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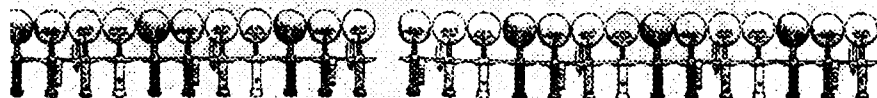
"WOMEN, DEVELOPMENT AND THE INFORMATION SOCIETY: RESEARCH AND POLICY ISSUES"

Prepared for
The Gender Working Group
Information Sciences and Systems Division
International Development Research Centre

Prepared by
Nancy O'Rourke
May 1994

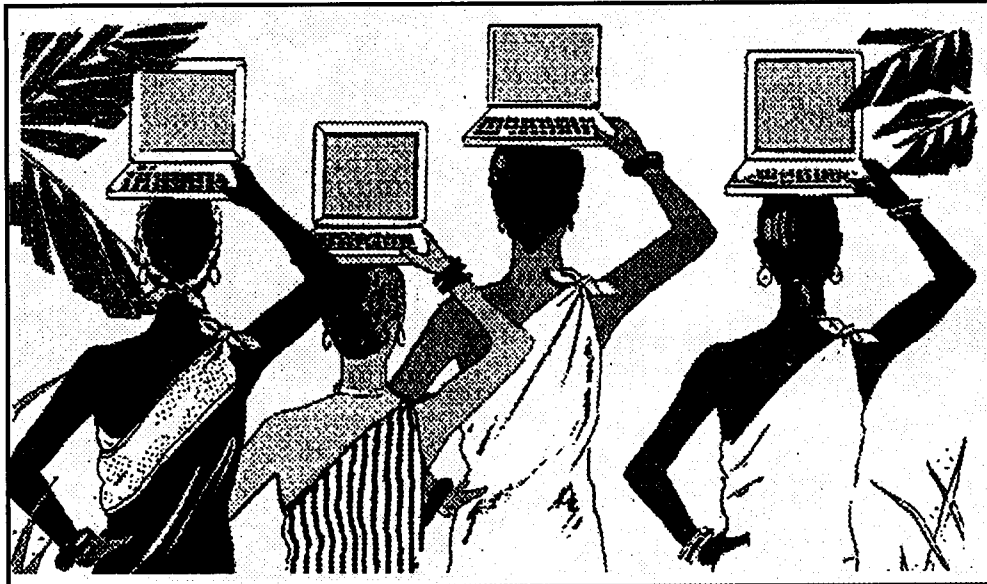**RESEARCH SUPPORT WORKBOOK FOR ISSD PAPER:**

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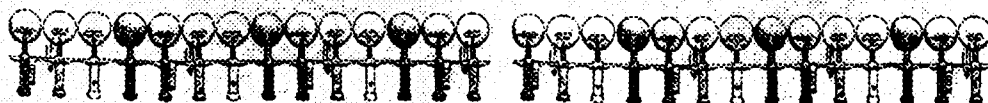
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PAPER OUTLINE

INTRODUCTION

*   go with the abstract as is, but be sure to stipulate that the material being referred to tends to be mainstream, i.e. "An analysis of the published literature reveals that very little has been done in this area - moreover, the material that does exist *(at least in the mainstream)*, is generated from the North and..."

*   the section "Major Trends and Assumptions" is great as an introductory section

*   use the "research and policy issues" section as a lead to the paper, i.e. This paper is an attempt to address some of the most salient research and policy issues relating to "women, development and information," these being: user needs; information content, format, access; system control; utilization; and impact, *inter alia*. This discussion is not conclusive. Ideally, each of these topics should be explored in a participatory way...

*   the brief descriptions of information content/delivery/environment and of enabling technologies are also good as a lead in (minus the last sentence of each referring to figures at the back); these two descriptions could also be used to describe the upcoming chapters or sections

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[Also, whether mentioned or not, I am working from an analytical framework referred to as Social Gender Analysis (SGA). SGA pays particular attention to the concepts/issues of gender, gender equity, class, empowerment, practical needs and strategic interests. In summary, they are as follows:

*   **Gender** refers to socially determined characteristics of men and women, including ideas about what is masculine and feminine, and what are appropriate gender roles. These ideas are shaped and influenced by societies in which people live and, like these societies, are subject to change.

*   **Gender Equity** pertains to equality of opportunity for women and men within a social and economic context. In development projects, this may require that women are provided with special opportunities in order to ensure equality of access to project benefits.

*   **Class** describes a person's socio-economic position in society, determined by their ownership of, or access to, resources and assets.

* **Empowerment** means providing the ability and opportunity to influence and participate in decision-making processes and outcomes. This requires knowledge, self-respect and self-confidence.

* **Practical Needs** are the immediate needs, such as food, shelter, income and physical security. Meeting such needs through development activities can be a relatively short-term process involving inputs such as equipment, technical expertise, training, handpumps, clinics or credit programs.

* **Strategic Interests** are the factors which improve one's position in the long-term in relation to others with greater advantage and power. Empowering women to have more opportunities, greater access to resources and more equal participation with men in decision-making in the long-term strategic interests of the society as a whole.]

Source: Canada. 1992. *Working with Women.* Hull, Canada: Canadian International Development Agency.

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INFORMATION CONTENT AND DELIVERY

The Impact and Effectiveness of Information in Facilitating Change for Women

When women receive information relevant to their needs and aspirations they are better enabled to organize and carry out activities that will be of benefit to themselves, their families and communities (Anand 1993: 51). For instance, in India, in the late 1980s, the government initiated total literacy campaigns (TLCs) in targeted areas of the country. Recognizing the literacy program as a way to improve their lives, thousands of women participated. As discussed in the reading primer, women became aware of the destruction caused by alcohol. As a result, in Nellore, women organized a campaign against alcoholism and two years later had successfully dealt with the problem (ibid.).

The dissemination of information also enables women to break free of the poverty cycle and facilitates their empowerment. When women learn of new technologies, particularly those that are truly appropriate to their lives, women are better able to make decisions that will positively affect their productive capacities. Once given the know-how, women are quick to adopt technologies that will save time, energy and finances; increase the quality and quantity of their output; and improve the well-being of their lives. Crucial to such progress is the process of consciousness-raising. This requires a communication experience that is based on the needs and aspirations of women. This type of communication incorporates concepts of participation and equity. As discussed by a feminist film maker working with women's groups in Central America, 'For many poor women, a transformation takes place the first time they see themselves on film. The whole process brings issues that seem to be "way out their" and difficult to influence, much closer to home. Of crucial importance is that when the life experiences and knowledge of women are taken seriously and recognized as valid, the resulting empowerment has a positive impact on society as a whole (Anand 1993: 51).

Control, Access and Rights to Information Systems

There is no doubt that gaining access to information is ultimately beneficial for women. However, there are several broad and overarching constraints that must be considered from the onset. To begin with, the ability of lower income countries to gain access to the information they need is often difficult and complicated. Essentially, there is a difference between developing and developed countries in that for developed countries there tends to be a situation of information overload, whereas in developing countries there tends to be a lack of information. This gap is often referred to as "the missing link" (Pastizzi-Ferencic 1988: 1).

One cannot consider 'control, access and rights to information systems' for women in lower income countries without first examining the 'discourse of development.' As argued by Artruro Escobar, "... without examining development as discourse we cannot understand the

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systematic ways in which the Western developed countries have been able to manage and control and, in many ways, even create the Third World politically, economically, sociologically and culturally; and that, although underdevelopment is a very real historical formation, it has given rise to a series of practices (promoted by discourses of the West) which constitute one of the most powerful mechanisms for insuring domination over the Third World today" (1984/85: 384). As such, this discourse has facilitated, directly or otherwise, numerous practices through which new mechanisms of control are deployed (:387). Access to and control of information is one such practice. Furthermore, it is crucial to realize 'the rules of right' that are implemented by relations of power, when determining what constitutes information or, more precisely, valid information. As Foucault discusses of 'truth,' what may be considered as valid information is often "produced and transmitted under the control, dominant if not exclusive, of a few great political and economic apparatuses" (1980:132). This is also the case, and must be acknowledged as such, when examining women's control, access and rights to information systems.

Women in lower income countries are caught in a web of political and economic dependency, which is often related to the men in their lives: their father when they are children, their husbands when they are married, and their brothers should they be widowed. As such, women have little power relative to men at the local, national and international levels of society (Stamp 1989: 46,47). This lack of power is crucial when it comes to the dissemination of information which has the potential to so dramatically alter their lives. Women have become dependent on letting others decide what is important for them to know. This is a particularly critical issue when it comes to science and technology. One must question whether the information available to women is actually useful to them. At the first UN International Women's Meeting in Mexico in 1975, middle and upper class educated women (who were in a position to attend), began looking at women's access to information. Although these women may not have been able to represent poorer women, they were successful in setting up women's organizations and getting related activities initiated. However, as will be discussed later in this chapter, for information to truly benefit women, they must be actively involved in defining their own information requirements.

Another related issue pertains to control of the formats and contexts within which dissemination takes place. For instance, in Copenhagen in 1980, at the UN mid-Decade Conference on Women, there were debates over whether or not a Women's Feature Service (WFS) should be set up by the male dominated developing country news agency Inter Press Service (IPS). There were serious concerns that if WFS was established by IPS, it would not be controlled by women (Anand 1993: 52). Historically, the mainstream has not provided women with information that will allow them to make informed choices about their own lives. In fact, information is often withheld from women. Also worth noting, is the recent development trend to provide funds for the education of women. While this trend responds positively to a serious gender inequity, care must be given to who defines the body of information deemed to be appropriate for women. Without establishing some measure of control over dissemination formats

and the contexts within which information delivery takes place, women cannot be assured of receiving the knowledge they truly require.

Women do not necessarily have choices about what information they need or will receive. Although more information is now available to them, it cannot be assumed that this information is relevant to women's needs or aspirations. For instance, appropriate technologies have incredible potential to positively transform the lives of women. And yet women, particularly rural women, have relatively little access to information about these technologies. They have fewer channels than men to such information and even when they have equal access, many are illiterate and cannot benefit from printed material. It is possible to reach these women, however, as information on family planning, health and nutrition has reached a considerable number of women in rural areas (IWTC/UNIFEM 1990:1).

In order to encourage greater control of and access to information systems for women, the International Women's Tribune Centre (IWTC) has identified several crucial questions that must be asked:

*   How can we ensure a sustained and timely delivery of information?
*   What institution can best respond to such a challenge?
*   Do we have any basis for determining what kind of information a woman needs to have about a technology in order to make a decision so that an effort can be made to provide useful information?
*   How and who can begin the process of re-packaging information?
*   What are the institutional linkages which need to be forged to ensure the ongoing flow and transformation of information that will actually reach rural women?

Aside from the information required by and for women - particularly technological information - they have a concomitant need for: cash or credit, technical skills for operation, maintenance and repair, access to technical services, business skills and access to business and legal advice. One must also keep in mind, the socio-cultural constraints unique to each situation (IWTC 1990: 4-6).

Definition of Information Requirements

Women from the South - particularly poor women - must be listened to; their voices must be heard. Particular attention must be given to the approach taken to supply women with the information they require. One activity designed to meet this goal was a brainstorming meeting set up by the IWTC and UNIFEM in 1990, to define strategies for disseminating appropriate technologies to rural women. The aim of the meeting was to find ways in which innovative communication techniques could be used to identify rural women's needs and then follow through with technology dissemination. People attending the meeting were individuals involved in communications, media, women's groups, technology institutions, and UN agencies. This first

meeting was followed by regional workshops that took place in Zimbabwe, Senegal, Thailand, and Ecuador (IWTC/UNIFEM 1990:1).

One of the main findings of this meeting, was the realization that women are not a homogeneous group. Women must also be considered with respect to their class, religious, racial, educational, political, cultural and ethnic backgrounds. For instance, one of the major problems that arose in the IDRC sponsored "women, environment and development network" (WEDNET) pertained to language. Bringing together francophone and anglophone researchers from across Canada and various African countries, the language barrier proved to be problematic in defining women's information requirements. The francophone researchers were greatly outnumbered by the anglophone researchers. When it came to addressing translation needs, the francophone members of the network found it necessary to take a political stand with respect to the anglophone content. They were also disappointed in the bibliographic support they received, arguing that they did not receive nearly the same amount of materials as the anglophone researchers. In truth, very little had been written in french on this issue. What was most critical, however, was the assumption that in having a common research agenda these women represented a homogeneous group. They were not and as such their individual information needs were not adequately addressed.

Equally, if not more important is the fact that women and men have differing information requirements based on their differing life experiences. These differences are reflected in the use of language. As Anand notes of Carol Gilligans's work (*In A Different Voice,* 1982) "men and women may speak in different languages that they assume are the same, using similar words to encode disparate experiences of self and social relationships. Because these languages share an overlapping moral vocabulary, they contain a propensity for systematic mistranslation, creating misunderstandings which impede communication and limit the potential for cooperation and care in relationships" (1993:52). At the recent Women Empowering Communications Conference held in Bangkok (February 1994), Nancy Vargas presented the argument that language works as a constraint for women. She argues that to a large extent, women have been excluded from the grammar of language. The whole idea of women's alternative communication efforts is to illustrate what is not apparent in a patriarchal society, to look at life from women's perspective. Women's language deals well with the everyday world and the material context providing options for "a necessary epistemological correction" (Jansen 1989:207). Until this perspective has been given equal time or opportunity for expression, language cannot be considered objective. Concomitantly, the need to be heard, to speak in their own words, will also affect what women need to hear or learn. Their information requirements are and will be unique for some time.

Recognizing that women and men communicate differently, and that for some time the male voice has assumed mainstream dominance, women's existing knowledge must receive greater attention. As Foucault discusses of subjugated knowledges, the content of women's knowledge has for some time been buried and hidden in a "functionalist coherence or formal

systemisation" (1980:81). As a result, women's knowledge has been left out of project designs and planning. As argued by Patricia Stamp, when it comes to women and technological development, the term 'appropriate technology' is more of a slogan than anything else. Considering women's life experience and existing knowledge base, technology is often inappropriate when gender concerns are recognized and taken into account (1989: 49,50,57). Essentially, one must always question whose interest the technology will serve.

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refer to example of Joachim Voss mentioned in Stamp outline

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Along with the invisibility of women's knowledge is the assumption that 'women' as in 'women in development' projects, concerns and activities, are essentially welfare recipients, users of information as opposed to producers of information (ibid.:63). There is much to be learned about women and how they do things. In truth, women have been active agents of development for some time but because their role in production does not neatly fit in existing economic models (e.g. labour of market or household crops), their knowledge is often ignored. As will be discussed later, with respect to the sharing of indigenous knowledge, it is clear that while women need information about new technologies they also require an increased capacity to share the information they already possess.

