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Using Technology to Enhance Qualitative Research with Hidden Populations

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Advances in technology provide researchers with increased opportunities to locate and conduct research with populations that have historically been inaccessible. This manuscript describes the development of private, voluntary web-based groups, and the process for using web cameras to conduct individual web-based interviews as a method of data collection in qualitative research. Also contained within are detailed steps for utilizing each of these technological innovations as well an exploration of the ethical issues related to using technology to enhance the research experience with members of hidden populations, using the GLBT population as a referent group. Key Words: Technological Innovation, Videoconferencing, Internet-based Groups, Data Collection, Participant Engagement and Hidden Populations

Introduction

The difficulty in conducting research with hard-to-reach, or "hidden" populations is well-documented (Elze, 2003; Sell & Petrulio, 1996; Sullivan & Losberg, 2003). This has proven especially true when attempting to conduct research with populations that were hidden in hopes of not being recognized as members of stigmatized groups (Benoit, Jansson, Millar, & Phillips, 2005, Hash & Cramer, 2003).

Identifying and recruiting hard to reach populations for research studies is a challenge for researchers, regardless of whether they are using quantitative, qualitative, or mixed methods. Hard to reach or hidden populations may be involved in illegal behavior, such as persons illegally working in a country, or persons who are stigmatized in society, such as addicted, pregnant women (Stepherson, 2002). These populations may be difficult to find because they may be wary of accessing traditional service providers; thus, agency-based or community-based recruitment efforts may not access them. They may be afraid to disclose their stigmatized identities to others; therefore, researchers may not know when they have found them. Additionally, they may be concerned about how the results of any study in which they participate may be utilized; indeed, they may refrain from responding to invitations to participate in a study.

For some hidden populations, such as gay, lesbian, bisexual, and transgender (GLBT) persons, the lack of known characteristics, such as the size and demographics of the population, make it difficult to develop a representative sample. While changes in attitudes towards gays and lesbians have made this a population that is easier to reach,

this population has remained largely unexplored when located outside of urban areas, and areas with established gay communities (Harry, 1986; Meezan & Martin, 2003). As the authors primarily conduct research within the GLBT community and have extensive knowledge of this community, it will be used as a referent group when describing hidden populations in this article.

In qualitative studies, while generalizability is not the goal, some researchers seek to obtain the most diverse group of stakeholders possible, in order to achieve the maximum amount of variation in experience (Morse, 1998; Padgett, 1998). It may be difficult, however, to ascertain who represents the extreme (or outlier) cases about a phenomenon of interest if the population itself is not clearly defined. Therefore, both quantitative and qualitative studies conducted with GLBT persons have been criticized for their sampling strategies, and for the subsequent homogeneity of their samples (Meezan & Rauch, 2005; Sullivan & Losberg, 2003). Study samples of GLBT persons have tended to lack diversity in terms of race/ethnicity, country of origin, socioeconomic class, and geographic locale (Meezan & Rauch; Sullivan & Losberg). Furthermore, there is a lack of consistent information in articles about the intended study sample versus the actual received sample. For example, one article that reviewed 103 articles published in five volumes of a U.S. based gay and lesbian journal (Sullivan & Losberg) noted that the majority of research-based articles failed to provide information about the number of persons invited to participate in the study as compared to those who actually participated (in other words, the response rate).

However, recent technological innovations offer researchers alternative options for recruiting hidden populations. The authors use GLBT persons as an example of a hidden population, and the main technological tools to be discussed include videoconferencing as a method of qualitative data collection, and voluntary, web-based communities as a method of connecting study participants.

Use of the methods described in the article may serve to assist qualitative researchers in two important ways. First, the use of videoconferencing as a method of data collection holds the potential for allowing researchers to conduct research with populations that have historically been difficult to access. Second, the use of web-based groups as component of qualitative research provides the researcher with a tool to assist in moving individuals who participate in research studies closer to being participants rather than simply respondents. Further, it has been the authors' experience that these groups also hold the potential for providing a mechanism for participants to build a sense of connectedness with others who may share similar life experiences.

