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Using the Internet to Conduct Research With Culturally Diverse Populations: Challenges and Opportunities

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People from around the globe rely on the Internet for daily use in a variety of ways from downloading information and staying connected with friends and family to collecting data for research purposes. Although the authors have seen rapid growth in access to the Internet among multicultural populations, some groups are still far behind. In particular, those with most limited access include non-English-speakers and low-income and working-class individuals in general. This paper discusses the use of the Internet as a research tool with culturally diverse populations with a focus on two specific purposes: The Internet as a tool to collect information about participants (e.g., survey research, qualitative and descriptive research, and needs assessment); and the Internet as an intervention tool in itself (e.g., intervention research and participatory research). The authors will discuss issues and challenges of using the Internet as a research tool and provide recommendations for using the Internet with culturally diverse populations in a culturally competent manner.

Keywords: Internet, Web-based research, multicultural populations

The growing popularity of the Internet generates not only direct access to information and ample communication but also innumerable business and research opportunities. In fact, the use of the Internet has forged new terms that appear in the Oxford Dictionary, such as *virtual communities* and *information superhighway*. Likewise, new journals have emerged that focus on the use of the Internet, such as *CyberPsychology and Behavior*. Studies of Internet use have included a variety of areas, such as recruiting potential students into institutions of higher education (Klein, 2005; Stoner, 2004); accessing health and mental health information (Brown, Ellery, & Perlmutter, 2005; Godin, Truschel, & Singh, 2005); and obtaining information about local, national, and global events (Ciolek, 2001). The use of the Internet has generally proven to be vital for individuals to stay abreast of current issues and become competitive in the job market. Furthermore, the Internet has created new ways of social interactions through e-mail, instant messaging, Facebook, chat rooms, and other forms of instant communication that are now commonplace for individuals around the globe (Chen & Wellman, 2003).

The widespread use of the Internet over the past decade is very evident not only in the United States but throughout the world. Chen and Wellman (2003) reported that in 2002, there were 600 million people accessing the Internet worldwide. There were 160 million of these Internet users that were North Americans, accounting for about 60% of the total U.S. population and 29% of the world Internet population.

Access to the Internet has provided individuals with a powerful resource in today's technological age. Although access and use of the Internet has rapidly increased among multicultural populations, some groups are still falling behind, in particular low-income individuals, many of whom are people from culturally diverse backgrounds. Different points of view regarding access are represented in the literature. Although some believe that the Internet fosters a "culture of equality of opportunity" (Ciolek, 2001, pp. 2), others have noted that low-income African Americans, Latinos, and Native Americans; those with less education; and rural populations often have limited or no Internet access (Chen & Wellman, 2003; Hoffman, Novak, & Venkatesh, 2004; Lenhart et al., 2003).

The purpose of this paper is to discuss the use of the Internet as a research tool with culturally diverse populations, with emphasis on two uses: The Internet as a tool to collect information about participants (e.g., survey research, qualitative and descriptive research, and needs assessment); and the Internet as an intervention tool (e.g., intervention research and participatory research). We discuss issues and challenges of using the Internet as a research tool and provide recommendations for using the Internet with culturally diverse groups in a culturally competent fashion. To place these issues in context, we will first discuss Internet use within the U.S. population.

Understanding Internet Use Within the Diverse U.S. Population

The Digital Divide

Differential access to and use of the Internet has been referred to as the *digital divide* (Digital Divide Network, 2002). Despite evidence that the price of computers is declining, Chen and Wellman (2003) argued that the most critical factor explaining the digital divide is income and socioeconomic status. The cost factor has two dimensions. First, there is the cost of the equipment itself, which has been declining; the other is the cost and availability of a high-speed Internet connection. These costs affect a large proportion of people of color, people with disabilities, rural Americans, low-income seniors, and immigrants. Working-class and low-income African Americans, Latinos, and Native Americans, in particular, report having far less access to the Internet than their White and Asian counterparts (Chen & Wellman, 2003; DiMaggio & Hargittai, 2001; Hoffman, Novak, & Venkatesh, 2004; Lenhart et al., 2003; Spooner & Rainie, 2000; U.S. Department of Commerce, 2002, 2005). The U.S. Department of Commerce (2005) report indicates that about 61% of American households have at least one computer with access to the Internet and that 65% of Whites; 63.1% of Asian; 45.6% of Blacks; and 37% of Hispanics are Internet users.

In addition, Joiner, Littleton, Chou, and Morahan-Martin (2006) have stated that the digital divide differs across gender lines, affecting more women of color than men. They suggest that this is the case in part because many minority women are less likely to have access to the Internet through work or to have the economic resources to have access at home. Furthermore, regardless of social class, ethnic background, or gender, children, youth, and young adults use computers and the Internet more than any other age group (U.S. Department of Commerce, 2002, 2005). Specifically, the U.S. Department of Commerce (2005) reports that 86.7% of adults between the ages of 18 and 24 years and who are in school are heavy Internet users regardless of race.

Chen and Wellman's (2003) report is the first systematic comparison and synthesis of research on the digital divide over time that takes a global perspective and compares developing and developed countries. Their findings indicate that although in the U.S. the digital divide is narrowing in terms of gender, age, and geographical location, the socioeconomic divide is still very wide. In addition, Chen and Wellman (2003) and Hampton and Wellman (2003) found that Internet users are more likely to be socially connected, have a stronger sense of control of their lives, and are bigger consumers of media than nonusers, when controlling for socioeconomic status.

