a communication device (such as the telephone); it is effectively a virtual social environment. We may refer to it as such, since people can – and do – behave through it (or “in” it) in a parallel way to almost everything they do in their physical (“offline”) environment, whether socializing, learning, shopping, dating, playing games, discussing, making love, selling, watching movies, listening to radio or any music they like, doing research, participating in conferences, stealing, sharing opinions, voting and electing, gossiping, fighting, or just wandering around. The virtual environment – often termed *cyberspace* – thus provides an alternative social environment for those who will not or cannot, for any reason, use their physical environment for the same purposes. Research shows that this is not only an option for many people but has become an actual, normal way of life (Bargh & McKenna, 2004; Haythornthwaite & Hagar, 2004; Joinson, McKenna, Postmes, & Reips, 2007; McMillan & Morrison, 2006; Selwyn, Gorard, & Furlong, 2005; see also Barak & Suler, Chapter 1).

It is not only that people use the Net massively and intensively for a variety of social and professional activities, but also they behave in this online environment in ways that we have only recently begun to comprehend. The study of online behavior, though not new – it goes back more than two decades, when more primitive, text-only computer-mediated communication networks were in use – has actually been upgraded with the introduction of new technologies, such as fast, broadband, and wireless Internet connection; much more sophisticated, colorful, larger computer screens; the emergence of blogs and blogging, these virtual soapboxes ushering in a considerable personal and social change; and significantly upgraded browsing and online communication software. These innovations have made “old” research of the 1980s and 1990s almost obsolete, as they have been accompanied by behavioral and social changes. The cumulative research available strongly indicates that at least a part of people's behavior online is similar in many ways to their offline behaviors. As a result, we can legitimately adopt models of behavior determined and constructed in the context of F2F physical social situations and apply them to cyberspace, using various theoretical frameworks, from psychoanalysis (e.g., Turkle, 2004) to social psychological theory of planned behavior (e.g., Hsu, Yen, Chiu, & Chang, 2006), for example. However, it is also known that this adoption of a theory is not simple or direct. For example,

the effects of deindividuation in explaining various online behaviors, originally developed in the context of offline behaviors in F2F groups and crowds (e.g., Festinger, Pepitone, & Newcomb, 1952; Prentice-Dunn & Rogers, 1982), though once thought to be highly relevant in computer-mediated communication (e.g., Spears & Lea, 1992), has only partially been supported and often much refuted, in more recent research of online environments (Joinson, 2001; Moral-Toranzo, Canto-Ortiz, Gómez-Jacinto, 2007; Yao & Flanagin, 2006).

To understand psychological aspects in cyberspace more accurately, we apparently need more specific, relevant theoretical approaches. Several such models and viewpoints have been postulated in recent years, some of which will be noted here. One of the phenomena characterizing cyberspace is that a highly inducing environment is created in terms of *flow* and *presence*. “Flow” refers to the feeling of a complete, energized focus on an activity, characterized by a high level of enjoyment and fulfillment (Csikszentmihalyi, 1990; see also Voiskownsky, Chapter 4). By “presence” is meant the subjective experience of “being there” in an immersive, computer-mediated environment, such as virtual reality and simulators (Jacobson, 2001). These two special psychological processes create a new sense of existence, in which one disconnects (to different degrees) from the physical reality and experiences emotions and a state of mind different from the offline environment in which one is engaged at the same time (Barak, 2007b). This unique psychological state has several important implications. In the context of this chapter, the situation creates a special opportunity to observe and evaluate people in a relatively “purer” state of being, relatively less distracted by and defensive of stimuli existing in their physical environment, on the one hand, and more directly, closely connected to their selves, on the other. Because of certain characteristics of online interpersonal communication and subsequent relationships, such as anonymity and unidentifiability, McKenna and her associates have argued – and provided research and numerous examples in support of this argument – that people in cyberspace reveal their “true selves” (Bargh, Fitzsimons, & McKenna, 2003; Bargh, McKenna, & Fitzsimons, 2002; McKenna, 2007; McKenna & Bargh, 1998, 1999; 2000; McKenna & Green, 2002; McKenna, Green, & Gleason, 2002; McKenna & Seidman, 2005a, 2005b; see also McKenna, Chapter 10). According to this view, while people offline behave and express themselves in ways that are filtered, censored, fabricated, and acted – following several dynamic reasons, such as social norms and sanctions, shame, and guilt feelings – people online feel freer to be closer to their basic personality structure, express their “real me,” and actualize psychological and social needs, frequently those that go unsatisfied in their offline environment. According to this approach – and in great contrast to common belief – not only are people in cyberspace not looking to impersonate and fabricate, their anonymity enabling them to cheat, fake, lie, and be phony at will, but just the opposite is true: they generally behave in a more truthful, frank, authentic, honest, candid, and transparent manner, so that their basic, true needs and values are revealed. Thus, in the

context of this chapter, according to McKenna's point of view, the personal pattern of behavior online is a more direct and more valid way to assess and evaluate a person because significant psychological parts of an individual are revealed in his or her online behavior that might be concealed, or distorted, in the offline environment.

