

## TECHNOLOGY POLICY, GENDER, AND CYBERSPACE

CHERIS KRAMARAE \*

### I. INTRODUCTION

As all academics well know, most universities have budget committees and technology committees. However, many universities have no "climate committee" to consider the satisfaction of students and faculty with the education process.<sup>1</sup> What if the climate committee did its work first and the budget committee and the technology committee based their recommendations on those of the climate committee? That is, what if consideration of student and faculty satisfaction with their experiences in the education process came first?

Such a stunning proposal does not receive much attention in many, indeed if any, of our public colleges and universities. As one administrator said, responding to the recommendations of a university's Committee on the Status of Women, "Well, do you want a childcare center or the desperately needed equipment for our labs?" He was saying, in effect, "Do you want to talk about relationships and responsibilities or continued excellence at this university?" If in these discussions the focus is only on the budget and the technology committee, it is quite clear why relationships and continued excellence are considered mutually exclusive choices.

If the focus for changing university policy began with consideration of the campus climate for faculty, staff, and students, then meeting the needs of the faculty, staff, and students would be a much greater concern than matching or exceeding the technological prowess of other universities. If climate and educational guidelines for all students and faculty were the starting point, technological changes would be chosen to help provide a welcoming environment in which everyone can participate, learn more, and be more satisfied with the educational process. The process would start with discussions of self-esteem, educational and vocational aspirations, curriculum content, pedagogical style, classroom style, and ways of encouraging participation by women and men. At the moment, these discussions are not central at most universities.<sup>2</sup> The majority of discussions going on in university planning committees today focus on the principles of what is currently called the Information Revolution. These principles are not posted in the hallways of academe or on university home pages. They are,

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\* Ph.D., Speech Communication, University of Illinois at Urbana-Champaign.

1. See BERNICE RESNICK SANDLER ET AL., *THE CHILLY CLASSROOM CLIMATE: A GUIDE TO IMPROVE THE EDUCATION OF WOMEN* 1, 7-35, 65-91 (1996) (examining the education climate for women and recommending improvements).

2. See *id.* at 5.

however, evident in discussions at many university committee meetings, as well as in academic and commercial literature regarding the Internet.<sup>3</sup>

This paper considers some of the critical education and gender related questions and problems that come with the expansion of cyberspace<sup>4</sup>—a new “location” of action. In general, both the legal and education systems have been based on the assumption that actions take place in a physical space. As several critics have pointed out, many of the debates and discussions about the Internet and the law have not been taking place among members of the bar.<sup>5</sup> In the past few years, legal journals have been paying some attention to reshaping the law in response to changes in computer technologies.<sup>6</sup> However, many issues that are of particular concern to women are not receiving much legal attention.<sup>7</sup> This article raises concerns and questions specifically dealing with girls’ and women’s education as it relates to these new technologies.

The specific focus here is on women for two reasons. First, in a society that too often thinks of men as the embodiment of humanity<sup>8</sup> (while describing others as masses of elements such as women or blacks), we need to pay attention to women’s ideas and experiences if there is to be a revolution that will change and equalize relationships and the economy. Second, given the wide and deeply gendered power differences in our culture, treating everyone the same, as if they had the same powers and privileges, would not be very helpful. We need to pay attention to women’s lack of equal access to money, economic independence, and computers.

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3. The Internet, a collection of networks connecting millions of computer users in government, businesses, and homes, was initially created by the Advanced Research Projects Agency of the Department of Defense. See STEVEN G. JONES, *CYBERSOCIETY: COMPUTER-MEDIATED COMMUNICATION AND COMMUNITY* 3 (1995); see also EveLyn Oldenkamp, *Pornography, the Internet, and Student-to-Student Sexual Harassment: A Dilemma Resolved with Title VII and Title IX*, 4 DUKE J. GENDER L. & POL’Y 159, 159 n.1 (1997) (discussing the origin of the Internet). In the 1980s, the National Science Foundation underwrote the development of a high-speed electronic backbone network. See JONES, *supra*, at 4. Many individuals and institutions have high expectations for the Internet and currently many businesses and individuals are rapidly developing “services” on the Internet. See Charles R. McClure et al., *Toward a Virtual Reality: Internet and the National Research and Education Network*, in THE BOWKER ANNUAL: LIBRARY AND BOOK TRADE ALMANAC 25, 26-27 (Catherine Barr ed., 1993). However, the rapidly expanding scope of the Internet opens many social, ethical, and legal policy concerns. *Cf. id.*

4. One definition of cyberspace is “[t]he continuum of computer networks and bulletin board systems in which on-line communications takes place.” WEBSTER’S NEW COLLEGE DICTIONARY 281 (1995).