From a broader standpoint, a definition of women's information requirements demands that their specific needs and situation be taken into account. To meet this goal, UNIFEM and the IWTC have identified two possible methods for determining women's information needs.

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refer to pp.12/13 of the IWTC and UNIFEM summary

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Information Formats and Delivery Mechanisms Appropriate for Women

The information formats and delivery mechanisms appropriate for women vary depending on which women you are talking about. At the grass-roots level, women communicate in a variety of ways. They have created handcrafted information systems from recipes and home remedies to midwifery and art. Others have reconfigured 'malestream' technologies such as the telephone and chatlines (Jansen 1989:209). Ideally, "a feminist design aesthetic would presumably favour development of decentralized, egalitarian, accessible, process-oriented information

technologies that advance expressive as well as instrumental values" (ibid.:210). To do so might divert the focus on capital-intensive and immensely powerful technologies in favour of more human-centred, resourceful and durable technologies (ibid.). Underlying this argument, however, is the realization that no matter which women are in need of information, they must be able to control their own communication agendas.

In view of mainstream media and communication formats which tend to either dominate, ignore, stereotype or misrepresent women and their concerns, this section focuses on women's alternative information formats. The discussion will first examine what is taking place regionally, in Africa, Asia, the Caribbean and Latin America, followed by a review of delivery mechanisms established at a broader level. The section will conclude with a presentation of two dissemination models, both considered to be more appropriate and relevant to women's information needs.

Women's Alternative Media and Networks

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*for Africa refer to the Adagala summary

*for Asia refer to the Balakrishnan and ILO summaries

*for the Caribbean refer to the de Bruin summary

*for Latin America refer to the Rodriguez, Vargas and Matterlart summaries

All articles suggested, particularly Adagala, Balakrishnan, de Bruin and Vargas, are largely descriptive and follow a similar outline.

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Other Formats and Delivery Mechanisms

At a broader level, there are several other formats and delivery mechanisms which focus on women's information needs. Some of these are as follows.

Word Processing: Word processing is useful for desktop publishing and allows women to control the material they want produced, in terms of format and presentation.

Data Storage Systems: *refer to the Alves summary, p.7, and Pastizzi-Ferencic summary, pp. 12-15.

Computerized Data Bases: *refer to the Vyas summary, pp.152/153 and the Alves summary, p.5, and Pastizzi-Ferencic, pp. 12-15.

Bibliographic Information Systems: *refer to Alves summary, p.5.

Specialized Reference Tools: *refer to Vyas summary, pp.152/153.

Women's Thesauri: *refer to Vyas summary, pp. 152/153.

Women's Information Networks: *refer to Vyas, pp.152/153, Vyas, p.6, and to the (AM) interview response under section 1, question 5, re: *The Tribune.*

Women's International Workshops: *refer to Vyas, p.6 and the Reyes summary, re: the Women Empowering Communications Conference.

Women's Technological Training Programmes: *refer to Vyas, p.6, and the IWTC piece on the "Do It Herself" program.

Electronic Mail and Bulletin Boards: *refer to Matterlart, Anand "Starting Up...", and Alves. p.7.

The Women's Feature Service (WFS) is a case in point worth mentioning. It is unique in that as a women's information system it has attempted to both challenge and function within the mainstream.

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refer to Anand summary "Starting Up, Staying There and Moving On"

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Also related to women's information systems are the interrelated issues of traditional media and indigenous knowledge. As Stamp notes of a study carried out by Odumoso, "In a survey of 200 pregnant women ...over 90 percent had received tetanus shots. Although 79 percent possessed radios, only 4.5 percent had heard about the immunization program via this medium. The rest learned of the program via word of mouth" (1989: 106). Women have been sharing information in this way since the beginning of time. This is also true when it comes to their indigenous knowledge of technological issues.

In recent years, several efforts have been launched to support, strengthen and disseminate women's indigenous knowledge. One such activity, being prepared for the Beijing meeting, is "the once in future" consortium, which is focusing on 'women, science and technology.' This

activity is concerned primarily with reclaiming women's knowledge. Another activity, mentioned earlier, is the "Do It Herself" program carried out by Helen Appleton of the International Technological Development Group (ITDG). This program recognizes that women already possess a great deal of technical knowledge - knowledge which is of considerable value. In mainstream information systems, women tend to be invisible when it comes to technology. The "Do It Herself" program focuses on women's role in technological change, with the understanding that such a perspective may also encourage appropriate policy action and technical assistance strategies in support of women's technical knowledge. The program is based on research carried out by African and Asian academics who have examined women's role in technological adaptation and change (IWTC n.d.: 1,2).

As will be mentioned later, with respect to women and information technologies, the repackaging of information is also an important format to consider. There is much information that can be transferred from one group of women to another. Realizing the heterogeneity among women, there is an implicit assumption, for instance, that academic material will only be of interest to academics, that highly technical information will only be of interest to scientists, or that midwife tales of child-birth can only be shared at a local level. In truth, such forms of information may be of great interest and support to a much wider audience, but simply need to be made applicable. Repackaging can be extremely useful when sharing information with women who are not print literate, who do not possess academic qualifications, who do not have either a rural or urban background, among others.

Dissemination Models Appropriate for Women's Information Needs

Whether knowledge is to be transferred or shared, is indigenous or pertains to a new technology, or is repackaged as opposed to taken directly, women's active participation in dissemination efforts is a crucial element to the overall process. Two such models that have been developed are the Communication for Technology Transfer in Agriculture (CTTA), developed by the Academy for Educational Development in Washington, D.C.; and the Human Action Model developed at the Environment Research Centre of the Institute of Technology in Bandang, Indonesia.

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*refer to IWTC/UNIFEM summary, pp.22/23 for discussion of CTTA

*refer to Stamp summary, pp. 139/140 for discussion
of Human Action Model

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As noted by Canadian feminist film maker, Sylvia Spring, the information formats and delivery mechanisms most appropriate for women depend to such a significant degree on context, particularly cultural context. The radio production group, FIRE (Costa Rica) feel that radio is the best medium for transferring information about women's knowledge. World View International went into Nepal and got women to tell stories about their lives, to illustrate their knowledge of technological issues. Kamla Bhasin believes that song is the best format; that women need to sing about their knowledge. What we must be aware of in all situations and contexts, however, is the importance of building bridges, between women and men, and between lower and higher income areas of the world. One thing is certain though, it is not up to others to define what information women need or how it is to be delivered. Once women are aware of their options, they can define such needs for themselves.

Gender Bias and Information Systems

With respect to information systems, the most salient gender bias has to do with the concept of objectivity. Men, along with others who have bought into patriarchal determined structures and processes, have a sense that what they define as right and normal is objectively so. They determine what is to be considered worthy information and, therefore, almost as a consequence, what is objective. Women, especially oppressed women who have become aware of their own situation, know that this way of thinking is not objective. What is expressed and determined by the male patriarchal system, cannot be objective because it is strictly male in perspective. Women and men look at the world differently.

This argument also holds true with regard to images of women, how they are understood and perceived. Historically, information about women - particularly poor women in developing countries - has not been generated by the women in question. As Stamp notes of Mueller's work:

> "Much of what members of the North American intelligentsia know about the women who live in Third World countries is made available to us through official modes of knowledge. Few of us have the opportunity to travel to meet and talk with even a handful women from other countries. Our knowledge is not of a directly experienced world. We are largely dependent for our understandings on texts which have been written in North America ...[as part of] Women in Development knowledge, produced in the social organization of Development to bring women to the attention of Development agency policy-makers and planners" (in Stamp 1989: 22).

Similarly, as mentioned earlier, consideration of how technological development either affects or is influenced by women tends to be avoided, ignored or overlooked. We must also realize, that in both developing and developed worlds, information about women generally is not controlled or determined by them. The media has a strong role to play here. The media seldom focus on

women who are significantly involved in work, careers, or in public life. Women are depicted as being tied primarily to the domestic sphere and incapable of enacting any significant decision-making power. Issues that truly concern women or which honestly reflect who they are, are few and far between (MacBride 1980:190). According to Anand, "Much of this has to do with the nature of mainstream media - who controls it, defines it, and its goals. An equally large part of it has to do with women's initiatives, or lack thereof, to strategize effectively on impacting mainstream media in order that it reflects accurately women's needs, experiences and visions" (1994). Anand argues that men tend to focus on 'hard' news, while women focus more on 'soft' news. Unfortunately, 'soft' news is perceived in the mainstream to be less important than 'hard' news. What Anand argues, however, is that 'hard' and 'soft' impact each other, together they weave a fabric that is based on a holistic approach to the perception of problems and the strategies initiated in response (ibid.). And yet, women continue to be presented in the media in negative stereotyped images. Globally, the images and roles of women found in the mass media - whether it be television, the radio, the press, advertising, or films - continue to present women as "decoration or as home-bound, physically and mentally passive and subservient creatures" (Pastizzi-Ferencic 1988:5).

How then can women be assured of an effective and equitable role in the area of information and communications? Essentially, women need to define for themselves what information they need and which formats would best deliver such information. Women simply need the same resources and support that men have received, but in ways that complement their lives. At the same time, it should also be noted that there is more involved than simply gaining material and technological equity. Once women have acquired a voice, they must also ensure that they are being heard. Men too need to go through a process of conscientization. There is a great need to examine how information about women is disseminated to men. Often, men in positions of influence and with decision-making power, know so very little about the women who will be affected by the policies determined by them. If women are truly to establish equity in the area of information and communications, dissemination efforts about women and by women must be delivered to men as well.

INFORMATION ENVIRONMENT

The Employment of Women in the Information and Communications Sector

[*Please note: I was unable to find any material pertaining to women's work in library or archival systems in developing countries, which is not to say that definitively it does not exist. Nevertheless, although much has been written about this topic with respect to industrialized countries, there does appear to be a paucity of information with respect to what is happening in lower income countries.]

Women's inequality, relative to the socio-economic position of men, is one of the greatest violations of their human rights. This is certainly the case when it comes to education and employment opportunities. For instance, two-thirds of the world's illiterate population are women, and the education of girls compared to boys is generally inferior and tends to be curtailed at an earlier age. Women need and deserve equal access to education, social participation and communication activities, which have often been denied them as a result of patriarchal structures and processes (e.g. religions and laws established as rules for governing society). With few education opportunities, women's choice of occupation is also limited (MacBride 1980:189,190). Even in situations where women are acquiring better education opportunities, the problem comes with the transition from education to employment. This is certainly true of work in the field of information and communications. This section will provide a regional overview of women's employment patterns in the mass media, followed by a brief discussion outlining the key constraints.

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*for employment in Africa, refer to Adagala, pp.13-14

*for employment in Asia, refer to Balakrishnan, pp.40-43

*for employment in the Caribbean, refer to de Bruin, pp.66-68

*for employment in Latin America, refer to Rodriguez, pp.129-130,
as well as the (CR) interview presented under question 4 of this topic

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*   essentially, provide a descriptive discussion of women's participation in print, radio, television and film

*   underline that although generally more women are coming on board, there are still relatively few women working at senior levels

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There are several interrelated issues or problems that limit women's employment opportunities in the mass media. As outlined by Esther Adagala and Wambui Kiai (1994:16), some of these concerns are as follows:

(i)   Cultural attitudes that expect women to be subordinate and subservient.

(ii)   Discrimination in job assignments and promotion based on gender bias and prejudices.

(iii)   Problems at the recruitment stage (not enough women candidates to choose from).

(iv)   Sexual harassment by colleagues and information sources while on assignments.

(v)   Conflict between taxing working conditions and family responsibilities.

(vi)   Negative societal attitudes towards women journalists since the critical, independent, assertive and self assured attitude required of journalists runs counter to cultural norms for women.

(vii) Sexist stereotypes.

(viii) Lack of adequate support facilities,.such as day care centres near places of work.

(ix)   Lack of opportunities for further training.

(x)   Women journalists' mistakes are magnified out of proportion.

(xi)   Women journalists are paid proportionately less than male colleagues.

(xii) Some male colleagues doubt women's capabilities as journalists.

(xiii) Lack of personality and drive.

(xiv) Personal problems and lack of persistence.

(xv) Most women journalists are based in capital cities due to facilities and family considerations.

(xvi) Conflict among the women staff themselves.

(xvii) Gender bias language on assignments, e.g. "Gentlemen of the press" makes women fell intruders in a man's world where they do not belong. Most sources expect journalists to be male.

Gaining access to information has changed women's lives in a positive way. Unfortunately, the reverse has not been possible, yet. Women have not been able to change the focus on mainstream media. As has been discussed, one of the main reasons for this is that there are relatively few women in the communication and information professions - in numbers, but more importantly in decision-making positions. There are also very few incentives for women to work in this field. As argued by Anand, "The workplace is largely "hostile" to women, their needs are not taken seriously, and women are equally divided between their role as homemakers and professionals. Study after study has recommended the need for day care, flexitime, in-service training and, last but not least, for men to take on more responsibilities in the home and childrearing" (1993: 53).

Education and Training Efforts

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*   discuss how training and education efforts in the field of information and communication have improved for women, particularly within the mass media

*for education in Africa, refer to Adagala, pp.30-31

*for education in Asia, refer to Balakrishnan, pp.53-55

*for education in the Caribbean, refer to de Bruin, pp.83-85

*for education in Latin America, refer to Rodriguez, p.143

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Women's Information Systems and Long-Term Sustainability

It is typically difficult for women to receive funding for information systems. Many take it for granted that information links are already in place or that it is not a major issue. In any event, it is crucial that women's information systems look toward long-term sustainability. Some women's publishing efforts, such as Women INK, and Kali (an Indian based organization) have been successful in establishing sustainability. The reason for this success pertains largely to marketing efforts. These two publishers do not only produce locally, but have become quite commercial in publishing internationally and in several languages. There is no denying that there is a strong correlation between long-term sustainability and commercial efforts.

Indeed, as argued by Anand with respect to the WFS and financial sustainability, if the service is to survive, it will have to become more commercially viable and improve its sales

revenues (1994). Greater attention will have to be given to financing and marketing. Africa, for instance, has a very low pick-up rate, whereas countries that have a WFS presence have a higher pick-up rate. The WFS is marketed in different ways: electronic mail, fax, post, telex. Products are offered based on a sliding scale fee, determined by what the client can afford. In any case, working toward sustainability has been difficult: "The WFS has realized that it will have to diversify its feature service and venture into media related areas that are more commercially viable in order to expand and move towards some level of financial self-sufficiency" (Anand 1994). One marketing tactic developed by the WFS in 1989 was to establish a 'dossier' service. All features were repackaged in abstracts and put in an electronic database from which dossiers on any subject, country, region and theme could be retrieved. Also, more recently the WFS has branched out into the production of video and radio programming (ibid.). Concomitantly, there must also be greater quality control. Using many editors from different countries and within different contexts has not facilitated a consistency of high quality. There must be strong guidelines in place.