The approach outlined above is related to one of the major psychological processes existing in cyberspace, known as the *online disinhibition effect*. Although attention to this phenomenon was given a while ago in studies of computer-mediated communication (e.g., Kiesler, Siegel, & McGuire, 1984; Spears & Lea, 1994; Walther, 1996), the online disinhibition effect, including its positive as well as negative aspects, has become a primary theme in understanding human behavior in cyberspace with the emergence of the Internet (e.g., Joinson, 1998, 2001; Suler, 2004a). The online disinhibition effect is assumed to be a product of several psychological factors that operate in cyberspace and have a great impact on people's behavior. The main factors are considered to be anonymity, invisibility, lack of eye contact, neutralization of people's status, asynchronicity as a major mode of communication, and textuality of communication. As a result of these factors, expressed dynamically but whose relative powers and directions are still to be empirically determined, an individual goes through a disinhibition process, whereby behaviors (including verbal expressions) not normally displayed in the physical environment, or not as intensively or prevalently, are expressed and become more frequent on the Internet. Consequences of disinhibition are negative and positive; typical negative behavior outcomes of the online disinhibition effect ("toxic disinhibition"; Suler, 2004a) include expressions of aggression, acting out, defamation, flaming, emotional blackmailing, interference, impersonation, flooding, and sabotaging. Such negative behaviors are typical in virtual communities (including online support groups) and other online interpersonal contacts (e.g., Alonzo & Aiken, 2004; Harman, Hansen, Cochran, & Lindsey, 2005; Lee, 2005; Malamuth, Linz, & Yao, 2005; Suler, & Phillips, 1998; Thompson, 2003). Positive behavioral outcomes of the online disinhibition effect ("benign disinhibition"; Suler, 2004a) include expressions of self-awareness and self-understanding, pro-social activities (such as advice and information giving), volunteering, emotional sharing and positive self-disclosures, philanthropic behaviors and donation giving, and emotional support (Barak, 2007a; Barak & Bloch, 2006; Barak & Dolev-Cohen, 2006; Joinson, 2001, 2003; Joinson & Paine, 2007; McKenna et al., 2002; Meier, 2004; Sillence & Briggs, 2007; Tichon & Shapiro, 2003).

The combination of the three phenomena mentioned previously – the intensive psychological effects of flow and presence, the emergence of "true self," and the online disinhibition effect – make cyberspace a psychologically unique social environment. People, in general, behave in it more freely and more openly than in their offline, physical environment. Moreover, if we add to these powerful psychological phenomena that cyberspace is generally a less clear,

less comprehensible environment, in which ambiguity and vagueness prevail. This ironically allows users – owing to inherent psychological mechanisms – to produce dynamically thoughts, beliefs, attributions, and assumptions to close cognitive gaps and make situations more meaningful and clearer (Barak, 2007b; Suler, 2002; Turkle, 2004). These psychological mechanisms cause people to project inner needs, expectations, wishes, and perceptions so that their overt behavior reflects their personality characteristics.

Thus, in the context of accurate assessment of self, which is the focus of the current chapter, it seems that behavior in an online environment offers an innovative approach to knowing people. That is, professionals can take the advantage of online social environments and exploit them for assessment purposes, thus achieving the fundamental aim of knowing and understanding a person in a more valid way. Anderson (2003) suggested, in the context of organizational selection, that the area of online testing is opportunistic and lacks theory and rationale. The psychological conception that we have presented here thus seems to close this gap, as it adds the missing theoretical framework to the practice of assessment performed online.

The relationships among type of use (and abuse) of the Internet, online behavioral patterns, writing content and style in various online channels, and individual differences have been found and replicated in numerous empirical observations. For example, both Barak and Miron (2005) and Mandrusiak et al. (2006) found clear indications of suicidality in online writing content and style. Quayle, Vaughan, and Taylor (2006), among others, showed how personal values were related to Internet use in the context of sexual offenders. Harman et al. (2005) reported on relationships between children's faking and impersonation and a number of relevant personal dispositions. In a series of studies, Amichai-Hamburger and his associates (e.g., Amichai-Hamburger, Fine, & Goldstein, 2004; Amichai-Hamburger, Wainapel, & Fox, 2002) found clear connections between various Internet-usage behaviors and relevant personal traits. Cooper, Griffin-Shelley, Delmonico, and Mathy (2001) and Chaney and Chang (2005) supplied evidence for a clear relationship between some personality characteristics and compulsive use of online sex. Caplan (2005) showed how one's level of social skills is related to problematic Internet use (see also Morahan-Martin, Chapter 3). This selection of research findings in different areas strongly supports the notion that much can indeed be learned about people when observing their online behavior. In the context of this chapter, the implications are clear: The psychological mechanisms and processes that interact and operate in influencing a person in cyberspace expose and reveal the user's personality characteristics.

Despite the existence of a large amount of evidence concerning the interrelationship of personal characteristics and online behavior, this subject has yet to be projected onto current psychological assessment. That is, cyberspace as a social environment has not sufficiently been exploited to follow, observe, and diagnose people. If we combine the significant factors noted previously – the

self online, online disinhibition effect, flow and presence, psychological effects on people's experiences, and the expression of personal dispositions in one's behavior in the cyberspace environment – together with notable practical advantages of using online assessment (i.e., availability, convenience, low cost, easily logged sessions), the opportunity for more valid and more efficient assessment becomes clear. Add to this that assessors (e.g., raters, examiners, evaluators) can be invisible online and hardly intrusive (Fritsche & Linneweber, 2006) and that evaluations may be performed at a time of one's choice and in cases even be automated, the adoption of the online environment for assessment purposes becomes compelling.

In the sections to follow, we will review, speculate, and propose ideas relating to online assessment. Some of these ideas have already been in use, at least to some degree; we will try to promote the notion that psychological assessment may be upgraded to another level completely by effectively using the emerging area of the psychology of cyberspace.

### Opportunities for Online Testing

Online psychological testing has been in use for a decade. In the beginning, online tests were used mainly for free self-testing. Perhaps for that reason, many of these tests were amateur and far from following professional standards, often created by nonprofessionals who exploited the new, exciting medium for fun and entertainment and much less for pure professional purposes. The intrusion of the Internet into society, on the one hand, and improved technology, on the other, encouraged professionals to enter this field in acknowledgment of the advantages that computers and the Internet offer in delivering different kinds of psychological tests. Whereas doubts and suspicions characterized the early stages of online testing – mainly in regard to the questionable quality of measurement under new conditions and the moderating of contaminating factors (e.g., computer skills) – cumulative research evidence (see reviews by Barak & Buchanan, 2004; Barak & English, 2002; Naglieri et al., 2004) has convinced even the most skeptical that this was a legitimate and, in many cases, apparently an even preferred, psychological testing procedure. The field is still under development, and basic standards and procedures are still being investigated, constructed, and proposed (see Bartram, 2006; International Test Commission, 2006; Lumsden, 2007; Sale, 2006).