The Diverse U.S. Population

Increasing the participation of people from various ethnic and cultural backgrounds in Internet-related research is a challenging task due in part to the complex diversity of the U.S. population. The U.S. population is becoming increasingly multicultural, with current rates of people of color at about 30% of the total (U.S. Bureau of the Census, 2005) and with estimates projecting that people of color will represent the majority of the population by 2050.

Educational history and economic resources affect access to and use of the Internet. For example, each year the U.S. admits between 700,000 and 900,000 legal immigrants from various ethnic and racial backgrounds (Waters & Jimenez, 2005). This is the total number of people who are granted legal residence; about half of them are living in the U.S. on temporary visas before obtaining residency (Bean & Stevens, 2003). Unlike prior waves of immigrants, many recent immigrants and refugees are not from Europe but rather from the diverse nations of Latin America, Asia, Africa, and the Middle East (Lee & Bean, 2004). Currently, five countries account for 40% of the immigrants to the U.S.: Mexico, India, the People's Republic of China, the Philippines, and Vietnam (Lee & Bean, 2004). Because of significant differences in their original educational systems, languages, and access to various forms of technology including the Internet, immigrants from rural areas are less likely to be Internet savvy than those coming from major urban areas.

Ethnic diversity in the U.S. population differs by geographical region. Up to 65% of legal immigrants tend to settle in six states: California, New York, Florida, Texas, New Jersey, and Illinois (Waters & Jimenez, 2005). The resulting population diversity in these states is evident to anyone visiting a large metropolitan city such as Los Angeles, New York, Chicago, San Francisco, Houston, or Miami. As a result, these states face multiple challenges in increasing access to the Internet for culturally diverse populations through schools, libraries, and community centers, generated in part by growing demand.

The Internet as a Research Tool

One of the many uses of the Internet is that of a research tool. The Internet can be used for research in four different ways. First, researchers have used the Internet as a tool to gather research data from participants. Examples of this use include psychological testing (Naglieri et al., 2004), measuring attitudes and behaviors (Barry, 2001), and conducting needs assessments (Balcazar, Garcia-Iriarte, & Suarez-Balcazar, 2007). Second, researchers have used the Internet as part of an intervention (Suarez-Balcazar, Kinney, Masi, Cassey, & Muhammad, 2005). The third use includes using the Internet as a tool for mapping social indicators, settings, and behaviors of interest and facilitating the sharing and archiving of research data (e.g., Pokorny et al., 2005). A final use is research conducted to study how people use the Internet itself. Examples include an analysis of different Internet uses and the quality of Web-based self-help sites (Godin, Truschel, & Singh, 2005) or assessment of the quality of Spanish health-information Web sites (Cardelle & Rodriguez, 2005). This paper focuses on the first two uses, and in each section we share examples, when they exist, of studies that have offered solutions to identified challenges.

The Internet as a Tool to Gather Information About Research Participants

Gathering information about research participants using the Internet is now a common practice in psychology, particularly in the area of psychological testing. This is in part because the Internet is a cheaper, more accurate, and faster way to obtain the desired information compared to traditional paper-and-pencil surveys (Krantz & Dalal, 2000; Naglieri et al., 2004). However, studies of this type tend to gather information from a somewhat sophisticated population that includes middle-and upper-income groups who are mostly professionals and tend to be the heaviest users of the Internet (DiMaggio & Hargittai, 2001). Much of the research conducted to date using the Internet as a tool to gather information about participants does not necessarily report participants' ethnicity or include the word Internet in its title or as a

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keyword, which makes it difficult to identify all available studies. Furthermore, some research using the Internet targets a particular group regardless of ethnicity. For example, psychologists are studying attitudes and behaviors of Facebook users (Ellison, Steinfield, & Lampe, 2007), who are likely to be students, teenagers, or young adults (U.S. Department of Commerce, 2005). In another example, Brown et al., (2005) identified characteristics of Internet users among health educators. They reported that most respondents had access to the Internet at work and at home, and nearly two thirds of the respondents used the Internet five or more days a week.

Challenges in Using the Internet as a Tool to Collect Information About Participants

The first challenge is to adequately include and represent the experiences of multicultural populations from low-income and working-class communities who are less likely to have access to the Internet. With no Internet access, individuals of color, people with disabilities, and many elderly could be excluded from participating in this type of research. For example, a study conducted by Balcazar et al., (2007) distributed a survey to identify the community needs of Colombian immigrants in the Chicago area using both Internet and paper- and-pencil versions. The authors found that those who completed the needs assessment via the Internet were more likely to be educated professionals and of higher income than those who completed the survey using paper and pencil. Furthermore, the needs identified by each of the subgroups differed; Internet respondents were more concerned about networking and assistance to small businesses whereas respondents who used paper-and-pencil were more concerned about the affordability of health care services. If this study had not provided Colombian immigrants with the opportunity to answer the needs assessment via the paper-and-pencil surveys placed at Colombian restaurants and stores, the results of the study would have reflected only the needs of the more affluent and educated immigrants. On the other hand, Yu and Yu (2007) found no difference between respondents to two versions of a survey—Internet and paper-and-pencil—when surveying a random sample of teachers in Taiwan.

