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Menopause on the Internet: Building Knowledge and Community On-Line

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▼ Abstract

Computers are ubiquitous throughout the developed world. Diverse discourses address the pros and cons of using this technology in higher education. Nursing has extensively used informatics but has not, as yet, been involved to any extent in teaching on the Internet. I argue that nurse educators should use computer technology to present substantive and rigorous courses that deal with complex issues, using menopause as an example. A for-credit menopause course I taught via e-mail is used to illustrate the possibility of building knowledge and a sense of community on the Internet.

Key words: community, education, Internet, knowledge, menopause

Information technology can provide the excuse and the means for transforming education . . . for better or for worse. [1] (p10)

Computers are now ubiquitous throughout the developed world. A special issue of Time [2] magazine reported in 1995 that at least 30 million to 40 million people in more than 160 countries had at least e-mail access to the Internet. In Japan, New Zealand, and parts of Europe, the number of Internet users has grown more than 1,000% during the past 3 years. [3] Daily news media, Time, [2] Wall Street Journal, [4] and television programs bring people's attention to the impact of computers on U.S. society. Moreover, intellectuals [5-7] and advocates for free-floating international corporations [8] join in the cacophony of diverse voices. During society's quick embrace and swift application of computer technology, nursing has used it, mainly in the area of informatics, the management and processing of nursing data into nursing knowledge to enhance patient care. [9] Although nursing has been slow to consider it, the Internet could provide significant opportunities for long-distance learning.

The purpose of this article is not to suggest that nursing faculty should abandon their classrooms for virtual reality in cyberspace. Instead, I propose that

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they look closely at the extent to which nursing faculty should embrace technology, specifically e-mail, for course delivery. Substantive and rigorous nursing courses addressing complex issues should be offered. Menopause, one such issue, has conflicting research findings, particularly on the hormone replacement question, and is a substantive topic that can be offered as an Internet course for advanced nurses. My Internet course, "Theoretical and Cultural Perspectives on Menopause," is a credit-granting, closed-list course delivered via e-mail. Only registered students can gain access to the list.

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THREE INFORMATION REVOLUTIONS

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Manuscript culture

During the Middle Ages monks, and nuns who were scholars, served as scribes. They copied by hand original biblical scrolls, transforming them into beautifully crafted and illuminated manuscripts used by the "custodians of the religious truths-most of the population-the laity-could neither read or write. They were dependent on the Church for information. . . . There probably never has been a more monolithic system of information control than that of the Church in the Middle Ages." [5] (p3) The hegemonic power of the Church and the manuscript period both ended with the advent of the printing press.

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Printing culture

In 1456 Johann Gutenberg, a German inventor, created the printing press. When Gutenberg chose to create the first printed Bible, there were approximately 10,000 to 15,000 book titles. In the 50 years after 1456, up to 7.5 million books were produced. [10] This invention had profound cultural effects. For example, the Reformation was aided by the printing press when thousands of copies of Martin Luther's declaration were published. As a result, the Church was split into Protestants and Catholics.

A generation gap developed between young and old as more diverse literature became available, with the young wanting access to new ideas and their elders resisting change. The end of the old world order came as print introduced the population to new ways of thinking, "the story of creation, the meaning of life, the notions of good and evil. . . . Along with the changes in knowledge went changes in social and political organization." [5] (p6) Development of the print culture based on a reading public enriched people's lives and offered more social and economic opportunities. No longer was there just one path to knowing, but multiple routes. "The printing press broke the monks' monopoly on information: It democratized reading and allowed the masses a measure of autonomy to find out for themselves, to draw out their own conclusions." [5] (p42)

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Computer culture

Nicholas Negroponte, founder of the Media Laboratory at the Massachusetts Institute of Technology (MIT), is noted for the following statement: "Computing is not about computers any more. . . . It is about living." [6] (p6) The Internet has drawn large populations into the computer culture. The Internet is a vast computer network that allows a person to send electronic messages to anyone, anywhere, as long as the person or group on the receiving end has the proper equipment to receive the message. The Internet offers various long-distance ways to communicate, including e-mail, open or closed lists, bulletin boards, salons, cafes, nonacademic courses, or credit-granting academic courses.