### Methods and Possible Applications

*Online testing* is a generic term that refers to numerous types of testing procedures and techniques. First, it includes not only tests, in terms of testing domains of achievements, skills, abilities, and specific aptitudes but also the measuring of a variety of traits and personality dispositions, attitudes, values,

preferences and interests, perceptions, feelings, evaluations, and more. The general idea is to replace traditional paper-and-pencil tests and questionnaires with computerized versions that are administered on a computer screen, used by test-takers anywhere and at any time, and centrally maintained and assessed by professionals (occasionally through certain agencies). Second, in taking advantage of the computer's sophisticated capabilities, such tests are not necessarily static; though their questions or items are printed and respondents write or mark their answers, these tests are potentially *dynamic*. This means they can do the following: (a) exploit the convenient, easy, and immediate means of being *updated and edited*; (b) use *multimedia* components, including sound, color pictures, animations, and video, to enrich and allow a broader spectrum of senses to take part in the test; (c) use *interactive* components, so that respondents may actively interact with stimuli provided, such as moving objects, coloring, fill-out puzzles, drawing, and so on; (d) use an *online clock* to track and control test-takers' performance or implicit attitudes (Nosek, Banaji, & Greenwald, 2002); (e) easily *save* test materials, answers, or results (depending on option availability and permission) for sharing or future use; (f) obtain scores or assessments *quickly and accurately* by using the most up-to-date methods and norms. Other special advantages include (a) the ability to take the test (in most cases) at a *location and time of ones choice*, thus saving travel time, parking, and other nuisances; (b) avoiding the use of wasted and *environmentally unfriendly materials* (e.g., paper); and (c) easy use of the test and the results for statistics and *research*.

### Online Testing Methods

Although this chapter employs the general term *online testing*, there are quite a few diverse testing techniques and approaches. The simple and most common procedure entails publishing an interactive test on the web, where respondents can freely mark (or fill in) their responses on a multiple-choice form. Once respondents, by a click, submit the test to the server, a preassigned software program calculates scores and provides feedback to the test-takers. There are numerous variations of this general procedure: for instance, scores may not be provided to test-takers but to a professional or to an assessment agency; scores might be converted to, or accompanied by, a written text that provides interpretations and, at times, recommendations. As mentioned, many tests on the Internet do not go through any process of professional supervision; however, there are quite a few professional tests online, many of these protected, with site access and test-taking available only to those authorized to enter.

To use online tests for professional purposes –for clinical assessment or job selection – closer supervision of both the test-takers and the testing procedure and environment should take place. Various options exist to fulfill this requirement, including preauthorization for test-takers and taking the test from

preassigned, closely monitored computers (usually, supervised by local personnel in a testing agency).

In terms of professional needs and expectations, however, allowing at least preliminary clinical assessment or initial screening of job applicants to be done by computer is quite innovative and has many advantages. Recent studies by Bartram and Brown (2004); Chuah, Drasgow, and Roberts (2006); and Herrero and Meneses (2006) showed that even under circumstances of possible cheating on the tests or biasing test scores or manipulating them to make a better impression, the results remained consistent between paper-and-pencil and online versions. However, Bauer and McCaffrey (2006) argued that coaching might significantly damage assessment validity for many psychological tests and listed several ways to cope with this threat. However, coaching is possible – and may actually make a difference – with offline tests, too, though Johnson (2005) found that web users were more likely to manipulate their responses than paper-and-pencil personality test-takers. In the context of assessment for the selection of employees, Tippins et al. (2006) listed problems of unprotected online psychological tests and provided several ideas on coping with the issue.

### **Testing in a Virtual Social Environment**

Although the main advantage of online testing might be viewed as distance test-taking, it may be argued that another advantage – psychological rather than technical in nature – of this technology occurs in the virtual social environment of test-taking. That is, when a test-taker connects to a computer and becomes immersed in a virtual environment, which is created by a computer's numerous capabilities, the surfer to a great degree disconnects from the physical environment in which he or she is physically engaged. A person so disconnecting experiences a unique psychological process that is usually nonexistent in other, more realistic environments. This experience is characterized by faster, deeper, and broader opening-up, authenticity, and disclosure. These factors are considered ideal for assessment purposes because people reveal more quantity online, as well as more accurate information about themselves. In the areas of personality, attitudes, values, needs, and emotional assessment, this phenomenon may become a crucial factor because many people typically tend to avoid disclosure, or to manipulate it, fearing that full (or extensive) exposure might harm them in some way or that they are less self-focused when offline. Exploiting online communication for testing, then, might be beneficial not only for the sake of convenience and cost but also to for the very validity of the assessment desired. Indeed, a recent study by Hanna, Weinberg, Dant, and Berger (2005) found that respondents to an online survey showed higher sense of self-awareness, were more thoughtful, and disclosed deeper feelings than paper-and-pencil survey, regardless of level of anonymity.

Most research into online testing and assessment conducted to date has examined their similarity to and consistency with the same tests or procedures

administered with paper and pencil. Almost all research has revealed highly *correlated* results between offline and online testing. In many cases, however, online test scores were *elevated* (though Carlbring et al. [2007] showed no level differences) relative to the scores of the very same offline tests. The question then becomes: What scores – those obtained offline or online – better reflect the person being tested? In our view – on the assumption that online testing takes place in a psychological environment that promotes self-focus, openness, and authenticity – the scores of tests filled out online that are aimed at assessing various personal qualifications reveal more valid reflections of the test-takers. Consequently, we argue that online testing is preferred; furthermore, it has to be encouraged, primarily because of its increased assessment validity, because the measurement covers traits being assessed in a fuller way, beyond mere convenience for the test-taker (and other advantages, listed earlier). This argument still needs to be supported empirically, or refuted; however, at least for a part of test-takers, it seems to be that the virtual environment induces a more valid reflection of their personality. An interesting question thus emerges: Is there anything typical of these particular test-takers? Are there test-takers for whom taking tests online causes the assessment to be more valid, whereas for others it makes no difference?