5. See, e.g., Gregory E. Perry & Cherie Ballard, *A Chip by any Other Name Would Still Be a Potato: The Failure of Law and Its Definitions to Keep Pace with Computer Technology*, 24 TEX. TECH L. REV. 797, 800 (1993) (pointing out that the law often “places too much reliance upon the past” and is thus “caught unaware” by many technological advances).

6. See, e.g., Edward V. Di Lello, *Functional Equivalency and Its Application to Freedom of Speech on Computer Bulletin Boards*, 26 COLUM. J.L. & SOC. PROBS. 199, 199-201 (1993); Lawrence Lessig, *The Path of Cyberlaw*, 104 YALE L.J. 1743, 1743-48 (1995); Andrea Sloan Pink, *Copyright Infringement Post Isoquantic Shift: Should Bulletin Board Services Be Liable*, 43 UCLA L. REV. 587, 587 (1995).

7. Some implications of these issues for the law and for women are discussed in Cheri Kramarac & Jana Kramer, *Legal Snarls for Women in Cyberspace*, in 5 INTERNET RES.: ELECTRONIC NETWORKING APPLICATIONS & POL’Y, No. 2, 1995, at 14, 14.

8. *Cf.* Michael Kimmel, *Integrating Men into the Curriculum*, 4 DUKE J. GENDER L. & POL’Y 181, 185-86 (1997) (pointing out that theories about men are coextensive with theories about humanity).

What is known as the study and discipline of education does not say much about women's ideas, speech, or writing in any format or location.<sup>9</sup> In fact, through the years, many traditional scholars have considered writing or research by women about women to be radical behavior.<sup>10</sup> But the climate is changing in some other respects. Classes used to be considered generally bordered by the interaction in the specific location of the classroom. Of course, this was how many teachers wanted to think about what constituted classroom interaction, omitting all talk by students outside the classroom about the teacher, the course materials, and the interaction. However, interaction in classes today is often explicitly more dispersed, with much of the interaction taking place asynchronously among students and teachers in many locations, with the help of electronic technology.<sup>11</sup> While teachers still have nominal control over many of the electronic discussions, increasingly when the students do not think teachers are needed they will find ways to bypass them.

While it is difficult to know just what the networked university of the future will be like, it is clear that traditional gender relationships are moving very quickly and firmly into the new electronic education paradigm.<sup>12</sup> Technology not only unites, but also divides: the rich and poor, individuals and countries, upper classes and working classes, women and men. What does not exist now, and what few administrators are calling for, is a programmatic statement about the relationship between communication, computers, education, women, and men. Some of the implications of the Information Revolution are especially visible to women. For example, educators give male students computer training and retraining at the expense of female students.<sup>13</sup> Women's communication and assessment skills are ignored, neglected, or ridiculed during this so-called Information Revolution. What guiding principles are needed to bring about critical change in the climate for women?

## II. MAKING CYBERSPACE HOSPITABLE

One primary principle that must be recognized to insure the development of technology policy that is beneficial to everyone is that women need to be educated in a challenging, non-hostile environment. An initial problem is that men dominate many conversations.<sup>14</sup> This is true in face-to-face interaction and in-

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9. See, e.g., JULIA WOOD, *GENDERED LIVES: COMMUNICATION, GENDER AND CULTURE* 79, 79-81 (1994) (discussing how what it means to be a man is defined largely by not being a woman).

10. See SANDLER ET AL., *supra* note 1, at 3.

11. See generally Monty Neill, *Computers, Thinking and Schools in the "New World Economic Order,"* in *RESISTING THE VIRTUAL LIFE: THE CULTURE AND POLITICS OF INFORMATION* 181-94 (1995) (discussing the interplay of school, work, and technology).

