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# Using Internet Discussion Boards as Virtual Focus Groups

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While the potential of Internet-based qualitative research methods is substantial, such methods are not without their problems. Some of these methodological challenges are unique to the medium, while others are similar to those of more traditional qualitative methods. This article presents some of these methodological challenges, and explores some of the issues involved in using on-line discussion boards as virtual focus groups in a study of perimenopausal women with migraines. Design of the study and its advantages and disadvantages are discussed, including the role of the moderator. Some of the problems encountered included potential for misunderstandings due to limits of written communications, and difficulty encouraging participation. **Key words:** *focus groups, Internet, menopause, migraine headaches, perimenopause, qualitative research, women's health, World Wide Web*

**C**ENSUS FIGURES indicate that more than half of all US households (54 million, or 51%) have one or more computers.<sup>1</sup> Participation in on-line discussion boards and chat rooms has become a common practice over the past few years, and should continue to grow as more people have access to the Internet. Although chat rooms and discussion boards that focus on health issues are becoming more common, researchers have only recently begun to explore the use of Internet discussion boards for data collection. The purpose of this article is to present some of the issues that were involved in using on-line discussion boards to collect data on migraines in perimenopausal women.

## BACKGROUND

Actual focus groups have been used with various populations to gather data for market research, as well as in the social and health sciences.<sup>2-6</sup> Advantages of using focus groups instead of individual interviews include reduced travel costs for the researcher, the convenience of having all participants gather in one place, and the synergistic effects of interaction in enhancing discussion of the topic.<sup>4</sup> On the other hand, there are also disadvantages associated with using focus groups instead of individual interviews;<sup>4,7-9</sup> for example, some individuals are slow to participate readily in a group setting and are more likely to be forthcoming in individual interviews.<sup>6</sup> The advantages and disadvantages of using actual focus groups are also inherent in Internet group research, although there may be different twists to the issues. For example, encouraging reserved group members to join in the discussion occurs in both actual groups and Internet groups, but requires different approaches when participants are not face-to-face. Use of an Internet-based focus group has become attractive to researchers as use of the Internet has grown, and as people's lives and schedules have become more

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complicated. Recruitment problems for traditional focus groups are likely to grow, given the increasingly common problem of scheduling meetings in busy people's lives, and the use of on-line research "focus groups" has the potential to be an important tool used to combat this problem (D. Morgan, personal communication, January 2000). In addition, because of the number of computer applications that now allow group chatting and message boards, researchers such as Lakeman<sup>10</sup> are concluding that creating a "virtual" focus group is a feasible undertaking.

The Internet has been used for a variety of group discussion purposes: for support groups, for information dissemination, and for research purposes. Support groups for specific health care issues have been developed for such diverse special-interest groups as chronically ill children,<sup>11</sup> cancer patients,<sup>12</sup> and women with chronic illnesses such as diabetes, multiple sclerosis, and rheumatoid conditions.<sup>14</sup> Although the number of Internet-based research studies using group formats is still relatively few, several studies have used a discussion group format to gather research data.<sup>11,14,15</sup> Sharf<sup>14</sup> utilized discourse analysis and participant observation methods to explore the communication that occurred on a Breast Cancer List, while Giordano<sup>15</sup> used a phenomenological approach to understand the concerns of midlife women participating in a menopause discussion group. Fleitas' interactive chat format<sup>11</sup> combined collection of qualitative data from a chronically ill pediatric population, with a support group format. In this study, narratives were obtained from interactions with children and their parents, via e-mail and focus-specific Internet chat rooms, and were used to supplement data obtained from actual focus groups and individual interviews.

