

Web research – the final frontier?

The Internet is a universal communication system based on telephone links and computers.¹ Developed in the USA during the Cold War, it was designed to deliver swift communication, later called e-mail, and store and recover text documents.² Although the Internet was initially used by governments and universities, the World Wide Web (WWW) came about in the early 1990s and is a far more flexible system allowing for communication with graphics, sound, video and user interaction, as well as text.^{1,2} The information is stored on the WWW as individual pages that are linked to other pages making it an immense computer library.² In recent years, midwives have begun to use the Internet as a forum for discussion, sharing information, experiences and knowledge. It has also been increasingly used for research. This article explores some of the issues involved in using the Internet for midwifery research and the potential advantages and pitfalls that midwife researchers may need to consider.

Internet research

Costigan³ highlights two general advantages of using the Internet for research. First, it can be used as an effective and economic tool for collecting information. There are visible advantages to using the Internet in this way. E-mail is useful because of its speed of delivery and lower costs compared to postal methods of data compilation.⁴ For example, in a study assessing Internet use and users' views, Comley's postal

costs were US\$2375 more than his e-mail expenditure.⁴ Miller *et al*⁵ also used an e-mail survey to question certified nurse-midwives about conflict and collaboration in their practice when working with physicians.

Secondly, the Internet provides a medium for interactive communication.³ Table 1 identifies some of the main fora for internet communication, with an outline of each. An example of this in action is Peter Murray's case study of nurses' use of computer-mediated communication (CMC).⁶ In this study, Murray used discourse analysis to investigate how nurses communicated on an e-mail discussion list. Wickham⁷ also used an interactive approach in her study of midwives' beliefs about women's need for postnatal anti-D. She used ongoing e-mail dialogue to gather data from midwives who lived too far away to interview. In this way, the voices of midwives from Japan, Mexico, New Zealand and Canada could be included in the study.

The Internet is often used to study use of the Internet! Recently, John Loy carried out the first survey of UK midwives' utilization of the Internet.⁸ (See previous article). The survey included questions about perceived barriers to the use of the Internet; experiences with e-mail discussion lists; type of resources accessed and what midwives felt about consumers accessing information on the Net. Both Loy⁸ and Wickham⁷ used the Internet to recruit people in their study, using midwives' discussion lists and, in

Loy's case, the MIDIRS' web site to publicise his intended research. Miller *et al*⁵ enrolled midwives to their study through a bulletin board.

As well as those advantages mentioned above, Internet research offers benefits in data handling and analysis. For example, there are no problems with deciphering hand writing.¹¹ Data do not need to be transcribed, nor is accuracy lost in the process.¹² Material can be directly fed into analysis software or word processing programs¹³ and does not cause storage problems.¹¹

Access and response

In terms of access to potential participants, unsolicited e-mail surveys are less kindly received than surveys that are heralded firstly by a letter of explanation.¹⁴ Mehta and Sivadas¹³ increased their response rate from 45% to 63% when they sent an initial letter of explanation. Selwyn and Robson¹² feel that there is a danger of e-mail research being regarded as another form of 'junk mail' and treated accordingly, especially as there is an increase in unsolicited surveys being sent to discussion lists. A number of on-line surveys are offering incentives such as the opportunity to enter a draw for a year's free subscription of the MIDIRS Digest, offered by Loy.⁸ However, incentives can lead to problems such as falsification of data, multiple submissions or misrepresentation of identity for financial profit.¹¹ Because of this, many US studies request participants to submit their social security numbers as a prerequisite to

Table 1. Fora for Internet research

Electronic mail (e-mail) dialogue	An electronic form of communication employing computers linked via a modem which uses telephone lines to transmit written messages and computer file attachments
E-mail discussions	Consists of a group of people with similar interests who use listservers or programmes that automatically deliver e-mail messages to the whole group. ⁹ A message produced by one member is automatically sent to the whole group.
Chat rooms	A forum where two or more people can meet to discuss a topic in 'real time'. As each person types in their message and hits the 'return' key on their computer, it immediately appears on the screen where both (or all) users can see the entire discussion.
Bulletin boards	May also be described as 'newsgroups'; a web-based forum where people can deposit and gather information. ¹⁰
Web sites	A 'site' which is set up by an individual or organisation to display a selection of information for users to access via the 'web address'. May include one or more of the above elements in order for users to interact with each other and the creators of the web site.
E-zines	An electronic 'magazine' which is compiled by an individual (often including material e-mailed to them by others) which is sent out to a list of subscribers. Usually free, and may contain advertising to help support running costs. Some are specifically designed for midwives.