Recent examples of the very high level of equivalence between paper-and-pencil and online versions of the same tests have been reported in clinical tests used to diagnose psychiatric conditions (Collins & Jones, 2004; Kozma-Wiebe et al., 2006; Medalia et al., 2005), assess stress and depression (Herrero & Meneses, 2006), evaluate major personality traits (Chuah et al., 2006), appraise health behavior (Hewson & Charlton, 2005; Mangunkusumo et al., 2006), estimate cognitive abilities (Williams & McCord, 2006), and assess vocational variables (Bartram & Brown, 2004; Jones, Harbach, Coker, & Staples, 2002). However, findings of other studies, which identified particular differences between offline and online versions of the same test, raise the inevitable question: Which procedure better detects (that is, assesses more validly) test-takers' characteristics? For example, Andersson, Westöö, Johansson, and Carlbring (2006), in applying the Stroop Test (color naming of colorful color names), found that social phobic test-takers responded to the test items differently online from offline but inconsistently with offline differences found in their research and in previous studies. Buchanan et al. (2005) reported differences in factorial structure between paper-and-pencil and online versions of a memory test. Is there a certain psychologically driven cause for the difference between the online and offline versions that relates to certain characteristics of the test-takers (e.g., level of clinical disturbance)? Could it be, for example, that phobic people in cyberspace respond in a particular way that better reflects (and consequently leads to a more valid assessment of) their psychological condition?

On the basis of the present review and current ideas, still another question arises: Are we approaching a new, revolutionary way of human assessment

(Barak, 2006; Buchanan, 2001; Wilhelm & McKnight, 2002)? Does the Internet, in addition to its great practical and technical contribution to testing (Bartram, 2006), provide a whole new *psychological* platform for assessment and evaluation, one that will bring us closer to the desired goal of valid, ethical means of testing and assessment, thereby enhancing psychological diagnostics to previously unknown levels?

### Research and Applications

Much research has taken place in regard to online testing in recent years. New tests and types of tests have been adopted to be delivered online, and research has examined the similarity of the results, along with other important questions, to provide data to substantiate professional use. However, research that addresses the basic idea discussed here – that taking a test in a virtual environment might enhance test validity, at least for some types of tests and some type of test-takers – is still to be conducted.

Obviously, not all psychological tests can and should be converted into an online form and administered through the Internet. In some cases, this might prove totally erroneous because of the nature of the test, the trait measured, situational circumstances, or other possible factors (e.g., Buchanan, Ali, et al., 2005). In addition, questions regarding the feasibility and utility of online testing must still be investigated. Although online testing allows much convenience for many, as it saves having to appear at a certain physical location, it may introduce bias, whether related to the digital divide, computer or Internet anxiety, computer skills (including typing), or medical or physical factors impinging on computer accessibility (Bridgeman, Lennon, & Jackenthal, 2003). In addition, financial costs, for either test-takers or professionals, might be high and, therefore, undermine exploiting the advantages of online testing. Questions relating to continuous updates of test versions and standardization (test norms), copyrights, privacy protection, and so on (Barak, 2003, 2006) still have to be investigated, as well. Thus, we do not advocate eliminating offline testing procedures but rather allowing (and promoting) the adoption of the newer procedures.

Despite the lack of research on questions directly related to validity and the question we have raised in regard to the incremental validity of online tests, professional experience, in addition to existing empirical findings about various other issues relevant to online psychological testing, highly supports this means of testing and assessment (e.g., Buchanan, 2001, 2002; Buchanan, Johnson, & Goldberg, 2005), though some issues and problems need further development and research (Buchanan, 2007). Nor should test-takers' preferences for computer and Internet testing, found in studies in various domains, be underrated (e.g., Barak & Cohen, 2002; Lumsden, Sampson, Reardon, Lenz, & Peterson, 2004; Mangunkusumo et al., 2006), as the Internet has become a common ground for many. The argument advanced in this chapter, however,

that cyberspace induces many people's authentic, natural behaviors, which are consequently reflected in responding to various stimuli, must still be empirically supported. If it is, then online psychological testing – even if perhaps conducted with some alterations and adjustments – might become not only technically possible and economically and socially feasible but actually a better way to assess and evaluate people's characteristics.

### Opportunities for Online Interviewing

The idea of conducting professional interviews online by using synchronous (i.e., chat or IM) or asynchronous (i.e., e-mail) communication modes was first raised in the late 1990s. It appeared that the computer could offer significant assistance for conducting interviews in that computerized conversations had the advantage of including subjects and questions that might sometimes be missed, as it was easy for the interviewer to glance over the interview transcript. It also was realized that this format could enhance objectivity in a personal interview, since irrelevant information (e.g., skin color, looks) was less intrusive and influential on interviewees (Zetin & Tasha, 1999). Hamilton and Bowers (2006), in the context of conducting e-mail interviews to collect data for their qualitative research, listed the major advantages of conducting interviews this way, among them: it was more convenient for both interviewer and interviewee, both had time to reflect on questions, there was no need for transcription and no loss of "raw" data, the audit trail was easily maintained, and there was increased reliability. However, they also noted some of the main disadvantages of online interviewing: the potential increased for loss of confidentiality, there was a lack of both spontaneity and important visual cues, and silence was missing as an interpretive moment (though this could have been accurately recorded). McCoyd and Schwaber Kerson (2006) reported unusual disclosures by women who were interviewed by e-mail in the context of a study on fetal anomaly; these disclosures perhaps would not have been made otherwise. Similarly, Beck (2005) used e-mails to interview women in the context of researching birth trauma. She pointed to the special experience that this method caused interviewees to go through, such as an enhanced feeling of being attended and listened to, a sense that someone cared, and a general experience of making a difference in their comments. Hunt and McHale (2007) provided a detailed example of e-mail interviewing of people who suffered from alopecia. They were able to collect information from participants who responded to invitation in online forums. Therefore, they apparently reached a broad sample, which provided relevant and important information for the psychologically-focused study. With their experience, these researchers developed guidelines for conducting e-mail interviews. These latter three examples may indicate that interviewees might feel more comfortable without having to make eye contact or a F2F encounter with interviewers, so they reveal more and are more accurate about themselves.