A number of different formats are available for styling an on-line discussion group, whether for support purposes or for research. Distinctive terminology may also be used by participants, which can be confusing for the new Internet user. In this article, the term *discussion board* refers to an ongoing site where

participants are free to log on at any time, read others' postings, and post their own thoughts. New "threads" may be posted by the moderator, as starting points for discussion, which can then be responded to by participants. Participants can also initiate their own new threads, if there is a question they wish to post to the other group members or to the moderator. The narrative accrued is saved on the board until the board is dismantled, so that participants can scroll up and down to see what has transpired over the life of the group. A "chat room," on the other hand, usually refers to a discussion site that functions in real time, where participants log on at a specific time and converse back and forth. An Internet relay chat (IRC), sometimes referred to as "instant messenger," is a type of chat room. Chat room narrative data can be copied and pasted when the board is active, but is not usually saved over time at the site, as it is in a discussion board (although software is available that will capture archived chat threads). A chat room may also have a limited scrolling function, so that it may not be possible to scroll back and see what has been said earlier in the discussion.

### **Disadvantages and advantages of using internet-based discussion groups**

#### ***Disadvantages***

There are both disadvantages and advantages of using Internet-based discussion groups to collect data. As one might expect, some of the difficulties of conducting such groups are similar to those encountered when conducting actual focus groups. There are also other potential challenges unique to conducting Internet-based focus groups. These challenges include maximizing the participation of all group members in the discussion, minimizing the occurrence of misunderstandings, and controlling the direction of the group's conversation.

In actual discussion groups, there are usually participants who are reluctant to interact until drawn out by the moderator. This is true in on-line groups as well, with the

added disadvantage that the moderator cannot directly address the individual face-to-face. In addition, it has been hypothesized that some people might be more forthcoming in an actual group setting, where they can better gauge the personalities of the other participants.<sup>16</sup> It is also easier for an Internet group participant to merely “lurk,” reading comments without posting any remarks herself, than it is to be physically present in an actual discussion group without participating. Some people may also retain an ongoing distrust of computer security, so that they never become comfortable expressing themselves in such a seemingly public manner. Furthermore, it should be noted that for participants who are inexperienced with computers, or who do not have adequate typing skills, participating in an on-line discussion board can be daunting. (However, the desire to participate in such a group sometimes inspires people to acquire the requisite computer skills.) In addition, the need for an adequate skill level, as well as for computer access, may also bias the study sample toward upper-middle class and professional people<sup>17</sup> (D. Morgan, personal communication, January 2000). Involving women who have not had experience with, or access to, computers is a challenge for researchers who are committed to diversity.

Another challenge facing the Internet researcher, related to the one above, is that Internet groups do not provide the same communicative experience as an actual group. That is, nonverbal expressions such as facial changes and gestures are not available, along with tone of voice and other nuances of communication. There is heightened potential for misinterpretation of written communication resulting from the absence of such social cues as tone of voice and body language.<sup>17</sup> The use of standard Internet shorthand writing measures to indicate emotions, such as pleasure, anger, or surprise, may be helpful.<sup>16</sup> In addition, each participant may be entering her comments in a different context; for example, a quiet room at home might be used by one person, a busy noisy office by another.<sup>18</sup>

Finally, there is the challenge of maintaining control of the group process. The moderator of an Internet discussion group usually does not have the same degree of control of the conversation as is possible in an actual focus group (D. Morgan, personal communication, January 2000). Even in actual focus groups, it can be difficult at times for a moderator to maintain control of the discussion, and to focus the conversation on pertinent issues. In an on-line group, this can be even more difficult. D. Morgan (personal communication, January 2000) cautions that discussions may get complex in a short time, with “new” topics appearing in supposedly continuing threads, accompanied by the attendant difficulties encountered by a participant who is inexperienced in using discussion boards or who hasn’t been following the conversation. This problem has been partially addressed via the development of computer software that allows users to provide links to other posts in different threads. Morgan also notes that it is easy for messages to get “out of synch” as one person introduces a new topic while two others carry on a conversation about an earlier topic. These problems may be aggravated by the intermittent nature of posting on a discussion board. For people with busy schedules, remembering to repeatedly check into an on-line discussion board may also be unrealistic. It becomes imperative to develop ways of reminding participants to check into the group.