Table 2 Internet Research — a personal perspective

I decided to use the Internet for research into midwives' knowledge for a number of reasons. I was aware that the midwives who had thought about the issues I was raising (the need - or otherwise - for routine postnatal anti-D) would be scattered around the world, and I wanted to include as many perspectives on the question as possible. The cost of travelling to interview these midwives was prohibitive, and I was interested in developing ways of carrying out research into the generation of midwifery knowledge via the Internet. I had been using e-mail and midwifery discussion lists since their inception in the US in the mid-1990's and had learned their value as a support mechanism for relatively isolated midwives while practising in the US myself. I had watched midwives

respond thoughtfully to others' questions and generate what appeared to be new knowledge through discussion and hoped that I might use the same approach in my own study. I used a variety of approaches to sampling; publishing a short article in a midwifery journal as well as putting requests onto midwifery discussion lists. The discussion list approach proved more fruitful than any other, not least because it led to a small amount of 'snowballing', where midwives passed on my email to colleagues they thought might be interested but who weren't on the discussion list themselves. In the end, my initial idea of facilitating discussion on the list itself did not work, and I developed an 'e-mail dialogue' with a small number of individual midwives which acted in a similar way to the interview process. Once

a midwife had agreed to share her beliefs and knowledge with me, I would respond to each of her e-mails with further questions and requests for clarification in particular areas, in much the same way that an interviewer would pick up issues and seek further information. In some ways, this approach seemed to have advantages over a face-to-face interview, in that I had more time to think about my supplementary questions. Participants probably also spent more time thinking about the issues, as some of these dialogues lasted for several weeks. However, there are always potential sources of error and bias in any research, and it was important to think about how these might come about through the relatively new method I was using.

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payment or place the survey on a secure site which requires a password for access.¹¹

There are two other main areas where discussion is currently taking place as to the appropriateness of the Internet as a tool for research. These involve questions of methodology and ethics.

Methodology

The Internet lends itself to a variety of research methodologies, qualitative as well as quantitative. Fernbeck¹⁶ insists it is just as important that the researcher is clear about the theoretical framework underpinning the study as it is in off-line research. Interpretative and critical methodologies such as phenomenology, ethnography, grounded theory and discourse analysis are appropriate and effective methodologies for studying the more ethereal aspects of Internet use.¹⁶⁻¹⁹ Sterne¹⁹ also maintains that it is not necessarily useful to rigidly stick to one particular methodology or theory — it may be more effective to combine methodologies. Wickham's study⁷ used grounded theory to explore midwives' beliefs and knowledge; her personal experience is outlined in table 2.

As with conventional research, it is just as important that the Internet researcher pays attention to rigour in ensuring that the research is of good quality.²⁰⁻²² Issues of validity, generalizability, sampling and replicability need to be carefully thought through.²³ Rojo²⁴ also considers that researcher reflexivity and the provision

of an audit trail is important for qualitative research. One question to consider is, if an e-mail discussion group knows that a researcher is monitoring the discourse, will it affect what is said and the meaning of it? Some researchers endeavour to ensure rigour by using more than one method and methodology.¹⁹ Murray⁶ not only analysed discourse on a nurse discussion list, but he also individually interviewed nurses.

Another problem with Internet research is that the sample is biased and is difficult to generalise.²⁵ Internet users tend to be white, middle class and male, well educated, affluent and living in the western world.²⁵ The implications of this are serious for midwifery researchers because the likelihood is that they will be researching women's issues. However, Internet use is becoming more widespread with the increasing availability of second-hand computers, free Internet service providers and easy access to Internet facilities in public places,¹¹ which in turn will make Internet research more generalisable.