Existing Information Policies and Their Consideration of Gender Issues

As revealed in regional studies, relatively little has happened with respect to the establishment and enforcement of information policies that consider gender issues.

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*for policy/legislation in Africa, refer to Adagala, p.31

*for policy/legislation in Asia, refer to Balakrishnan, pp.55,56

*for policy/legislation in the Caribbean, refer to de Bruin, pp.86,87

(*note: there was no discussion for policy/legislation in Latin America)

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In general, it should be noted that policies implemented at the national level often have a liberal feminist (or liberal) assumption that women are lagging behind and need to be moved to catch up to men's appreciation and use of information systems. Technology is not questioned and gender is seen, largely, as a problem of role stereotyping to be broken down so that women can fully participate in the public sphere (van Zoonen 1992:13-15).

At a broader level, it is crucial that we go back and examine the Forward Looking Strategies (FLS) generated by the UN International Women's Meeting in Nairobi in 1985. Some of the research and policy issues identified focused on advertising; audio-visual techniques; computers; dissemination of information about health-care and family planning, women's rights,

consumer protection, rural women; education and training; environmental awareness; regional information systems; UN radio programs and films; and, women's education. In summary, these are outlined below (numbers in parentheses refer to the paragraph number of the FLS document).

Advertising:

(85) High priority should be given to improving the portrayal of women in the mass media. There must be control of pornography as well as the objectification/commodification of women, and materials must portray positive images of women as well as equality between the sexes.

(206) Women must be involved in all aspects of communication policy, and must be in decision making positions.

(228) Governments and NGOs should encourage the mass media and other communication efforts to ensure public consensus about men and society as a whole sharing more responsibility in rearing children.

(367) The United Nations must carry out research activities to examine sex stereotyping in advertising and the mass media, and then take appropriate measures to eliminate negative images of women.

Audio-visual techniques:

(369) Women must be given priority in the training of audio-visual tools and equipment, and participate more fully in developing audio-visual programs.

Computers:

(208) Organizations involved with promoting the role of women in development, as both beneficiaries and contributors, should be given support to establish effective and efficient information and communication networks.

Dissemination of information about health-care and family planning:

(150) Governments should adopt policies that ensure that the information intended to reach women regarding the health of themselves and their families be relevant to their needs, and be suitably presented.

(153) Institutions and governments must make every effort to disseminate information about unsafe drugs and their ill effects.

(157) Governments should take extra measures to ensure that women be provided with the information and education necessary to assist them in making decisions about their desire to have children.

(158) Governments must provide girls with information and education about the adverse affects of pregnancy at an early age.

(159) All governments and organizations/institutes must ensure that drugs and other methods used to control fertility conform to sufficient standards of efficiency, safety and quality.

Dissemination of information about women's rights:

(48) Governments and institutions are responsible for disseminating information on women's rights. Women must be made to feel that they can protect these rights without fear of recrimination or intimidation.

(57) Government must have the capacity to both monitor and improve the status of women. To ensure effectiveness, this capacity must be realized at relatively high levels of the bureaucracy. In doing so, governments would ensure that women receive information about their rights and entitlements.

(366) International programs must ensure that women and men receive information about the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW).

Dissemination of information for consumer protection:

(229) Governments must make the effort to ensure that women receive information about unsafe goods, dangerous drugs, unhealthy foods and unethical and exploitative marketing practices.

Dissemination of information to rural women:

(184) Appropriate food-processing technologies can free women from time- and energy-consuming tasks and thus effect improvements in their health. Such activities can also increase the productivity and income of women. The design, testing and dissemination of such technologies should be appropriate to the women who will be users.

Education and training:

(207) There should be increased enrolment of women in education and training, as well as publicly operated mass communications networks. Women's employment in this sector should be geared to increased professional, advisory and decision making positions.

Environmental Awareness:

(226) All sources of information dissemination should be encouraged to increase the self-help potential of women in conserving and improving their environment.

Regional Information Systems:

(334) Governments within regions must collaborate in ensuring that the urgent need for information flows to facilitate the strengthening of women's role in the development process. Relevant, transferable and appropriate information should be a priority of regional cooperation among developing countries.

UN radio programs and films:

(370) "The present United Nations weekly radio programmes and co-production of films on women should be continued with adequate provision for distributing them in different languages."

Women's education:

(165) To ensure that women have equal access to education, there must be a strengthening of information and communication systems, particularly with respect to the repercussions of high absenteeism and drop-out rates.

Almost ten years later, it is now widely recognized by activists working in this area that the FLS document, while comprehensive in its coverage, was too grand, too vague and therefore largely ineffective. Designed to hold individual governments accountable, the Forward Looking Strategies were used effectively as a reference point but were not focused enough to ensure the desired response. In Canada, the government has met on a regular basis with Status of Women Canada to review the progress made with respect to these strategies. In addition, all women's government machineries have met on an annual basis since the Nairobi meeting, also to assess the progress made. At the UN International Women's Meeting coming up in Beijing (1995), care will be given to appraising what has been accomplished over the past ten years. Each country has been requested to report on the progress made, the idea being to prepare a tighter document that will more critically discuss the strategic areas to focus on. Although 'women and information' has not been recognized as a critical concern *per se*, the issues that are being focused on will certainly reveal women's progress in this area as well as identify future strategies.

IMPACT OF INFORMATION AND COMMUNICATION TECHNOLOGIES ON WOMEN

Women's Participation in New Information Technologies

As addressed in the Nairobi Forward Looking Strategies, there is an urgent need for information flows to facilitate the process of integrating women in development processes in ways that will truly benefit them. New information and communication technologies (NICTs) have great potential to support such a goal. Women's involvement with these technologies has increased over the last ten years and for many has become an every day form of communication and information sharing.

Generally, women's participation in the area of new information technologies is practical in nature. Women's interest pertain more to an end than a means approach. Interest tends to not be in the technology itself, but rather in what the technology can do. For instance, in April of 1991, the IWTC organized a workshop with some leading women's organizations from around the world to develop skills associated with desk-top publishing and computer networking. In total there were nine groups in attendance, with participants from groups such as FEMNET, TAMWA, among others. All but two of the groups had computers already. They had the technical capacity but not the expertise required to communicate effectively. The workshop focused on how to improve the efficiency and effectiveness of their work requirements. The workshop generated much interest and enthusiasm. With the new tools acquired, women gained control over production. Previously, women would have sent their work out for typesetting. With these new technologies, women can now take care of the production themselves. Their work can be more reflective of who they are and how they think. They can use their own graphics, as opposed to "clip art" which is often based on negative stereotyped images of women. In truth, the enthusiasm generated from this workshop was so great that a publication, *Computer Newsnote*, with a circulation of 7,000, was produced as a result.

Electronic mail (E-mail) is another technology that women approach in a practical way. For many, E-mail is a great communication tool because it is relatively cheap and much faster than other modes of communication. E-mail is important because it is more horizontal in nature than some of the other communication formats. This way of communicating is very much in line with the way women tend to communicate. Women generally prefer to avoid hierarchial lines of communicating and have little problem with sharing information. E-mail is also useful for producing and disseminating information quickly. Such efficiency is valuable when an idea comes to mind that can be shared and given feedback within a relatively short time-frame. In a discussion presented by Jennifer Light (1994:5,6), it is argued that computer-mediated communications (CMCs) have capacities which offer women the potential for community and control in four ways:

(i)   they facilitate group decision-making;

(ii)   common interests are stressed because of the absence of identity cues unrelated to the issue at hand;

(iii)   community and cooperation may also be fostered by the lack of salience of non-issue related differences; and

(iv)   spacial limits to organizing for political purposes are reduced.

Some of the leading women's networks include the following:

Echo: Women's Action Coalition, Women in Telecommunications, and Women's Online Network, New York;

Elletel: Agence Femmes Information, France;

Big Sky Telegraph: BBS connecting Montana Women's Centres;

PENFEMME: on the Santa Monica Public Electronic Network;

Mexican women's groups against NAFTA: on the Institute for Global Communications networks;

Women's Networking Association, Cameroon; and

gn.women.unwcw, Association for Progressive Communication (APC, along with GreenNet and the IGC have had two conferences setting up an NGO liaison service, posting all 95 of the Beijing conference documents on line and in three languages).

Women's networking groups report that isolation can be reduced and empowerment enhanced in a liberating way. Within communities, networks facilitate the voicing of opinions. Unfortunately, for some, this way of communicating can lead to "information overload" which is sad given the fact that other people have too little access to information.

Similarly, relatively few women in lower income countries have been in a position to take advantage of such technologies. Required costs, resources and infrastructural support often make it impossible for women to share information in this way. Nevertheless, the repackaging of information is one alternative worth exploring. Ideally, repackaging could become part of women's networking activities. IWTC has become particularly successful in this regard. Recently they have been involved with rural women in areas of the South Pacific, providing them with support for computer networking. Of interest is that to get the program initiated, one of the things they did was recycle an old Japanese satellite. Given the opportunity, it is clear that women can be immensely creative in finding ways to share and benefit from each other's knowledge.

Control, Access and Rights to New Information Technologies

Women are far less involved than men with new information technologies (ITs). However, the question as to whether women have less control, access and rights to these new technologies is far more complex than an assessment of the extent to which they use them. Underlying this complexity is an androcentric belief that women are fearful of computers and lack the self-confidence to do well in the field of information technologies. As will be discussed with respect to women's education and employment in the IT sector, there are many complex and interrelated factors that influence control, access and rights; much of which is determined by long-standing expectations about stereotyped gender roles and behaviours.

In truth, there is some recognition that women's control, access and rights to new ITs are gradually improving. As discussed by Light, the gender identity of a technology can be modified by the modes of interaction users develop - witness the telephone, originally intended as a business instrument but substantially transformed by isolated women. Computerized telecommunications share this empowering potential for "adapter reinvention" to aid women's networking. Women's desire for separate space is exemplified on Echo in New York, where there are 3 women-only channels. Perhaps cyberspace can become a 'women's room' (1994:4).

Still, even for women who have moved through the process of "adapter reinvention," there are a number of more concrete factors that will determine ones access to and control of new ITs. First, consideration must be given to whether a network is public, based on subscriber fees, whether there are public terminals and instructional sessions, whether a group moderates its use and establishes policies. For instance, the National Women's Agenda Satellite Project was stalled by NASA's control over topics which could or could not be discussed. Second, potential users may lack infrastructure such as wiring or access to a computer, encouragement from parent organizations, knowledge or resources. Third, broad-based networks such as Internet are expensive, institutional affiliation is virtually a necessity except where Freenets are established. For this reason, discussion groups devoted to gender issues may be heavily biased in favour of academic interests. There is real concern that networks could make information more expensive and increase the distance between those who can afford to be online and those who cannot. Technology transfer and donor aid will be necessary or the gap between the information rich and the information poor will grow. Language may be a final barrier to access. For a world-wide women's network, translation and mediating regional language differences may be both expensive and vital (ibid.:8-14).

In reality, much depends on context. Established groups tend to have greater access and support, more so in the North. In the South, there are also established groups, but not to the same extent. The real problem has to do with the environment within which the access exists. Clearly, much has to do with who one is associated or affiliated with, among other broader factors such as country telecommunications clearance, dedicated telephone lines and government surveillance.

For instance, with the IDRC supported "women, environment and development network" (WEDNET), many of the access and control problems had nothing to do with gender bias *per se*. For the electronic mail component, nodes were set up in Nairobi, Dakar, Harare and Accra, but finding dedicated telephone lines was extremely problematic. It is also worth noting that in Accra, there were additional problems in that researchers were worried about government surveillance. Some were hesitant to use the electronic mail, believing that there could have been severe repercussions if the government were to learn of their research efforts.

Information Technology and the Empowerment of Women: Voices Heard Locally, Nationally and Internationally

When information technologies are feminist informed, there is a significant potential to build strong and effective alliances among women, as individuals and in representing larger groups. For instance, despite some of the problems encountered by the IDRC supported WEDNET project, the effort was immensely successful in establishing a meaningful bond between the Canadian and African Coordinator, a relationship which had a positive impact on the project as a whole. The cost of networking (via electronic mail) was not expensive and between Nairobi and Toronto telephone lives were accessible. Furthermore, having the capacity to communicate regularly and on a personal level was extremely beneficial in building trust, a crucial component when working in cross-cultural contexts. As a result of this communication activity, solidarity was established at a personal as well as management level.

The Central American group, Telemanita, also has much to do with the concept of solidarity among women. Based in several Central American countries as a feminist collective working with film and computer networking, Telemanita is not just about "how to," but also about establishing a voice. As a result of their activities, women now have a presence at communications conferences. For instance, in May of this year, 15 women joined in El Salvador to evaluate how women can affect change through new information and communication technologies. Women are working together at the regional level in Central America and are discussing issues such as how to provide support to women who are connected with revolutions in Central America.

The upcoming World Conference for Women in Beijing, could play a major role in positively redefining women's relations with new information technologies. Previous consensus-building, carried out through computer networking, aided the impact of women's NGOs at the 1992 Earth Summit and the 1993 World Conference on Human Rights. This same movement of solidarity is underway in preparation for Beijing (Light 1994: 2,15). Providing women with immediate access to information, computer networking has provided women with an opportunity to share experiences and experience a greater sense of empowerment.

As stated in the *Human Development Report* (1993), computer networking can facilitate women's access to the decision-making and power structures essential to participation. Information dissemination is making it more difficult for governments to monopolize what is known while enhancing media awareness of events all over the world. Empowerment, in particular group empowerment, increases with communication and information (Light 1994:14).

Constraints and Barriers

Microelectronic or computer-based technologies are being introduced around the world into labour environments which are deeply divided, both within and among countries, and certainly with respect to one's gender. As argued by Valerie Frissen, the value system underlying technological practices, including the new information technologies, are often seen as masculine. Because these technologies are not seen as a natural and logical expression of women's culture, women are often discouraged from their use. Women tend to be depicted as standing on the side of nature, while men are depicted alongside power and technology, assumed of course to dominate nature. These perspectives neglect diversity and complexity (Frissen 1992:32-35).

At the same time, studies reveal that men and boys are more likely to use new ITs in the home and to use them for leisure activities (ibid.:41). Historically, men have established greater legitimacy in maintaining leisure time, assuming that it is their right for instance to 'play around on the computer.' Often referred to as a 'boy toy,' computers have actually had a considerable impact on household gender relations with many women claiming to have become 'computer widows.' To be sure, women are far less involved than men in the use of new information technologies.