Literature Review

Challenges in Conducting Research with Hidden Populations

There are many challenges that researchers face when they attempt to access hidden populations. One such challenge is defining who exactly the population is. For example, in GLBT research, persons may be defined according to attraction (same-sex, opposite sex, both sexes), sexual behavior, and/or sexual identity (Parks & Werkmeister-Rozas, 2006). Additionally, the language they use to self-identify (e.g., homosexual, gay, dyke, queer, homo-thugs, men who have sex with men) may vary greatly due to such

factors as racial, cultural or ethnic group, age cohort, or political affiliation. Thus, when researchers choose a certain language in their study advertisements, they are signaling how they are defining a population of persons, which may then exclude others who do not view themselves as being a part of how that population is being defined.

Besides the definitional challenges, researchers face decisions regarding their sampling designs. For example, researchers choose the type of design that may be most appropriate based on their defined population, research questions, purpose of the research, costs, comfort with and knowledge of particular sampling strategies. In Sullivan and Losberg's (2003) review of the 37 research articles analyzed, quantitative and qualitative designs occurred at the same rate (48.6%). Surveys were the most commonly used data collection tool followed by interviews, case studies, and observations in the field. The authors note that "each type of sampling design has its own distinctive advantages. Accordingly, no one sampling design is inherently preferable over others" (p. 150). They recommend that authors of studies describe in detail the sampling design used, including its limitations.

However well designed, sampling strategies may fail to produce a robust and diverse sample when attempting to conduct research with hidden populations. Researchers who are perceived to be "outsiders" to the community may find it particularly challenging to find persons who are willing to be included in their studies. Some researchers have found that partnering with local and trusted persons in the community, who then serve as co-researchers and contextual interpreters, provides for easier access to hard to reach populations (Newman, 2006; Wheeler & Majied, 2006). This may be especially true for cross-cultural, cross-national research when the researcher is a foreigner (Newman). Providing reasonable incentives may increase participants' response rate. These incentives, however, should reimburse participants for their time and effort not for their information, and they should not be coercive in nature (Krauss, 2002; Wheeler & Majied).

Finally, researchers who are successful in finding hidden populations and in obtaining their participation in studies may discover that the information they obtain may be incomplete or biased in some way. When conducting interviews, where they take place, how the interviewer asks questions as well as their verbal and nonverbal reactions to participants, can shape the participant responses (Falkin & Strauss, 2002).

Next, the authors will describe the use of technology and access among the general and hidden populations, with particular emphasis given to the adoption and usage of technology among members of the GLBT population. However, the above challenges may still pose concerns when researchers choose to use technologically-based innovations to expand their sampling frame.

Technology Adoption and Usage among the General Population and the GLBT Population

The number of individuals who have access to the internet continues to grow at a rapid pace. For example, surveys conducted in 2006 show that the number of internet users among adults in the United States has hit an all-time high. These surveys show that in 2006 approximately 73% of respondents (about 147 million adults) are internet users, up from 66% (about 133 million adults) in 2005 (Madden, 2006).

In addition to the increase in the number of individuals who have access to the internet, there has been a significant increase in the number of individuals who access the internet via a high speed, or broadband connection. Specifically, Horrigan (2006) reports that the adoption of high-speed internet in American homes grew twice as fast in the year prior to March 2006 than in the same time frame from 2004 to 2005, which results in 42% of Americans having high-speed internet access at home. This represents a 40% increase in a single year. Horrigan further reports that this increase was concentrated among three populations, which include individuals considered as being middle income, individuals of African descent, and new internet users of all demographic groups.