Ethics

The ethical issues of Internet research are just as important to consider as in off-line research. This is an area that is currently much debated, and international guidelines are in the process of being formulated.²⁶ The issue of copyright or intellectual property is not helped by the fact that much communication crosses international

boundaries and may be affected by differing copyright legislation.¹³ Sharf²⁷ lists the general ethical issues as those of confidentiality, informed consent, appropriation of people's personal stories and privacy. Privacy is a real issue with e-mail because it automatically displays who the sender is. The researcher can promise that he/she will not identify the respondent. There is also software available, especially for quantitative analysis, that will not identify the sender of mail.²⁵ Participants can also create anonymous web-based (as opposed to home-based) email addresses for this purpose. Generally, respondents need to be informed that, while confidentiality between themselves and the researcher will be respected, their responses will not be anonymous to the researcher unless they make their own efforts to ensure this. Coomber,²⁵ who carried out very sensitive survey research on illegal drug dealers, suggests that participants can protect their identity either by using an anonymous terminal in a cyber-cafe, for example, by printing off the survey and returning it to the researcher by post. Sharf²⁷ during her research of a breast cancer discussion list, approached each person for personal consent to quote their text. Of 14 people she had no refusals but she did find the process very time-consuming. Sharf²⁷ went on to develop guidelines for researching discussion lists:

Table 3: Research and 'lists' – a personal perspective

It is my view that the approach to researching discussion groups depends on the type of discussion group. The "midwifery research list" (www.mailbase.ac.uk/lists/midwifery-research/) was formed following the 1999 International Confederation of Midwives, as an open forum for discussion on matters relating to midwifery research.²⁸ This discussion group has no selection criteria and the archived messages can be freely accessed. Whilst I may announce that I was studying the group and ask for any comments, I would feel that this list was 'fair game' because the discourse is open to the general public. In

comparison, the "New Zealand midwives' e-mail list" (mazza@clear.net.nz) is a discussion group restricted to midwives and supporters who have to go through the manager to join.²⁹ It is a closed list whose membership roll and archived messages are only available to list members.²⁹ In order to research this group, I would have to ask permission of the manager to approach the group, inform them of my intentions and gain their permission.

One potential source for research is web sites that contain birth stories. As a researcher I would be interested in analysing the stories and also surveying the men and women who published the

birth stories, to find out the motivation for doing this. Web sites are published in the public domain and as such would not require any form of consent from the authors for inclusion in research.^{30,31} Some researchers may, however, feel that it is only polite to inform authors that the contents of their web page are being included in a research study. I am unsure what approach I would take but would probably inform the authors that I was including their web site in my research, especially if I was using a feminist perspective of research with people as opposed to research on people.³²

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1. the researcher should ensure that her research does not harm the group;
2. the researcher should introduce herself to the group, declaring her intention to use the group's communications for research;
3. the researcher should make every effort to contact each person individually to obtain consent;
4. the researcher should be open to feedback from the people on the list.

Hamilton³³ has found that on-line researchers do not consistently inform subjects about the research into which they have enrolled. This has serious implications for the integrity of on-line research, as does Hamilton's other finding that there are a number of projects that have not been submitted to an Ethics Committee for approval. To protect the subjects of her study, Schneider³⁴ posted an information letter and consent form via the conventional postal system. Once the consent form was returned, the research questionnaire was e-mailed to the subjects.

One further debate appears to be around whether the ethnographer should announce to an Internet group that he/she is observing the interactions. Some would argue that ethnographers do not obtain individual consent if they were observing a group in a public place such as a cafe, school or church, so there is no necessity to do so when observing an Internet group.³⁵

Nevertheless, Klemm and Nolan³⁶ are quite categorical in their recommendations that researchers should obtain the consent of group

members before carrying out research. It must be noted, however, that they were specifically writing about cancer support groups where very delicate issues are addressed.

Conclusion

The Internet holds many advantages as a potential research tool for midwives and others. As well as being a very effective and economical tool for research, the Internet is also a source of material that can be utilised for both qualitative and quantitative research, and appropriate for a variety of methodologies. Midwives who are interested in utilising the Internet for their research must consider technological and ethical issues as well as the question of methodological rigour. Finally, the Internet has the potential to be a liberating tool for collaboration amongst midwives and researchers, along with dissemination of research results and information. The use of the Internet for midwifery research has its disadvantages and drawbacks as well as its benefits, but also has immense potential for international midwifery research.