### ***Advantages***

There are significant advantages to using on-line discussion boards as research focus groups. Some of these advantages are similar to those of actual focus groups by comparison with individual interviews, and some are unique to the electronic medium. The advantages discussed here include enhanced participant convenience, potential for better quality of data obtained because of participant comfort, and potential time and cost savings for the researcher.

A principal advantage of using the Internet is convenience for participants. As noted

above, recruitment is a problem for actual focus groups and will likely grow, because of the increasing difficulty of scheduling meetings for busy people. The use of on-line research "focus groups" has the potential to be an important tool used to circumvent this problem (D. Morgan, personal communication, January 2000). Using a real-time chat room or using a discussion board that can be accessed intermittently when convenient are options for conducting group discussions, and enhance the potential recruitment of people who would not otherwise be able to participate in any focus group. Although there may be traditional local recruiting done, recruiting is enhanced if the project is open to enquirers on the Internet, particularly if the Web site is listed on search engines. Balanced against the problem of diminished access for some, such as those without computers, is also the increased access afforded to those who may be geographically distant from the research study, or who may be socially isolated (eg, by illness or other disability).

A second advantage is that of increased participant comfort. In contrast to the possibility that some individuals are less comfortable interacting in an anonymous exchange, other participants are more comfortable asserting themselves openly in a format where their identities are unknown.<sup>19,20</sup> The Internet format also provides a "safe" forum, since participants do not feel required to answer every question.<sup>4</sup> This is an advantage shared to some extent by actual focus groups as opposed to individual interviews, but is perhaps even more true for Internet group participants. Finally, as with actual focus groups, using an Internet discussion board may enhance the quality of information received because of the synergistic elements inherent in group interaction as opposed to individual interviews.

In addition to these advantages are potential savings in costs and time for the researcher. Although there are the initial costs of establishing a Web site, which may require start-up and ongoing consultation fees depending on the researcher's background, and

purchasing computer equipment, the recruiting and logistical costs of organizing Internet focus groups are much lower in the long run than they are with actual groups. Once set up, the technology is reusable and can easily be leveraged for other projects, a long-term savings in time and costs. In addition, data entry and analysis are quicker and less expensive. Narrative from the discussion boards can be transferred directly to a software analysis package without the need for transcription or editing, which also ensures accuracy of the transcribed data. This can easily be done at the time the discussion board is dismantled. Doing on-line groups may take more time for the researcher initially because of start-up time as well as the time required to master computer skills, but in the long run is likely to be easier and less costly to conduct<sup>19</sup> (D. Morgan, personal communication, January 2000).

To summarize, there are a number of potential advantages and disadvantages associated with the use of Internet-based discussion boards. In the following section, the authors describe their experience with the use of one such discussion board to collect research data.

#### **AN INTERNET STUDY OF MIGRAINES IN PERIMENOPAUSAL WOMEN**

Perimenopausal symptoms, such as hot flashes and insomnia, have received a great deal of attention in recent years; however, for many midyear women, this is also a time when migraine headaches begin, recur, or worsen.<sup>21-24</sup> This problem has received scant attention from researchers or clinicians. The primary purpose of this study was to examine the experiences of perimenopausal women with migraine headaches. A secondary purpose was to explore the feasibility and effectiveness of collecting data via the Internet. Women who were admitted to the study met criteria for migraine headaches and perimenopause and were willing to participate in an Internet-based study. Data were collected

via a health history tool, a migraine-specific quality of life instrument (MSQOL),<sup>25</sup> and an SF-36,<sup>26</sup> all of which were completed on-line, and an on-line discussion board that functioned as a "virtual focus group." In addition, live qualitative interviews were performed to ensure that adequate data were obtained to meet the primary study purpose. This article will address issues that arose in the process of conducting 4 discussion boards, which included a total of 22 participants. Other aspects of the study will be described elsewhere.