A second challenge is restricted resources, which limits access to the Internet. Low-income and working-class, culturally diverse populations are more likely to have only one computer, if any, and multiple users at home (larger families and the presence of extended family members), or they are in work settings with limited resources (U.S. Department of Commerce, 2005). In our work with staff from community-based organizations serving low-income and working-class communities, many of whom are from culturally diverse backgrounds themselves, we have observed that they often have very limited access to the Internet at work, in part because of limited organizational resources. For instance, at community agencies staff members often share the few computers that are connected to the Internet. Researchers have found that when culturally diverse populations have limited access because of limited resources their time online is more likely to be spent searching for information about jobs, housing, and entertainment (Masi, Suarez-Balcazar, Cassey, Kinney, & Piotrowski, 2003). In this context, completing a research survey may not be a priority, unless the information requested is likely to have a direct benefit for the respondent (Chong, Citrin, & Conley, 2001).

Related to the challenge of limited resources is the issue of differential levels of access for different members of the population or community. This challenge refers to age differences in Internet usage and the limited availability or high cost of high-speed Internet connection in some areas. In a study conducted by Suarez-Balcazar, Kinney, Masi, Cassey, and Muhammad (2005), the authors found that in an African American working-class community, youth were more likely than adults and older adults to use the Internet at home. This confirmed early findings by Schinke, Schwinn, and Ozanian (2005) about access and frequency of Internet use by youth. The cost of accessing high-speed Internet varies according to the technology and channel of communication. As of the end of 2006, more than 82 million broadband connections were deployed in the United States (Federal Communications Commission [FCC], 2008).

Broadband, or high-speed Internet access, allows users to access the Internet and Internet-related services at significantly higher speeds than those available through "dial-up" (phone line) Internet access services. Broadband includes several high-speed transmission technologies, such as digital subscriber line (DSL, which is available over existing telephone lines), cable modem (available form TV cable providers), fiber (that requires the installation of fiber optic transmission lines), wireless (that uses a radio link between the customer's location and the service provider's facility), satellite (available from satellite TV or satellite phone providers), and broadband over powerline (BPL, an emerging technology that is currently available in very limited areas, but it has significant potential because power lines are installed virtually everywhere, alleviating the need to build new broadband facilities for every customer, FCC, 2008).

A third challenge is that limited access often results in limited familiarity with Internet technology. Multicultural populations from working-class and low-income communities may lack familiarity with Internet-related features and options compared with other groups, making them less likely to respond to surveys sent via the Internet. Suarez-Balcazar, Kinney et al. (2005) found that working-class African Americans who participated in an Internet-related intervention went through a learning curve. At the beginning of the project, they experienced frustration in conducting searches and in finding the information they were seeking. With time, practice, and technical support, their Internet performance improved: They began to use it more frequently and expressed feeling less frustrated.

A fourth challenge with using the Internet to conduct research is that of educational disparities among users of the technology. Lorence and Park (2007) compared the educational characteristics of health-information seekers in a stratified sample from a national tracking survey database (Lenhart et al., 2003). They found that despite national efforts to increase access to technology and the Internet, large differences remain in both the use of computers and the use of Internet services across educational levels. On the positive side, Internet users' access to online health information did not show any significant differences across educational levels in 2002.

A fifth challenge in using the Internet as a tool to gather information is that many people living in the U.S. today are not literate in English. With the increase in diversity in the U.S., professionals are realizing that to recruit participants who are immigrants, research protocols must be accurately translated (Balcazar et al., 2007). Language-related communication difficulties are evident in research with immigrants from diverse backgrounds (Marin, 1993; Taylor-Ritzler, Balcazar, Suarez-Balcazar & Garcia-Iriarte, 2008). Researchers, however, may lack staff or community contacts who can effectively translate their protocols and research materials. For example, to effectively use surveys in Spanish, individuals who have familiarity and understanding of the terms in the professional context should carefully translate technical terms. Literal translations may not make any sense if street-level Spanish is used in the translation process. The translation of terms like baseline data, behavior management, advocacy, empowerment, or disability can be complex and may not necessarily carry the same meaning in other languages that we assign to them in English.

The last challenge refers to the cultural appropriateness of the instruments and surveys used to collect data on the Internet. Cultural appropriateness may be unknown when instruments have not been validated with the target population. Hernández, Horin, Donoso, and Saul (2007) found that psychologists often use test instruments with groups other than those with whom the tests were normed without making the necessary adaptations to address issues of cultural fit. Naglieri et al. (2004) also noted similar concerns about researchers conducting psychological testing via the Internet using instruments that were not validated with culturally diverse populations.

One example of the complexity of the issues involved in Internet research is the reality of doing Internet-based research in some school districts from large urban areas in the U.S. For instance, in the Chicago Public Schools, students speak over 100 different languages and dialects. Social scientists planning studies in these types of settings must consider how they are going to communicate with the participants' parents. Although children of first generation immigrants may be able to speak, read, and participate in Internet-based surveys in English, information such as consent forms and research protocols that are sent to the parents may need to be translated into their native language and administered using paper-and-pencil format.

In summary, a number of challenges exist in using the Internet as a research tool to gather information from prospective participants. DiMaggio and Hargittai (2001) refer to these challenges as inequalities of the digital divide, and they challenge researchers to address them. Some of these inequalities are related to access to Internet technology and to the quality of the technology itself. As access to the Internet increases among immigrant and minority populations, its utilization as a research tool will require special attention to issues of cultural diversity and language translation to assure wider participation.