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References

1. Sinclair M. Midwives, midwifery and the Internet. *Modern Midwife* 1997;7(9):11-14.
2. Drake E. Internet technology: resources for perinatal nurses. *Journal of Obstetric, Gynaecologic and Neonatal Nursing* 1999;28(1):15-21.
3. Costigan J. Forests, trees and Internet research. In: Jones S ed. *Doing Internet research: critical issues and methods for examining the net*. Thousand Oaks, Calif: Sage, 1999.
4. Comley P. The use of the internet as a data collection method. Paper presented at the ESOMAR/EMAC symposium, Nov 1996 [online]. Available from: <http://www.virtualsurveys.com/papers/email.htm> [accessed 9 Jan 2001]
5. Miller S, King T, Lurie P et al. Certified nurse-midwife and physician collaborative practice: piloting a survey on the Internet. *Journal of Nurse-Midwifery* 1997;42(4):308-15.
6. Murray PJ. *Nursing the internet: a case study of nurses' use of computer-mediated communications* [online]. (MSc dissertation). Cardiff: University of Wales College of Medicine, 1996. Available from: <http://www.lemmus.demon.co.uk/opabs.htm> [accessed 9 Jan 2001]
7. Wickham S. Postnatal anti-D: exploring midwifery evidence. *MIDIRS Midwifery Digest* 1999;9(4):520-4.
8. Loy J. Introduction and details of research. *Midwifery-Research* [online]. 2000. Available from: e-mail: midwifery-research@mailbase.ac.uk [31/5/00]
9. Bowles N. Using the Internet to support midwifery practice. *British Journal of Midwifery* 1996;4(12):649-52.
10. Gomez EG, DuBois K, King CR. Improving oncology nursing practice through understanding and exploring the Internet. *Oncology Nursing Forum* 1998;25(10)(suppl):4-10.
11. George N, Hughes D. *Cyber-studies: using the Internet to do research* [online]. Available from: <http://medsocbsa.swan.ac.uk/MSN/msn001F/msn001F.htm> [accessed 9 Jan 2001]
12. Selwyn N, Robson K. Using e-mail as a research tool. *Social Research Update* [online]. 1998:issue 21. Available from: <http://www.soc.surrey.ac.uk/sru/SRU21.htm> [accessed 9 Jan 2001]
13. Murray P. Research and the internet: some practical and ethical issues. *Nursing Standard On-Line* [online] 1996;10(28). Available from: <http://www.staff.lecc.co.uk/nso/week28/ol-art.htm> [accessed 9 Jan 2001]
14. Witmer D, Colman R, Katzman SL. From paper-and-pencil to screen-and-keyboard: toward a methodology for survey research on the Internet. In: Jones S ed. *Doing Internet research: critical issues and methods for*