12. See JUDY WAJCMAN, *FEMINISM CONFRONTS TECHNOLOGY* 150-53 (1991) (discussing how the traditional male monopolization of machines and technology has been extended to computers through their use in schools).

13. See, e.g., DALE SPENDER, *NATTERING ON THE NET: WOMEN, POWER AND CYBERSPACE* 176-80 (1995) (discussing how girls are treated by both boys and teachers in the context of computer training).

14. See, e.g., DALE SPENDER, *MAN MADE LANGUAGE* 41-50 (1980) (arguing that while women are perceived as the more talkative gender, in actuality, men talk more, interrupt more, and control more of the topics of conversation than women); James D. Orcutt & Lynn Kenneth Harvey, *Deviance, Rule Breaking and Male Dominance in Conversation*, 8 *SYMBOLIC INTERACTION* 15, 21-22 (1985) (summarizing

creasingly it is true on the Internet.<sup>15</sup> In many areas on the Internet, the majority of people posting messages are male.<sup>16</sup> Men often control the topics of conversation even in online areas devoted to the discussion of women's issues.<sup>17</sup> Women have learned to be cautious about moving into physical spaces dominated by men. Those spaces are usually uncomfortable for women and sometimes even dangerous. Women are quickly learning that many places on the Internet are also uncomfortable and possibly dangerous for them.

Aggression against women in cyberspace takes a variety of forms, ranging from verbal harassment in computer science labs to anonymous e-mail messages.<sup>18</sup> There is no "climate assessment" group collecting such instances of harassment and the effect this harassment is having on boys and girls, men and women. However, most of the harassing that has been reported has been traced to men:<sup>19</sup>

[A] sexually provocative message about a female high school student which included her phone number, was traced to a 14 year-old-male student using a FreeNet system designed to insure full community access to the Net. He was temporarily restricted from using the FreeNet . . . . A woman writing an assigned essay in a university computer room near London received an on-screen message from a male staff member asking what she was wearing, what she looked like, and her sexual orientation. The staff member suggested that he could use his computer access to track her down and show her that feminists are wrong about sex, that "women really like to be taken over, I know you will!" Because he could send her threatening messages wherever she logged on, she stopped using computers for months and got behind in classes that required computer uses . . . . [A] Michigan man was recently arrested and charged with violating Michigan's anti-stalking law when he . . . [sent] "spooky" and then threatening e-mail to a woman he once dated.<sup>20</sup>

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several studies of male-female conversations which found that men interrupt women more often than women interrupt men).

15. See Susan Herring et al., *"This Discussion is Going Too Far": Male Resistance to Female Participation in the Internet*, in GENDER ARTICULATED: LANGUAGE AND THE SOCIALLY CONSTRUCTED SELF 67, 67 (1995) (Kira Hall & Mary Bucholtz eds., 1995).

16. See Maureen Majella Ebben, *Women on the Net: An Exploratory Study of Gender Dynamics on the Soc.women Computer Network* 166-67 (1995) (unpublished Ph.D. dissertation, University of Illinois at Urbana-Champaign) (on file with the University of Illinois at Urbana-Champaign) (analyzing a newsgroup designated for the discussion of women's issues, soc.women, over a one month period, and finding that 148 of the 234 participants were male, and 372 of the 586 messages posted during that period were by men).

17. See *id.* at 175 (concluding that in a one month period, only seven of the 23 topics discussed on the soc.women newsgroup were raised by women).

18. See Stephanie Brail, *The Price of Admission: Harassment and Free Speech in the Wild, Wild West*, in WIRED WOMEN: GENDER AND NEW REALITIES IN CYBERSPACE 141, 141-57 (Lynn Cherny & Elizabeth Reba Weise eds., 1996) (detailing both the problem of harassment on the Internet generally as well as specific instances of sexual harassment on the Internet); Cheris Kramarae & H. Jeanie Taylor, *Women and Men on Electronic Networks: A Conversation or a Monologue*, in WOMEN, INFORMATION TECHNOLOGY, SCHOLARSHIP 52, 56 (H. Jeanie Taylor et al. eds., 1993) (briefly discussing sexual harassment online).