Further, additional research substantiates the idea that members of hidden populations may be more likely to be avid users of the internet. Forrester Research, a marketing research company reported the following in a recent report on technology adoption and usage within the GLBT population (Kolko, 2003). After adjusting for demographic variables, such as household income, researchers found that gay men are significantly more likely than straight men to have broadband internet access, shop online, and use financial tools online. Thus among men, sexual orientation is a good predictor of technology adoption and usage. However, among lesbians, researchers found that demographic variables such as geographic location and household income are better predictor variables when attempting to account for adoption and usage of new technologies. Therefore, a woman's sexual orientation is not as strong of a predictor of technology adoption as it is among men (Kolko). Further, it was also reported that among internet users, gay men and lesbians are far more likely to use tools like text chat, instant messaging, and personal web pages (Kolko). This increased usage supports the notion that hidden populations, including GLBT individuals who are closeted or living outside of major cities, can rely on the internet as their primary link to the gay community.

Now that the characteristics of internet users both in the general population and in the GLBT population have been described, the characteristics of those who chose not to access the internet are explored. While internet usage continues to grow across the board, consistent and clear demographic gaps remain. A variety of factors that separate internet users from nonusers were identified in a 2003 study conducted by the Pew Internet and American Life Project (Lenhart, 2003). The following findings, which are based on research conducted in North America, were reported: younger individuals are much more wired than older generations; employed individuals are far more wired than the unemployed; White individuals are more wired than those of African and Hispanic descent; college-educated individuals are more wired than those who only completed high school; suburban and urban residents are more wired than rural residents; and parents of children living at home are more wired than non-parents (Lenhart).

Further, the Pew Internet and American Life Project report also explored the social differences between internet users and non-users; the relevant findings include that those who are socially content, who trust others, have many people to draw on for support, and who believe that others are generally fair, are more likely to be wired than those who are less content. There is also some modest evidence that those with positive and outward orientation towards the world are more wired than those who are more focused inward; those who feel they have control over their lives are more likely to be wired than those who feel they do not have much control of their lives; and persons who read newspapers,

watch TV, and use cell phones and other technologies are more likely to use the internet than those who do not (Lenhart, 2003).

Now that the challenges researchers may encounter while attempting to conduct research with hidden populations have been explored as having facts related to internet access and usage, the authors will next explore several technological innovations that can be used to enhance the research process.

Technological Innovations and the Enhancement of the Research Process

Use of Videoconferencing as a Data Collection Strategy

Divergent opinions exist among qualitative researchers about the relative merits of conducting qualitative interviews using methods other than direct observation, such as telephone interviews. Often, arguments against using alternative strategies are predicated on the assumption that the loss of non-verbal communication from participants dilutes the researcher's ability to understand the context of the participants' narratives, and thus results in less of a thick description of the phenomenon under investigation. On the other hand, researchers who advocate for the use of alternative data collection strategies as a valid form of qualitative data collection point to the ability to recruit and collect data from geographically dispersed groups without the associated cost of traveling to each data collection site. In this way, researchers have the ability to include larger numbers of participants from a large area which may result in creating maximum variation within the sample, and a diverse pool of data from which to draw findings. In these cases, researchers who chose to use these alternative methods, such as telephone interviews, must be willing to risk losing the non-verbal contextual data that allows the researcher to understand cognitive-dissonance (that is, when the interviewees' words do not match their affective, or non-verbal communications), or fully understanding study participants by seeing what their personal environment looks like.

Fortunately, recent developments in computing technology have given qualitative researchers new tools, such as web cameras that allow researchers the ability to interview individuals who are geographically dispersed without the resultant loss of contextual data. A hypothetical example follows. A researcher is recruiting participants to participate in a qualitative study of gay fathers in which individual interviews will be used as the primary method of data collection. The majority of individuals who respond to the advertisement live within driving distance of the researcher's university and he is able to schedule in-person interviews with them. However, several potential participants who live in other countries respond and express interest in participating. With the advent of the internet and web cameras, the researcher may have less concern about the impact of interviewing the non-local individuals and including them in the study if he is able to use a web camera so that he has access to approximately the same levels of verbal and non-verbal data from each of the participants. Now, that an example of the ways that qualitative interviewing can be enhanced through the use of technology, namely high-speed internet coupled with a web camera, the specific process for selecting a web camera and setting up a free account with a videoconferencing provider will be explored.