Online interviews have been noted not only for experiential but also for technical and practical advantages they afford. Yoshino et al. (2001) found online psychiatric interviews they conducted through televideo to be quite effective and reliable when using wideband (as most Internet communication is nowadays). Crichton and Kinash (2003) described three studies in which they successfully used online interviews. In addition to many other advantages, these authors especially emphasized the *engaging* factor of this type of interviewing, allowing dynamic, flowing, stimulating, and inviting conversations. In the context of research on AIDS, Davis, Bolding, Hart, Sherr, and Elford (2004) reported using synchronous communication software with some of the sample with whom they conducted online interviews. They emphasized the low cost, convenience, and readiness of unseen interviewees to open up. However, they also indicated difficulties associated with the ambiguity of the situation (i.e., unidentifiability and invisibility), that is, the textual interviews differed from F2F interviews in lacking traditional social components that are typical of personal interactions. Davies and Morgan (2005) reviewed the massive use of computerized, automated online-interviewing software used to identify distress (e.g., abuse) experienced by adolescents. They concluded that the use of this approach allowed better detection of sensitive issues that were typically not revealed in F2F situations. Mühlenfeld (2005) conducted a study in which students were interviewed online about behaviors usually unspoken about in public (e.g., shoplifting, masturbation). He compared two online methods – visible versus invisible interviewees. As expected, talking about issues was more prevalent than admitting them. No difference of these effects was found, however, between the two methods, and interviewees tended to expose themselves to a great degree in both types. Stieger and Göritz (2006) investigated the feasibility and credibility of interviewing people via IM software and found that most people were willing to be interviewed this way. They also found that information disclosed in these interviews was usually truthful, even though many of the interviewees were totally anonymous (that is, they could lie and deceive if they wanted to). The use of online interviews for a special population – people with disabilities – was shown to be very effective and perhaps more appropriate than F2F interviews (Bowker & Tuffin, 2002, 2003, 2004). With this particular population, the ability to communicate invisibly so that a visible handicap does not interfere with the interview and does not bias or (directly) affect the interviewer might be of crucial value in terms of the validity of interviewers' evaluations. At the same time, online, invisible interviews with people with visible handicap promote equal opportunities – a highly appreciated value in many societies. Egan, Chenoweth, and McAuliffe (2006), who used e-mail interviews with people with traumatic brain injury, emphasize the special value of time for reflection and insight for this type of handicap in using written, asynchronous communication channels. Another innovative development in implementing online interviewing was conducted by Paine, Reips, Stieger, Joinson, and Buchanan (2007), who used *automated* interviewing through ICQ to collect data concerning users' privacy concerns.

The researchers used this IM software with closed and open questions formats. Participants cooperated with the study and provided useful information.

These studies, representing pioneering attempts in this emerging approach, share, to the researchers' enthusiasm and amazement, what might be considered serendipitous findings. Actually, just like laypeople, uninformed professionals usually expect online interviews to provide erroneous, biased, manipulated, and, in many cases, faked content. This preconception is obviously related to the general view of the Internet as a trivial, casual, playground-like environment. It is a view, however, that misses the point that people actually express themselves in cyberspace quite openly, freely, and authentically. Research that has accumulated in recent years consistently shows that textual expressions in Internet writing are not casual and show strong foundations in the theory of individual behavior. For example, Barak and Miron (2005) found that suicidal people freely wrote in a distinct way in cyberspace that was different from other people, a characteristic that is consistent with the psychological theory of suicide and related offline research. In another context, Cohn, Mehl, and Pennebaker (2004) showed how people's free and casual writing on the Internet reflected real mood and social changes in relation to the events of September 11, 2001. Another study that illustrated how online writings authentically reflected thoughts and inner experiences was conducted by Stone and Pennebaker (2002), who showed how people candidly and naturally expressed themselves online after the death of Princess Diana. In a different sort of research, Marcus, Machilek, and Schütz (2006) found that owners of personal websites presented themselves in a way that was consistent with assessments made by a personality inventory. This evidence is in line with accumulating research showing that people's expressions online are less deceiving than assumed, contrary to popular belief (Caspi & Gorsky, 2006).

### **Online Interviewing: Methods and Possibilities**

Interviewing a person online entails more than just conducting a textual conversation through an online chat or e-mail software. Because of the factors mentioned, which make Internet communication unique, an online conversation frequently leads to a sort of intimate relationship in which an interviewee experiences relatively more release and opening up. They thus may respond to interviewers' questions at deeper and broader levels of self-disclosure than in F2F interviews, occasionally touching sensitive personal subjects or portraying emotionally laden behaviors toward interviewers. These special expressions could (and should) become an integral – and unique – part of the assessment and evaluation process so that an online interview is transformed into a “testing environment” rather than a mere exchange of information, enabling the dynamics of flow, presence, disinhibition, and “true self” to come into play to reveal significant characteristics of interviewees. Undoubtedly, such a special sort of interview requires specific training, and interviewers need to be skillful and prepared in handling online interviews, reacting professionally and ethically to

a variety of circumstances, and producing valid assessments. The opportunities for online interviewing, however, are great and may significantly enhance the ability to assess people in a very different way from what has traditionally been done.

Online interviewing presents a very different approach to interviewing, regardless of its purpose, whether for education, employment, career choice, or clinical diagnostics. The basic assumption behind this approach is that meeting with a person at a certain place and a certain time and interacting with him or her F2F is not necessarily crucial in order to make a professional evaluation of that person. Without underestimating the value of nonverbal communication, personal appearance, and physical cues, this approach highlights the importance of two other key factors: verbal expressions, especially those made in writing, and invisibility, an advantage when interacting with another person.