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CREATION OF THE INTERNET

The Internet began "as a cold war post-apocalypse military command grid." [3] (p10) In the late 1960s a group of scientists at the U.S. Department of Defense's Advanced Research Projects Agency wanted to share information with colleagues working on similar research projects. The Internet grew rapidly worldwide, and in the 1970s the computer industry began to participate, followed by other groups including academics and non-government-related scientists. The overseeing of the Internet moved from the military to a civilian organization in 1986. The National Science Foundation created NSFNET to connect U.S. supercomputer sites around the country and to connect computers at nearby research sites and schools. In 1991 then-Senator Al Gore proposed passing legislation that would expand NSFNET to serve K-12 schools and community colleges. The resulting legislation replaced the name NSFNET with the name National Research and Educational Network. The Internet is not funded by any one institution, organization, or government. Neither does it have formal managers and executives, but it does have voluntary groups that work on standards, network resources, and day-to-day issues of Internet operation. [11] In 20 years the Internet was transformed from the exclusive preserve of Defense Department researchers and university professors into a new communication technology for the masses.

Enthusiasts [5,6] believe computers have created a new world order-one that holds forth promises of universal access, new forms of knowledge creation, and virtual communities without boundaries. They predict that as the printing press replaced scrolls, the computer will marginalize and finally replace books. Again, there is an age gap between youths who see computers as a natural and major part of their lives and their elders who are accustomed to printed media, including books

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Impact on politics and economics

Politically, as Negroponte predicted, computer culture may be used to undermine values of a nation state in order to "give way to those [values] of both larger and smaller electronic communities." [6] (p7) A more extreme view predicts that nationality will be transcended altogether. Davidson and Rees-Mogg, both tightly linked to the corporate world, predicted that fixed territorial boundaries between nation states will cease to exist in the Information age. [8] This extreme view has been reinforced by Barlow: "The real issue is control. The Internet is too widespread to be easily dominated by any single government. By creating a seamless global-economic zone, anti-sovereign and unregulatable, the Internet calls into question the very idea of a nation state." [12] (p57)

On the other hand, "electronic advocacy" has brought worldwide support for the peasant rebellion in Chiapas, Mexico. [13] Internet activity for this cause has been active in the United States since the rebellion began in January 1995 and has attracted the attention of Doctor Ernesto Zedillo Ponce de Leon, president of Mexico, according to a letter to the author by Diego Santos Gonzalez, President Zedillo's private secretary. This use of cyberspace is a powerful weapon in the hands of otherwise impoverished and oppressed people and their supporters. There are several advocacy sites, including WEB ACTIVE, [14] an index directory of advocacy sites by topic.

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Threat to society

Clifford Stoller, [7,15] an astronomer at the University of California-Berkeley, is the computer expert responsible for catching German hackers-spies for the Soviet KGB. Although he acknowledges Internet's advantages-e-mail, chat lines, data transfers, and discussions on the Usenet-he is an outspoken critic, quick to caution the public to beware. In his book Silicon Snake Oil, he warns, "The heavily promoted information infrastructure addresses few social needs or business concerns. At the same time, it directly threatens precious parts of our society

including schools, libraries, and social institutions. For all the promises of virtual communities, it is more important to live a real life in a real neighborhood." [7] (p233) The computer culture is in full transition, with many resemblances to the destabilization of society that occurred in the two previous information revolutions.

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HIGHER EDUCATION AND THE INTERNET

There are strong feelings on all sides of the issue regarding the Internet being used for higher education. Although advocates, [5,6] moderates, [1,16] and critics [7,17] have offered their different viewpoints, no one has totally rejected the linking of computers with higher education; it is more or less seen as inevitable-a fait accompli.