19. See Herring et al., *supra* note 15, at 67; Kramarae & Kramer, *supra* note 7, at 14, 16 (1995) (providing specific examples of online harassment by men).

20. Kramarae & Kramer, *supra* note 7, at 18.

Computer science labs are often locations where men establish abusive environments for women. For example, Lynda Davis, a professor of computer science, writes:

During the day, computer labs are filled with students shouting across the rooms at each other, goading each other with terms like "fuckwit", "wanker", "dickfor" being called out as terms of comradeship . . . . The student groups are almost exclusively male . . . . The females do not use the same terms of comradeship for each other or for males. They tend to use their personal names.<sup>21</sup>

Davis writes about the many jokes made by computing students that draw a link between hardware and the penis, presenting the machines as extensions of themselves.<sup>22</sup> Researchers have found that:

[M]ale students at one university computer laboratory sent pornography to other (primarily female) students' workstations. Additionally, some of the photographs were printed and posted on the walls of the lab. While several students and women faculty responded with proposals for actions (such as enforcing the Student Conduct Code, conducting sexual harassment educational workshops, hiring more women faculty, and making the environment positive enough to recruit and keep more women students to create a critical mass) the matter was never included on the agenda at a faculty meeting.<sup>23</sup>

Women who complain online about harassment of other women receive harassing messages themselves.<sup>24</sup> Women who find themselves the object of verbal attacks or who are unable to find any online discussions they value often give up attempting to communicate their own meanings online. Some resort to just being noncontributing observers or "lurkers," others go to women-only lists, and some leave the Internet altogether.<sup>25</sup>

Cyberspace needs to be made accessible and hospitable to women and girls. Currently, many people are investigating ways to make the Internet safe for monetary transactions.<sup>26</sup> Why not first make it safe for women? How this is accomplished will differ in each particular situation. In 1993, at the University of Illinois High School, female faculty were especially concerned that boys took over the computer labs during study hall and after classes, mostly to play computer games.<sup>27</sup> When the administration prohibited the playing of computer

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21. See SPENDER, *supra* note 13, at 182 (quoting from Lynda Davis, presentation entitled The Gendered Language of Technology, at the International Communication Association, July 1994).

22. See *id.* at 183.

23. *Id.*

24. For example, a young woman who had requested that the alt.zines Usenet group talk about the publications of Riot Grrls (a political and social movement of young feminists) received vehement complaints from men in the group who suggested, among other things, that she start her own newsgroup called alt.grrl.dumbcunts. See Brail, *supra* note 18, at 144. A woman coming to her defense online received a great deal of pornographic text detailing gang rapes. See SPENDER, *supra* note 13, at 146.

25. Herring et al., *supra* note 15, at 69; see Michele Evard, "So Please Stop, Thank You": Girls Online, in WIRED WOMEN, *supra* note 18, at 188, 188; Kramarae & Kramer, *supra* note 7, at 14, 18.

26. See, e.g., *Digital Bucks*, PC MAG., Jan. 1997, at 17 (discussing SET, a technical standard for safeguarding payment-card purchases on the Internet).

27. See SPENDER, *supra* note 13, at 182.

games on school computers, girls also moved into the computer labs, mostly to read and send electronic mail.<sup>28</sup> A number of universities have posted notices in computer labs reminding students of campus regulations prohibiting sexual harassment. Given the possible dangers to women when walking on campus after dark, universities could give women priority on campus computers during daylight hours, until campuses become equally safe at all hours for men and women. Obviously the creation of solutions to these problems will need to involve primarily or at least equally the girls and women affected by the current problems.

Freedom of speech and censorship are not the critical issues here. As Miriam Rinn wrote, the problem is "[c]omputer science labs across the nation . . . are not pleasant places for women to be."<sup>29</sup> In a similar vein, Stephanie Brail wrote, "Threats are not free speech . . . . Shouldn't the question be: Do we really have free speech on the Internet in its present form?"<sup>30</sup> The issue is whether educators think that harassment, limited access, and limited information are important problems. If they truly are interested in democratic principles they should express special concern about the problems addressed here. Educators need to ask why these problems are so seldom discussed in mainstream publications.