With respect to computers, studies have documented women's distance from them in various spheres: among girls in math and science classes; from the values implicit in computer languages and games; in the university environment of dimly-lit computing labs, few mentors and hostility; and in the pornographic and harassing environment of open fora in cyberspace (Light 1994:1). The computer itself is not regarded as 'women friendly.' For many, a MacIntosh would be preferable because it uses icons and is more 'user friendly,' but few can afford these. Also, training on computers is seldom focused on what women are concerned about and so it is difficult for them to relate to. In addition, women seldom receive training before men. All these concerns seem to come back to long-standing sexual divisions: ideologically, economically and politically.

In general, women do not have a love for technology; they do not care about making a machine or a program that will churn out more numbers faster. Women are interested in the application of computers, what computers can tell them about people or issues that concern them. As argued by Jansen, computers, or 'clean machines,' reduce the concept of information to numbers and arithmetic operations - the kinds of messages which circuits can accommodate. In

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this sense, reasoning is largely reduced to classification. Following Gilligan's line of thinking on how women and men communicate differently, classifactory reasoning can be seen as being closer to the masculine-gendered mode of reasoning than it is to the context-based or relational reasoning of women (1989:204,205).

There is one alternative approach that would improve women's ability to work with computers in a positive way: to break away from "formal" training and develop programs that focus on issues of concern to women. As it is, the programs and training around computers are too mysterious for women. Training must be relevant and practical. Another important issue is that there should be more women trainers, especially for women who are learning how to use computers. It would be ideal to have classes with all women participants and all women trainers to help break down some of the gender biases and consequent barriers, i.e. feelings of self-consciousness. Among each other women are more willing to share and learn from each other's inadequacies.

More generally, outreach programs, helpdesks, help menus and user friendly softwares are vital if women are to make use of the new information technologies. In poorer countries more particularly, the technology may be seen as 'foreign' in additional senses and not as malleable to local needs. Nevertheless, as stated by Munasinghe, "Once the technology is understood by some and used by many in the developing world, it becomes domesticated, familiar, non-threatening, and therefore capable of being harnessed to meet one's own needs" (Light 1994:12).

TECHNOLOGY ENVIRONMENT

The Employment of Women in the Information Technology Sector

Internationally, there is a low percentage of women involved in information technologies, both in terms of employment and education. This is due, in large part, to sex-stereotyping. In a study carried out by Cottrell (1992), about one third of the computer science departments polled had no women faculty at all (Shade 1993:2). This situation is apparent in both the North and South. At a global level, women's employment in telecommunications, or information technologies more generally, is almost invisible. According to Mona Dhams, who worked for several years in Tanzania as a trainer in telecommunications, women's employment in technical areas tends to be less than 20 percent. Of interest is that in Tanzania, during the early socialist period (late 1960s to mid 1970s), women and men received equal education and employment opportunities in telecommunications. Women received the same salary as men, as well as free housing. However, with travel benefits, including rather lucrative per diems, the situation was not the same. Indeed, it was not uncommon for women to have to perform "certain favours" with their employers to ensure the travel benefits. There was in fact a great deal of sexual harassment, but this was seen as common place at the time. More recently women's employment in telecommunications in Tanzania reflect the global figures, which in many cases is almost non-existent (Dhams 1994). Dhams also notes that the number of women employed in telecommunications, like in many other technical trades, decreases increasingly as you move up the hierarchical level.

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Of significant concern is that computerized automation, generally led by men, is taking over jobs once held by women... refer to Henwood summary, pp.99,100,111,112

*   labour intensive assembly tasks performed by women, particularly in lower income countries (and the NICs) are being taken over by computerized automation

*   new software and training skills being taught mainly to men

*   in second generation NICs (Latin America), computer-based programming jobs are moving from shop floor to office, and are dominated by men... women's access to these jobs is threatened

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Of equal concern is the deskilling of clerical work... refer to Henwood summary, pp.102,114; the Frissen summary, pp.37-39; and the Jansen summary, p.198.

*   computer/technological skills tend to be gender-labelled

*   women tend to use computers in lower paid categories of employment and the quality of women's work in terms of fulfilment decreases

*   transformed clerical technology now assumed by men does not lead to a lowering of their skill label... while women are moving down in the employment hierarchy, men seem to be moving up

*   the more routine tasks now assumed by men, may revert back to women but will be considered of lesser value

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Education and Training for Women in Information Technology

Education in Telecommunications and Computer Science

According to Mona Dhams, one of the greatest factors impeding women's ability to work in the area of telecommunications pertains to their under-representation in technical education. Although it appears that entry into such education processes and structures is gender neutral, this tends not to be the case. When she was teaching in Tanzania in the 1980s, she realized that very few women were enroled in the program. In general, women represented less than five percent (1994). The reasons for this under-representation are many and varied, yet underlying such factors is the fact that in general such education opportunities are geared toward the needs and aspirations of men. While 'entry' may in fact be gender neutral, the incentive to enter and the incentive to remain reveal a significant degree of gender bias. For instance, drop-out rates indicate that women are often frustrated by such biases and are often made to feel uncomfortable in such environments. In most cases, if anyone must adapt to the "way things are done," it is women, not men. Certainly, this situation is not encouraging for women contemplating such an education.

In the field of computer science, male professors and male students tend to reinforce powerful patriarchal values, which directly or otherwise work to marginalize women. Academically, there are relatively few women studying computer science at higher levels of education. In this day and age, information technologies have the power to change the world regarding economic growth and production. Women have much to offer and as such their absence in this occupational field must be investigated and given greater attention (Rasmussen and Hapnes 1991:1107).

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*   discuss women's peripheral position as students in such education settings, refer to Rasmussen summary, pp.1112-1117

*   discuss related factors such as computer use and knowledge, examinations that are male-oriented (women do not do as well), the image of the computer scientist, women's preference for the 'soft' side of computer sciences (as opposed to telematics or cybernetics), refer to Durndell summary, pp.284-286; Rasmussen summary, p.1113; and (MD) interview under Technology Environment, response to question 2

*   also problematic is that women generally do not have the educational background required for such programs; and employment possibilities for women are lower scale, refer to (MD) interview under Technology Environment, response to question 2

*   discuss how to increase women's participation in computer science education... a greater link with the social sciences or humanities, refer to Rasmussen summary, p.1117

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Training in Computer Use, Computer Networking and Computer Assisted Training

With regard to computers, women have relatively fewer training opportunities than men, and what is available to them tends to be male-oriented in its delivery. Even though access to the computer and computer training has witnessed a substantial extension and democratization, women are more likely to use training to survive in a transformed workplace that to advance their interests. As mentioned above, reasons for this marginalization of women has much to do with gender bias and expectations about stereotyped gender roles.

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*   as a means of dealing with such biases, the 'popular laboratory' was set up as an experiment in Montreal... *refer to Brunet and Proulx summary, pp.80-83

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There are essentially three modes of training required by women: (i) training on the use of computers, i.e. aspects of the keyboard and typing, basic computer concepts, operating systems, and different softwares, (ii) training in the area of computer networking, in terms of how to use electronic mail and bulletin boards, and (iii) CAT (computer assisted training) which is provided by softwares that allow a student to work through a lesson or presentation on a monitor

and to correspondingly respond as outlined by program instructions. No matter which mode of training women are interested in, they need intense training support to get by the many negative stereotypes associated with computer technology. Unfortunately, women have bought into this stereotype which, along with the gender biases that work against them, has affected their ability to learn. As such, training must be extensive, on-going, must incorporate human relational elements, and be 'women friendly.'

Financial Issues

Although there has been an increase in financial support given to information technologies, if special attention is not given to providing women with greater access to these technologies, they will not benefit. Poor women cannot afford to get involved with such technologies, particularly poor women in lower income countries. As mentioned earlier, a crucial response may be to give support to intermediaries who take information (via computer networking for example) and repackage this information in formats applicable to local women.

At present, women are almost totally dependent on donors and realize, as such, that too much is being directed by donors. Many women, for instance, do not care about Beijing; it is not on *their* agenda. But in order to get funding, they agree to do something in preparation for Beijing. At times, donor demands keep women so busy that they are not able to attend to what they really care about and from developing skills and activities that ultimately could contribute to their becoming more self-sufficient. These groups need a stronger voice in determining their own priorities and how best to carry them out.

Long term sustainability is not possible as yet. The only way women's information systems can become financially viable and sustainable at this point is to become involved with a larger, established network such as the APC. There are many opportunities for gender networking within APC that are not being taken advantage of. Furthermore, we need to reach a wider audience than is possible on a strictly women computer network. We need to take a feminist and gender approach, but not in isolation.

FUTURE RESEARCH AND POLICY ISSUES

INFORMATION CONTENT AND DELIVERY

Research Issues:

* In what instances do the structures providing access to literacy, information, communication infrastructures and to technologies serve to withhold information from women?

* Further research on the use of various media, whether word-of-mouth, radio, television dramatizations or databases, to collect and disseminate information for, by, or about women is needed as are overviews which consolidate the experience to date and identify strengths and weaknesses of various approaches to delivery. Particular attention needs to be directed to attempts to overcome barriers for women as the result of illiteracy, language or comprehension differences, isolation and cultural constraints.

* Further documentation, dissemination and appreciation of women's indigenous know-how and communications systems (as in birthcare, maintaining plant stocks, etc.) should be encouraged. This information should be presented in ways which indicate to policy makers the vital role of women's knowledge in development and which suggest how such approaches might be appropriate to new areas of technological skill.

* What happens when women participate in deciding what they need to know and how they can best access that knowledge? Projects which use this approach should be reported and assessed. Do women in various contexts indicate that they learn more readily from some media or with particular approaches?

* Research is needed into how skills and know-how can be re-presented or transformed in order to be more accessible and relevant to women.

* Research into, and evaluations of, development projects should take into account the local expertise of women and encourage and protect their role in technological change.

* Research into media depictions of women, local and international, and the consequences of such for women's confidence and participation in technological development, should be examined.

Policy Issues:

National:

*   Identify the intended users of technological skills (with particular attention to women's roles) and select delivery strategies appropriate to their needs and comprehension capacities (e.g. non-written or written media; language facility; time and opportunities for access; family constraints).

*   Assess the appropriate communication formats for various purposes taking into account which modes can best reach all levels of society; contribute to participatory and horizontal communications; and which are more women friendly.

*   Establish women's resource centres to facilitate technology training for women in an environment which accommodates their family roles.

*   Dissemination of information from all channels should be improved together with means of dialogue between users and producers of information. Also trans-cultural, multi-directional dissemination of women's information should be encouraged. For example, repackaging might make technological knowledge more accessible to illiterate women and make their know-how more 'countable' by national economists and statisticians. (Care must be exercised lest women lose ownership of newly-appreciated skills.)

*   Increase women's awareness of various media options and encourage them to transform existing media to their purposes.

*   Support the training of women political leaders to better represent the concerns of women, information and technology.

International:

*   Promote the development of new categorizations and definitions of what counts as technology, skill, or communications media which take into account women's ways and needs. Disseminate such approaches to statisticians, economists and policy-makers so that women's knowledge can be counted.

*   Encourage the collection and dissemination of information on women and information (such as that listed above) across national borders.

*   Promote women's networks and making communications links accessible to women.

* Encourage development strategies which are women appropriate, build on local knowledge and ensure local capacity to innovate. This requires an awareness of women's key role in local production, processing and marketing.

Institutional:

* Further national and international projects which promote women's access to, and control over, information. Develop regendered classifications and understanding of what counts as information and skill, of the role of women in technological development, and of the importance of sensitivity to women's needs.

* Disseminate their research on projects which draw on the input of women and promote women's involvement in technology. Develop and disseminate information on women's communication's strategies and their comfort with various media formats. Document the use of assessment procedures which take into account women's role in technological change, the strategies developed from this input, and any evaluations of the resulting development strategies. Ensure that this information be shared with appropriate stakeholders.

* Subcontract local, regional and international media groups as well as NGOs to implement communication programmes and projects.

INFORMATION ENVIRONMENT

Research Issues:

* At what points are potential opportunities for women in an information-based economy foreshortened - within the realm of education, post education, within the work world, or outside any of these spheres (in the private world or culture)?

* What factors have constrained progress in regard to the FLS on improving the portrayal of women in the mass media; why has progress occurred where it has and what can be done to increase leadership in this area?

Policy Issues:

National:

* Attack the problem of sexual harassment and the opportunism of male superiors which may constrain women in the media.

* Address the requirements for day care, flexitime, and ongoing training of women in the media.

* Priorize women's access to information technologies and training.

* Devotion to promoting women's rights must be realized at high political and bureaucratic levels. Those with commitment and responsibility in this area should be given senior positions.

* Information for consumer protection (such as medicines and unhealthy foods) and concerning health and birth-control must be disseminated to all women in a form which they can understand and use.

International:

* Address research to the nature and consequences of sex stereotyping in the media.

* Seek ways to challenge national and regional governments, political parties, unions, NGOs, and the media with regard to the relative lack of progress in the area of the portrayal of women in the media.

* Develop research and strategies to foster the view that child-care is not exclusively the duty of individual women.

* Support for women's media productions should be continued and rendered more accessible by distributing them in different languages.

Institutional:

* Seek to dispel the view that the male perspective is the only appropriate voice for news and information and to illustrate, by example and encouragement, that a woman's voice is valid.

* Promote the fiscal sustainability of women's electronic news services by sponsoring and using them where possible.

* Priorize training for women in information-intensive fields.

* Encourage regional flows of information and cooperation concerning women's role in development.

IMPACT OF INFORMATION AND COMMUNICATION TECHNOLOGIES ON WOMEN

Research Issues:

* Given that many women are initially discouraged by the male-designated character of NICTs (arbitrary, mechanical, etc.), research could profitably examine the ways in which this resistance is best ameliorated. Are women-only and women-led courses more successful? Is immediate need a vital spur? Is the availability of technology a key issue? How do women tend to readapt what is taught?

* Beyond women's adaptation of existing models lies the ultimate objective of re-design. Attempts to write computer interfaces, programs, applications and languages which are more in line with women's ways should be encouraged.

* How do women relate to computers and telecommunications in the home? Do they (if in control) situate the technology in different places, see it in different contexts, use it for different purposes? If so, what lessons can this suggest for the way these technologies are situated in the work place? Also, what do these adaptations suggest about the way in which re-design might profitably occur?

* What might be the effects of the way in which NICTs have the potential to transform the separation between home and the world outside the home? Are their potential benefits for women, as well as pitfalls, in this reconfiguration?

* What strategies have been, or might be, used to reduce start-up and access costs for women's groups? A resource documentation centre which sought out less-expensive, recycled or shared options and matched needs to resources could be very useful. (Technology firms now often donate old equipment to universities.)