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Moderates: teachers before technology

Steven W. Gilbert, the American Association of Higher Education's (AAHE) director of technology projects, when considering any technological change asks, "What is it that we cherish and don't want to lose?" [17] (p58) In a fine overview article, [1] he deals with two complex issues: first, obstacles to teaching and learning with information technology and second, 12 recommendations for avoiding the "crisis, lurch, crisis" pattern when integrating information technology into teaching and learning. His perspective is that of an academic leader who is concerned with the impact of computers on students and faculty as well as on educational institutions. To assist colleges and universities in dealing with the transition from primarily classroom teaching to classroom teaching integrated with computer technology, or even to asynchronous Internet courses, Gilbert suggested that colleges and universities form a Teaching, Learning, and Technology (TLT) Roundtable that can receive support from the AAHE to keep the focus first, on teaching and learning, and second, on technology. The AAHE TLT Roundtable World Wide Web page is <http://www.ido.gmu.edu/aahe/welcome.html>.

This position recognizes that many faculty members find themselves caught between the print culture and the computer or "digital" culture. They are the transition generation who identify with the current teaching model, which has served them well for years. It is not surprising, then, that many resist. Teaching style is not the only change required. Other aspects, such as collaboration, publishing, and even thinking and knowledge, change as there is a shift from an emphasis on print culture to computer culture. [16]

Gilbert stated, "asking someone who has become a successful professional teacher to adopt new ways of teaching is to ask that person to return to a subordinate, insecure, learning role. The incentives and support services had better be ample." [1] (p9) Institutions wanting faculty members to integrate computer technology into their teaching must provide them with staff support and up-to-date hardware and software. A faculty member who teaches an asynchronous course, for example, via Internet e-mail, where communication between students and faculty can occur seven days a week, needs two computers-one in the office and one at home.

E-mail teaching and learning is an interactive process that allows more time for student and teacher or student and student to have dialogues than in a traditional classroom. In a conversation, M. Lapping, professor and provost at the University of Southern Maine (October 1995), said he enjoyed using e-mail more than having face-to-face meetings during dissertation advisement. He felt he had more and better communication using computer technology. Learning to send e-mail messages and to use the Web, a system for organizing information on the Internet, is becoming easier and would be a useful place for a teacher to start. [18] E-mail may ultimately have the biggest impact on long-distance, computer-delivered higher education. Both students and faculty have the opportunity to connect with

more people and to learn from diverse sources.

Gilbert [1] does not support the dichotomy of learner-centered versus teacher-centered education. Even if some colleges and universities in recent years have supported faculty needs and interests above those of students, it would not make things better to turn around and oversupport students. He believes that "Effective education must be both learner-centered and teacher-centered-and so must educational uses of information technology be both learner- and teacher-centered. To advocate trying to meet the individual needs and capabilities of students while treating faculty as interchangeable makes no sense." [1] (p17)

The Internet lacks quality control: Some call it chaotic or a free-for-all; others like the lack of structure and of control. Academic leaders are concerned that higher education classes and programs delivered via the Internet be of good quality. [16] This is a controversial issue for those who support the technology or teach on-line. For starters, there are "Principles of Good Practice for Electronically Offered Degree and Certificate Programs," created by the Western Cooperative for Educational Telecommunication. The three-year project, supported by the U.S. Department of Education, will eventually ensure students that excellent education programming can be delivered to their homes and workplaces. The six principles address curriculum and instruction, institutional context and commitment to role and mission, faculty support, resources for students, student services, and commitment to include electronic courses in faculty evaluation. [19] These principles could be adapted for individual courses as well. Some critics may find these principles too much like principles for evaluating traditional classroom teaching. They could be defended, however, as a sensible transition strategy. In any case, attention needs to be paid to new teaching methods, particularly as they will evolve in the Internet classes. [1,16]

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Advocates: students control their education

Advocates for linking computers and higher education promote the fastest revolution possible. [5,6] Dale Spender [5] is an Australian feminist scholar and prodigious writer with at least 20 books to her credit. From her viewpoint, there is no doubt that universities will continue to use computer technology; only the degree of willingness is the issue. From this perspective, "the process of knowledge making is increasingly located on the Internet." [5] (p141) In her view, universities will take a weak second place in the future-hanging on, but no longer in control.