Necessary Equipment and Process for Conducting a Videoconference

The first step in getting started in using videoconferencing as a form of data collection is to select a web camera, or webcam. Webcam's have recently gotten much smaller, and many have integrated microphones, which reduces the need for an external microphone. They are generally inexpensive (between $20-$50 USD), and most are considered to be "plug and play." The term plug and play is a term used in the computer field to describe a computer's ability to have new devices, normally peripherals, such as webcams or mass storage devices, added to it without having to reconfigure the computer manually. As these are relatively inexpensive, researchers may choose to purchase and mail them to participants as an incentive for participation in the study, or simply mail them to the participant with the informed consent (ethics) documentation, and include a method for mailing it back to the researcher at the conclusion of the interview. In addition to a web camera, each member of the videoconference will also need a personal computer (PC) with a sound card, which comes standard on most recent models of desktop and laptop computers. Each party will also need to secure speakers, a microphone (if not integrated into the purchased web camera), an internet connection (preferably high speed – either DSL or cable), and an account with a videoconferencing service provider.

Microsoft offers software needed to conduct videoconferences, as well as technical support, as part of its Windows operating system. This software is part of a Passport Network account, which can be obtained for free at the Passport Network homepage (http://www.passport.net). While this is just one of many places a person can go to set up a videoconferencing account, it is being used for illustrative purposes here as it is without cost, and is part of the Microsoft family of products. This assists in ensuring compatibility between the software and the operating system, as Microsoft Windows is the most common operating system in the world for use on personal computers.

Once each member of the videoconference has obtained all of the necessary equipment, and obtained the Passport Network account, the researcher and participant will then negotiate a time to initiate a videoconference and exchange information needed to locate each other on the service, such as a unique user ID (identification) that is designated when the account was established. At the designated time, both the researcher and participant will need to sign into their accounts, add each other's unique user ID to their account as a favorite person or contact, and one party will then click on the other user's ID to request a videoconference. Once the participant indicates his or her agreement to participate when prompted, the videoconference will begin and the researcher can start the interview process.

Additional features of the Passport Network software include the ability to use picture in picture (so that each party can see how they appear on the other person's screen), as well as the ability for each party to temporarily freeze their image on the screen (without stopping the flow of information from the other party). This may be useful for researchers who want to take notes while watching the person speak, but do not want to risk interrupting the person's verbal communication stream. This is especially useful with participants who become apprehensive when they see others taking notes while they are talking.

Additional Benefits of Using Videoconferencing for Data Collection

There are several additional benefits to qualitative researchers who use videoconferencing as a method of data collection. The first benefit is the ability of the researcher to use adjunctive software to further assist the researcher in the data collection and management process. For example, it is possible to simultaneously run sound recording software to create digital voice files of the interviews for storage on a PC. This eliminates the need for audiotapes, which may be lost or damaged, and creates an additional layer of data security as audio files can be saved into a password protected directory on the researcher's computer. Further, it may also be possible for the researcher to utilize voice recognition software, which is embedded into Microsoft Office (including Microsoft Word) to create rough transcriptions of the interviews. These rough transcriptions may be useful for developing expanded field notes, or for creating the basic outline of verbatim transcriptions of interviews. However, it must be noted that speech recognition software is trained by the primary user to understand that particular person's tone, cadence, intonation, and accent. Thus, researchers should not expect this technology to produce verbatim transcripts, but rather rough transcriptions that will most likely capture more of what the interviewer says rather than the person being interviewed. Nonetheless, these transcripts may prove valuable in further refining interview guides or developing standard prompts (or clarifiers) when participants do not fully understand a question as originally posed.

Use of Internet-Based Support Groups

The second technologically-based innovation that can be used to enhance research with hidden populations is internet-based groups. It is important to note that using the internet for participant recruitment has been used in a variety of contexts, including research on HIV prevention and risk activities (Bolding, Davis, Sherr, Hart, & Elford, 2004). Similarly, other researchers (Fernández et al., 2004) have used the internet, specifically chat rooms, as a mechanism for qualitative data collection. These authors note that this approach does not exactly approximate the experience of conducting individual or group interviews in person to collect data. Specifically, the authors detailed concerns that participants may adopt a persona, and then provide information that supports the person's characteristics. The authors relate this as being similar to feeling as if he/she is an actor playing a part rather than presenting truthful information about his/her experiences.