For many people, writing provides a special opportunity to express themselves candidly and accurately, more so than through talking (Anthony, 2004; Suler, 2004b). There are several reasons for this phenomenon: First, when a person writes, she or he is more concentrated in expressing inner thoughts and feelings when responding to another person than she or he is when talking. A writer usually focuses on internal experiences rather than impressing another person, responding defensively while being physically exposed, and feeling examined and interrogated when talking to the other person. Writing often reflects inner-talk; that is, as though a person is talking to oneself. Second, even if an online interview is conducted in synchronous mode, let alone asynchronously, an interviewee has the opportunity to reflect and edit his or her responses to better reflect his or her thoughts and feelings. This is due to both a psychological factor, that of feeling less stressed by a visible, straight-looking interviewer, and a technical factor, being able to plan, correct, and rewrite text, in great contrast to personal expression using the spoken word. Third, the convenience component should not be undervalued. When both interviewee and interviewer meet at a time of choice (regularly independent of standard office hours), and each is located at a different place of choice and physical convenience, it is reasonable that the tension, stress, and anxiety typically caused by the situation – and that interferes with the very essence of the interview, impairing its validity – play a lesser role, allowing the interview to flow more smoothly and to touch more authentic issues. Fourth, the written interviews allow their future use for reanalysis and reevaluation, supervision, and other uses (e.g., training, research) fully and accurately. The interviewer does not have to rely on his or her immediate impressions, which are sometimes too harsh and biased, but has the opportunity to read the interview transcript under better personal conditions to learn and to draw professional conclusions. Incidentally, the interviewee, too, can obtain a copy of the interview transcript for later reflection or even for making corrections or supplementing information if needed. Fifth, online interviews have the special advantage of neutralizing irrelevant influences on the interviewer (where these are indeed irrelevant), such as beauty and physical appearance, clothing, skin color, accent, and so

on, which are known to affect interviewers' impressions (Shahani, Dipboye, & Gehrlein, 1993). The use of text, therefore, enables the interviewer to refer only to important and relevant issues. Obviously, if factors related to visible features are relevant for an assessment, an online interview might prove invalid or insufficient. Sixth, online interviews can be considered especially appropriate for initial or preliminary screening interviews, especially in the context of employee selection. They would save expense, and only applicants who passed the online interview stage would be invited for further application stages.

### **Limitations and Need for Further Research**

Online interviews have several limitations and drawbacks that sometimes make them problematic and may impair their validity as a professional source of psychological assessment. First, many people have difficulty, or are limited in, expressing themselves in writing. If this factor is not an integral part of the assessment itself, wrong impressions might emerge about these people. Second, many people do not feel comfortable conversing with another person without seeing and being visible to the interlocutor. This condition, too, might introduce an error ingredient into the assessment, especially if the interviewer is unaware of this personal factor. Third, many people type slowly or have technical limitations in operating the computer. These and other practical matters might negatively affect their impression in the interview. Fourth, physical appearance, nonverbal behavior, clothing, and other personal aspects, none of which can be identified in textual interviews, might be essential for the very evaluation in some cases. In other words, these factors may introduce a bias, on the one hand, but also may contribute to a more relevant, valid assessment, on the other. This means that the use of online interviews should be conducted on a *differential* basis, in reference to the specific purpose of the given interview.

### **Opportunities for Online Situation Testing Through an Assessment Center**

Given the approach presented in this chapter, the connection between an assessment center (AC) and cyberspace seems quite obvious. The Internet, with all its features, characteristics, and special advantages, could provide answers to some of the main problematic issues associated with the traditional AC. This section will first describe typical ACs and examine their common aspects. It will then glance at typical exercises used in an AC and clarify the main behavioral dimensions assessed through it. Finally, we will examine whether and how ACs can become more effective, and perhaps more valid, by applying them online.

Joiner (2000, p. 319) defines AC as "a process employing multiple techniques and multiple assessors to produce judgments regarding the extent to which a participant displays selected competencies." It consists of a

standardized evaluation of behavior based on specifically developed job-related simulations, also referred to as *situation tests*. In addition to simulations, evaluations may also be based on interviews and psychological tests. Although there is no such thing as a typical AC (Spychalski, Quinones, Gaugler, & Pohley, 1997), professional guidelines, based on theory, research, and practice, have been laid down for an activity to be officially regarded as an AC. These guidelines require the inclusion of job analysis, behavioral classifications, multiple assessment methodology, multiple simulations, and multiple assessors for the effective implementation of an AC (Joiner, 2000).

Throughout an AC procedure, assessments are conducted on individuals in a standardized manner by trained assessors. Judgments about participants are made by multiple assessors and combined to form ratings for the competencies that the AC is designed to measure. The end product of an assessment center typically includes an overall assessment rating, as well as a written report that reflects both qualitative information describing a participant's performance and quantitative information representing specific ratings of competencies measured. Competencies refer to a cluster of observable behaviors (e.g., leadership). Common competencies that tend to be measured across ACs are communication, leadership, teamwork, drive, organizing and planning, problem solving, and tolerance for stress/uncertainty (Arthur, Day, McNelly, & Edens, 2003).

The exercises, or situation tests, used in AC are designed to resemble work situations that might actually occur. Simulations include in-basket exercises, group discussions, interviews with "subordinates" or "clients," fact-finding, decision-making problems, oral presentation, and written communication (Byham & Thornton, 1986). New and emerging exercises have been developed to fit developmental changes in organizations and jobs and to better simulate the current workplace. Other AC upgrades include the use of "a total simulation" (i.e., using common characters in developmental exercises) and the adoption of videotapes presenting an actual organizational environment and atmosphere. Typically, intelligence and ability tests are used in conjunction with ACs, as research shows that the combination of intelligence data and behavioral observations provides a markedly better means of evaluating people than does either factor alone (Thornton & Byham, 1982). Self-reports, supervisor's evaluations, and peer ratings are integrated into the data collected in many ACs.

