

# **Gender and Technology**

**Edited by Caroline Sweetman**



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# Editorial

Technology and money are seen by many as the two 'engines of progress' of world development (Crewe and Harrison 1998, 30). The delivery of new technologies designed in the North to the South has been viewed by governments and non-government organisations (NGOs) of all political persuasions as the key to economic and social development. However, women's experiences of technological innovation have shown that this is a gross over-simplification. While technologies of different kinds, in varying social contexts, offer opportunities to challenge existing barriers to economic, social, and political participation, they can also consolidate or worsen existing power imbalances. This collection of articles considers gender relations in the light of the use and adaptation of indigenous technologies, and the 'technical transfer' of Northern-designed technologies into Southern contexts. Writers here focus on a wide array of technologies, including those intended to enable women to generate income and increase agricultural production; to save their labour in home-based tasks; to enable them to control their fertility; and to communicate using computer technology.

The definition of 'technology' used in this collection is a broad one. Technology can be defined as an object which does something that works or helps (Everts 1998, 5). Gender and development research and

activism have emphasised the importance of the technical skills and knowledge required to use the technology, and the social situation in which this use occurs. These are the key factors which determine the economic and social impact of a technology on the women and men who design, build, purchase, and use it. Writers here give attention to all these elements.

## **'Progress', modernity, and technology**

For the past 300 years, societies have been judged as progressive or backward depending on their knowledge of European science and technology (Crewe and Harrison 1998). As Maggie Foster describes in her article, critiques of the transfer of mainstream 'modern' technology began to gain ground in the 1960s and 1970s. A focus on mostly large-scale, technically sophisticated technologies in urban industrial settings gave way to concerns to meet the needs of rural dwellers for 'appropriate' technology. Appropriateness was judged according to criteria such as small scale, low complexity, and easy maintenance. While this shift sounds — and is still rated as — a milestone in development thought and practice, the judges who deemed technologies 'appropriate' or otherwise were still not the women and men who would use or adapt them, but Northern, predominantly male,

experts. Their knowledge continued to be seen as superior to that of the producers and users of indigenous technologies: 'we develop technologies which are very much better than the decayed, mediaeval technologies of the poor' (Schumacher 1975, quoted in Crewe and Harrison 1998, 33).

A quarter of a century later, some commentators are drawing parallels between these ideas of modern technologies as the key to development, and those currently being made about information and communications technologies (ICT), including the Internet. Promises of new opportunities for wealth and equality through ICT are matched by dire warnings of the dangers of non-participation in the ICT revolution. For these commentators, 'the ICT hype merely replaces the classical opiate of religion and the modernist idea of progress' (Inayatullah and Milojevic 1999, 78, discussing the work of Kevin Robbins).

## **Acknowledging women's skills in technology**

While the precise impact of the transfer of technology from Northern to Southern contexts is context-specific, there is considerable evidence that it has disadvantaged women (Everts 1998). The association of progress and power with Northern-designed technology was reproduced in Southern communities, where men were quick to see the advantages of controlling new technology. The change from using indigenous technologies to those designed in the North meant a challenge to the gender division of labour, and in some cases to women losing control of both technological processes and the end product. A growing outcry against the marginalisation of women from the benefits of development during the United Nations Decade for Women (1976-85), stimulated interest in women's role vis-à-vis technology — not only as users, but as innovators and producers.

Male technologists working for development organisations have often abetted this growing male control over technology, through seeking out male members of the communities where they work. Misconceptions about women's roles in communities throughout the world, based on Northern ideals of domesticity, have encouraged a view of women as dependent on men's labour. Since the 1970s, feminist researchers have offered abundant evidence to Northern development organisations to contradict this stereotype. In fact, women are skilled family providers, who perform whatever work is necessary, paid or unpaid, to meet their dependents' needs. Such research — a key part of which focused on the technology women used — recorded and raised awareness of women's multiple roles in production and reproduction (Carr 1984). Gender analysis of women's uses of technologies shows that 'reproductive' and 'productive' tasks are often impossible to distinguish, since making a living may involve performing the same tasks with the same technologies — for example, food-processing — for both subsistence and income-generating purposes.