The Internet as an Intervention Research Tool

In addition to being used as a tool to collect information from people, the Internet can also be used as part of an intervention. A growing number of studies have used the Internet as part of a psychosocial treatment. There is an important trend in counseling and clinical psychology using electronic support groups and chat rooms with a therapist facilitating the interactions (e.g., Lieberman, 2007; Wells, Mitchell, Finkelhor, & Becker-Blease, 2007). There are also multiple examples of Internet training to change patients' behaviors (e.g., Kim et al., 2007) or clinical interventions that combine well-known procedures like cognitive behavior therapy with virtual reality for the treatment of phobias and panic disorders (Vincelli et al., 2003). Most of these clinical studies, however, pay little attention to the racial composition of the participants, focusing instead on their diagnostic characteristics and severity of the symptoms.

Francisco et al. (2001) documented the use of the Internet as a tool to aid community capacity building as individuals and groups access information on how to address needs and concerns through the Community Tool Box (CTB). The CTB is a resource Web site with information on how community groups can identify needs, evaluate programs, develop coalitions, and implement community initiatives as well as many other community-development activities. This resource Website contains over 800 pages of information organized by chapters and content areas. Francisco and colleagues have documented that the CTB is widely used by community groups from around the world regardless of income and ethnic background. The CTB is accessible in English and Spanish.

Other studies have been successful in using the Internet as an intervention tool with culturally diverse populations. Shull and Berkowitz (2005) studied the impact of Web-based technology initiatives implemented in a community comprised predominantly of people of color (Cambodian and Latino immigrants) and noted the positive impact of the introduction of Web-based information on the community's sense of empowerment and access to resources.

Another emerging area of intervention research is taking place in the field of industrial/organizational (I-O) psychology. Stanton and Rogelberg (2002) summarized the trend for online research methods in I-O psychology, including the use of virtual reality to simulate organizational situations and examine individuals' reactions to those situations (Aguinis, Henle & Beaty, 2001); online interviewing, including using chat room technology for conducting focus groups (Gaiser, 1997); the use of Webcams to collect behavioral data (Bellotti, 1997); the use of global positioning devices to identify the movement of employees for a given time (Harter & Hopper, 1994); using computer performance monitoring (CPM) devices that record the productivity of telephone operators or employees doing data entry (Stanton, 2000); and the analysis of Internet archives of an organization, including e-mails, documents, online teleconferencing, and chat rooms (Bargiela-Chiappini & Harris, 1996). As with the clinical studies mentioned earlier, these studies demonstrate creative ways in which Internet technology is being utilized in I-O psychology but did not examine issues of diversity.

A Case Example of Intervention Research With African Americans

A study by Suarez-Balcazar, Kinney et al. (2005) serves to illustrate intervention research using Internet technology among people of color. The goal of the study was to introduce the Internet as an intervention tool to provide local leaders with access to health information and health resources using the project's Website. In this study, 42 African American community leaders from a working-class neighborhood in Chicago were provided with access to WebTVs (a unit that was connected to the TV that gave them access to the Internet). The community leaders who participated received training on how to use the WebTV, how to access the project's Web site, and how to use e-mail to contact one another.

The project paid for printers and the monthly cost of the Internet connection. This study was conducted in collaboration with a community health organization and a local hospital. An interdisciplinary team of researchers and practitioners trained the community leaders, provided ongoing trouble shooting, and evaluated the impact of the intervention. In collaboration with some of the community leaders who participated in the project, the research team developed a project Website that included health information and links chosen by the community on topics related to community events, jobs, local schools' events, education, and information about a number of social service resources that community residents could access.

The researchers used several measures to assess the impact of providing WebTVs, training, and ongoing trouble shooting to community leaders. These measures assessed the participants' sense of empowerment and sense of community and included ongoing phone interviews to record narratives about the uses of the Internet. The results of this study revealed that there were significant differences in the leaders' sense of empowerment when compared with a group of residents who did not participate in the intervention (Masi et al., 2003). The results also indicated that participants felt more knowledgeable and educated about using the Internet to access information as well as proud of their new skills (Suarez-Balcazar, 2005). Furthermore, from the participants' stories, the researchers reported that the most frequently downloaded sites were related to entertainment and the project's health Website. The citizen leaders also used the Internet as a tool to communicate with one another, to obtain information about resources that facilitated their role as leaders, and to promote self-help actions to improve their community (Suarez-Balcazar & Kinney, 2002).

One of the goals of the intervention was to extend access to the Internet to other community members by having community leaders allow access to their WebTVs to neighbors on their residential blocks. This goal, however, was quickly turned down because they did not feel comfortable letting strangers in their homes. Instead, as recommended by the community leaders themselves, the research team placed WebTVs in various community settings, including the local high school, recreation centers, afterschool programs, and community-based organizations. Although this placement was intended for adult residents of the community, the most common users were children and teenagers, who used it for entertainment, homework, and employment searches. The WebTVs placed at community leaders' homes were shared by their relatives, children, grandchildren, and their closest friends. In general, this study demonstrated that access to the Internet can build individual and community capacity to access information and help close the digital divide.

Challenges for Using the Internet as Part of Intervention Research

One of the challenges is the sustainability of the technology once the project is completed. For instance, in the study conducted by Suarez- Balcazar, Kinney et al. (2005), the project was funded with a grant from the Department of Commerce. Once the project was completed and funding ceased, participants were responsible for covering the costs of their own WebTV operations. For low-income and working-class families this expense is not necessarily a priority. About 25% of the participants maintained the operation of their WebTVs and another 25% decided to upgrade and buy personal computers for their homes. Half of the participants discontinued their use of WebTV. Yet, access to the Internet is critical for decreasing the digital divide. One way to address this issue is by having easy access to the Internet at community settings such as recreation centers, public libraries, health centers, and schools.