The 22 participants in these 4 groups were composed of 18 White women, 3 African American women, and 1 English Indian woman between the ages of 40 and 55. Eighteen lived in the metropolitan area of the research center; 4 lived out of state. They were recruited by word of mouth, flyers posted in the community, and via Internet inquiry. Following screening and completion of informed consent, the participants first completed a qualitative interview, in person or by phone. They were then given individualized passwords and login names to complete the on-line questionnaire portion of the study. Participants also received orientation packets that included detailed instructions about accessing the Internet, completing the on-line questionnaires, using the discussion board, and using "netiquette," accepted forms for communication nuances on discussion boards. When 4 to 8 participants had completed the questionnaires, a new discussion board was created and placed on the Web site, and participants were given a new login name and password unique to their group. Each participant was also asked to choose a pseudonym for the discussion board. Discussion boards were initially planned to be accessible for 3 weeks; however, when participation was slow, the boards were left up longer. One discussion board, which ran over 2 major holidays, was accessible for 5 weeks. The discussion boards were available at all times during the life of the board; participants were asked to access the board at least

once a week. The researcher initially placed several open-ended threads on the board, to start the discussion, and included such postings as "Please begin by telling us something about yourself, your history of headaches, the things you have tried for your headaches, and anything else you think is important." Other new threads were then posted over time, depending on the discussion. Sometimes a comment in a posting was drawn out and used as the beginning of a new thread, and sometimes a new thread was begun on a topic that hadn't been addressed by the group but was part of the researcher's agenda. For example, one participant mentioned her husband's reactions to her headaches. The researcher then began a new thread by asking about other participants' relationships.

After a discussion board was closed, each group member was asked to individually evaluate the study in person or by phone, using a brief semi-structured interview format with open-ended questions. Areas of evaluation included ease of questionnaire completion, use of the discussion board, identification of logistical problems, and suggestions about the process. Participants were paid a small incentive fee at the completion of the evaluation interview.

### Participants' evaluations

Participants' comments addressed both study content and format. The major themes that appeared throughout the evaluations included their reflections on how they had benefited by participating, the group process, the logistics of completing the discussion boards, and comments about further directions.

Feedback about participation in the study was generally very positive. Participants frequently expressed satisfaction at being involved in the study, indicating that they had found it interesting and educational to learn about how other women managed their headaches, and that they felt supported from being in a group of women with similar problems. One participant said: "It was

educational. I learned about trying to prevent dehydration, (manage my) moods, not get too nervous, and not get so frustrated." Another noted that it "made me more aware about what was going on with *me*. It put me in touch with my own experience . . ." And a third said that participating in the discussion board was "like talking to kindred spirits—comforting, though it's a sickness support group."

Other comments about the study format reflected some of the logistical advantages and disadvantages discussed earlier. For example, the women reported that the flexibility of logging in on their own time made it easier to participate, and several observed that they preferred being anonymous. As one person posted, "It felt funny at first discussing these 'private matters' with strangers—but after being in the group for a while I have felt a comradeship (*sic*)." Another commented, "I tend to be one of the quiet ones in a group of real people. This (discussion board) allowed me to say whatever I wanted without being uncomfortable."

The tension between the freedom of being able to be open and anonymous, and the comfort of reading about others' experiences without posting oneself, created an unexpected conundrum. One participant reported that in addition to the time flexibility, she liked "being able to read and not having to comment at that time—I could get back to it later if needed." And another said, "Sometimes I have gone into the discussion board and just read other (people's) comments. There are a few times that I felt like I was forcing myself to post a message. I have never participated in a discussion board before . . ." In contrast, when asked "What did you not like about being in the study?" the few who offered critiques made comments similar to this comment made by a participant in Group 2: "I was pleased to be a part of it. . . but (it was) a little disappointing that the group didn't take off." It became clear that for participants to become comfortable interacting with each other on a consistent basis, it was necessary to have at

least 2 members who posted freely and interacted between themselves. It would also have been helpful to know if participants were accessing and reading the board, or not entering at all. However, the software used did not allow for recording of the date and time of each login. There was a date/time record of each posting, but if someone entered the board and spent an hour reading postings, but did not respond, it would look as if no one had entered the board at all. While there are ways to track this information, it was not feasible to gather it in this study.

