empirical data, and whether it can provide any help in deciding future strategies for both women and men using ICTs in ODL.

At this point I want to introduce the work of Donna Haraway.

Cyborgs: A new model of ODL student?

Donna Haraway was originally a biologist and primatologist at Yale and Johns Hopkins universities, who moved into the history and philosophy of ideas. She analysed the ways that primatology has served to reinforce for human beings our superior role in a culture/nature dualism, in which animals are 'nature' (Haraway, 1989). This has always been a problematic dualism for women because of the historical association of women with nature and body, and man with culture and rationalism. This nature/culture dualism, she argues, cannot be defended on the empirical evidence of primatology; it has to be seen as a justificatory theoretical narrative. And what it justifies is a world view which gives human beings the right to behave in certain ways towards creatures categorised as 'non-human', and to categorise some human beings as less than fully human. She then argues that if the human/animal dualism proves to be only a justificatory fiction, best abandoned, so perhaps are human/machine dualisms.

In her essay called 'A manifesto for cyborgs' (1985) (later one of the main chapters in her book *Simians, cyborgs and women: The reinvention of nature*, 1991) Haraway argues that our increasingly symbiotic relationship with machines, through things like medical technology and the intellectual applications of computers, means that a strict conceptual separation between people and machines becomes unproductive:

> *It is not clear who makes and who is made in the relation between humans and machine. It is not clear what is mind and what body in machines that resolve into coding practices. In so far as we know ourselves in both formal discourse (for example, biology) and in daily practice (for example, the homework economy of the integrated circuit), we find ourselves to be cyborgs, hybrids, mosaics, chimeras. Biological organisms have become biotic systems, communication devices like others.* (Haraway, 1991, pp. 177–178)

She describes the situation of women in ways which appear to be very oppressive:

> *The actual situation of women is their integration/exploitation into a world system of production/reproduction and communication called the informatics of domination. The home, workplace, market, public arena, the body itself—all can be dispersed and interfaced in nearly infinite, polymorphous ways with large consequences for women and others. The*

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cyborg is a kind of disassembled and reassembled, post-modern collective and personal self.
(Haraway, 1991, p. 163)

She nonetheless argues that embracing the cyborg metaphor will provide women with liberation from the old nature/culture, mind/body, male/female gendered dualisms. Her notion of 'cyborg' has been enthusiastically adopted by many women working with ICTs in the visual arts and in cultural studies. At least one significant feminist conference in 1995, Desire by design (University of Westminster), had both artists and theoreticians using Haraway's work to suggest that women could now play a full and different role with respect to ICTs than any previous technology. Not surprisingly, people working from a more established social constructivist perspective remain to be convinced. For them ICTs have acquired the gendering of the society which has constructed them and of technologies which have predated them, which makes them (ICTs) a rather dubious candidate for the catalyst to demolish gender inequality.

Empirical evidence of the gendering of ICTs in education

So far research on ICTs in ODL has been depressing in its confirmation that technologies exhibit gender. An early analysis of the personal computer (PC) industry has shown how, in the UK at least, PCs were designed and marketed for a *male* leisure industry (Haddon, 1988). Computers in schools have become the domain of boys, and fewer girls study the subject in the UK and US examination systems (Kirkup, 1992).

Access to PCs is much less for adult women ODL students whenever this has been measured, and the quality of access when it exists is lower than that of men students (Kirkwood and Kirkup, 1991; Taylor, 1992; Kirkup, 1993; Jones *et al.*, 1993; Kirkup and Von Prümmer, 1994). The material reality of access is of inequality for women. For women who do get involved with using a PC to study with the OU UK, there seems to be quite different motivation and interest from that of their male colleagues. Baines interviewed a number of OU UK women students who were using a PC as a tool on an introductory technology course. She reported that:

> *Women's initial interest in PCs was almost invariably related to the specific and significant events in their personal lives, principally changes at work or children's needs. The strong but unfocused desire to be involved in a modern technology which men report was not described to me by any woman. However, although women rarely seem to embark upon computing as a personal hobby as men do, it does not seem to follow that their use and enjoyment is puritanically restricted to the practical. Despite their busy lives, some of my female interviewees admitted to sheer pleasure in computing. However, for the women I spoke to,*

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male hobbyist computing was irrelevant rather than excluding or threatening. (Baines, 1991, p. 11)

Baines' work again demonstrates that it is important not to have a simple deficit model of women with respect to ICTs, but to examine more subtly the different ways men and women relate to them. Can computers be incorporated into ODL systems and taught about in a more 'women-friendly' fashion? This is another area where the work of Gilligan has provided insights. For example, Turkle and Papert (1990) have argued that the domination of the computing profession by men has led to a privileging of particular styles of thinking which are not the styles preferred by women. Turkle bases her argument on empirical work with young people and children:

Several intellectual perspectives suggest that women would feel more comfortable with a relational, interactive and connected approach to objects, and men with a more distanced stance, planning, commanding, and imposing principles on them. Indeed we have found that many women do have a preference for attachment and relationship with computers and computational objects as a means of access to formal systems. (Turkle and Papert, 1990, p. 150)

Unfortunately, Turkle watched women students drop out of computing programmes, not because they were not learning how to program or to carry out assignments, but because they were constantly being told that their preferred styles of working and programming where not the 'proper' ones. Their style was not the style of the (masculine) computer culture.