A second challenge is having the support and technical assistance needed to maintain the technology in operation (DiMaggio & Hargittai, 2001). In one of our studies we observed that when some members experienced trouble with their equipment or the connection, they waited for the technical support team to fix the problem without first attempting to solve the problem themselves, even if this meant waiting for one or even two weeks (Suarez-Balcazar, Kinney, et al., 2005). The researchers observed that leaders who had not used the Internet before, which was the majority in this case, needed a lot of training and technical assistance to understand how to use the WebTV. As they became more proficient, however, they needed less assistance.

When people buy a computer, self-tutoring software is often included, but the instructions may not always assure clear understanding of the steps and processes necessary to install and manage the technology. After all, new technology is often intimidating to the novice user. It can be even more challenging for senior citizens or any individual who has little or no previous experience using computers, little education, or limited English proficiency.

Recommendations for Using the Internet as a Research Tool With Culturally Diverse Populations

With the surge in the use of technology across many fields of study, psychologists and other social scientists are introducing innovative ways of using the Internet as a research tool for the purpose of collecting data or as part of interventions. However, these approaches may limit the participation of diverse populations or may limit the heterogeneity of the research samples. Although psychologists have developed guidelines for conducting research and training with multicultural populations, these guidelines make little mention of the use of the Internet for research purposes (American Psychological Association [APA], 2002). Furthermore, Web-based survey-design standards need to consider culturally appropriate norms and, when necessary, translations, as well as accessibility adaptations for individuals with disabilities (Crawford, McCabe, & Pope, 2005). The following are some recommendations for using the Internet for research purposes with culturally diverse populations:

1. Increase access to the Internet among culturally diverse populations, in particular low-income and working-class groups. The most essential issue in conducting research using the Internet with multicultural populations is access. If the Internet is used as a research tool, funds might be spent to increase access, placing computers at public libraries, community centers, recreational centers, and health centers and engaging in active outreach and training efforts (Balcazar, 2001). Without these efforts, researchers may end up with samples that lack heterogeneity in social class, level of education, race, or a combination of these. New developments in high-speed Internet delivery services, like BPL, have the potential of increasing access and perhaps reduce connection costs.

   A second significant aspect of access is education and technical assistance. Potential research participants may need support to effectively use the technology. Lack of familiarity and knowledge can limit the use of the Internet. Although more costly, phone support or in-person support may initially be needed to help potential research participants use the Internet. Self-tutorial strategies might not necessarily work well with individuals who have limited education.

2. Consider the benefits and limitations of using visual displays. Researchers should use visual aids and easy-to-read materials similar to those used in paper-and-pencil surveys directed at less-literate and less-experienced populations. Visual information may facilitate access to potential respondents with limited English proficiency and those with learning disabilities. However, visual displays of the information on the screen may deter individuals with visual impairments from responding to an Internet survey. For example, the currently available version of Survey Monkey, a survey platform commonly used for data collection over the Internet, asks respondents to click on the appropriate box to select their response. Persons with visual impairments cannot see the boxes to mark their responses and have to rely on screen reader programs like Jaws. However, Jaws cannot read these small boxes. As a result, Survey Monkey and many other survey platforms are not yet accessible to people with visual impairments. Accommodations for people with a variety of disabilities need to be considered by software developers and many are, in fact, adapting their platforms to address the problem (Naglieri et al., 2004). Researchers should consider these issues when deciding whether and how to use visual displays to facilitate access to their Internet-based research.

3. Consider the culture and language of the population of interest. Despite the gap, there is a growing increase in the use of the Internet by diverse cultural and language groups. The use of psychological testing over the Internet, as Naglieri et al. (2004) pointed out, requires instruments that are appropriately translated and adapted to the culture of the target population. A significant element of cultural fit is matching Internet-based materials to the reading level of the population of interest. For translations to be adequate, it is necessary to pilot test the Internet protocols with the appropriate population(s) and to seek their active participation in the translation process.

4. Gain access to an electronic mailing list. An effective Web-based approach for survey research requires access to the particular listserv that the target population uses. In the case of our study with the Colombian community, we had access to the list maintained by the Colombian Consulate of Chicago. There were over 4,000 contacts in the list at the time of the study and the number continued to grow because all individuals obtaining any type of service from the consulate were encouraged to provide an e-mail contact if they had one. This means that the researchers have to gain the trust of organizations or agencies responsible for keeping the contact information of specific groups. Agencies do not want to overwhelm their constituents with unnecessary requests such as participating in a research project. This is why participatory approaches to research are helpful in building the collaboration, engaging the agencies and gatekeepers in the process of determining the importance of the research and data-collection efforts, and, most important, the potential benefits for the respondents (Suarez-Balcazar, Harper, & Lewis, 2005). We used the results of the Colombian needs-assessment survey in a community meeting to mobilize and organize community volunteers to take action and address some of their identified needs. This type of approach may help yield commitment and collaboration from the agencies responsible for keeping and maintaining large electronic mailing lists and is highly recommended. However, be aware that many low-income and working-class individuals might be excluded because they do not have e-mail addresses, belong to listservs, or have access to the Internet.

5. Provide technical assistance to potential respondents. Most people don't have experience completing surveys on the Web. As a result, researchers may consider providing clear instructions and assistance to address respondents' difficulties. Offering a toll-free phone number for in-person assistance or online resources can assist people who may encounter difficulties while participating in the research project.