Women and men concerned about these problems wonder if there are other models that might be used to replace the sexist, competitive models so familiar in institutional practices. A good starting point might be the relationship between parent and child. Ideas about electronic communication could be built using this as the fundamental social relation. Using the child and the parents as the basic building block of human life, we could start to create healthier plans for the world and cyberspace. The underlying plans would need to consider children and parents in many geographical areas, as well as the necessity of establishing nonviolent connections and various ways of showing respect for life and life-giving. Michele Evard designed an online environment especially for children to use in school, a program which respected their concerns and interaction skills; she reported that the girls and boys used the system in similar ways satisfying to all.<sup>31</sup> If the initial concern is for children in their communities, less attention would be focused on freedom of speech and censorship, and more attention would be directed at providing valuable communication tools and skills to help students learn to be interdependent and caring of others.

### III. PARTICIPATORY EDUCATION: RECOGNITION AND RESPECT

A second fundamental principle that will assist in the development of technology policy is that women have an interest in participatory education. Many teachers use the sage-on-the-stage model, with the expert informing others about what the expert thinks the others need to know. The teacher has knowledge that he or she imparts to the students. Fundamental knowledge about communica-

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28. See generally *id.* at 165-76 (discussing the gender gap in the use of technology).

29. *Id.* at 182.

30. Brail, *supra* note 18, at 156.

31. See Evard, *supra* note 25, at 200-01.

tion processes is disregarded by many teachers who think about teaching as a pitcher-and-cup action.<sup>32</sup> The teacher pours forth the information which will be received by the students. In this system student participation often is determined by counting (or guessing) the number of times a student asked a question or answered a question. This is as dynamic as it gets. Boys are more likely to be raised to think this is how the system should work—hierarchical control of knowledge.<sup>33</sup> They go through this process and then many of them get to do it themselves as teachers, managers, or bosses. Along the way, they get to talk more in the classroom, because boys are more likely to raise their hands more quickly and are called upon more often.<sup>34</sup>

Many universities act as if education is going to continue with basically the same process: the expert will produce, package, and pass along the knowledge to students. Only now the experts will be able to delegate more of the distribution of the knowledge to computer systems and teaching assistants who can take care of the technical aspects of distribution, giving the experts more time to produce more knowledge and making it possible for fewer teachers to serve more students.

There is a problem with the continued assumption that this old education model will continue to be the governing model. New methods are needed rather than computerization of old methods of teaching.<sup>35</sup> With the development of the Worldwide Web and the ease of creating home pages, many want to be the expert or teacher, and fewer want to be the receiving student. In the past, young people have had to put up with a decade or two of educational training programs before they could become the experts. But now, many fourteen-year old boys have their own home pages where their information is made available to others globally. Young women previously trained to be the perpetual students now find that they can carry on their discussions electronically without a supervising teacher. Students are no longer taking the teachers at their word; many students are more interested in creating their own word. In the past, teachers and administrators were able to exercise a great deal of control over what was considered knowledge. It appears that, increasingly, students will create and receive information of their own. To be effective educators, teachers will have to become lifelong learners within technological environments, as well as technology critics and reformers.<sup>36</sup>

Many students, women in particular, benefit from and appreciate participatory, collaborative interactions in which teachers not only impart information,

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32. Cf. Interview with George Lakoff, *Body, Brain, and Communication*, in *RESISTING THE VIRTUAL LIFE: THE CULTURE AND POLITICS OF INFORMATION* 115, 116-18 (James Brook & Iain A. Boal eds., 1995) (discussing the storage and conduit metaphors for communication).

33. See SANDLER ET AL., *supra* note 1, at 10, 20.

34. See *id.* at 18-20.

35. Cf. SEYMOUR PAPERT, *THE CHILDREN'S MACHINE: RETHINKING SCHOOL IN THE AGE OF THE COMPUTER* 35-36, 205-26 (1993) (discussing the need to introduce people to and educate people about emerging technologies).