Each group, as is true for actual groups, developed its own character. The first discussion board (Group 1) was composed primarily of women who were experienced in using computers and readily took to the on-line format. Once the members introduced themselves and began interacting, they tended to address their postings to each other, and began to start their own discussion threads with new topics. Because the issues discussed were pertinent to the research agenda, the researcher minimized her postings for this group. However, Group 2 developed a different set of dynamics from those of Group 1. Group 2 was predominantly composed of members who, although they felt relatively comfortable using a computer, and reported that the instructions for accessing and using the questionnaires and discussion boards were easy to follow, were less likely to actively engage in the discussion. They tended to be "readers," as opposed to the "responders" of Group 1. In order to encourage active participation, the researcher increased her postings on the Group 2 discussion board, and used additional individual phone calls and e-mails to remind participants to post.

Another aspect of the "reading" versus "responding" issue was that some participants really were more interested in learning about headaches from others, or from the researchers, than in describing their own experiences for the researcher and the group. Those who were most interested in learning from others tended to read more and

post less, as this participant noted: "(Reading others' experiences) put me in touch with my own experience—there was always a story worse than mine, so I don't feel so sorry for myself." On the other hand, those members who had the most dramatic experiences and the most severe headaches also tended to post more information about their experiences.

Another logistical issue addressed in the evaluations was time spent working on the discussion board. The total time reportedly spent on the discussion boards generally ranged from 1 to 2 hours (although several participants reported spending up to 6 hours), usually in increments of 10 to 20 minutes. About half the participants worked on the board at home, and half reported working on it in their spare time at work. One person commented that her home computer was too slow, and since she didn't want to mix work and nonwork, she accessed the board in the evening, after work. Another participant reported trying to read the board daily, and checked in mostly "at night after the kids had gone to bed." Most experienced their participation as not being invasive in their day-to-day lives, and several from Group 2, which encountered several holidays, expressed a wish that they could have done more. Typical comments made regarding the overall experience of using the computer included "piece of cake," and "not a big deal." These comments were made despite a number of technical glitches that occurred. For example, one woman noted that "a couple of times I typed a response, it didn't send right, and lost it—I had to re-do it." Another said, "There was a glitch at the beginning, but the investigators were easy to reach." One woman, who accessed her discussion board at the public library, reported that she had to wait 15 to 20 minutes to use the computer, and then had difficulty using hers because the computers were "new and weren't acting right." Additionally, the library computer automatically cut off when her time was up, and so she was unable to access the board at all that day. This participant noted that she

was assisted by a student who "helped get on the Internet, and helped with spelling." As this participant's comments indicated, the act of writing itself, though having the benefit of being anonymous, also created the pressure of choosing the "right words," and of spelling and writing "correctly."

Overall, participants expressed a desire for more information from the researchers. Several suggested, for example, that articles or other Web-site addresses be posted to stimulate discussion. In addition, several participants stated that they would like the discussion board to continue on as a support group. The participants uniformly expressed a desire to be kept informed of any emerging conclusions of the research, and several suggested that at the end of the study we distribute an anonymous summary of the discussion board topics covered.

## DISCUSSION

Issues that arose in the course of data collection, and in the evaluation comments made by the participants, reflected differences and similarities between actual focus groups and the on-line discussion boards. These issues fell into three broad areas: group dynamics and individual participant differences in terms of participation; role of the researcher/moderator; and technical issues that were related to the on-line nature of the discussion boards.