The valuable technological skills and knowledge which women do possess have often gone unrecognised and unvalued (Appleton 1995, 8). 'It is important to consider not only the content of what people know, but the knowledge systems within which information is used, because such systems underlie processes of problem diagnosis, experimentation and innovation' (ibid., 9). In her article, Rachel Humphreys discusses the various ways in which the skills that women in northern Thailand traditionally employ in weaving are undervalued. Industrialists exploit these skills in factory assembly lines, while NGOs promote women's 'traditional' craft work as an alternative to urban migration, at the same time perpetuating gender stereotypes of 'good women' who stay at home and weave. Humphreys argues that in a context

of precarious markets and a widespread need for income, a forward-looking strategy would be to raise public awareness and offer women weavers opportunities to formalise, and upgrade, their skills.

Many discussions of technology from a gender perspective focus on women's 'economic empowerment' (Everts 1998, 4). If women's time is generally taken up in work which does not bring in income, they may prefer to reduce their existing workload in order to take on work which brings in money. While the relationship between income generation and intra-household power relations is a very complex one, projects and programmes for women which are informed by a commitment to changing gender power relations tend to focus on the fact that money gives women the choice whether to go or to stay.

## **Integrating gender concerns into technical interventions**

A major barrier to acknowledging women's link with technology has been the widespread assumption that an understanding of mechanical engineering and associated technical and scientific subjects cannot exist in the absence of Northern-style formal education, which has always been more accessible to men. As Radhika Gajjala and Annapurna Mamidipudi show in their article on textile and information and communications (ICT) technologies, biases about the 'backwardness' of women and of developing countries have dealt Southern women a double blow. Such prejudice has deeply influenced the organisations which promote technology in development.

While development agencies whose work focuses on technology transfer may assert that they have targeted women as users of technology extensively over the past two decades, the underlying aim of such work has not always been to promote gender equity. A key part of it has instead expected on women to deliver results to suit other

agendas. For example, in the 1970s environmental concerns about deforestation led to projects which aimed to make women use fuel-efficient stoves in their role as carers for families. Some of this work was unsuccessful, but much of it has had a very positive impact on women by reducing the time spent on cooking. However, these programmes have lost the support of donors, since their effect on reducing fuel consumption has been much less clear (Crewe and Harrison 1998). Another much-documented recognition of women users of technology has occurred in population control. Gill Gordon and Katie Chapman's article discusses the different feminist views of the impact on women and gender relations of 'reproductive technologies' which control conception and, importantly in this era of HIV/AIDS, the spread of sexually-transmitted diseases (STDs). Their article discusses a programme which promoted knowledge about and use of contraceptive technologies in rural Zambia, in the context of changing gender power relations.

Another rationale for targeting women in development interventions has been to depict them as 'the poorest of the poor'. Commitment to poverty alleviation has enabled many development programmes to work with women without overtly challenging unequal power relations, which are intrinsically linked to women's experience of day-to-day poverty. This focus recognises women as producers in agriculture and small-scale commodity production, and acknowledges their dual role here and inside the household. Typically focusing on making productive work more productive, and reproductive work easier, this approach aims to improve women's lives without overtly challenging 'culture' and the gender division of labour. In their article, Joyce Otsyina and Diana Rosenberg focus on the work of a Tanzanian technology programme sponsored by government and international donors, which took this approach.

During the 1990s, a major focus for gender and development policy and practice has been power relations between women and men, in the family and in the public sphere. There have been widespread calls for organisational change, to ensure that our organisations are shaped by a commitment to gender equity and the rights of women (Goetz 1998). Only once this has been achieved, can organisations start to develop projects which challenge women's marginalisation on grounds of intrinsic justice, rather than simple pragmatism. In her article, Maggie Foster argues that it is particularly difficult to convince organisations which focus on technology to see women's rights as their concern, because of the Northern tradition of seeing technical and social fields of study as distinct from each other, and the association of technical subjects with men. Maya Prabhu's article analyses the ways in which her organisation has addressed the need to change its own identity in order to ensure that women as well as men are reached in the communities where organisations work.