* The World Conference for Women in Beijing has itself served as a powerful test-case of the collaborative and empowering potential of strategic networking among women's groups. This suggests that the opportunity should be taken to carry out further research on this subject by gaining insights from those who participated in the entire research and networking effort.

Policy Issues:

National:

* Studies should be conducted of the ways in which men and women now receive training in NICT's and ways sought to eliminate biases in terms of who teaches, what is taught, where different courses are taught and how?

* Studies should explore the capacity that different technologies offer to being 'domesticated' to local needs. Proprietary or commercial practices which inhibit this may need to be examined.

* Connecting and encouraging the purchase of technology among the leading sector of society should not be priorized at the expense of less visible segments. Freenets, library and community based IT centres and translation services are necessary. Every effort should be made to ensure that enclaves are not formed between the information-rich and the information-poor (the 'plugged-in' and disconnected).

* Enterprises which intend to develop women-oriented software, training and applications should be supported together with related research.

International:

* Translation software, expanded beyond the major world languages, could play a vital role in bringing global information technology's potential to those who need it most. Therefore, supporting research with this objective is a way in which international organizations could seek to ensure that information gaps are not expanded.

* In additional to Beijing, women's groups may want to collaboratively establish policy as to what they see as the research priorities for science and technology in the fields of information and communication with the objective of expressing these to governments.

Institutional:

* As a means to include groups who speak lesser-known languages, institutions may house multilingual associates with an ability to contribute to translation efforts.

* Academic feminists, bearing in mind the risk that they could monopolize women's networks, could encourage each other to find ways of sharing their resources with women lacking access. Dissemination of such strategies and of successful cross-cultural links would encourage others.

TECHNOLOGY ENVIRONMENT

Research Issues:

*   Further examine the gender-bias evident in skill labels (such as technical versus non-technical work), and the designation and allocation of the qualities which merit training and promotion in the wake of technological upgrading. Investigate how these act as a glass ceiling for women faced with new technologies in the workplace.

*   Examine the ways in which what women know is systematically devalued.

*   Approach the problem of women vis-à-vis computers and information technology with the perspective that women are not the problem. In that case the technology, its structure and context must be more critically examined with an eye to how it alienates women.

*   Conduct gender-sensitive, long-sighted studies on the effect of the diffusion of computer technology on skills and employment and on ways to minimize unnecessary hardship for female employees.

Policy Issues:

National:

*   Studies and evaluation of school-leavers and of technical education enrolment should be oriented so as to be gender sensitive. The ways in which technical and scientific education particularly marginalize and misrepresent women should be studied and addressed.

*   Women's relative absence from the field of information technology should be recognized as a problem for the field as well as for women and as an omission to be addressed.

*   National research in the fields of science and education should be directed to assess the potential of a more contextually-relevant computer science. Women may be more inclined to study computer skills if they are directly related to their primary objectives (from teaching to farming).

*   Support for research and technology development, through tax subsidies or other initiatives, should be targeted to ensure that women benefit.

*   Enterprises interested in serving as intermediaries who re-package information for the purposes of unlinked women's groups should be fostered, particularly if they are non-profit projects.

* Female role-models and mentors appear to be needed to encourage women's entrance and advancement in the fields of advanced technology.

* The constraints which limit women's employment in these high technology fields (from lack of child-care to harassment) need to be addressed.

* In view of the advance in computer-based technologies, the effects on women's employment and skill levels must be addressed with a particular focus on retraining and upgrading for women.

* As long as men continue to control planning, there will not be equitable gender participation in the field of information and communication technology. With respect to telecommunications, women represent half of the users and yet they are severely under-represented as producers. There must be greater gender awareness and commitment in this regard.

International:

* Facilitate direct access to international information sources from the South in order to encourage locally-directed research and policy as well as training and skills development.

* Promote research into the international ramifications of the interaction of women and computer-based technologies.

Institutional:

* Encourage recognition of the connection between the need for women to acquire computer and information skills and the need to enhance women's participation in politics and leadership so as to encourage pro-active policies by political parties, international and national NGOs and other institutions.

* Institutions need to put in place Human Resource Development policies that are gender segregated and which focus on the following:

  (i) Carry out gender sensitive studies to get a sense of where things stand at present; what are the gender imbalances and why do they exist?

  (ii) Develop a plan/program that will allow the development of staff already in place; opportunities must be available to allow women to develop equally alongside men. To allow for this equality or equity, women should be provided with training to help develop their qualifications.

(iii)   There should be elaborate HRD policies in place that outline career ladders, in terms of what courses are required, etc. as opposed to "who knows who" (particularly along tribal lines as in Tanzania).

(iv)   Their should also be a mechanism in place that ensures people are coming for training out of a genuine desire, rather than a desire for the money acquired by accompanying per diems.

(v)   At universities "women-friendly" education in technical areas is needed; technical programs must also incorporate a social science perspective; there needs to be a more holistic perspective in our overall approach.

*   Employers could also work with particular schools by agreeing to hire women once they have completed their education.

INTERVIEW RESPONSES

People Interviewed:

Mona Dhams (MD): Mona was employed for several years as a training expert in telecommunications in Tanzania. Her responsibilities involved the training of technical officers in the field of telecommunications, and it was in this capacity that she came to realize how women's participation has been very low in this field. Mona is also one of the leading members of GASAT (Gender and Science and Technology). *Her interest with this group has focused on women getting involved in community education. At present, Mona is involved in a Swedish SIDA contract to examine on a global level, women's participation in telecommunications, energy and transport. Upon completion of the study, it is SIDA's intention to revise its gender program with the objective of including gender aspects in all its technological projects.*

Bonnie Kettel (BK): Bonnie Kettel was the Canadian Coordinator for the "Women, Environment and Development Network" (WEDNET) supported as a project by IDRC in the late 1980s, early 1990s. The project brought together francophone and anglophone researchers from Canada and areas of Africa who were involved in such issues. The African Coordinator was attached to the project base in Nairobi and was largely responsible for the budget. Bonnie's responsibility as the Canadian Coordinator was to provide bibliographic support. All other responsibilities were shared between the two, and were overseen by a project leader, also based in Nairobi.

Alice Mastrangelo (AM): Alice has been working with the International Women's Tribune Centre (IWTC - New York) for the past five years, and has been particularly involved in desk-top publishing as well as computer networking for women. The IWTC has had a technical bent for some time, having realized that this area of expertise had not been picked up by other women's organizations. The IWTC has a particular concern for working with illiterate and semi-literate women and their ability to organize.

Catherine Russo (CR): Catherine is a film maker who has been working in the area of public access to information for the past 20 years. In 1985, she moved to Mexico and got involved with Human Rights media in Central America. She worked with people so involved, but had a very strange feeling about being "in control" when it came to using the camera. Over the last three years she has had the sense that people wanted to use the cameras themselves. She set up Telemanita, an NGO established in all Central American countries except Panama, to work with established groups involved in Human Rights issues. Half the people she works with are illiterate. There are centres in each country where people come for training. It has not been difficult to get film equipment for people... but it has been difficult to get editing equipment. They are now in the process of setting up an editing centre that will cater specifically to women. In August of this year, Telemanita will host a workshop called "Reframing Frontiers" in Houston, Texas. The workshop will bring together 40 women from the America's working in community electronic

communications, and will focus on production, distribution and use of communications for women's development issues.

Vicki Semler (VS): Vicki is the associate director of the International Women's Tribune Centre (IWTC) in New York.

Sylvia Spring (SS): Sylvia is a film maker working in the area of gender and development issues and was also the founder of MediaWatch in Canada. From 1979 - 1982, she worked with the CRTC in researching and putting in place guidelines that would attempt to change sex-stereotyping of women in Canadian media. The final product of this effort were a set of regulations entitled "Images of Women" which also called for greater representation of women in the media.

Information Content and Delivery:

1.   How would you describe the impact or effectiveness of information in bringing about change for women, including their empowerment?

(CR)   For many poor women, a transformation takes place the first time they see themselves on film. The whole process brings issues that seem to be "way out there" and difficult to influence, much closer to home. For instance, one small village group of women produced a video on domestic violence. The women decided themselves what they wanted to do and how they would go about doing it. Many groups choose to deal with human rights issues. This format of sharing information is used for education purposes, media literacy and consciousness-raising. There are also workshops being provided for these women on how to watch TV in a different, more critical way... to identify negative stereotyped images of women... images which influence women as well as men. The workshop coming up in August (see above under Catherine Russo) "Reframing Frontiers," will bring together 20 women's groups from Central America and 20 women's groups from North America.

(VS)   We can look at this in many ways. First we need to realize that women are not homogeneous. We must certainly look at and realize literacy rates. We must also question what we mean by "information." Information defined by who... and for who. For instance, in India in 1961, 10 million US was spent on women and information in terms of looking at the issue of women and family planning. It is interesting to note that when there is political will to reach women, the money is there, despite the degree of illiteracy among women. Usually, ulterior motives are involved. Historically, the mainstream has not been providing women with information that will allow them to make informed choices about their own lives. In fact, often information is withheld from women. It should also be noted that lately there is a development trend to provide funds for the education of women... but we must be careful in realizing who is defining the body of information deemed to be appropriate for women.

2.   How can traditional, indigenous knowledge held by women be shared and used more effectively?

(AM)   This is possible in many ways. One activity being prepared for Beijing is the "the once in future" consortium, which is bringing together women, science and technology. This activity is concerned with reclaiming women's knowledge. Other concerns have to do with sustainability... challenging the existing or predominant paradigms, in view of what women are doing... have been doing for ages around the issue of sustainability. Another activity is the "Do it Herself" project carried out by Helen Appleton (see under articles section of this workbook), which documents women's indigenous/technical skills. This

activity focused on several case studies carried out in lower income countries... by the ITDG (International Technical Development Group). TAMWA too is involved in such activities, particularly in the area of traditional healing and traditional cosmetics.

(SS) So much depends on context... cultural context. The radio production group FIRE feel that radio is the best medium for transferring information about women's indigenous knowledge. World View International went into Nepal and got women to tell stories about their lives... that would illustrate their knowledge about seemingly technological issues. Bhasin, thinks that the best format is song... that women need to sing about their knowledge. What we must be aware of in all situations or contexts is that it important to build bridges... between men and women and between the first world and the third world. One thing is for sure, it is not up to others to define what information women need or how it is delivered. Once women are aware of the options they can define for themselves.

(VS) There also needs to be much attention given to women's indigenous knowledge. There are people working in this area.

3. For women in lower income countries, what are the gender issues affecting control, access and rights associated with information systems? How is this different for poor women vis-à-vis middle or upper class women?

(VS) First we have to deal with the issue of women and literacy. Women are still so far behind. Once women are literate then we need to examine what information newly literate women have access to. Second, we need to look at strengthening women's access to information in terms of appropriate policies. Third, we must examine how women have become dependent on letting others decide what is important for them to know. This is a particularly critical issue when it comes to science and technology. The fourth issue we must look at has to do with information brokering... everyone is looking for ways to get their issue on the agenda... the most vulnerable women have a hard time both figuring out what their issues are and how to get them on board. The fifth concern pertains to how do NGOs and other like minded groups get "women and science and technology information" on the development agenda... it is not sensational... no one is dying. A sixth concern pertains to the few number of women working in this area... and the idea that "information" is gender neutral. A seventh concern realizes that when issues finally do become high profile, everyone wants to get on board ...and end up taking over in ways that are inappropriate and uncalled for.

(VS) At the first UN International Women's meeting in Mexico in 1975, middle and upper class, educated women (who were in a position to attend), began looking at women's access to information. Although these women may not have been able to represent poorer women, they were successful in setting up women's organizations and getting things

rolling. Most importantly, the first UN meeting for women indicated a willingness to bring new kinds of information on board.

4. How are information requirements defined? Who participates in the definition process?

(VS) Women do not necessarily have choices about what information they need, but more choices are available to them... although still, what is available is not necessarily what they need. We, as women in the North must be careful, for even we create information according to our own definition and our own image. We need to really listen to women from the South, in terms of what information they need. We definitely need to look at the approach taken to supply information differently. One group who has been successful in this area is Kali, based in India. They held workshops with 7 or 8 rural women's groups to develop a health manual. As such, they came up with something that was truly unique and truly in line with what women need. The first dissemination effort resulted in a circulation of 500 copies... now, with the support of the UN, 10,000 copies have been disseminated.

(SS) There must be an iterative process, whereby women at least participate in defining the information they require. Once women have tools and access to information, they are there, they can define for themselves. Women need technical support more than anything. At the same time, must also consider "what information" is being required and by "who." In 1975, she was working as the director on a video about Cuban women, with a production manager whom she had brought on board, a woman from Montreal. She didn't speak Spanish and felt very uncomfortable about trying to represent these women faithfully. She was constantly trying to check her perceptions to make sure she was getting the message clear. Interestingly enough, the woman she was working with from Montreal, chose to work this situation against Sylvia. She was interested in taking over the "directorship" so this woman, who was very aggressive, went to the production company (male dominated) and convinced the powers that be, that Sylvia was not being assertive enough with these women. In Sylvia's mind, however, the production manager was not the least bit sensitive to representing the women fairly and only wanted to get her production done with. In the end, the production manager did take over the directorship... but ultimately blew the picture... what they had initially hoped to address got lost in the process... the final product was more of a travel brochure than a film about Cuban women.

(BK) One of the major problems that arose in WEDNET pertained to language. Bringing together francophone and anglophone researchers from across Canada and various African countries, the language barrier proved to be problematic in defining women's information requirements. The francophone researchers were greatly outnumbered by the anglophone

researchers. When it came to addressing translation needs, the francophone members of the network found it necessary to take a political stand with respect to the anglophone content. They were also disappointed in the bibliographic support they received, arguing that they did not receive nearly the same amount of materials as the anglophone researchers. In truth, very little had been written in french on this issue. What was most critical, however, was the assumption that in having a common research agenda these women represented a homogeneous group. They were not and as such their individual information needs were not adequately addressed.

5.   Which information formats and delivery mechanisms are most appropriate for women, taking into account cultural, social, and economic considerations?

(AM)   *The Tribune*, is a newsletter/journal which comes out of the IWTC. With a circulation of 16,000 it is published in French, English and Spanish. Each issue focuses on a different topic. The IWTC has four main thrusts... each edition will fall under one of these broad headings. Examples include mini case studies, group activities, training activities, organization listings... there is a strong action-orientation to the publication.

(AM)   The formats and mechanisms vary depending on which women you are talking about. At the grass-roots level, women communicate in a variety of ways. So much depends on cultural context. UNIFEM and IWTC recently ran a series of regional workshops to examine this same issue... to look at grass-roots groups and how they communicate about technological knowledge... the workshops were carried out in New York, Quito, Harare and Bangkok (see attached documentation in articles section of this workbook).