### Group dynamics and individual participant differences

As noted above, the 4 discussion boards were all somewhat different in terms of their participant makeup and dynamics, as one would also expect with actual focus groups. Group 1, which was composed of 5 participants, consisted primarily of women who were very comfortable using a computer. They immediately "clicked," interacting between themselves, asking and answering questions, and providing long interesting postings. Group 2, on the other hand, was

also composed of 5 women, but was much slower about participating, with members posting less frequently and directing many of their comments and questions to the researcher rather than to each other. Group 3 consisted of 6 women, who all had computer experience but did not actively work with computers. All but one of the members reported very busy lives and tended to post short entries. Because of holiday interruptions, this group functioned intermittently, and it was necessary for the researcher to encourage reentry by participants several times after intervals of inactivity. Group 4, which was composed of 5 members, was fairly balanced in terms of participation. Two of the participants were very relaxed, entering frequent long postings, responding quickly to the researcher's questions, and responding to the postings of other participants with encouragement and questions. Because of their level of interaction, the researcher was able to withdraw a bit, posting less frequently and letting the conversation proceed.

Also, as in actual groups, some individuals participated actively, beginning their own conversation threads and asking questions of the group. Others were more reluctant to post, only warming up toward the end of the discussion. Participants' level of comfort with the computer varied widely. Many were not familiar with discussion boards; few had participated actively in a discussion board or chat room. As noted above, we learned that while some participants actively posted on a regular basis, others accessed the board and enjoyed reading other comments but did not post often themselves. This behavior is similar to individual differences in actual groups; however, in an on-line discussion board, the moderator is less able to direct questions and comments toward specific individuals.

A major difference between participating in an Internet discussion board as opposed to an actual focus group is that participants on an on-line board can come and go intermittently. It is possible to forget about post-

ing to the board, and also to get bored with checking it regularly. Events such as holidays interfere, and the commitment to the discussion board gets set aside. A number of interventions were used in an attempt to refocus participants' attention to the group. These included occasional reminder e-mails to participants, phone calls, and e-mailed greeting cards with reminders in them. Overall, participants responded positively to these reminders.

### **Role of the researcher/moderator**

The moderator's role in facilitating the interactions of an on-line discussion board is in some ways very similar to what it would be in an actual focus group. For example, the researcher in this study (who functioned as the moderator) varied her interactions from group to group, depending on the interpersonal dynamics of the group, as she would have in an actual focus group. In the most active, assertive groups, it was unnecessary for the researcher to post extensively, as participants responded quickly to each others' postings and began new threads independently. In other groups, the researcher asked more questions and made more comments in an attempt to draw out the various participants, just as an actual group moderator might. According to Sim,<sup>4</sup> an important part of the moderator's role is to strike a balance between an active and a passive role. The moderator must be "sufficiently involved in the group to fulfill the role of facilitator, but not so dominant as to bias or inhibit discussion," providing "mild, unobtrusive control." The moderator must make it clear that she is there to learn from the participants, not vice versa. On the other hand, one of the benefits of participating in a group discussion experience is to hear others' stories, and most participants in these groups made it clear that in addition to their desire to contribute to research knowledge, they were in the groups for support and to learn more about headaches. Part of the necessary balance was to encourage participants to talk about their own experiences,



and also to provide them with ideas and suggestions that encouraged more discussion. Participants' comments were indicative of an orientation toward viewing the discussion board as a "support group" rather than as the "information-gathering" format of a research focus group. Also, several participants asked the researcher if development of an ongoing support group was to be an outcome of this research. Several participants posted questions to the researcher regarding new migraine medications and treatments. The researcher responded by posting brief answers to the questions, and then asking the group if there were other participants who had experiences with the issue in question. In addition, for several participants, the researcher provided time following the completion of their involvement in the study to answer questions about migraine content, such as about diagnosis and treatment. This response was similar to the kind of response the researcher would have made in an actual group, or after an individual interview.