Spender is not blind to the faults of the Internet, such as male dominance in creating informal policies and running the majority of Internet lists and Web home pages. She is also aware of instances of pornography, sexual harassment, and stalking. Yet she believes that since cyberspace is here to stay, a pragmatic attitude is called for. She states, "This means that I want to be involved-along with countless others-in the decision-making process of shaping the information infrastructure." [5] (p249)

I shall draw on Spender's [5] analysis to capture the positive perspective of Internet's impact on higher education. She envisions, in the not too distant future, university students being supplied with laptops and a "package" containing e-mail addresses and passwords to access international databases. The imperative of time fades as students plug into Internet at any hour, almost anywhere, to join their groups on the network in a class conference or some other electronic information exchange. Other advantages for students include being free to help design their own learning. The change will be "from scheduled classes to individualized programs; from teacher-controlled to learner-controlled; from printed text to electronic materials; from memorizing to problem solving and decision making. The orientation will move from content to competence." [20] (p144)

The university teacher will be expected to facilitate students' connection with

cyberspace and, instead of making printed handouts for class, will make tailor-made software to meet individual students needs. From Spender's perspective, "The virtual classroom will have many distinct advantages." [5] (p143)

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Critics: keep teachers in the classroom

Stoller [7] does not dismiss computer technology out of hand; in fact, he has made a second career as a computer expert. He believes in sharing the resource with everyone, without believing there are simple technological solutions for social problems: "The key ingredient of the hustlers' silicon snake oil is a technocratic belief that computers and networks will make a better society-access to information, better communications, and electric programs can cure social problems." [7] (p50) He believes they are dead wrong.

It is therefore not surprising that he thinks computers in education are inferior to having students work with caring teachers who teach beyond facts and techniques. His own experience convinced him that computers were not needed in his beginning engineering or astronomy classes, and he questions their usefulness in fine arts and humanity courses as well. Computers can deprive students and faculty of personal contact with each other, which cannot be replaced by e-mail classes.

Most importantly, Stoller [7] sees computer programs as giving students someone else's logic, instead of encouraging them to develop their own solutions to problems. Computers don't help much with complex thought, "where we get new ideas, create hypotheses, Figure outsolutions." [7] (p143) Moreover, he believes that students need to be taught that it is not wise to trust the accuracy and completeness of data on the network, since little data on the Internet has been refereed or reviewed.

Susan Saltrick [17] has an independent consulting practice specializing in educational technology. Her article in Change magazine questions how the Internet affects people's notions of community from a spatially defined entity to a virtually connected group of strangers. She finds the Web evanescent without a common code of behavior, attitude, or association. [17] Can most students and faculty members truly feel a sense of belonging in a virtual community? Both she and Stoller critique a technology used for teaching that does not have a human face.

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COMPUTERS IN NURSING

Computer technology remained marginalized in nursing until the early 1980s. The first version of the popular journal Computers in Nursing started as a newsletter in 1983. Gradually, computers caught on in hospitals for managing and processing nursing data and for turning information into knowledge to guide patient care. [9] Thus, informatics was born. Yet in the mid-1980s there were few formal nursing informatics programs. [21]

Nurses, in general, have been reluctant to accept information technology because, in part, of "a pervasive lack of nursing input into the very systems that they are expected to embrace." [22] (p82) In England nurses have been reported to be "technophobic" about unknown effects that might occur if computers appeared in clinical areas. [23] With the arrival of managed care, the demand for nurses trained in informatics has increased rapidly and will likely put pressure on nurses and other health care practitioners to use informatics in multiple settings. [22] It will be imperative to have programs that keep the emphasis on clinical decision support to improve patient care and patient outcomes. A detailed history of the Clinical Nursing Informatics Program at the University of Utah College of Nursing has been published; it illustrates how an informatics program was conceptualized and created. [21]