6.   What is the gender bias influencing existing information systems? How can women be assured of an effective and equitable role?

(SS)   The concept of gender bias influencing information systems... it is a "biggy"... the concept of objectivity. Men, and others who have bought into patriarchal determined structures and processes have this sense that what they define as right and normal... what they consider to be worthy information is based on objectivity. Women, especially oppressed women who have become aware of their own situation, know that this is not objective... what is expressed and determined by the male patriarchal system, cannot be objective because it is strictly male in perspective. In conjunction, it must be realized that women and men look at the world differently. For instance, what a man sees in a camera is very different than what a woman will see. This is also true in terms of what each gender chooses to focus on. When working with male filming crews, she constantly had to confront male camera staff to stop focusing on and "up and down" of women's bodies. When focusing on men, the camera crews tended to focus on facial close-ups, hand gestures, or dialogue taking place between man and others. But when focusing on women,

male camera crews tended to focus on an up and down scale of the woman's body. The workshop, "It Matters Who Makes It," designed by Kathleen Shannon of the NFB's Studio D, clearly indicates that women and men see the world very differently.

(SS) We simply need to look at what is happening in the classroom. Teaching techniques reveal a great deal of male preference, even with female teachers. Studies have revealed that boys get preferential treatment and are given much more serious credibility than girls. We need to realize that we as women are often not aware of own biases.

(SS) How can women be assured of an effective and equitable role? Let women do their own thing. Stop trying to direct them and "help" them. All women need are the same toys that boys have. However, it should also be mentioned that it does not stop at gaining a voice. Once women have equity... they need to be sure they are being heard. It is one thing to have a voice, it is all together another thing to be heard. Women need to make sure men hear them... and understand them. This is a very big task.

(SS) She interviewed Margaret Mead once when she was working for CBC and asked her what had enabled to work in a "man's world." Mead responded by saying there were two things in particular. First, she had gone to an all girl's school and so never had to play dumb. And second, she was much better off when it finally became acceptable for women to wear trousers.

Information Environment:

1.   How can women's information services and networks ensure their financial viability and long-term sustainability?

(AM)   It is typically difficult for people to get funding for information projects. Many take it for granted, that information links are either already in place or that this is not a major issue (for women?)... unlike an issue such as "population" which gets tons of funding. Some women's publishing efforts, such as Women INK, and Kali (an Indian based organization) have been successful... the reason has a lot to do with marketing... these do not just produce locally, but have become quite commercial, publishing in several languages... those involved are generally strong activists who are also able to secure substantial grants to further such interests.

(BK)   It would be terrible to see women's databases, such as that set up within PADIS have to become commercial, but maybe in some contexts this is the way to go.

2.   What are the present policies and activities of the donor community and development agencies in the field of "gender and information"?

(VS)   We really need to go back and examine the "Forward Looking Strategies" of the UN Women's Meeting in Nairobi. Margaret Gallagher has done a lot of background work in the area of policy. (Margaret Gallagher is an independent consultant based in Paris... who does a lot of work with UNESCO and the EEC... she is very much involved with the New Information Order.

(VS)   Many donor agencies are involved in providing women with access to technological information. One such activity carried out by the Intermediate Technology Development Group (ITDG) and supported jointly by UNIFEM and IWTC, was to look at how to reach rural women with information on technology. Another similar activity was carried out by the ILO, whose training policies branch put together a series of discussion papers to examine women in non-traditional fields. With regard to the South Asian countries of Bangladesh, Pakistan, Sri Lanka and India, they put together guidelines for action.

3.   What are the existing information and communication policies at the institutional, national, and international levels, and to what extent do they consider gender issues?

4.   What is the impact of new forms of information on the employment of women in the information technology sector, and other sectors directly affected by it?

(CR)   There are job possibilities and new ways of making money that have come out of this. Women are becoming independent in terms of doing their own productions. The self-esteem issue is very important here. Women go through a transformation when they are able to become financially independent. In the media, there are more possibilities for women to work politically and get paid for it. There are also more possibilities for teaching. However, in Central America it is difficult for women to get into television production. With new skills, women are able to leave their communities and move to urban centres where they have a better chance at more secure employment. Telemanita is also involved in new information technologies (computer networking) which has been beneficial for women in terms of consciousness-raising, particularly around issues pertaining to health and domestic violence.

(SS)   Women still have to prove themselves over and over and over... Best is never good enough. Nevertheless, women's ability to pursue a technological education has vastly improved over the last ten or fifteen years. There are far more women signing up for courses in Computer Sciences. The problem comes with the transition from education to employment. Women from CBC tell her that even today, they still have to prove themselves over and over. Many feel that women don't get a chance to simply make a mistake... and not have it represent an overall incapacity... not only of themselves as individuals, but that it is also used as a means to downplay the talents and contributions of all women.

Impact of Information and Communication Technologies on Women:

1. How can individual women and community-level women's groups participate in and benefit from new information technologies?

(MD) When we look at women's participation in these technologies (in this case, telecommunications) we need to look at their participation from the standpoint of their input as users *as well as* producers. For instance, when it comes to using the phone, studies reveal that in most areas of the world, women tend to use the phone as much as men, if not more. Of course, in some contexts this is not the case... one study carried out in three areas of Africa revealed that men use pay phones more than twice as much as women.

(AM) In April of 1991, the IWTC organized a workshop with some leading women's organizations from around the world to develop skills associated with desk-top publishing and computer networking. In total there were nine groups in attendance, with participants from groups such as FEMNET, TAMWA, among others. All but two of the groups had computers already. They had the technical capacity but not the expertise required to communicate effectively. The workshop focused on how to improve the efficiency and effectiveness of their work requirements. The workshop generated by much interest and enthusiasm. A publication coming out of this workshop was *Computer Newsnote*, which was produced in English with a circulation of 7000.

(AM) Generally, women will have a practical approach to information technologies. E-mail is great for many because it is relatively cheap and much faster than other modes of communication. E-mail is important because it is more horizontal in nature than some of the other communication formats. This way of communicating is very much in line with the way women tend to communicate. Women generally prefer to avoid hierarchial lines of communicating and have little problem with sharing information. E-mails are great also for producing newsletters and disseminating the info very fast. This is great when an idea comes to mind and you want to just get it out... and get some feedback. This way of communicating builds collaboration and cooperation. For some, however, this way of communicating can lead to "information overload" which is sad in view of the fact that some people have too little access to information.

(AM) APC (the Association for Progressive Communication), along with GreenNet and the IGC have had two conferences setting up an NGO liaison service... have been posting all 95 of the Beijing conference documents on line... in three languages.

(BK) There must be greater emphasis given to the repackaging of information. This needs to be part of the overall design of projects, in that consideration be given to who could

benefit from such information. Repackaging should be part of the project plan. IWTC is great at getting involved in such efforts. Recently they have been involved in working with rural women at the local level in the South Pacific, providing them with support for computer networking. One of the things they did to get the project off the ground was to recycle an old Japanese satellite. In fact, a paper was recently delivered at an international conference discussing this project and its use of the Japanese satellite. This is ingenious stuff!

2. How do these new technologies have an impact on women in terms of their empowerment, their decision-making powers, and their contribution to development processes?

(AM) Information technologies have contributed to women's empowerment in that they now have control over production. Previously, women would have to have their work sent out for typesetting. With these new technologies, women can now take care of the production end of things themselves. Their work can be more reflective of who they are and how they think... they can use their own graphics, as opposed to "clip art" which is often based on negative stereotyped images of women.

3. What role can new information technologies play in ensuring more effective participation of women in discussions that concern them, whether locally, nationally or internationally?

(AM) Women have immediate access to information, that they can use to their advantage. Women can share the experiences of other women... they gain solidarity in this way, and are able to ensure a greater impact when they join voices with other women.

(BK) WEDNET was great in that it succeeded in allowing the Canadian and African coordinator to communicate on a regular and intimate basis. The cost of the computer network (via electronic mail between Canada and Nairobi) were not expensive and the lines were accessible. Furthermore, having the capacity to communicate on a personal level was extremely beneficial in building trust; something very crucial when working in cross cultural contexts.

4. What are the constraints, technical or otherwise, to effective and equitable usage of these technologies by women in developing countries?

(AM) Computers are not "women friendly"... for many, a Mac would be preferable because it uses icons and is more "people friendly" but few can afford a Mac. Also, training on computers is seldom focused on what women are concerned about and so it is difficult for them to relate to... in addition, women seldom receive training first before men... all this seems to come back to long-standing sexual divisions: ideologically, economically

and politically... 'hard' versus 'soft', social science versus hard or natural science, a "techie" versus an information person.

(CR)   There are no Macs in Latin America... no matter what, women are forced to use IBMs... IBMS have different concerns for each gender. There are two alternative training modes that would improve women's ability to pick up computer skills: (i) break away from "formal" training and just have fun with it, or (ii) develop training programs that focus on issues of concern to women. As it is, the programs and training around computers is too mysterious for women. Training must be relevant and practical. Another important issue, is that there should be more women trainers, especially for women who are learning how to use computers. It would be ideal to have classes with all women participants and all women trainers... to help break down some of the gender biases and consequent barriers, i.e. feelings of self-consciousness. Among each other women are more willing to share and learn from each other's inadequacies.

(CR)   In general, women do not have a love for technology... they do not care about making a machine or a program that will churn out more numbers fasters. Women are concerned with the application of computers... what computers can tell them about people or issues that concern them. One solution to this predicament is to work with younger women who are less intimidated by the technical side of computers. Younger women also have newer ways of looking at the world and much to offer older women, as well as men.

(BK)   What the WEDNET project really needed was a person, a resource person, permanently attached to the project during its life cycle, to bring women on board. Essentially, women needed a tutor, a woman they could identify with and who could teach them the ins and outs of working with computers and computer networks. At the same time, the project was fortunate to have systems person responsible for setting up the network nodes, who had the combined talents of technical acumen and excellent tutoring skills. Unfortunately the project budget did not allow for the tutoring support required, but some were able to benefit from what was available.

(BK)   Another constraint of the WEDNET project pertained to telephone lines, something which has nothing to do with gender issues or biases. Nodes were set up in Dakar, Harare and Accra, but finding dedicated telephone lines was extremely problematic. There would be a better chance now, but the project has ended. Hopefully, someone else will be able to benefit from the nodes that were established. It is also worth noting that in Accra, there were additional problems in that researchers were very worried about government surveillance. Some were quite hesitant to use the electronic mail, believing that they may be severe repercussions. Apparently government surveillance is not all that uncommon. There was also a concern in Accra, that this new form of communication may only succeed in providing the North with an opportunity to take control over information

generated in the South. However, once the researchers went through a hands-on training program and could see for themselves how they would benefit, especially with bibliographic support, they were keen to become more engaged with the process.

5. What are some of the gender issues affecting control, access and rights associated with these technologies?

(AM) One woman from Uganda told her that she uses E-mail all the time... there is no problem with using this format and that it is a great way to communicate with other women, involved in similar issues. Upon further inquiry however, it became clear that much has to do with who one is associated/affiliated with, among other broader factors (i.e. country telecommunications clearance, university affiliation, etc.).

(AM) The response really varies depending on context. Established groups will have greater access and support... more so in the North. In the South, there are also established groups, but not to the same extent. The real problem has to do with the environment within which the access exists... men do not naturally share... the "horizontal" does not happen... men tend to keep secrets about "how to do"... which creates mystery and an overall unwillingness to learn from each other.

Technology Environment

1. What is the impact of new technologies on the employment of women in the information technology sector, and other sectors directly affected by it?

(MD) In any event, when we look at women's involvement in contributing to telecommunications structures or employment in information technologies more generally, they are almost invisible. Studies that she is aware of reveal that women's employment in technical areas tends to be less than 20 percent, and in many cases is non-existent.

(MD) In the Tanzanian case, as described below, the women who had been educated in the area of telecommunications did receive the same salary as men, as well as free housing and travel expenses. There were many fringe benefits. However, it was not uncommon for women to have to "perform sexual favours" with their employers to ensure the travel benefits. There was indeed a great deal of sexual harassment, but this was seen as common place at the time.

(CR) Telemanita is also involved in new information technologies (computer networking) which has been beneficial for women in terms of consciousness-raising, particularly around issues pertaining to health and domestic violence.

2. What are the education and training implications to ensure that women can use these technologies, and participate in their further development?

(MD) One of the greatest factors impeding women's ability to work in this area, pertains to their under-representation in technical education. It often appears that entry into such education processes and structures is gender neutral, but this is not the case. An exception to this situation could be the case of Tanzania when the government became centralized along socialist lines. Two female colleagues of hers had received their education at the University of Dar es Salaam... in the area of telecommunications. At the time, the government was supporting full equality between men and women... and the government decided who would do what. People were told what line of education/employment they would pursue. Her two colleagues were in a class comprised of eight women and eight men. They had no choice.

(MD) When she was teaching, in the 1980s, she found that there were very few women in her programs. Usually, there would be only one woman (or none) out of a class of sixteen to twenty-two students.

(MD) The number of women employed in telecommunications, like in many other technical trades, decreases increasingly as you move up the hierarchical level.

(MD) In the year 1989-90, at the college in Tanzania involved in training officers to work in telecommunications, there were 274 male students and 39 female students. Some of the constraints involved are: (i) lack of technical education overall... women/girls are not encouraged to undertake technical courses... in the Tanzanian case, management stated that it was only too happy to include females in the training programs, however, women do not have the same training background; (ii) within the CPTC, most women are employed as secretaries or in other positions of relatively low status... these jobs are low paying, dead end opportunities with no promise of career advancement... there were women who were interested but had no sense of career orientation; (iii) assumptions about gender roles that are no longer appropriate... of all the locomotive engineers in Tanzania, despite the call for equal education, only 1.4 percent are women.

(MD) Women must be provided with education that will give the basics to go forward and undertake more technical courses/areas of study.

(AM) Women are not getting enough training. When there are organizations with both women and men, men tend to receive training first. Women seldom have time to learn. APC has been trying to put emphasis on training. If training is too short or inadequate, it proves to be a waste of resources.

(CR) There needs to be some huge grant to teach women how to really use computer networking... to cover all the angles... say everyday for one month. Some women really need this sort of intense support... to get by the stereotypes of women's ability to work with technology. Women have bought into this stereotype and as a result have a hard time learning. There are lots of opportunities in Central America to take advantage of E-Mail, but there are relatively few will feel secure enough to use it. Many existing training programs achieve in making women feel inferior... which turns them off even more.

3. What are the underlying gender issues related to these technologies (e.g. vocabulary, location, interaction with the technology)?