As noted above, participants accessed and posted variably across the life of the board, and sometimes needed to be reminded to post. This feature is the source of a paradoxical advantage and disadvantage in conducting Internet-based research. On the one hand, the board provides flexibility for participants, allowing access and postings at all times, so that specific meeting dates and places do not have to be arranged. For the researcher, however, it also means that the board must be checked regularly so that participants receive timely responses and so that the discussion does not escape the researcher's control. When there are one or more boards in operation over a period of months, this requires regular monitoring. In this study, the researcher reviewed the board at least once a day; for the continuity of the group process, having the same researcher acting as moderator also seemed to be important. The ability to post at any time of the day or night also meant that someone should be available for assistance. Participants had a study e-mail address and phone numbers of researchers; however, there were still

some instances when they experienced frustration when attempting to obtain assistance. For example, several times participants misunderstood the password instructions, called for assistance and were unable to contact anyone, and then had to exit the Web-site and return later.

### Technical issues

A number of technical issues surfaced during data collection. Some problems were episodic and easily remedied, such as the discussion board's level of "user-friendliness," and problems with data transfer, while other larger technical issues remained a matter of concern throughout the study.

The discussion board, as it was originally created, was based on technology already available in the Information Services (IS) department. The board was functional, but somewhat cumbersome as the order of the threads was difficult to follow. It required the user to navigate to several areas across the page to complete a posting, and the placement of postings, names, and dates was also somewhat confusing for a novice user. Before the first discussion board was loaded onto the Web site, a demonstration board was created and piloted with a small group of undergraduate nursing students. The students, who were experienced with using various Internet discussion boards and chatrooms, provided feedback enabling revisions that made the board easier to use.

A second minor source of confusion was related to login names and passwords. Each participant had an individual login name and password to access the questionnaires. However, for each discussion board, the participants for that group were given a shared login name and password to enable them to enter only that particular discussion board. The double set of login names and passwords created some confusion, with participants trying to use their questionnaire login names and passwords to access the discussion boards, and having to call for help.

Another problem was data transfer. Qualitative data from the discussion boards were initially transferred in a format that was confusing to follow, since the postings as entered were in reverse chronological order and older postings were later in the transcript, opposite from the way an actual narrative would read. So after the first discussion board, a special program was created to sort the narrative data so that it was in chronological order and sorted by thread headings.

These problems were all relatively minor, and easily remedied; some of them were related to using a new method of data collection, as well as to the "growing pains" of researchers and computer consultants working together in a new relationship, across disciplines and across departments. However, other issues were ongoing considerations, and seemed to be inherent in the use of the technology. The most important of these were the use of multiple modes of communication, access issues, and security concerns.

Although the research was Internet-based, getting into the study required a pencil and paper. The on-line consent form had to be downloaded, printed, and mailed, or else the researchers had to mail a consent form to the prospective participant for completion and return mailing. The screening interview was done by phone, as was the follow-up evaluation, and the tape-recorded qualitative interviews were done either in person or by phone. This meant that instead of being able to complete the entire project on-line, several different modes of communication were needed. This was cumbersome for both the researchers and the participants, increased the time spent completing study paperwork, and clearly represented a different level of technology from the on-line data collection.

Two very different issues arose with regard to Internet access. The first was related to connectivity. If there were computer or Internet problems on the participant's end, the University's end, or somewhere in the net-

work between the two, the board could not be accessed. One participant was unable to access her discussion board for over a week when an ice storm caused a power outage in her area, and her computer was damaged. At another time, an error in the application script caused the discussion board data to disappear.

The second access issue related to potential participants without computer access. As part of an affiliated class project, undergraduate students were oriented to the study, completed an ethics requirement for contact with human subjects, and agreed to act as paid staff, assisting participants who were not familiar with Internet or discussion board usage. In the fourth discussion board, a participant was oriented by one of these undergraduate Internet guides, was helped to obtain an e-mail account, and was able to participate in the discussion board via computers in a public library. However, this was time-consuming for the participant and the researchers, and required a major commitment of time and energy by the participant.