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Networks

The Internet is cyberspace-interactive, accessible to many, and so far unfettered by outside policies. Its growth since the early 1990s and its increasing accessibility for nurses are germane to the topic of this article, for this technology had to be in place before e-mail could be used to teach long-distance, asynchronous courses. The Internet is the world's largest computer network and offers nurse researchers opportunities to access important nursing-relevant databases such as MEDLARS and GRATEFUL MED. [24] It is also possible to read scholarly articles posted on Web sites before they appear in disciplinary journals. [25]

BITNET, a smaller network, is of most significance to nurses and to my course because of its list server capacity to deliver the same message to list members. Most lists are open to all who want to subscribe, whereas a closed list sends messages only to people approved by the list owner. It is a necessary option to have for credit-granting courses. This is particularly true for my course on menopause because the topic could attract unsavory jokes and ageist, sexist comments. Students need privacy to discuss this older women's topic seriously.

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E-mail credit-granting courses

The e-mail, credit-granting course is a new form of long-distance education that has been a part of higher education for half a century. Long-distance education has been defined as a strategy in which the teacher or institution providing instruction is separated either in time or place or both from the learners. [26] E-mail courses of this type are in their infancy in nursing, but electronic programs have proliferated in disciplines like engineering and computer science. In the past few years, nursing courses are starting to appear as satellites are making electronic programs available throughout North America, Europe, and Asia. [27]

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MENOPAUSE IN CYBERSPACE

Technology will change us-it will change us fundamentally-but that doesn't mean we can't influence its course. [17] (p61)

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A narrative

While I planned the course in 1994 and taught NUR515, "Theoretical and Cultural Perspectives on Menopause," in 1995 and 1996, I gleaned information from multiple sources. It was important for me to explore a diverse body of literature-for example, from Change [1] and Computers in Nursing [21] to Time [2] and Wall Street Journal [4] to Negroponte's [6] Being Digital. This Internet course was experimental, and the very idea of even doing it was controversial; I needed to sort out the major discourses to find where I would feel comfortable. I had thought beforehand, as a feminist scholar, that I'd find my place aside Dale Spender. [5] Yes, I agreed with her analysis of gendered cyberspace, among other fine things in the book, but I strongly disagreed with her position on libraries and books: "I am someone for whom books-and writing and reading-have been a way of life. Yet each day now, I know that books-and writing and reading-are becoming less central to my research, my work, and my leisure pursuits." [5] (p259) It was also not possible for me to accept her notion of an emerging electronic university.

Actually, I felt most comfortable, during this transition period at least, with Gilbert's [1] moderate view point of solid teaching first and technology a supportive second. As a result, I designed a seminar course with challenging reading assignments that would become the basis for e-mail dialogues. The course would

not be gimmicky or glitzy; it would be substantive [28,29] and rigorous. [30] I hop off the cyberspace express when it comes to using multimedia and totally student-centered teaching, as prescribed by some, for Internet courses. [5,27]

I structured the course around a traditional syllabus including course description, course objectives, required and recommended texts, and course outline. The intent of the following abbreviated description of asynchronous instruction was to set forth guidelines for students and faculty when moving from a classroom to cyberspace:

This long-distance instructional approach does not require students and instructor to be in the same place at the same time, or even to be available at a specific time. Students can do assignments and communicate from home, office, or campus over a 24-hour period. The intent is to create a dynamic network of scholars who, during the semester, communicate frequently with each other and the instructor.

Exploratory questions, drawn from the required reading, were e-mailed on Mondays for the students' reactions, interpretations, and critiques. The students were encouraged to raise questions, then to share them with the group. Any message sent to the NUR515 list server was automatically sent to everyone in the class.