## **Gender, technology, and communications**

During the past decade, there has been a renewed interest in the power of communications and information exchange as an engine for development, coinciding with the growth of personal computing and telecommunications, and the 'virtual world' created as a result. Radhika Gajjala and Annapurna Mamidipudi exchange their views on the Internet, while Heather Schreiner looks at telecentres, which offer more familiar ways of electronic communications including radio and telephone in addition in Internet access. Currently, discussion of the scope of the Internet to bring about understanding between Southern and Northern women and men, to exchange information, and to offer marketing and lobbying opportunities,

are matched only by dire predictions of the marginalisation and oppression awaiting those who are not linked up. What is the real scope of these new technologies in offering empowerment for women living in poverty in South and North?

Radhika Gajjala and Annapurna Mamidipudi's article (written as an Internet dialogue between two authors based in North America and India) challenges simplistic ideas about what constitutes 'modern' technology, drawing a parallel between debates on ICT and the textile industry. In both, they argue, Southern women are seen as backward and their traditional skills and knowledge derided. In fact, Southern women innovate and adapt technologies as they have always done, integrating those from other cultures into their own. This dynamic approach to technology proves that distinctions between what is 'traditional' and what is 'modern' are meaningless and patronising. While the Internet definitely offers opportunities for discussion and debate, which may lead to a better understanding between people living in different contexts of wealth and poverty across the world, such prejudices will not be challenged unless Southern women actually shape their Internet 'spaces', and Northerners listen and question their own assumptions about the South. In short, 'with all the rhetoric about the need to liberate "unheard voices", we miss an essential point: those voices have been talking all along. The question is who is listening' (Agustin 1999, 155).

Heather Schreiner's article, a case study of a pioneering telecentre project in rural South Africa, provides a 'reality check' of a different kind regarding women's use of new communications technologies. The realities of setting up and maintaining sophisticated and expensive machinery in a developing country means that such centres are seen by many as an impossible dream. In one conference in Ethiopia in 1998, South African participants who discussed their

country's experience were told that they did not understand the realities of their neighbours (ECA Conference, Addis Ababa, May 1998). At a recent estimate, trade relations between unequal economies mean that an information economy can trade one copy of word-processing software for 2,000 kilos of African coffee (Tandon 1999, 134).

A common concern for several writers in this issue, including Heather Schreiner and Maya Prabhu, is the scope for development practitioners to work in partnership with the private sector in order to make it possible to afford technical innovation, and render it sustainable. This is a particularly challenging idea for many NGOs whose left-wing political roots encourage them to reject the idea of working for profit with individuals. However, these debates are increasingly common, and opinions are much less polarised than hitherto: 'the idea is that if we were to hop on to the train of the market, and maybe slightly redirect some of the actors, and if necessary jump off in time, we would arrive much faster at where we want to be' (Everts 1998, 69).

### **Using 'hard' and 'soft' communications technologies**

Some contributions here consider the ways in which the older technologies of electronic and print communications have been used, both positively and negatively, from a gender perspective. In Heather Schreiner's article, all the electronic methods of communicating offered in the telecentre were new to the surrounding community; computers are offered alongside telephones and photocopiers, but the telephone proved most popular. Heather Schreiner points out that women do not as yet perceive a need to use them: while they are well aware of the advantages of using telecommunications to overcome geographical distances, their migrant male partners are at the other end of the telephone, not the computer. Unless

there is a practical rationale for using new technology, busy women who view computer technology as alien and off-putting are unlikely to see the point of exploring it — although, as Schreiner reports, many recognise it as a valuable future resource. Echoing the case study from South Africa, Southern women who participated in a research survey by the Association for Progressive Communications (APC) listed the following obstacles to using computer technology: limited access to the Internet, time consumption, information overload, language constraints, lack of privacy or security, skill deficiencies, and alienation (Farwell et al., 1998).