(MD) If you were to ask women pursuing education or employment in this area, they would likely tell you that are no problems as such... because they have chosen, despite gender biases, to enter into this field. However, drop-out rates indicate that women are often very frustrated by such biases and are often made to feel uncomfortable in such environments... if anyone must adapt to the "way things are done", it is women, not men. We must also realize that thousands of women would never think of getting involved in information technologies. Why is this? It takes a special breed of woman to enter into such a field.

(MD) One of the biggest problems has to do with stereotyped images of what and "engineer"

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is... usually an engineer is regarded as male, insensitive and gender biased... in truth, the work of engineers often has much to do with people... in terms of improving their lives... this image does not come through very clear.

(MD) Another problem requiring crucial attention pertains to the double workload of women... due to stereotypes, women tend also to be responsible for child care... if women are going to carry the bulk of this responsibility, policies, programs must be in place for them to carry out such activities without having to jeopardize their careers.

(AM) Women are not fully comfortable using E-mail... they do not know how to use it. What are the problems involved? Women are constantly being told by men not to touch the computer... "you will break it". She taught women how to use Page Maker... several said they had taken a course in Page Maker but couldn't use it... this is an issue of concern deserving of much more attention than is possible here... should be researched more fully. Another issue is that in organizations where computers are few and far between, women will not get access before men.

(AM) She has trained herself, but has a practical application approach in the sense that if she needs a computer tool or skill to help her communicate or carry out one of her work tasks, she will learn it, otherwise.... if it is simply to fool around with a computer she will not be bothered.

(AM) Another related issue worthy of much attention, pertains to "leisure." Traditionally, historically, men assume it is their right to have leisure time... women have not. Men will spend hours on the computer, just fooling around, trying new things out. Women have a hard time justifying leisure time at all.

(CR) Every office has a computer (in Central America)... even at grass-roots level... and the "language" is not difficult. What is problematic is dealing with stereotypes about what women can and cannot do.

(BK) This is no secret. The language surrounding computers and computer use has been masculinized; it tends to be offputting and exclusionary.

4. How do women relate to these technological developments at present, and what are the mechanisms for ensuring their participation in future policy discussions?

(MD) When there are policies in place, either at an institutional or government level, that ensure women's equality with men, women's participation is enforceable. In Tanzania, women's equality was an official goal of the government, and so it was much easier to ensure their participation in terms of education and employment. This is not to say however, that such

policies have the power to overturn other more inherent gender biases.

(CR) Telemanita is about this, in that it allows women to be in charge. Telemanita is not just about "how to," but also about having a voice. Women now have a presence at communications conferences. For instance, in May of this year, 15 women are getting together in El Salvador to evaluate how women can affect change through communication technologies. Women are working together at the regional level in Central America and are discussing issues such as: (i) leadership training for women, (ii) women who are connected to revolutions in Central America (meeting in Nicaragua).

5. What are the financial issues associated with these technologies, in terms of women's access to and control of them?

(AM) Poor women cannot afford to get involved with such technologies, particularly poor rural women in lower income countries. What is important, is to give support to intermediaries who take information (via computer networking for example) and repackage this information for local women. It is possible these days to also work at village levels with a TV. If people can take advantage of TVs (with the help of a generator) there is no reason why they cannot begin working with computers... much depends on the accompanying support and how sensitive it is to women's issues.

(CR) At present, women are totally dependent on donors and realize, as such, that too much is being directed by donors. Many women, for instance, do not care about Beijing... it is not on *their* agenda. But in order to get funding, they agree to do something in preparation for Beijing. At times, donor demands keep women so busy that they are not able to get to what they really care about... and from developing skills and activities that could, in fact, contribute to women becoming more self-sufficient. These groups do need more of a voice in determining their own priorities and how best to carry them out.

(CR) Right now there is a strong understanding that communication technologies are important for women. It is a good time to get support from donors... however, this has far more to do with the development of women in the Third World, than to do with Beijing. Beijing will be useful however in giving legitimacy to these very issues.

(BK) Long term sustainability is not possible as yet. The only way, women's information systems can be financially viable and sustainable is to be part of a larger, established network such as the APC. There are many opportunities for gender networking within APC that are not being taken advantage of. Furthermore, we need to reach a wider audience than is possible on a strictly women computer network. We need to take a feminist and gender approach, but not in isolation.

(BK) Money is being invested but as with any other technology, if special attention is not given to providing women with access, they will not benefit. For instance, women will hesitate to enter a university computer room filled with men, particularly if she feels inadequate with her computer skills. Many women complain that this is a very unfriendly environment. At a broader level, it should be realized that this has a lot to do with the issue of leisure. Historically, men have assumed the right to indulge in leisure activities, in terms of both time and costs. This has not been the case for women. Women still hesitate to take leisure time and seldom spend the same kind of money as men to fulfil their leisure interests. Furthermore, when women think of leisure activities, seldom do computers come to mind.

Policies Issues:

(MD) As long as we have men in control of planning, we will not have equal participation among the sexes in this field. With respect to telecommunications, women represent half of the users and yet are severely under-represented as producers... there must be greater gender awareness and commitment in this regard.

(MD) Institutions need to put in place Human Resource Development policies that are gender segregated and which focus on the following:

(i) we must first carry out gender studies to get a sense of where things are at, at present... what are the gender imbalances that we are working with... and why?

(ii) develop a plan/program that will allow us to develop the staff we already have... opportunities must be available to allow women to develop equally alongside men... to allow for this equality or equity, women should be provided with training to help develop their qualifications;

(iii) there should be elaborate HRD policies in place that outline career ladders, in terms of what courses are required, etc. rather than "who knows who" (particularly along tribal lines as in Tanzania)... their should also be a mechanism in place that ensures people are coming for training out of a genuine desire, rather than a desire for the money acquired by accompanying per diems.

(iv) at universities we need "women-friendly" education in technical areas... technical programs must also incorporate a social science perspective... we need to be more holistic in our overall approach.

(MD) Employers could also work with particular schools by saying that if they (the school) takes these women, the company will guarantee their employment upon completion.

Guidelines for Interpreting Articles

1. The page number is written in brackets, e.g. (786) means that the data was taken from page 786. Should you find something useful and do not see a page number directly preceding the text, search back to the last number in brackets. Unless, material is found on a new page, the reference will always be the last number in brackets.

2. Direct quotes will always be delineated with quotation marks, e.g. "this is a direct quote". Paraphrased statements will appear between single quotation marks, e.g. 'this appears to be a direct quote'.

3. Bodies of text that are written in italics and delineated with a square bracket, e.g. *[this is not found in the text]*, are some of my own thoughts or examples relative to the subject at hand.

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Articles as They Relate to the Four Defined Issues

1. Information Content and Delivery:

Adagala, Esther and Wambui Kiai. "Folk, Interpersonal and Mass Media: The Experience of Women in Africa." In *Women Empowering Communication: A Resource Book on Women and the Globalization of Media.* Edited by Margaret Gallagher and Lilia Quindoza-Santiago. Thailand: Open University Press. n.d.

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Reyes, Elizabeth. "The WACC, Isis and IWTC Story." Proceedings from the Women Empowering Communications Conference." Bangkok, Thailand, 12th - 19th February, 1994.

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van Zoonen, Liesbet. "Feminist Theory and Information Technology" in <u>Media, Culture and Society</u> 1992.

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Vyas, Anju. 1993. "Information for Research on Women and Development." In the <u>IFLA Journal</u>. Vol.19. No.2.

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Adagala, Esther and Wambui Kiai. "Folk, Interpersonal and Mass Media: The Experience of Women in Africa." In *Women Empowering Communication: A Resource Book on Women and the Globalization of Media*. Edited by Margaret Gallagher and Lilia Quindoza-Santiago. Thailand: Open University Press. n.d.

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Henwood, Felicity. "Microelectronics and Women's Employment: An international perspective" in M. J. Davidson and C. L. Cooper (eds.) *Women and Information Technology*. Wiley, 1987.

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4. Technology Environment

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(13) Mass Media

Employment Patterns: there are less than 20 percent of women working in African media organizations (including newspapers, magazines, television, advertising, film, and radio. Women also hold relatively few senior level positions.

(14) In Ghana, for instance, an examination of three major newspapers revealed that of 237 journalists, only 45 or 19 percent were women.

(16) **Problems in Employment:** (The following are taken directly from the publication... therefore, must be cited.)

(i)   Cultural attitudes that expect women to be subordinate and subservient.

(ii)   Discrimination in job assignments and promotion based on gender bias and prejudices.

(iii)   Problems at the recruitment stage (not enough women candidates to choose from).

(iv)   Sexual harassment by colleagues and information sources while on assignments.

(v)   Conflict between taxing working conditions and family responsibilities.

(vi)   Negative societal attitudes towards women journalists since the critical, independent, assertive and self assured attitude required of journalists runs counter to cultural norms for women.

(vii)   Sexist stereotypes.

(viii) Lack of adequate support facilities, such as day care centres near places of work.

(ix)   Lack of opportunities for further training.

(x)   Women journalists' mistakes are magnified out of proportion.

(xi)   Women journalists are paid proportionately less than male colleagues.

(xii)   Some male colleagues doubt women's capabilities as journalists.

(xiii)   Lack of personality and drive.

(xiv)   Personal problems and lack of persistence.

(xv)   Most women journalists are based in capital cities due to facilities and family considerations.

(xvi)   Conflict among the women staff themselves.

(xvii)   Gender bias language on assignments, e.g. "Gentlemen of the press" makes women fell intruders in a man's world where they do not belong. Most sources expect journalists to be male.

(24)   **Women's Alternative Media:** data in this area are relatively scarce.

Print:

The Tanzania Media Women Association (TAMWA) has been publishing *Sauti ya Siti* since 1987, has a circulation of 2000, printed in both English and Kiswahili, focuses on issues such as rape, violence against women, women in the labour market, the environment, women in media.

There are several women novelists, i.e. Buchi Emecheta from Nigeria; however, there are significantly fewer women than men.

(25) There are a number of women's research organizations, such as the Association of African Women in Research and Development (AAWORD), as well as women's organizations that establish journals, magazines and so on.

Radio:

There is very little data on women's use of the radio. However, one example comes from Zimbabwe where the Federation of African Media Women has set up a project called "Development Through Radio." Designed to create dialogue between women and national development planners, "women who cannot afford radios are gaining greater access to national radio programming. Women who form radio listening groups at the local level receive a radio/cassette player. They meet, discuss and record their messages which are sent to a broadcast programme co-ordinator who selects excerpts for presentation to concerned government and NGO officials. Conversations and responses are woven into a 30 minute programme which is broadcast weekly (Development Communication Report 1990/3 No.70, p.3)."

Folk Media:

(26) In many rural areas of Africa, folk media is mainstream... but here too women are portrayed negatively. Women are often depicted as weak and dependent on men. For instance, in Kenya, "in encounters with hyena (for Luo narratives) and the ogre (for Luhya narratives) women are depicted as suffering victims at the mercy of these creatures, and also as being responsible for their own suffering and that of their children." Women are also depicted as being unkind.

Training:

(30) In 1991, at the journalism school at the University of Nairobi, there were more female students than male students. At the Kenya Institute of Mass Communication (KIMC), however, the number of women students remains low.

(31) According to the principal of KIMC, Nguru, the low level of enrolment is based on four reasons: "(i) attitudes of girls to technical courses; (ii) discouragement from parents and friends, (iii) lack of adequate information on careers in media; and (iv) lack of role models for girls to follow."

Media Legislation, Regulation and Policy: (31) At national levels, there does not appear to be any media legislation that addresses gender-related issues.

(32) **Identified Research and Policy Issues:**

*   "Formulation of communication policies that delineate the quality and minimum quantity of media output that address women's issues, concerns and gender issues."

*   Policies that will establish an advertising code of ethics.

*   Research examining the link between women/gender issues and communication output.

*   In view of literacy and language barriers, research and strategies for alternative channels of media delivery at the household level.

*   Research on transborder information flows, particularly as these relate to images of women portrayed transnationally through broadcasting and magazines.

*   Research on the impact of media on African women.

*   Research on media for women's development.

Alves, Maria Helena (Communications Officer, INSTRAW). 1988. "Computer Technologies: A Tool To Improve Communications for Women in Development." Proceedings from the consultative meeting on Communications for Women In Development, Rome, Italy, October 24-28, 1988.

(1) It is important to realize that in carrying out bibliographic searches on women's issues there are a lack of appropriate descriptors.

This paper is concerned with addressing three categories of inquiry: (i) desktop publishing, (ii) electronic mail and computer conferencing, and (iii) libraries contained on compact discs. The paper also addresses two areas of required training: (i) learning assisted by computers, and (ii) training in the use of computers.

Introduction:

(3) As addressed in the Nairobi "Forward Looking Strategies," there is an "urgent need for information flows to facilitate the process of integrating women in development, and the need for relevant, transferable and appropriate information should be a priority of regional cooperation within the framework of technical cooperation among developing countries."

With regard to the above, the paper addresses three concerns: (i) information systems, (ii) dissemination of information, and (iii) training.

Information Systems:

(4) The proper functioning of information systems require: (i) the storage of data, (ii) the processing of data, (iii) the retrieval of information, and (iv) the transmission of information. In designing an effective information system it is important to distinguish between 'data' as mentioned above in (i) and (ii), and 'information' as mentioned in points (iii) and (iv). Data is meaningless by itself and information is a collection of related data.

(5) A useful system developed for micro-computers is the bibliographical information system on women (WIS) developed by the Branch for the Advancement of Women (BAW) within the UN Centre for Social Development and Humanitarian Affairs in Vienna. Many databases have no descriptors on women, or only a few very basic ones, i.e. aging women, black women, disabled women.

One excellent database directed at women has been established by Isis International and contains information on reports, research projects, guides and conference papers produced about and by women.

(6) INSTRAW (United Nations International Research and Training Institute for the Advancement of Women) has more recently been involved in the systemization and repackaging of information.

Dissemination of Information:

(7) Three modes of disseminating information are: (i) word processing, (ii) telecommunications, and (iii) technologies that store data.

Word processing is useful for desktop publishing and allows women to control the material they want produced, in terms of format and presentation.

Telecommunications is particularly useful in terms of networking efforts and can provide women with immediate access to information through: (i) national, interregional and international databases; (ii) electronic mail (allows for the sending and receiving of messages); and (iii) electronic bulletin boards (used to post information).

(8/9) Technologies designed to store and provide access to data are: (i) portable libraries available on CD ROM; (ii) optical discs which can store 60,000 pages of images or 600,000 pages of text; and (iii) computer-aided translation, which translates data from one language to another.