36. See Cynthia L. Selfe, *Preparing English Teachers for the Virtual Age: The Case for Technology Critics*, in *RE-IMAGINING COMPUTERS AND COMPOSITION: TEACHING AND RESEARCH IN THE VIRTUAL AGE* 24, 25 (Gail E. Hawisher & Paul LaBlanc eds., 1992) (discussing the need to educate teachers on new technology available in classrooms).

but also facilitate discussions that allow for knowledge creation during class interaction. Collaborative activities enjoyed by many women, such as sharing classroom materials, bibliographies, and advice, are easily facilitated by the Internet.<sup>37</sup> Women's work patterns and responsibilities should be given prime consideration as new electronic teaching patterns are put into place.

#### IV. INCLUSION OF WOMEN'S KNOWLEDGE IN ELECTRONIC EDUCATION

Whose knowledge is considered knowledge is both determined by and determines whose words are listened to in the university. Every time general university committees are asked to address issues of inclusivity and affirmative action, someone will say that whatever happens, standards and excellence must be maintained. Standards of merit, rigor, and impartiality should work not to obstruct women, minorities, and the poor, but to encourage learning about the experiences and knowledge of people of many different backgrounds. Electronically this means that women—with very different experiences—should be helping to determine what libraries and individual teachers put online.

Knowledge is impermanent. For example, the nature of knowledge was transformed on a grand scale as the use of the printing press brought sweeping new ideas and challenges to old forms and explanations.<sup>38</sup> While manuscripts were once the repositories of human knowledge and considered to be sacred texts from God, after the invention of the printing press, printed words became symbols of wisdom and creative achievement.<sup>39</sup> Many women learned that to achieve "permanence" in this new literary world, they needed to adopt a gender-neutral name or a male pseudonym to get published and to avoid heavy censorship from critics. Now the book is becoming the relic, and many women entering cyberspace are learning that in order to engage in the new system of knowledge production they either need to adopt male pseudonyms to be treated as worthy beings, or simply avoid many of the male-controlled forums.<sup>40</sup>

Further, and unhappily, the men who found themselves building the vast, new electronic network did not take time to consider what language structure and interaction styles might be created to make this new form of communication do what its users, present and future, might wish to do. There are, of course, communication norms in place on the Internet already. However, those not in on the initial planning of the Internet had no say in establishing those norms. And there has been no serious attention paid to what an electronic language could be. For example, should there be a system of suffixes and prefixes to use, to indicate that what is written comes from personal experience, from a respected other, from hearsay, etc.? Is it too late to think about what kind of Internet language practices should be used to really revolutionize communication?

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37. Bridget Mallon, *Women Making Meaning: Moving Through the Cracks* (visited Jan. 22, 1997) <<http://www.carleton.ca/~bmallon/a%3awomen.htm>> (on file with the *Duke Journal of Gender Law & Policy*).

38. See SPENDER, *supra* note 13, at 3.

39. See *id.* at 46-47.

40. Cf. Susan Clerc, *Estrogen Brigades and "Big Tits" Threads: Media Fandom Online and Off*, in *WIRED WOMEN*, *supra* note 18, at 73, 85-88 (noting that many women create private mailing lists on the Internet to avoid conflict with male users).

## V. WOMEN'S PARTICIPATION IN MAKING TECHNOLOGY POLICY

Although the uses of technology are often justified by reference to efficiency, progress, and concern for others, there is evidence that the implementation of new communication technologies has been an exercise in maintaining and perpetuating the violent social order of the day.<sup>41</sup> What is done with the technology is determined primarily by those who construct it and by those who construct and impose the rules or norms of use.<sup>42</sup> Female faculty and students have been almost totally excluded from technology policy making. This disadvantages everyone on the Internet since girls and women have skills that are gravely needed. For example, women have traditionally held the role of information facilitators and caretakers of social relations in the family and local community. Yet this expertise has not been called upon in the development of this technology policy that is about communication, information, and relationships. Girls and women have been raised to be risk assessors.<sup>43</sup> They are taught, from an early age, to assess the risks of the world. Is that the wrong route home? Is this public space too dangerous? Is this the right guy to work for? What kind of mess will result from this decision and who will clean it up? Women are trained to evaluate situations before entering.<sup>44</sup> If women were designing computers and the policies for their use, they would make use of their valuable training and the resulting technological processes would probably be different. For example, in a session imagining the ideal information technology, female students and faculty talked about the need for mobile, remote controllable, solar powered, compact, flexible, and personal customized computers that are sensitive to users and to the environment, accommodating of multiple input and output modes, and inexpensive. The ideal information technology also would provide information coding, translation of computer jargon, and retrieval customized to one's personal history.<sup>45</sup> Women's skills and ideas need to be taken advantage of immediately. Women's insights and expertise cannot be effectively added after the men have established all but the final product and process.