Potentially probably the most important ICT development in ODL is the use of computer communication. Simplistically it has been assumed by some that the gender inequalities that happen in face-to-face interactions would be lessened when actors were not visible to each other. (Such an idea contains very simplistic notions about gender.) Unfortunately, the operation of gender in language seems to be more subtle than this. Tannen (1990) argues that men and women have different speech patterns. Men favour expository 'report' talk; women exploratory 'rapport' talk. When men and women engage in conversation these different styles lead to misunderstandings and sometimes to the silencing of women. It may be that the style that participants of computer-mediated communication are forced to adopt to engage in dialogue—a style which is different in many ways from verbal communication—may already be privileging this expository style. Work is only beginning to be done on analysing the discourse of this kind of communication, but Taylor *et al.* (1993) have demonstrated that not only can women become silenced in this medium, they can be pursued and frightened.

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The Internet: The final frontier for gender

The expansion of computer communication and information networks through the sound and graphics capacity of the Internet has been enthusiastically heralded as the most important new ODL medium, with the potential to bring global information sources as well as communication into the homes of all students. It could be the basis for Haraway's 'post-modern collective and personal self', but is that basis equal for both men and women?

Eva Pascoe, the founder of Cyberia, the first Internet café in London, found that despite all attempts to publicise the café as being specially geared to women, in the first month only 4 per cent of users were women; the rest were young male computer hobbyists (Pascoe, 1995). She has attempted to overcome this by having times when the café is dedicated to women's training sessions and by encouraging content to be put onto the Internet through World Wide Web that might appeal particularly to women's needs. However, surveys by Cyberia suggest that less than 10 per cent of users accessing Cyberia from machines in their homes are women, whereas the number rises to nearly 50 per cent of users on public access machines in libraries, universities etc. Surveys from other Internet providers all show the same pattern. Compuserve in 1994 recorded women as only 20 per cent of users (Pamintuan, 1994). The first survey of Word Wide Web users by Pitkow and Recker in 1994 (quoted in Anthony, 1994), got 4000 responses. The typical respondent was male, was aged between 20 and 30, knew six or more programming languages and had been a computer user for more than six years. Rather than being a global village (argued Anthony, *ibid*.), the Internet is a global male, middle-class, white suburb.

Once on the Internet the communication differences begin:

> *In studies of Internet discussion groups, researchers have found that men contribute consistently more than women. In fact when women contribute more than 30 per cent of the conversation, they are perceived by the on-line community to be 'dominating' the discussion ... even in feminist forums, where women are ostensibly most interested and expert men consistently dominate the conversation ... In a study of the newsgroup alt'feminism ... men contributed 74 per cent of the postings, women 17 per cent and 9 per cent were of unidentifiable gender.* (Wylie, 1995, p. 4)

Cockburn used to argue, about technologies prior to ICTs, that men found it easier to confuse the boundary between themselves and the machines they worked or played with. She noted that small boys often became in their imaginations the machines they were playing with and the popularity of 'transformer toys', where humanoid creature turned into wheeled machine, was one example of this. There are similar gender differences in the way that men and women incorporate a computer into their lives.

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A survey by Logitech of PC users (Reddy, 1992) found that, although both men and women saw computers as more like work companions than simply tools, men had and wanted a more anthropomorphic relationship with their machines. They were keener to communicate with them via speech and handwriting, bypassing the keyboard. Twice as many men as women had personalised their computers with messages and displays and were more likely to give them names and credit them with personalities. It appears that at present men are keener to see themselves as cyborgs than women. Perhaps this is to the disadvantage of women who will never get the full benefit of the symbiosis, but this depends on how you understand gender.

One of the most worrying aspects of the Internet for both feminists and educators is that it does not embody the kinds of values that educational institutions do. Kramarae and Kramer (1995) raise the interesting issue of whether the Internet is a medium or a place (i.e. cyberspace). If it is a place, is it a public or private place? The answers determine the way legislation can have an impact on it and the content of communications that happen there. At the same time as education has developed strong institutional policies to restrict pornography and sexual harassment, these have become a particular problem on the Internet (Canon, 1995). A World Wide Web site called 'Babes on the Web' is a clear example of this. Women who participate in the Web, by putting up information about themselves, and a picture or graphic, are likely (*unknown to them and without their permission*) to have that information and the picture copied by a man called Taup and pasted into a kind of electronic catalogue of women. Taup then rates each one according to how desirable he finds her. This catalogue is then publicised on the Web and can be reached by using search words such as 'women', 'gender', 'babe', even through listings of the most popular sites. Not only is this behaviour offensive, it has led to the women receiving obscene messages from strange men who, finding them in this catalogue, have presumed that they were looking for sexual partners. This has silenced many women who may now 'lurk' on the Internet without wanting to risk declaring information about themselves. Along with a variety of other dubious services, messages and graphics, the atmosphere of much of the Internet is very gendered in a form of masculinity that is rarely on display in other public arenas. Women students will be expected to navigate their way through to find those educational and information services they need as students. It is equivalent to a university library filling its reception, through which women students must pass, with pornographic magazines and adverts for dating agencies. The atmosphere at present appears more reminiscent of the masculinity of some university departments of the 1960s than the 1990s. It also bodes ill for the possibilities of self-determination for any woman 'cyborg'.

Conclusion

I have tried to summarise the different perspectives developed by feminists and others on gender theory and show how these have been used by educators in ODL to focus on the needs of women students in particular. The range of perspectives is wider and more sophisticated than my representation makes it. I have also tried to suggest the present unresolved tensions between post-modernist gender theory and standpoint theory. I have presented a very simple version of Haraway's metaphor of the 'cyborg', since it is seen by many as a new way of avoiding the trap of gender dualism. Unfortunately, I have not found empirical evidence in the present gendering of ICTs to support the liberatory potential claimed for the identity 'cyborg'. It does, however, raise questions about the liberatory potential of ICTs for women ODL students in particular.

Given the choice, I'd rather be a goddess!

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