Since its origin during World War II, the AC method has continued to increase in popularity for the purposes of selecting and developing employees. This increase has largely been fueled by research supporting the predictive validity of the AC method (Gaugler, Rosenthal, Thornton, & Bentson, 1987; Hunter & Hunter, 1984; Schmitt, Gooding, Noe, & Kirsch, 1984). Despite AC's popularity, however, some essential drawbacks have been noted. First, its cost is usually high. A traditional assessment center involves six to ten participants and two to four assessors, and lasts one to three days. Training of assessors, which is essential for the validity of ratings, consumes many hours, too, and

adds to the high cost of the ongoing use of traditional ACs. In a typical AC, an assessor-manager leaves his or her job for two or three days to observe participants' performance in simulations and then spends an additional day or two in meetings with other observers to make final evaluations (Byham, 2006). In financial terms, the time of the assessors' simulations, observations, and meetings before, during, and after AC is also obviously extremely high, especially if overhead expenses (e.g., place, equipment, administration, refreshments) are added into the cost. Second, the need to organize a long meeting of many people at a certain time and place is exhausting and complicated and significantly interferes with their routine work and personal functioning.

### Online Assessment Center

Based on the theoretical considerations outlined earlier and the basic principles of AC, which are aimed at evaluating people's behavior for professional assessment, the Net can be exploited in an innovative way. For one thing, the training of assessors can be conducted online. This could include not only instruction and guidelines but also discussions among assessors, exercises in analyzing and evaluating multiple written cases, and discussions of ratings. The professionals (line managers and human resources people alike) do not have to leave their office and can "meet" at a certain online area. Moreover, if this training is conducted asynchronously (i.e., via a forum), time becomes flexible, too, to suit an individual's schedule. Furthermore, resources can effectively be used for numerous training workshops, thus saving much expendable costs. Once assessors are trained, they may be used in numerous ACs, regardless of their geographical location, enabling the use of human organizational resources to become more efficient, as well.

The main point of this proposal is that the execution of an AC may take place online. Participants – whether job applicants or an organization's employees being assessed for professional development – may take part in an AC team, regardless of their geographical location. Size limits may be adjustable according to task; several individuals or subgroups may meet in parallel, in either synchronous or asynchronous communication channels. For example, in executing an "in-basket" exercise, in which assignments are designed to create time pressure for participants, who are forced to determine priorities and make decisions on multiple tasks within a short time, a *synchronous* virtual room should be used. A participant receives assignments in real time and responds accordingly. The person's behaviors are fully and automatically documented and later assessed by distant assessors. This means of exploiting assessors is efficient not only in terms of time and location but also in having raw data (a participant's behaviors) logged for more reflective, less immediate evaluations. Other AC assignments – such as letter writing or writing comments on a document – may be executed *asynchronously*, with the participant electronically given the assignments and sending them for assessment at a later time.

Group simulations in cyberspace – either in an asynchronous or a synchronous channel – are easy to execute, monitor, observe, and maintain though an effective chat room should perhaps limit the number of participants. After basic introductions and preparation, participants may take part in a number of exercises generated by text communication from a distance. These simulations may include enrolling in role-play, such as supervisor-supervisee sessions, group discussions and decision making (e.g., NASA’s Survival on the Moon), commercial negotiations, deliberation of moral issues, and other tasks that take place in ACs. In addition, if it seems relevant and desired, individual or group voice communication, integrated in advanced software that involve text, sound, and graphics, can be used to allow activities based on spoken deliberations.

It is important to note that the idea proposed here is not to invent a new AC but to convert its traditional form into an innovative format. Accumulating practical experience, along with exercises, assessment procedures, and research findings, is relevant to the proposed format, too, after necessary modifications have been made to adjust the AC activities into the online environment. However, despite the investment needed for this, we believe it will not only vastly improve convenience and meaningfully reduce costs, but first, it will lead to a significant enhancement in assessment validity. As stressed earlier, people usually behave more consistently with their personality and current emotional state when interacting in cyberspace, where factors of anonymity, invisibility, lack of eye contact, and textual-based communication are key features. Thus, the very purpose of AC becomes more realistic under these special virtual circumstances, and participants’ assessment significantly more valid despite the lack of visual observation by assessors. As commonly takes place in online groups, the very virtual situation makes people in the group, and causes group processes, to be more blunt and saliently (textually) observable (McKenna, 2007; McKenna & Bargh, 1998; McKenna & Seidman, 2005a, 2005b). The dynamics of the online disinhibition effect directly affects people’s behavior; hence, their overt behaviors might more validly reflect dispositions, mood, sensitivities, values, needs, and the like than in F2F situations. A “scenario bank,” containing numerous activities suitable for various assessment purposes, can easily be developed to open up opportunities for the organization of an online AC dedicated to a particular purpose. Scenarios can be tagged digitally to signify an association with certain jobs, occupational requirements, and populations, thereby making collecting activities and constructing an online AC relatively simple.

It is also important to note that an AC conducted online, just like a traditional AC, should include interviews and testing, in addition to situation tests. In this way, online tests and online interviews could be integrated with other online activities to create a more comprehensive evaluation. An online AC might, then, be fully operated from a distance, be partly synchronous and partly asynchronous (depending on the specific design and requirements of the AC), and involve various individuals, dyads, and group activities; it would

be assessed, at a later time, by a team of online-trained assessors. Such a structure may not only be convenient and less expensive than the traditional employment of AC, but it may even provide more valid evaluations, just as desired by the AC methodology (Byham, 2006).

Obviously, the current proposal needs to be thoroughly empirically examined. Several key questions need to be investigated: To what degree does the lack of nonverbal cues reduce the ability to assess people effectively and validly? Does the textual/verbal ability of participants contaminate participants' assessments, thus reducing validity? To what degree do participants' experience and proficiency with computers and Internet interact with their online behaviors and mask dimensions to be assessed? Given technological failures and limitations, to what degree does the procedure operate effectively? And given this limitation, is it feasible? How assessors should be trained best to conduct online evaluations? Do assessors feel sufficiently comfortable and reassured so that their evaluations are not affected by the online conditions? When (for what jobs, purposes, or people) might it be more worthwhile to use traditional F2F procedures than to go online? These important questions should accompany the development of online AC procedures.