Course content addressed conceptual issues related to the study of menopause, instead of dealing only with the biomedical paradigm of menopause as disease, which has been mainstreamed into most health profession programs. [31-33] Concepts included the medicalization of menopause, social construction of disease, competing paradigms, cultural constructs such as technology, the hormone debates, and women's lived experiences of menopause. This content was woven through ongoing discussions, used as a takeoff point for the final analysis paper, and often incorporated into students' practice.

During the three semesters I taught this course, it attracted students from a wide geographic area, including Alaska, Oregon, California, Florida, Missouri, Pennsylvania, New York, New Hampshire, Maine, Canada, and Hong Kong. The students were nursing postdoctorates, a medical doctor, doctoral students, master's students, and advanced undergraduates. Contrary to lock-step traditional education, this mix of students from different educational levels enriched the experience for all. The doctoral and postdoctoral students shared their research expertise; the medical doctor, among many things, stimulated thinking about how primary care professionals can best interact with menopausal women; the doctoral students were an excellent resource on databases and how to get access to them; the master's students were all heavily involved in clinical practice, and several shared experiences they were concurrently having with menopausal clients; and the undergraduate students were highly motivated and raised many substantive questions for discussion. All in all, they were highly motivated and serious students who were ready for indepth knowledge of a women's health issue. Perhaps advanced students, in general, adapt best to long-distance, specialized courses. This question begs to be researched.

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KNOWLEDGE AND COMMUNITY BUILDING

The idea of knowledge and community being built in a one-semester course merits discussion. In this case students already had been exposed to menopause during professional training, their older relatives' experiences, or even their own. Moreover, no one escapes the conflicting scientific claims for or against hormone replacement therapy (HRT) to treat menopause or prevent osteoporosis, cardiovascular disease, and now Alzheimer's disease. Surely a topic like menopause, which is saturated with myths [34] and has even been subjected to a menopause

industry, [35] is rich for students to mine. They came to this course to build on what they already knew and to raise new questions.

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Knowledge-building exemplars

Knowledge building starts with an introduction to the historical representations of menopause and ends with alternative interventions (eg, acupuncture and herbal remedies). The following examples are derived from e-mail messages; the first pertains to knowledge being built during the course:

[Author to students]: I have a few comments to make on the text "Predictors of Earlier Menopause," which I downloaded to our list last night. This is an example of the kind of information offered on the Web. It is secondary information taken from the Yahoo home page. Note at the end of the text that an American Journal of Epidemiology article was the source for this report. If you want to use this study for scholarly work, you should get a copy of the original article. I use this kind of Internet information to scan for new research reports from referred journals.

The following is an example of building knowledge on how to evaluate Net information for scholarly value:

[Student]: I have experienced what Kuhn might call a "personal scientific revolution" with the development of a new paradigm. I have become more cognizant of the role I play as a nurse practitioner in forming the decision making of clients assigned to me for health care. My usual presentation strongly encouraging them to start HRT, strictly for prevention of cardiovascular disease or osteoporosis, did not present a well rounded choice of options. . . . We must be knowledgeable and present our clients with alternatives.

This student was building knowledge related to use of the hegemonic biomedical paradigm, which advocates HRT as a preventive treatment for healthy postmenopausal women. Instead, she can turn to sociocultural and feminist paradigms that give different perspectives on menopause.

Another student developed and shared a healthy skepticism as she critiqued scientific reports:

[Student]: There was a story in today's paper; "The strength of a woman's bones may be the most powerful predictor yet of her risk of breast cancer," is how the story began. This is not to say that strong bones are a bad thing. Rather, it's the woman's prolonged exposure to estrogen, making the bones stronger, that is thought to be the problem. The information grows more complex and contradictory daily. It's no wonder women have a difficult time dealing with issues related to their health. The research findings don't make things easier to understand.