It is impossible to determine in advance just what the differences will be when women are involved in the decision making process. However, the activities of one group, the Women, Information Technology, and Scholarship (WITS) group at the University of Illinois at Urbana-Champaign, provide some suggestion of the possibilities.<sup>46</sup> Members have given constructive critiques of the uni-

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41. See *supra* notes 18-31 and accompanying text; see also Oldenkamp, *supra* note 3, at 159, 162-64.

42. See Neill, *supra* note 11, at 187 (stating that "the ways in which the makers design technology can largely control the structuring and solution of problems by users to whom the control by the maker remains invisible.").

43. See SPENDER, *supra* note 13, at 174 (arguing that women are socialized to be more risk averse than men).

44. Boys are "socialised to take risks, to seek adventure, to prove their courage . . . [girls] are socialised to find out how things operate and what the consequences will be before they take any 'leap.'" *Id.*

45. Cf. Marie T. Banich & Betsy Wilson, *Imagining the Ideal Information Technology*, in WOMEN INFORMATION TECHNOLOGY, SCHOLARSHIP, *supra* note 18, at 67, 67.

46. See generally *Women, Information Technology, and Scholarship*, in WOMEN, INFORMATION

versity computer programming workshops to make them more effective. They have worked in local grade schools and high schools introducing difficult, but important, ethical questions regarding sexist behavior on the Internet. They have provided—at the request of women on campus—workshops on and evaluations of new software programs for classroom use, and they have published a book to explain to administrators the serious implications of the many gendered Internet divisions for educational institutions.

In other locations the advice will be different. For example, women in the former Yugoslavia have established a regional-language electronic-mail women's conference that is restoring communication links severed during the wars.<sup>47</sup> The women are speaking out particularly about the issues that are of importance to women but have been virtually ignored by the media. This speaking out is considered by the women as essential to lessening their isolation and moving toward peace. The conference is open to everyone, but only women are invited and allowed to post messages. As part of the project, the organizers are offering training for e-mail users, working as system operators to facilitate discussion, and posting announcements for women's groups not yet online.

Specific needs will differ, but what is important is that many women and women's groups are consulted and considered equal participants in making decisions about how these so-called global communication networks are established and maintained. Given the very divisive gender distinctions in our culture, more attention should be paid to gender issues in order to bring balance to the education system. At the moment, women's communication, design, and assessment skills are neglected as Internet resources. The suggestion here is to give special and central support to making these new information technology processes work to help repair very deep, basic problems in ways that would simultaneously empower women. The new information technologies could be innovative if women's skills are identified, recognized, and valued precisely as innovations and advances. What a pity it would be if the new processes just led to further social deformities in cyberspace.

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TECHNOLOGY, SCHOLARSHIP, *supra* note 18, at 7-14 (discussing the WITS organization and its 1991-92 colloquium schedule).

47. Information on Zenska (Women's) Infoteka and other regional groups can be found at *Peace Groups and Women's Groups* (visited Jan. 22, 1997) <[http://www.intac.com/PubService/human\\_rights/balkans/peace](http://www.intac.com/PubService/human_rights/balkans/peace)> (on file with the *Duke Journal of Gender Law & Policy*). Additional information on women in the Balkans generally is available at *Role of Women in the Balkans War* (visited Jan. 22, 1997) <<http://www.wideopen.igc.org/balkans/women1.html>> (on file with the *Duke Journal of Gender Law & Policy*).