6. Ensure that the survey can be completed in a relatively short amount of time. One of the biggest challenges of Internet survey development is to keep it short so that potential respondents actually complete the survey and submit it. This is of course a problem that all types of surveys encounter, paper or Web-based. People are busy and they do not want to spend too much time filling out surveys.

7. Consider payment or other forms of compensation. People are more likely to fill out an instrument if it has personal relevance or if incentives are available to justify the effort. It is always helpful to offer people an incentive for the time and effort they spend completing the survey. There are many research studies that have examined the use of incentives. In an Internet-based application, however, payment will result in loss of the confidentiality of the respondent. This lack of confidentiality could dissuade some individuals from responding, particularly if the survey addresses sensitive issues or the reward is perceived to be insufficient. These issues have to be carefully considered and are similar to those faced with paper surveys.

8. IRB approval. The issues of confidentiality and compen-

sation have to be carefully explained when submitting your request for Institutional Review Board (IRB) approval. University researchers have to comply with federal guidelines for the protection of human subjects in research. These guidelines emphasize the importance of protecting the confidentiality of the respondents and protecting respondents from any potential harm, direct or indirect, associated with their participation in the research. Survey respondents are often subjected to passive consent. This means that by responding to the survey, the respondent agrees to participate in the research and understands that his or her confidentiality is protected by the researchers except when precluded by law. IRBs may require researchers to secure informed consent from potential participants if they determine that the research addresses a topic that is sensitive to the respondent, or if the respondent population is vulnerable in some dimension. A similar process is also standard for paper surveys. Unique to the Internet application, however, is that responses to Web-based surveys can generally be linked to the respondents. Although researchers generally are not interested in identifying their participants and often do not have the technology or expertise to do so, this is an additional risk of Web-based research that may not exist with paper-and-pencil surveys. Conducting research with Websites such as Facebook presents other challenges. Although private information such as age, sexual orientation, gender, marital status, and much more is regularly and voluntarily displayed by Facebook and My Space users, becoming public information accessible to many individuals and those with the expertise to navigate the sites, this information can be potentially misused and published in other forms without the consent of the individuals. There is a need for professional organizations like the APA to develop guidelines for the use of such private and yet made-public information for research purposes.

9. Use the Internet selectively and in conjunction with other methods, when appropriate. As our study of Colombian immigrants in Chicago and other studies have shown, Internet users are more likely to be young, educated, and have access to technology resources than non-Internet users. As a result, it is recommended that one supplement Internet-based research strategies with paper-and pencil, focus groups, interview methods, or any combination of these, to capture a wider representation of the general public.

Conclusion

As concluded by Chen and Wellman (2003) the "digital divide is about the gap between individuals and societies that have the resources to participate in the information era and those that do not" (p. 24). Unfortunately, the digital divide has a direct impact on widening the social inequality in our society. Given the challenges and exclusionary risks of the potential wide-spread utilization of the Internet as a research tool, psychologists must be careful when considering its use. Culturally and ethnically diverse populations, particularly those from low-income backgrounds, older adults, individuals with visual impairments and individuals residing in rural areas, are likely to be excluded. Although the cost of the computer technology has come down significantly, the monthly fees for Internet service remain relatively high for families with limited incomes or seniors living on fixed incomes. In addition, there is a growing age gap in technology utilization that leaves many adults unfamiliar with the Internet, which is compounded by the educational gap, and in the case of immigrants, the language barrier. Finally, many potential users may also require direct technical assistance to be able to participate in Internet research. The APA should address these issues in the next review of its ethical guidelines for conducting multicultural education, training, research, practice, and organizational change for psychologists (APA, 2002).

Despite the challenges, several benefits can result from using the Internet as a tool to gather information for research purposes or as part of an intervention when working with culturally diverse populations. As highlighted in the literature, the Internet provides easy access to information and resources. It does not become obsolete as its content is constantly being updated, although some complain that the quality of the content in very uneven (Shull & Berkowitz, 2005). Furthermore, as suggested by the research reviewed here, when the use of the Internet has been introduced for the first time to culturally diverse populations, many can successfully sustain the technology and enjoy its positive benefits—even after research supports are withdrawn (Suarez- Balcazar, Kinney et al., 2005).

Using the Internet to collect data about ethnic minorities may benefit researchers and funders, but it is still unclear how it may benefit the members of diverse populations unless the data is used for intervention purposes or to bring benefits to their community. Services such as Survey Monkey are relatively inexpensive and require only a small monthly fee. The software is easy to use, even for people without experience in completing Internet surveys. We expect that new and better survey products will emerge in the market in the near future with improved formatting, easy utilization, and better accessibility features for people who have low vision or are blind. Others have documented methods of improving community research using Internet-related technologies by addressing challenges that researchers might experience in collecting, processing, managing, and sharing data (Pokorny et al., 2005). However, if culturally diverse populations have limited access to computers and the Internet, their experiences and perspectives would not necessarily be included in research studies or in the knowledge generated from them.

Internet technology offers many new ways for researchers to observe behavior and collect data for research purposes, as exemplified by the I/O researchers. The challenge is to find ways to include rather than exclude ethnically diverse groups and low-income populations from participating in research. Advances in Internet distribution technology, further decreases in computer manufacturing costs and attention to technical support for users are likely to help consumers. However, more research needs to be conducted to better understand the barriers faced by marginalized populations in accessing computer technology and the Internet. Such knowledge will contribute to finding better ways to remove barriers and increase access to all.