In the Internet world, building a virtual global community of strangers has been proclaimed a democratic, empowering, and educational endeavor. In my course, community is built on students developing trust in their colleagues and instructor. I had ideas for helping students develop trust and avoid a sense of alienation, for example, by having them introduce themselves to the group, select a partner to work with all semester, and send photos to me to be collated for a group poster. The students had ideas too: welcoming latecomers to the course; sharing resources; respecting each other's ideas, even when they differed from their own; and helping each other when there were technical problems with the Internet.

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Community-building exemplars

The following student message is an example of self-disclosure. She trusted the group to support her honest feelings—a prime indicator of a close community:

[Student]: Hi! Since we paired off, I feel I'm a bit out of touch with the group. I feel like a sponge taking in all you have to say. This is a wonderful learning experience for me as I evaluate the different perspectives we all have. Since I started this course, I have become so aware of my biomedical orientation to health care, and, as I consider your different comments, I can see my own paradigm shifting.

Students and I shared resources throughout the course; some were articles or books, others were Internet resources. This fostered a supportive, rather than a competitive, environment:

[Student to instructor]: Many thanks for the MEDLINE article abstract. . . . I have found articles on the topic of exercise and reduction of lipid profile, but many of the participants in the study are young women and men. . . . This article looks good and right up my alley.

Another student's response could be considered knowledge building or community building:

[Student to her classmates]: I appreciate all your student responses so much that I am printing them and attempting to maintain a file for future reference. I am filing them by your weekly responses to questions.

I prefer to categorize the above quotation as demonstrating respect for her classmates, which enabled a sense of community to be realized.

These messages are typical of sharing in a community of scholars—sharing things like references for articles or books and appreciating and supporting classmates. Teaching this course was labor intensive and stressful when there were technological glitches that brought the course to a halt. Yet it was one of the most challenging and rewarding teaching experiences I have had.

The students evaluated the course. They received, by mail, the same forms for teacher and course evaluation that are used in the school of nursing graduate program. I designed a new tool for students to evaluate the effectiveness of the Internet model of delivery. The students evaluated the teaching, course content, and the technology, which gave them new freedom to study any hour and to travel anywhere an e-mail message could be sent and received. One student from Alaska, who was in the Army Reserves, was called to duty in Hawaii while taking the course. She fully participated in the class by using military access to the Internet.

As a result of my teaching a menopause course via the Internet, I reiterate a firm belief based on experience that substantive [28,29] and rigorous [30] courses addressing complex issues, like menopause, should be delivered via e-mail. Such courses can be knowledge and community building as well. If nursing educators promote more long-distance education, they will need to understand the history of electronic education and the potential benefits and losses. How possible will it be to offer serious scholarship when flashy, game-like learning is the fashion? How can nursing become involved in not only content, but also policies that are being made on the infrastructure of the Internet, on values underlying electronic education, and on ethical concerns? Is there a future for nurse educators in computer-based education? Should nursing students have the option to study the cyberspace nurse educator's role? Strong economic and political forces are driving these questions.

These forces include the global economy, downsizing, managed health care, new electronic technology, a demand for small government, and a push for privatization of most institutions, including universities. In any case, right now, universities are in transition, and traditional ways of teaching, for example, using refereed journals and books, are under scrutiny. Surely, the cyberspace nurse educator role is not for everyone now, if ever, Parker Rossman, [27] professor at the Massachusetts Institute of Technology and author of *The Emerging, Worldwide, Electronic University*, predicts that virtual reality classrooms and simulations will bring sweeping changes for students, teachers, and educational institutions. If Rossman's predictions come true, there will be a worldwide electronic university that might teach nursing around the globe. This can sound exciting or overwhelmingly threatening. The Internet, up to now, has been a vehicle both to carry changes forward and to resist them. As has been said many times, technology is neutral; society decides how it will be used. Rossman's vision and the worldwide Internet will not go away. The computer culture is indeed ubiquitous and has moved rapidly from the margins to the center of public discourse. Rather than being involved in the Internet by default, nursing faculty will need to decide the extent to which they will embrace e-mail for course delivery.

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