It is the author's contentions that internet-based groups, which are described in this paper, present a logical next step in using technology to enhance research with hidden populations. A number of internet service providers and internet-focused companies, including but not limited to America Online [AOL], Microsoft Network [MSN], Yahoo!, and Google allows users to establish internet based-groups for areas of interest. While not originally designed for use in research studies, these groups can be modified to serve several important purposes in qualitative/participatory research endeavors. These benefits include using groups to assist in the development of web-based voluntary support communities for research participants and also using them as a way to engage study participants in the member checking process, which serves to enhance rigor

in the qualitative research process (Padgett, 1998). Both of these uses will be explored in detail later in this section, but first the process of setting up an internet-based group using Yahoo Groups! will be illustrated. Yahoo! was chosen for illustrative purposes as it is without costs and offers the most comprehensive group features (e.g., file sharing, chat, discussion boards), as well as has international sites for Europe, Asia Pacific, and the Americas.

Setting up an internet-based group using Yahoo Groups! is a six-step process that is relatively straightforward, and takes less than 30 minutes. The first step is to register for a Yahoo! account. This can be done at the Yahoo! homepage (http://www.yahoo.com). Once the individual account is established, the process of developing the group can begin. This process begins by signing into the Yahoo! account, and navigating to the Yahoo! group's webpage (http://www.groups.yahoo.com/start). The next step in the development process is to select a category for the group. The selection here is not of much importance as the group will be a private group, and thus not visible to those who are not members. The only reason to include the proper category is when a public group is being established and potential members can locate it by searching through the directory of existing groups hosted by Yahoo!

After the group's category is established, the group must be given a name (e.g., GLBT Research Group) and establish an email address for the group (e.g., GLBTresearchgroup@yahoo.com), and develop a short description of the purpose of the group. This description serves as the welcome screen for new members and should outline the group's purpose and structure (e.g., this private group is open only to study participants involved in the gay fathers research study being conducted at…). After completing these three tasks and clicking OK, a screen will appear which indicates that a group has successfully been created. The uniform resource locator (URL) for the group, as well as the group's email address will be displayed.

Now that the group has been created, it can be customized prior to sending invitations to participants to join. Yahoo! groups offers a customizing wizard that helps the developer select which options to enable (e.g., chat, email, file share, bulletin board), as well as controls the delivery of messages posted. This allows the developer to either assume responsibility for the content distributed in the group by approving all messages, or by allowing the group to be self-managing by not reviewing messages or being an active member of the community. The latter option, in which the developer is not an active participant of the group, is the preferred method for allowing this internet-based community to develop organically. The customization options also allow the group's developer to decide whether to promote the group through Yahoo!'s directory of groups, and to determine how members will join the group.

If the group is to be private, open only to members of a research project, the developer can limit the ability to join by sending emails to all participants in the study and requiring that the group developer approve all memberships. This will allow the developer to ensure the group's membership is limited to a select group of individuals.

Finally, once the individual participant decides to join the group, they are prompted to complete the Yahoo! registration process and to develop a unique user ID – which will let them also determine if he/she wants to join the group in an identifiable manner, or if they want to join the group in a relative anonymity through the use of a non-identifying ID (e.g., GayDad2006).

Benefits of Using Web-Based Groups in the Research Process

As researchers who have utilized this technology in both research and non-research contexts, we see several benefits of using web-based groups in the qualitative research process. First, these groups are useful for building a community among members of marginalized or hidden populations. By joining these voluntarily groups, participants in research studies with and about individuals who are members of hidden populations have the ability to connect with others who may have life experiences similar to their own. These connections may prove invaluable as individuals try to navigate life while being members of marginalized or hidden groups. Second, web-based groups can be a useful tool for enhancing the researcher's ability to engage participants throughout the research process, as well as provide an outlet for increased participant feedback at different stages throughout the research process. Specifically, the researcher may choose to post drafts of the study findings in a common area on the web-based group and then open up a discussion board within the site where participants can post their impressions of the tentative findings, and offer suggestions for additions, deletions, or other general editorials. This will allow a broader range of participant input into the member checking process than has been historically possible as all study participants who choose to join the group will be given the opportunity to offer comments and shape the direction of the research rather than relying on select key informants to provide feedback on the study's findings.