References

Aguinis, H., Henle, C. A., & Beaty, J. C. (2001). Virtual reality technology: A new tool for personnel selection. *International Journal of Selection and Assessment, 9,* 70–83.

American Psychological Association. (2002). *Guidelines on multicultural education, training, research, practice, and organizational change for psychologists.* Washington, DC: American Psychological Association.

Balcazar, F. E. (2001). Strategies for reaching out to minority individuals with disabilities. *Research Exchange, 6.* Retrieved September 5, 2007 from http://www.ncddr.org/products/researchexchange/v06n02/REV6N2.pdf

Balcazar, F. E., Garcia-Iriarte, E., & Suarez-Balcazar, Y. (2007). Análisis de preocupaciones de la comunidad Colombiana en el estado de Illinois. (Community concerns of Colombian immigrants in the State of Illinois). Chicago: University of Illinois at Chicago, Center for Capacity Building for Minorities with Disabilities Research.

Bargiela-Chiappini, F., & Harris, S. (1996). Requests and status in business correspondence. *Journal of Pragmatics, 26,* 635–662.

Barry, D. T. (2001). Assessing culture via the Internet: Methods and techniques for psychological research. *CyberPsychology & Behavior, 4,* 17–21.

Bean, F. D., & Stevens, G. (2003). *America's newcomers and the dynamics of diversity.* New York: Russell Sage Foundation.

Bellotti, V. (1997). Design pro privacy in multimedia computing and communications environments. In P. E. Agre & M. Rotenberg (Eds.), *Technology and privacy, the new landscape* (pp. 63–98). Cambridge, MA: MIT Press.

Brown, K. M., Ellery, J., & Perlmutter, P. (2005). General characteristic of Internet use among health educators: Implication for the profession. *Journal of Prevention and Intervention in the Community, 29,* 145–159.

Cardelle, A. J. F., & Rodriguez, E. G. (2005). The quality of Spanish health information websites: An emerging disparity. *Journal of Prevention and Intervention in the Community, 29,* 85–102.

Chen, W., & Wellman, B. (2003). *Charting and bridging digital divides: Comparing socio-economic, gender, life stage, and rural-urban Internet access and use in eight countries* (pp. 41–45). Report to the AMD Global Consumer Advisory Board.

Chong, D., Citrin, J., & Conley, P. (2001). When self-interest matters. *Political Psychology, 22,* 541–570.

Ciolek, T. M. (2001, September), *Networked information flows in Asia: The research uses of the Altavista search engine and "weblinksurvey" software.* Paper presented at the Internet Political Economy Forum 2001: Internet and Development in Asia, The National University of Singapore, Singapore.

Crawford, S., McCabe, S. E., & Pope, D. (2005). Applying web-based survey design standards. *Journal of Prevention and Intervention in the Community, 29,* 43–66.

Digital Divide Network. (2002). *Digital divide basics fact sheet.* Retrieved November 6, 2007, from http://www.digitaldividenetwork.org/content/stories/index.cfm?key=168

DiMaggio, P., & Hargittai, E. (2001). *From the "digital divide" to "digital inequality": Studying Internet use as a penetration increases.* Working Paper #15. Princeton, NJ: Center for Arts and Cultural Policy Studies, Princeton University.

Ellison, N. B., Steinfield, C., & Lampe, C. (2007). The benefits of Facebook "friends": Social capital and college students' use of online social network sites. *Journal of Computer Communication, 12,* 1143–1168.

Federal Communications Commission. (2008). *Broadband or high-speed Internet access: FCC Consumer Facts.* Retrieved March 23, 2008 from http://www.fcc.gov/cgb/consumerfacts/highspeedinternet.html

Francisco, V. T., Fawcett, S. B., Schultz, J. A., Berkowitz, B., Wolff, T. J., & Nagy, G. (2001). Using Internet-based resources to build community capacity: The community tool box. *American Journal of Community Psychology, 29,* 293–300.

Gaiser, T. J. (1997). Conducting on-line focus groups: A methodological discussion. *Social Science Computer Review, 15,* 135–144.

Godin, S., Truschel, J., & Singh, V. (2005). Assessing quality assurance of self-help sites on the Internet. *Journal of Prevention and Intervention in the Community, 29,* 67–84.

Hampton, K., & Wellman, B. (2003). Neighboring in Netville, how the Internet supports community and social capital in a wired suburb. *City and Community, 2,* 277–311.

Harter, A., & Hopper, A. (1994). A distributed location system for the active office. *Network IEEE, 8,* 62–70.

Hernández, B., Horin, E. V., Donoso, O. A., & Saul, A. (2007, July). *The psychological assessment of racial and ethnic minorities seeking vocational rehabilitation services.* Paper presented at the conference of Disability, Race, and Culture: The State of the Science, Chicago.

Hoffman, D. L., Novak, T. P., & Venkatesh, A. (2004). Has the Internet become indispensable? *Communications of the ACM, 47,* 37–42.

Joiner, R., Littleton, K., Chou, C., & Morahan-Martin, J. (2006). Gender and information communication technology. *Journal of Computer Assisted Learning, 22,* 317–319.

Kim, J., Kim, K., Kim, D. Y., Chang, W. H., Park, C. I., Ohn, S. H., et al., (2007). Virtual environment training system for rehabilitation of stroke patients with unilateral neglect: Crossing the virtual street. *Cyberpsychology & Behavior, 10,* 7–15.