Finally, security concerns are continuous in conducting Internet research such as this study. Even when firewalls and secure socket layers are in place, and the risk is slight, there is always potential for abuse. These considerations are analogous to the security risks inherent in conducting conventional research. For example, most of the communication between research staff and participants was conducted via e-mail, the highest security risk point of the study. However, "snail mail" is used in conventional research and is no more inherently safe than e-mail. Finally, as in conventional survey research by mail, there is always the possibility that the person responding to the research call has falsified the data for the study. In our study, this risk was minimized by requiring login names and passwords for all participants' entries to the questionnaires and discussion boards. In addition, each was screened by phone beforehand and relationships were established between the researchers and participants.

## IMPLICATIONS AND RECOMMENDATIONS

There are a number of design considerations for the researcher considering implementation of an Internet discussion board. First is the type of setting most appropriate for the group. The discussion board used in this study provided individual time flexibility and easy data transfer. However, it may be more desirable in other studies to have chatrooms in real time; several participants in our study indicated that they would have liked a time established when they knew others would also be on-line, so that they could have a real-time conversation. Perhaps a combination of open discussion board and specifically timed "instant messenger" sessions might be optimal, taking into consideration the additional researcher/moderator time that would be required. Another promising mode of group interaction to consider is Internet videoconferencing, which could also be conducted in real time.

Simplifying the discussion board format is also important. Piloting the board with real users, as we did with undergraduate students, and then modifying the format if necessary, should be considered.

As discussed above, the mix of Internet-based interactions and other forms of communication is important to consider. Although doing phone screening and "snail mail" consent forms is very "low-tech" by comparison to using the Internet, using a mixture of different forms of communication helps establish a relationship with the researchers. It also helps to ensure that participants are who they seem to be, and that they meet study criteria.<sup>17</sup> On the other hand, we found that interested prospects often did not download and mail the consent form, even when they intended to do so, and that mailing them consent forms and preaddressed envelopes was time-consuming as well. It may be worth considering, if financial resources and logistics permit, use of a secure "electronic signature" for the consent form, so that it can

be returned by e-mail. However, for inexperienced participants, telephone availability may help them feel more comfortable knowing that they can call if they have a question. In addition, providing phone and e-mail contact helps to maintain participant interest and involvement, and minimizes misunderstandings. In this study, we called or e-mailed participants at least once a week while the board was operational, especially if they were not actively participating, and participants noted that telephone and/or e-mail contact with researchers helped them stay focused on the discussion board.

As noted above, a shortcoming was the lack of any way to track the number of times a participant accessed the discussion board, time of day accessed, and length of time spent on the board. Collection of this data provides information regarding when and how often participants are logged onto the board, even if they do not post comments, as well as the most common times of day the board is accessed. It may also be helpful to contract with participants for the number of times they will post on the site, and provide incentives for regular use.<sup>27</sup>

An important detail for researchers to consider in the design of such a project is the manner in which data will be accessed for analysis, whether it will be "cut and pasted," or whether it will be electronically transferred into a software package, and in what manner. Consideration of this detail beforehand will more easily enable the technical staff to build this into the programming. If an off-the-shelf application is purchased, the mechanisms for data transfer should be considered.

A final consideration is with regard to participation by individuals without ready computer access. As more individuals become comfortable using computers, and computers become more affordable, access to the Internet for research will become easier. However, researchers must continue to explore ways to involve diverse populations that need support in order to participate. We believe that creative approaches to encourage access, such as

partnership with library systems that provide Internet access as a public service, are feasible ways to include individuals who would not otherwise join such a study. At the same time, however, the researchers must consider the added time and financial resources that are required for this commitment.

## SUMMARY

Using Internet discussion boards is a feasible way to collect focus group data, and can be a cost-effective and time-saving way

to conduct research. The Internet is an exciting communication medium with new possibilities and uses evolving daily. For many prospective research participants, access to the Internet is convenient and efficient, and can make it possible for them to participate in a study that would otherwise be inaccessible. In many ways, the advantages as well as the potential pitfalls of using the Internet are comparable to those of the more traditional ways of collecting data. Not every study benefits from an Internet-based approach, but creative possibilities abound for the enterprising researcher.

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