Critique of Technological Approaches Described

The two methods described in this paper have been used with varying degrees of success over the past three years. First, the use of the internet-based group for study participants proved to be an unintended benefit to participants in a study of single, gay adoptive fathers (Matthews, 2004). The participants in this study were longing for a connection to others who shared similar experiences with them, were looking for support and advice, and were excited to know that they were "not the only one." It was in this way that the internet group took on a life of its own. Participants were given the option to join anonymously and were not required to share any identifying information. However, a sense of community soon developed and as the researchers returned for occasional visits, the group blossomed with postings from study participants detailing their adoption process and experiences, as well as family photos. Connections that were forged within the confines of the safe space, eventually ventured into the real world. Several study participants posted of plans to meet up at a GLBT family-focused event in the summer, and several study participants ended up taking a vacation geared towards GLBT parents. These were important connections for a previously hidden population that remains a small sub-population of an increasingly visible minority group (GLBT parents).

The use of videoconferencing as a method of qualitative data collection remains a relatively unexplored area for future development. As outlined in this manuscript, the process has several steps and requires a level of comfort with technology that people may not possess. This method was fully tested as a method of data collection in the study described above. However, it was ultimately not used. This was a decision that was made because of logistics and constraints placed on the research process rather than on

feasibility issues. The technology worked in pilot-tests and has been used for follow-up contacts with two participants in the study described above. This is the newer of the technologies described, and we remain confident that with new computers being made with integrated web cams, as well as the rapid increase in high-speed internet access, this is a resource that has the potential to become quite valuable to qualitative researchers.

Ethical and Other Considerations

Technology-enhanced research designs come with a set of ethical and other considerations. These include accessibility of computers and the internet, privacy and security, motivation and trust of the researcher and the level of involvement of the researcher in voluntary web-based communities that may arise from the research process (as described above). Besides the data shared earlier in this article about the GLBT community's computer and internet usage, there are issues related to computer and internet use for people with disabilities and people living in geographically isolated areas. For example, in surveys of people with disabilities, computer and internet use consistently lags behind the general population. Results of one survey indicated that one-quarter of the individuals who identified themselves as having a disability reported owning a computer and only one-tenth had identified as having internet access (Kaye, 2000). In fact, individuals with disabilities are less than half as likely to own a computer and are three times less apt to be connected to the World Wide Web compared to individuals without disabilities (Kaye). For persons with disabilities who have access to computers and the internet, they often encounter numerous problems with inaccessible websites. The authors suggest that researchers who utilize web-based studies test the accessibility of their websites (referred to as 508/Bobby approval) and that they conform to the Web Content Accessibility Guidelines. (For a copy of these guidelines, go to http://www.w3.org/TR/1999/WAI-WEBCONTENT-19990505/)

Further, individuals in isolated geographic regions who do not own computers may resort to using computers in public locations, such as public libraries. They may have concerns about displaying GLBT-related content on computer screens where others could easily see the screens. Even with data encryption and other security features, there are people who fear that sensitive information that they share via the internet could somehow be obtained by others who could use that information against them.

Although not unique to technology-based research methods, when recruiting GLBT persons, issues of trust and motivation of the researcher arise. There is some evidence that when GLBT researchers disclose their sexual orientation, persons are more inclined to decide to participate in a research study and to trust the researcher in how the results are going to be used (LaSala, 2003). However, the literature also points out that there are disadvantages when the participants are aware of the researcher's sexual orientation, such as the tendency of participants to use "shorthand" to explain lived experiences, believing that the researcher would "know what it is like" because of his or her own experience as a GLBT person (Hash & Cramer, 2003), or the desire to impress the researcher based on the participants' ideas of what the researcher believes (LaSala).