Klein, A. (2005). Look to the web to increase recruitment. *University Business, 8,* 37–38.

Krantz, J. H., & Dalal, R. (2000). Validity of web-based psychological research. In M. H. Bimbaum (Ed.). *Psychological experimentation on the Internet* (pp. 35–60). San Diego: Academic Press.

Lee, J., & Bean, F. D. (2004). America's changing color lines: Immigration, race/ethnicity, and multiracial identification. *Annual Review of Sociology, 30,* 221–242.

Lenhart, A., Horrigan, J., Rainie, L., Allen, K., Boyce, A., Madden, M., et al. (2003). *The ever-shifting Internet population: A new look at Internet access and the digital divide.* Retrieved November 6, 2007, from http://www.pewInternet.org/reports/toc.asp?Report_88

Lieberman, M. A. (2007). Psychological characteristics of people with Parkinson's disease who prematurely drop out of professional led Internet chat support groups. *Cyberpsychology & Behavior, 10,* 741–748.

Lorence, D., & Park, H. (2007). Study of education disparities and health information seeking behavior. *CyberPsychology & Behavior, 10,* 149–151.

Marin, G. (1993). Defining culturally appropriate community interventions: Hispanics as a case study. *Journal of Community Psychology, 21,* 149–161.

Masi, C. M., Suarez-Balcazar, Y., Cassey, M. Z., Kinney, L., & Piotrowski, Z. H. (2003). Internet access and empowerment: A community-based health initiative. *Journal of General Internal Medicine, 18,* 525–530.

Naglieri, J. A., Drasgow, F., Schmit, M., Handler, L., Prifitera, A., & Margolis, A. (2004). Alcohol abuse prevention among high-Psychological testing on the Internet. *American Psychologist, 59,* 150–162.

Pokorny, S. B., Jason, L. A., Helzing, D. M., Sherk, J., Rebus, P. J., Kunz, C., et al. (2005). Efficient and effective uses of technology in community research. *Journal of Prevention and Intervention in the Community, 29,* 7–27.

Schinke, S. P., Schwinn, T. M., & Ozanian, A. (2005). Alcohol abuse prevention among high risk youth: Computer-based intervention. *Journal of Prevention and Intervention in the Community, 29,* 117–130.

Shull, C. C., & Berkowitz, B. (2005). Community building with technology: The development of collaborative community technology initiatives in a mid-size city. *Journal of Prevention and Intervention in the Community, 29,* 29–41.

Spooner, T., & Rainie, L. (2000). *African-Americans and the Internet.*

Retrieved September, 2007, from http://www.pewInternet.org/report/pdfs/PIP_African_Americans_Report.pdf

Stanton, J., & Rogelberg, S. (2002). Beyond online surveys: Internet research opportunities for industrial-organizational psychology. In *Blackwell handbook of research methods in industrial and organizational psychology* (Chap. 13). Retrieved February 24, 2008, from http://www.credoreference.com.proxy.cc.uic.edu/entry/5062838

Stanton, J. M. (2000). Reactions to employee performance monitoring: Framework, review, and research directions. *Human Performance, 13,* 85–113.

Stoner, M. (2004). How the Web can speak to prospective students. *Chronicle of Higher Education, 50,* B10–11.

Suarez-Balcazar, Y. (2005). Empowerment and participatory evaluation of a community health intervention: Implications for occupational therapy. *Occupational Therapy Journal of Research, 25,* 133–142.

Suarez-Balcazar, Y., Harper, G., & Lewis, R. (2005). An interactive and contextual model of community-university collaborations for research and action. *Health Education and Behavior, 32,* 84–101.

Suarez-Balcazar, Y., & Kinney, L. (2002). Technology as a tool for facilitating community change. *The Community Psychologist, 35,* 25–27.

Suarez-Balcazar, Y., Kinney, L., Masi, C. M., Cassey, M. Z., & Muhammad, B. (2005). A participatory internet initiative in an African American neighborhood. *Journal of Prevention and Intervention in the Community, 29,* 103–116.

Taylor-Ritzler, T., Balcazar, F., Suarez-Balcazar, Y., & Garcia-Iriarte, E. (2008). Conducting disability research with ethnic minorities: Challenges and opportunities. *Journal of Rehabilitation, 74,* 4–11.

U.S. Bureau of the Census. (2005). *Statistical abstract of the United States* (120th ed.) Washington, DC: Author.

U.S. Department of Commerce. (2002). *A nation online: How Americans are expanding their use of the Internet.* Washington, DC: U.S. Census Bureau.

U.S. Department of Commerce. (2005). *Computer and Internet use in the United States* 2003. Washington, DC: U.S. Census Bureau.

Vincelli, F., Anolli, L., Bouchard, S., Wiederhold, B. K., Zurloni, V., & Riva, G. (2003). *Cyberpsychology & Behavior, 6,* 321–328.

Waters, M. C., & Jimenez, T. R. (2005). Assessing immigrant assimilation: New empirical and theoretical challenges. *Annual Review of Sociology, 31,* 105–125.

Wells, M., Mitchell, K. J., Finkelhor, D., & Becker-Blease, K. A. (2007). Online mental health treatment: Concerns and considerations. *Cyberpsychology & Behavior, 10,* 453–459.

Yu, S-C., & Yu, M.-N. (2007). Comparison of Internet-Based and paper-based questionnaires in Taiwan using multisample invariance approach. *CyberPsychology & Behavior, 10,* 501–507.

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