- examining the net. Thousand Oaks, Calif: Sage, 1999.
15. Mehta R, Sivadas E. Comparing response rates and response content in mail versus electronic mail surveys. *Journal of the Market Research Society* 1995;37(4):429-39.
 16. Fernbeck J. There is a there: notes toward a definition of cybercommunity. In: S Jones ed. *Doing Internet research: critical issues and methods for examining the net*. Thousand Oaks, Calif: Sage, 1999.
 17. Hine C. *Virtual ethnography*. London: Sage, 2000.
 18. Thomsen SR, Straubhaar JD, Bolyard DM. Ethnomethodology and the study of online communities: exploring the cyber streets. *Information Research* [online]. 1998;4(1). Available from: <http://www.shf.ac.uk/~is/publications/infras/paper50.html> [accessed 9 Jan 2001]
 19. Sterne J. Thinking the Internet: cultural studies versus the millennium. In: S Jones ed. *Doing Internet research: critical issues and methods for examining the net*. Thousand Oaks, Calif: Sage, 1999.
 20. Wagstaff P. Surveys. In: Cluett ER, Bluff R eds. *Principles and practice of research in midwifery*. Edinburgh: Bailliere Tindall, 2000, pp 57-78.
 21. Taylor B. Qualitative interpretive methodologies. In: Roberts K, Taylor B eds. *Nursing research processes: an Australian perspective*. South Melbourne: Nelson, 1997.
 22. Roberts K. Quantitative research methodology. In: Roberts K, Taylor B eds. *Nursing research processes: an Australian perspective*. South Melbourne: Nelson, 1997.
 23. Jones S. Studying the Net: intricacies and issues. In: Jones S ed. *Doing Internet research: critical issues and methods for examining the net*. Thousand Oaks, Calif: Sage, 1999.
 24. Rojo A. *Participation in scholarly electronic forums* (Dissertation). Toronto, Canada: University of Toronto, 1995.
 25. Coomber R. Using the Internet for survey research. *Sociological Research Online* [online], 1997;2(2). Available from: <http://www.socresonline.org.uk/2/2/contents.htm> [accessed 9 Jan 2001]
 26. Bowers D. Legislature and regulatory issues: the new research tool. *Marketing Research* 1998;10(3):34,38.
 27. Sharf B. Beyond netiquette: the ethics of doing naturalistic discourse research on the Internet. In: Jones S ed. *Doing Internet research: critical issues and methods for examining the net*. Thousand Oaks, Calif: Sage, 1999.
 28. Sandall J. Midwifery and reproductive health research mailbox list. *New Zealand College of Midwives Journal* 1999;issue 21:34.
 29. Stewart S. The New Zealand Midwives E-mail List: an exploration of e-mail communication and how it can be an invaluable resource for midwives. *New Zealand College of Midwives Bi-annual Conference*. 27-30 Sep 2000, Hamilton, New Zealand. Christchurch, NZ: New Zealand College of Midwives, 2000.
 30. Miller H, Mather R. The presentation of self in WWW home pages. Paper presented at the IRISS International Conference, Bristol, Mar 1998. [online]. Available from: <http://www.sosig.ac.uk/iriss/papers/paer21.htm> [accessed 9 Jan 2001]
 31. Buten J. *The first world wide web personal home page survey: methodology and detailed results*. Philadelphia: Personal Home Page Institute, 1996. [online]. Available from: <http://www.asc.upenn.edu/usr/sbuten/survey2.htm> [accessed 9 Jan 2001]
 32. Donovan P. Alternative approaches to research. In: Cluett ER, Bluff R eds. *Principles and practice of research in midwifery*. Edinburgh: Bailliere Tindall, 2000.
 33. Hamilton JC. *The ethics of conducting social-science research on the internet* [online]. 30 Nov 1999. Available from: <http://enel.christianocare.org/irbweb/updatesearchives.htm>
 34. Schneider P (p.schneider@mcauley.ac.nz). (2000, May 30). *Internet research*. E-mail to Sarah Stewart (sarahs@lekatago.ac.nz).
 35. Cavanagh A. Behaviour in public? Ethics in online ethnography. *Cybersociology* [online], 6 Aug 1999;issue 6. Available from: <http://www.cybersociology.com> [accessed 9 Jan 2001]
 36. Klemm P, Nolan MT. Internet cancer support groups: legal and ethical issues for nurse researchers. *Oncology Nurses Forum* 1998;25(4):673-6.

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Developing high-quality research in midwifery: lessons learned from the midwifery research database, MIRIAD

Background: Research in midwifery is a relatively new development in many countries, and as a consequence it can be difficult to identify ongoing and completed research, to network with other researchers in similar fields, and to plan appropriately to develop research and research capacity. This paper describes the establishment of the UK Midwifery Research Database, MIRIAD, which aimed to address these problems.

Method: Funding from the Department of Health (England) supported the establishment of MIRIAD in 1988. Systems and procedures were set in place to collect, store, analyse and disseminate information about ongoing and completed research in midwifery. Six detailed reports were published. MIRIAD was closed in 1999 as a result of lack of ongoing funding.

Key findings: 466 studies were registered with MIRIAD, with start dates ranging from 1974 to 1998. The majority of studies examined clinical topics. A wide range of research approaches were used. Studies were supported by a range of sources, including employers and national funding agencies. There were many examples of high-

quality, peer-reviewed, and externally funded studies which can be used to inform practice. Issues raised by some studies, however, included concerns about research quality, inadequacy of some supervision, low rate of publication, and inconsistency in gaining ethics committee approval.

Conclusions: Research in midwifery in the UK has matured over the past 25 years. It still faces many challenges, including the need to maintain quality and to gain more national funding support. Lessons have also been learned about the need for quality in research information systems. Ongoing assessment of the growth and direction of research in midwifery is recommended, possibly through monitoring of the generic NHS database, the National Research Register (NRR), to inform strategic developments in research and research capacity at national, regional and local levels.

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Editor's note: The MIRIAD database is archived on the Internet at: <http://www.leeds.ac.uk/miru/miriad.htm>
The UK National Research Register website is: <http://www.doh.gov.uk/research/nrr.htm>