There are other "disclosures" that may not be as readily considered by the researcher, however. In Matthews' (2004) study of single, gay, adoptive fathers, some participants expressed concerns about the researcher's location in "the South," which was

identified because of the university affiliation on the study advertisement. This concern about the researcher's locale could be of particular relevance when researchers are conducting cross-national studies. Sexual orientation disclosure alone may be insufficient to entice participation, as some potential participants may need to know why the researcher is interested in that particular topic, especially when the researcher is heterosexual (McClennen, 2003). Also, trust issues arise when studying politically delicate topics such as gay adoption, when participants worry that the results could be used in such a way to harm the population, such as closing down routes to adoption for GLBT persons (Matthews). The authors suggest that researchers should be upfront with participants about their interest in the research topic and their plans for dissemination of results. The informed consent process and actual form could provide opportunities to forthrightly address these issues.

As previously mentioned, web-based groups can be set up as the method or one of several methods for data collection. In that way, the authors consider web-based groups similar to focus group research or even clinical groups, where the researcher can assure his or her own adherence to confidentiality, except in cases where there would be requirements to report (Deren & Baumann, 2002). The researcher, however, cannot promise to participants that the other participants will treat the exchanges confidentially, although confidentiality can be encouraged of the participants (Reid, 1997). This then becomes an issue for the informed consent process.

There are important issues the researcher must consider when he or she moves beyond the role of data collector to that of program, resource, or service provider, as in the case of the voluntary, web-based communities. When a researcher discovers a serious lack of resources for a population that he or she is studying, especially for those in fields where social change and resource development is part of the mission of their discipline, what obligation might that researcher have to provide a solution, particularly if the researcher has the knowledge and resources to do so? This then changes the researcher's place among participants, from one of data collector, to one of group moderator. The researcher knows much more information about all the group members than any of them know about each other – even real names, which can be hidden in web-based groups. If the researcher simply approves membership and does not participate, does this then resolve some of these concerns? What if the researcher later wants to turn the web-based discussion, which can all be accessed at a later date from the original postings, into a research project, in essence, into data? Would the researcher then need to prepare another human subjects protection (IRB) submission and a second informed consent? Are there certain types of research processes that lend themselves more to fluidity of roles among researchers and participants? Would this be the case for qualitative designs more than quantitative? These are questions that should be carefully deliberated prior to making a decision to alter one's role from researcher to resource provider. Researchers may want to be especially wary of any actions that may create unintended consequences, such as creating a web-based forum that allows attacks between members to occur because the researcher wanted to stay as "hands-off" as possible once the forum was created. A thorough examination into the potential risks and benefits in participating in the resource/service would be warranted (Deren & Baumann, 2002).

Conclusion

As social work researchers, we feel a particular commitment to conducting research with marginalized and vulnerable populations. It is this dedication to learning more about those groups who have historically been unserved and underserved that served as the impetus for researching the methods presented in this article.

The authors have provided an overview of the special challenges that exist for researchers who are attempting to define and access hidden or hard to reach populations by using the GLBT population as one such example of a hidden population. However, it is important to note that the information contained in this manuscript could easily be applied to other hidden populations such as HIV positive individuals, sex workers, substance abusers, and runaway/homeless/throwaway youth.

The use of technology-based methods for locating study participants, collecting data, and creating web-based communities were also described. Important considerations in conducting technology-based research were detailed such as accessibility and security of the technology, motivation and trust of the researcher, confidentiality, and the researcher's altered role in relation to participants. Even with the drawbacks of technological tools, technology-based research methods can offer exciting possibilities for both researchers and study participants, recruiting globally being one of them. The internet allows the researcher to broaden the geographic focus, rather than relying on the communities closest to where the researcher resides, which has been a consistent criticism of much of the GLBT research. Because technology is ever changing, researchers would be wise to keep abreast of technological innovations and the myriad ways they may be useful in enhancing the research process with hidden populations.

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