### **Problems in Online Assessment**

Online assessment is not free of problems. Besides its many advantages and promises as an advanced approach that might add significant dimension to professional evaluations of people, there are specific limitations, characterized by the very online environment. The following sections identify the major problems. Undoubtedly, this area still needs research and development to become routine in professional practice.

#### **Authentication and Authorization**

When interviewing or testing someone online, there is usually no definite way to verify the identity of the interviewee. Not that this problem is nonexistent offline, but it is easier to check and verify identity offline, especially through photo identification. Given that people are obviously motivated to make a good impression, especially in selection situations (in contrast to personal counseling or clinical diagnostics), a potential client might ask someone else to replace him or her as an interviewee or a test-taker. Anonymous and unprotected online tests provide the opportunity for manipulation (Johnson, 2005), though Bartram and Brown (2004) found little empirical evidence to support this claim even in a high-stakes testing situation. Although the use of a webcam might help to overcome (or lessen) this problem, inclusion of visibility might damage other important aspects of an online interview or of online testing; the camera cannot be a solution for asynchronous interviews. Several procedures related to online

testing are available for authentication, such as supervised testing (Bartram, 2006); however, they do not provide an option in the case of online interviews. With those, the idea is that a person is interviewed in solitary and with his or her own facilities to promote a high degree of openness and disclosure.

### **Technological Failures**

Computers and communication networks rely heavily on software and hardware. Failure of a sole link in a long and complicated chain may cause the whole system to collapse. In using the Internet for the assessment purposes detailed here, this activity would not function properly if there were no perfect operation of the thousands of units that enable the system to operate effectively. For instance, the total reliance on electricity (on both ends of the communication dyad and at several mediation stations), without any backup or alternative, makes the whole activity very shaky. Although electrical power interruption is not a common or frequent experience for most people, the very dependence on uncontrolled resources – very different from traditional, F2F conduct – is scary and prevents many firms and professionals from adopting such innovative techniques (Schmidt, 2007).

Similarly, the use of online assessment depends on the smooth operation of complicated personal computers, servers, communication lines, electrical and electronic devices, and complex software. If we add to this list that software and hardware versions should usually be upgraded to fit Internet communication and that there should be a workable fit between the two parties communicating, then both should recognize that the system might not operate properly, and any such breakdown might cause frustration to either party.

### **Differential Skills and Computer Anxiety**

Basic skills and know-how in operating a personal computer and using online communication are mandatory for an online assessment. People differ, however, in their computer abilities and skills, from very basic to very advanced, which may significantly affect users' computer-related performance (Maki & Maki, 2002; Perry, Simpson, NicDomhnaill, & Siegel, 2003). These differences might be reflected in various types of behavior, from typing speed (relevant in an online chat conversation), to saving files or attaching files, to use of certain software. Obviously, differential skills might influence the way a person is perceived and evaluated, with prior judgments being made that are not necessarily related to the traits and characteristics being assessed. That is, this differential computer-skills factor might introduce an error variance into the quality of the evaluation.

In addition to, and perhaps related to, computer skills, another personal factor interferes with using a computer and the Internet: computer or Internet anxiety. This factor, too, which exists to different extents, causes differential

computer functioning (Wood, Willoughby, Specht, Stern-Cavalcante, & Child, 2002), which might directly affect the way a user is perceived in online communication. Moreover, as has been documented, computer anxiety is related to gender: female computer users have been found to be more anxious than males (Broos, 2005), which might lead to an invalid, gender-biased assessment, even if there is no outright bias against women. It seems, however, that gender differences in this respect are gradually disappearing (Shaw & Gant, 2002; Whitaker, 2007) and may not at all constitute a factor in the future.

### **The Digital Divide**

Ownership, use, and familiarity with computers and Internet are related to socioeconomic class. This social differentiation creates what is known as “the digital gap/divide” (Dance, 2003; Wilson, Wallin, & Reiser, 2003). In using the Net for assessment and expecting people to own a computer, be connected to the Internet, and know how to use them, we may actually be treating people in an undesirable, biased manner. Taking computer ownership and knowledge for granted might not only be unfair toward certain social groups but may have the effect of introducing discrimination against certain people and giving others an advantage in obtaining psychological services, job applications, or acceptance to study programs. Although recent surveys show that the digital gap is decreasing (Judge, Puckett, & Bell, 2006; Korupp & Szydlak, 2005), at least within certain nations, it might still offer a significant factor for consideration in years to come (Pew Internet & American Life Project, 2005).

### **Summary**

In this chapter, we have attempted to review some of the major difficulties for which traditional methods of psychological assessment have been criticized and to propose a cyberspace transformation by developing innovative online alternatives to promote the professional mission of assessing people. It is our contention that because of unique psychological processes operating in cyberspace that affect people’s behaviors, especially in causing them to open them up and so make their overt behaviors and expressions more authentic, the conducting of psychological testing, personal interviews, and situation tests online might offer a more valid source of psychological assessment. Regarding psychological testing, we described the well-documented problems characterizing the traditional paper-and-pencil approach and showed how and why online testing might become a more effective alternative. Concerning professional interviewing, we argued that online interviews – synchronous or asynchronous – not only could be performed but also some important aspects of which were actually preferred. Another common offline procedure

for assessment that we proposed for conversion into cyberspace was an AC based on situation tests. We argued that in addition to improved convenience and reduced cost, the very validity of the psychological assessment might be enhanced by using online activities. Although we did note several problems and weaknesses related to applying these methods online, it seems to us that these are temporal in nature and that future technical and sociocultural developments will minimize them altogether. Research is needed to examine a number of issues related to our propositions. Nevertheless, cumulative knowledge seems to support the ideas delineated here.

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