Another communications technology discussed in this collection is radio. For many years, radio was in vogue as a valuable method of popular education and distance learning, promoting skills and knowledge for development over great distances in a relatively accessible form. However, many studies in North and South have also documented the role of the mass media in reflecting existing sexist stereotypes about women and men. Charles Chilimampungwa provides an entertaining yet incisive case study of radio advertising in Malawi, as a reminder that this issue remains highly topical. Gill Gordon and Katie Chapman's article reflects current interest in communications technologies as a key to promoting social development goals and participatory methods of development. In their case study of reproductive health technologies in Zambia, they discuss the use of the 'soft' technologies of interactive learning to promote these, as an alternative to the 'hard' technologies of radio, video, and print. Continuing this theme, Joyce Otsyina and Diana Rosenberg's article looks at different methods of communication used in a rural community in Tanzania to promote the use of improved stoves and agricultural techniques.



## Conclusion

In assessing the impact on poverty of technology-focused development projects, gender analysis confirms the critical importance to women of having access to technology, as well as control over the conditions of production, and confident knowledge of the process. Despite the efforts of gender and development researchers, practitioners, and policy-makers over the past 30 years to chart and promote women's skills as users of technology, 'in the invention and development of technology, women's technical expertise has been displaced with particular efficacy' (Crewe and Harrison 1998, 34). As we enter the twenty-first century, we have another chance to reject the deep-rooted prejudices which associate women, and the South, with backwardness and tradition, and men and the North with progress and modernity. These stereotypes, rooted in pre-colonial assumptions about the superiority of European 'civilisation', are currently being recast in the context of debates on the possibilities offered for 'progress' and 'learning' by electronic methods of communications, including computers.

In her article, Maggie Foster points out that a first step for organisations which wish to ensure that in future women gain access to truly appropriate technologies is to reject such stereotypes, and recognise women's role as existing and potential innovators of technology. Development workers have long pointed out that to discover what is truly appropriate, it is necessary to consult the users. However, in order to do this, 'some sort of "culture-change" among development workers may be required' (Everts 1998, 38). A number of suggestions are put forward by contributors here, ranging from organisational change in NGOs to working with partners in the private sector. It is possible that market mechanisms may enable development workers to promote

sustainable technical change more widely. However, as Maya Prabhu's article discusses, this approach raises further essential questions regarding women as consumers, which 'leads to the need for insight into intra-household dynamics in order to discover the niches of women's autonomy' (Everts 1998, 83).

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# Cyberfeminism, technology, and international 'development'

Radhika Gajjala and Annapurna Mamidipudi<sup>1</sup>

*Feminists from diverse backgrounds are considering the implications of the spread of Internet technology, and questioning its benefits for women in developing countries. Apart from having access to the Internet, women must also be able to define the content and shape of cyberspace.*

The simplest way to describe the term 'cyberfeminism' might be that it refers to women using Internet technology for something other than shopping via the Internet or browsing the world-wide web<sup>2</sup>. One could also say that cyberfeminism is feminism in relation to 'cyberspace'. Cyberspace is 'informational data space made available by electrical circuits and computer networks' (Vitanza 1999, 5). In other words, cyberspace refers to the 'spaces', or opportunities, for social interaction provided by computers, modems, satellites, and telephone lines — what we have come to call 'the Internet'. Even though there are several approaches to cyberfeminism, cyberfeminists share the belief that women should take control of and appropriate the use of Internet technologies in an attempt to empower themselves. The idea that the Internet can be empowering to individuals and communities who are under-privileged is based on the notion of scientific and technological progress alleviating human suffering, offering the chance of a better material and emotional quality of life. In this article, we make conceptual links between 'old' and

'new' technologies within contexts of globalisation<sup>3</sup>, third-world development, and the empowerment of women. We wish to question the idea of 'progress' and 'development' as the inevitable result of science and technology, and develop a critique of the top-down approach to technology transfer from the Northern to the Southern hemisphere. There are two questions of central importance: First, will women in the South be able (allowed) to use new technologies under conditions that are contextually empowering to them, because they are defined by women themselves? Second, within which Internet-based contexts can women from the South truly be heard? How can they define the conditions under which they can interact on-line<sup>4</sup>, to enable them to form coalitions and collaborate, aiming to transform social, cultural, and political structures?

## The Internet and 'development'

Cyberfeminists urge women all over the world to learn how to use computers, to get 'connected'<sup>5</sup>, and to use the Internet as a