Training:

(9) There are essentially two modes of training to be addressed: (i) CAT (computer assisted training) which is provided by softwares that allow a student to work through a lesson or presentation on a monitor and to correspondingly respond as outlined by program instructions; and (ii) training on the use of computers, i.e. aspects of the keyboard and typing, basic computer concepts, operating systems, and different softwares.

Conclusions:

There are two problems regarding computer databases: (i) querying for data in a foreign language, and (ii) gaining access to expensive on-line databases.

Anand, Anita. 1993. "Changing Women, Changing Communication." In Development. 1993: 3. *Journal of* **SID.**

(51) When receive information or gain access to information, they are better enabled to organize and carry out activities that will be of benefit to themselves, their families and their communities. "The government of India, alarmed at the increasing rate of illiteracy, initiated total literacy campaigns (TLCs) in targeted areas of the country, in the later '80s. Literacy primers were written especially for the campaigns and hundreds of volunteers were recruited and trained. Thousands of women came out of their homes, seeing it as a last-ditch effort to improve their lives. In Nellore, a chapter in the primer talked of the destruction caused by liquor. The women, their imagination fired, actually organized a campaign and two years later, their efforts were successful."

Of crucial importance is that when the life experiences and knowledge of women are taken seriously and recognized as valid, the resulting empowerment has a positive impact on society as a whole.

Consciousness-raising is the first step toward women's empowerment. This requires a communication experience that is based on the needs and aspirations of women. This type of communication incorporates concepts of participation and equity.

"Women's news agencies, feature services, communication and documentation centres, the production and distribution of newsletters, film and video-making - all attempted, in theory and practice, non-hierarchical and gender-sensitive principles. Many of these initiatives have been outside the mainstream and for an alternative audience, and primarily for consciousness-raising and organizing women. At the same time, individual women have very consciously sought to create end products - films, videos, books - for a more mainstream audience."

(52) In Copenhagen in 1980, at the United Nations mid-Decade Conference on Women, there were serious debates over whether or not a Women's Feature Service (WFS) should be set up by the male dominated developing country news agency Inter Press Service. There were serious concerns that if WFS was established by Inter Press, that it would not be controlled by women. Much attention was drawn to the fact that the language of women and men is different and unique to each gender.

"Carol Gilligan (*In a Different Voice*, 1982) suggests that men and women may speak in different languages that they assume are the same, using similar words to encode disparate experiences of self and social relationships. Because these languages share an overlapping moral vocabulary, they contain a propensity for systematic mistranslation, creating misunderstandings which impede communication and limit the potential for cooperation and care in relationships."

Since women and men communicate differently, it is very important for women to be able to control their own communication agendas. As it is, "The Women's Feature Service, a syndicated news-feature service providing development coverage to mainstream media, defines a progressive women's perspective as one that takes into consideration wisdom, knowledge, intuition and perception of women in a context that takes society forward - by interpreting tradition and the process of development in a holistic and sustainable manner."

Women need and insist on their own formats and contexts for communication. This will be necessary it is felt for some time.

(52/53) There are many such alternative formats for communication for women: (i) in the Philippines there are several women-specific communication activities, among them Womanwatch (a radio and television production focusing on women's perception of what is happening in the Philippines; (ii) in 1990 in Mexico, there was a weekly television program called "Mid Heaven" that focused on the indigenous traditions and concerns of more isolated women's groups; (iii) also in 1990, in Bolivia there was a television program called "Warmi Arupa" (Women's Word) which was created by a women's NGO to discuss local concerns.

The challenge ahead:

(53) Gaining access to information has changed women's lives in a positive way. Unfortunately, the reverse has not been possible... yet. Women have not been able to change the focus on mainstream media. One reason for this is that "women are missing from the communication profession - both in numbers and in decision-making positions." There are also very few incentives for women to work in this field. "The workplace is largely "hostile" to women, their needs are not taken seriously, and women are equally divided between their role as homemakers and professionals. Study after study has recommended the need for day care, flexitime, in-service training and, last but not least, for men to take on more responsibilities in the home and childrearing."

*   **Anita Anand** is Director of the Women's Feature Service in New Delhi, India.

Anand, Anita. Discussion at Women Empowering Communications Conference in Bangkok, Thailand, 14th February, 1994.

* These proceedings were collected off the Internet computer network and therefore are not delineated by page number.

Some more on WFS: "WFS does not have topics, issues or themes, but chooses to report on the 'processes' of development that seem to be suggested from the change in societies, from the micro to the macro level."

She also discussed her concerns about financial sustainability. She recognizes the importance of the financial and market base in terms of the survival of WFS... and recognizes that to improve its sales revenues, WFS will have to become more "commercially viable."

Anand, Anita. "Starting Up, Staying There and Moving On: The Women's Feature Service: How It All Began." Proceedings from Women Empowering Communications Conference in Bangkok, Thailand, 12-19th February, 1994.

*   These proceedings were collected off the Internet computer network and therefore are not delineated by page number.

During the UN Decade for Women (1975-1985), UNESCO spearheaded the New International Information and Communication Order (NIICO). NIICO realized that women's voice was missing in the mainstream, but that women had strong communication among themselves. During the Decade, "women's movements, in the North and South were gaining momentum and women kept each other informed through newsletters, bulletins and by word of mouth. This form of communication was useful and vital to women's movements, but did not address the more systemic discrimination against women in mainstream media." In truth, the mainstream media portrays women inaccurately, and is largely biased by negative male perceptions of women. "Much of this has to do with the nature of mainstream media - who controls it, defines it, and its goals. An equally large part of it has to do with women's initiatives, or lack thereof, to strategize effectively on impacting mainstream media in order that it reflects accurately women's needs, experiences and visions." Anand argues that men tend to focus on "hard" news, while women focus more on "soft" news. Unfortunately, "soft" news is perceived in the mainstream to be less important than "hard" news. What Anand argues, however, is that "hard" and "soft" impact each other, the plain and the purl of a knitting pattern, the yin and yang of life, and both are needed for a holistic approach to the perception of problems and initiation of solutions."

Through Women's Feature Services attempts have been made to bring women's voice into the mainstream. UNESCO requested from the UNFPA a grant of 132,600 USD to cover the period 1977-1978... to use as seed money in setting up five alternative women's news features. These are:

(i)   set up by Inter Press Service (IPS), a Third World news agency (Rome), was Oficina Informativa de la Mujer (OIM), set up in Latin America;

(ii)   IPS then set up in Nairobi, the Africa Women's Feature Service (AWFS);

(iii)   at the same time, UNESCO contracted the Christian Action Development Agency (Barbados), to establish the Caribbean Women's Feature Service (CWFS);

(iv)   in the same year (1978), UNESCO also arranged through the Press Foundation of Asia's Depthnews Feature Service, to create a women's feature service; and

(v)   the Arab States Women's Feature Service (ASWFS) was also set up by UNESCO.

In 1994, of these five, only two exist: the IPS established women's feature service as well as the one set up via Depthnews. Why did these two survive, when the other three did not? Anand takes a look at some of the factors leading to failure and some of the factors leading to success.

Weaknesses:

*   lack of interest and low use of service;

*   lack of funding;

*   views of women being perceived/misunderstood by local male news editors;

*   lack of experience in fundraising (UNESCO had stopped underwriting the projects... they were expected to be sustainable);

*   lack of trained women journalists - there were few who could write in accordance with UNESCO standards; and

*   the male dominated media was not giving adequate support to women's feature news.

Strengths:

*   used evaluations as part of a feedback loop - incorporating "lessons learned";

*   had put in place guidelines for implementation as well as required infrastructural support (editorial and managerial);

*   the IPS established WFS, grew slowly from two half-time people in 1986 to 12 full-time and six part-time people in 1990 (with 120 freelance contributors);

*   had access to a telecommunications network, which facilitated efficiency;

*   had a strong client base... those already associated with IPS;

*   designed a marketing plan and carried it out; and

*   used monitoring efforts to facilitate the evaluation process.

Challenges Ahead:

One of the greatest challenges is how to bring a progressive feminist view/perspective into mainstream media so that this voice is heard.

"The feminist movement must take on the mainstream, which is different from being mainstreamed. For the mainstream has the power through newsprint, radio and television, to transform people's opinions, overnight. The mainstream has also the power to legitimize the small, the insignificant and the most noteworthy. What the feminist and women's movements have achieved since the sixties can be brought to the public eye and there is no reason why it should not. What was once the strength of the women's movement - small scale, local, responding to needs, making connections between the micro and the macro, taking on power and authority - needs to continue. With every effort that started small, local, basic, comes a time when it needs to reach out and project itself to the world - not out there, enemy territory - but around us, reachable and possible."

Money and markets will have to be improved. Africa has a very low pick-up rate, whereas countries that have a WFS presence have a higher pick-up rate. The WFS is marketed in different ways: electronic mail, fax, post, telex... products are offered based on a sliding scale fee... determined by what the client can afford... working toward sustainability has been difficult: "The WFS has realized that it will have to diversify its feature service and venture into media related areas that are more commercially viable in order to expand and move towards some level of financial self-sufficiency." Concomitantly, there must also be greater quality control... when using so many editors from different countries and within different contexts has not facilitated a consistency of high quality... must be strong guidelines in place. One marketing tactic: "The need to generate income and to use the material more effectively resulted, in 1989, in a 'dossier' service. All features were abstracted and put in an electronic database from which dossiers on any subject, country, region and theme could be retrieved." Also, more recently the WFS has branched out into the production of video and radio programming.

We must also investigate who buys what and why.

Balakrishnan, Vijayalakshmi. "Indigenous Social Norms and Women in Asian Media." In *Women Empowering Communication: A Resource Book on Women and the Globalization of Media.* Edited by Margaret Gallagher and Lilia Quindoza-Santiago. Thailand: Open University Press. n.d.

Employment Patterns in the Mass Media:

(40/41) The numbers of women employed in the mass media has increased in Asia. For instance, in Japan, the number of women reporters has increased seven fold within the last 10 years. However, of the total number of women employed in the media, this figure only represents 27 percent of the total. Other countries have similar figures when it comes to reporters. In Thailand, 18 percent of the journalists are women. In the Philippines, 33 percent of editorial staff of newspapers and magazines were women. In Malaysian, women represent more than 50 percent of all journalists, however, out of the 74 women interviewed, only 12 were unit heads. China is much the same. About a third of the country's journalists are women, but relatively few are department heads or editors-in-chief. Essentially, what must be realized is that even though the percentage of women journalists has increased, women journalists are far more "desk-bound" than their male counterparts.

(40/41) In radio and television the figures are more discouraging. In Bangladesh, 2.42 percent of the total number of employees in radio are women; in television, women represent 1.73 percent of the total number of staff.

(42) Overall, and what is important to recognize, is that "The increase of women reporters and subeditors however, has not made a significant change in the content, style or presentation of information."

(43) Of interest is that in Bangladesh, the renowned feminist writer, Taslima Nasreen, who recently won the Calcutta-based Ananda Purushkar award for outstanding contribution to Bengali literature, was issued a *Fatwa* by Islamic fundamentalists, demanding that she be hung to death. The price for her death was cited at $1,200.

Alternative Media:

(48) In Asia, the term "alternative" is somewhat problematic because what is considered alternative for some, is mainstream for others. The real difference between the two - mainstream and alternative - lies more in treatment, style and content of the message as opposed to a unique or distinctive format of the media.

(48-49) Media formats used by women include: mainstream/alternative print, folk, film, video, women's press and journals. Types of folk media include: street plays, puppet shows, dance and

music programs. Of the video efforts, one was initiated by VideoSEWA (Self Employed Women's Association, India), which has produced almost 100 productions focusing on issues such as carpentry, street vending, and problems of 'bidi' workers. In India, a group of women film makers started up Mediastorm Collective, focusing on video's for any by women. There are also two publishing houses that focus strictly on women's publications: Kali, also based in India, and Gender Press, based in Bangkok. With respect to women's journals, two well-known ones are *Manushi*, based in India, which is a journal focusing on issues of women and society, and *Asmita*, a Nepalese based feminist magazine. *Asmita* began in 1988 with a circulation of 2,000. Now in 1994, it has a circulation of 12,000 and focuses on issues such as rape, family violence, polygamy, and abortion. The magazine is also free so has a better chance of reaching grass-roots women who otherwise could not afford it.

Women's Networks

(51) Setting up regional networks in Asia for women has been difficult, particularly due to the significant degree of heterogeneity. Nevertheless, there are several such organizations. Some of these are: (i) AWRAN (Asian Women's Research and Action Network), based in Manila; (ii) PAWF (Pacific and Asian Women's Forum), which has offices in both New Delhi and Colombo; (iii) the Asian and Pacific Women and Media Network, initiated by the Asian and Pacific Development Centre (APDC), based in Kuala Lumpur. The goals of this latter network are: (i) to eliminate stereotyped images of women in media communications, (ii) to incorporate in media policies, programs and productions, the media perspectives of women, and (iii) to sensitize the media, strengthen relationships between media practitioners, researchers, and women's organizations.

(52) At the national level, a number of other such networks have been set up: AWAM (All Women Action Group) in Malaysia; AWARE (Association of Women for Action and Research in Singapore; MEDIAWATCH and GABRIELA (General Assembly Binding Women for Reform, Integrity, Equality, Leadership and Action), both in the Philippines;

Internationally, among the most active, is Isis International which is based in both Manila and Santiago, Chile. "With a mandate to act as a clearing house for information and models of action, Isis operates through a network of over 4,000 contacts in 150 countries."

(53) There area also two women's press agencies: DepthNews Women's Feature Service, based in Manila, and Women's Feature Service (WFS), based in New Delhi. "Recently WFS has branched into the production of audiovisuals. It has produced two films, *Breaking the Silence*, which documents the activities of women's groups at the World Human Rights conference and an earlier film which catalogued the travels of the *KalaJathas* (cultural troupes) for literacy throughout India, *Where Women Are Leaders*.

Training:

(53) Of interest, is that throughout Asia, women tend to outnumber men in many communications courses. In SouthEast Asia, women outnumber men in all programs focusing on communications. "In the Philippines, the trend was noticed as far back as 1977, when of the 15 mass communication schools seven only enroled women, another seven were co-educational and only one restricted admission to men only. currently, there are about 32 schools offering mass communication programmes. Across six of these schools studied in 1989, 80 percent of students were women, though the percentage of women graduates was slightly lower at 73 percent (Lock, 1992)."

The same is not the same in South Asia. There has been an increase in female enrolment levels, however, they have yet to achieve parity. At Dhaka University, the only institute in Bangladesh with a formal university program in communications, female enrolment has increased from a ratio of 1:4 in 1982 to 1:2 in 1989.

(55) Worth noting is that although most Asian countries have courses in development communication, very few have a sensitivity towards gender concerns or issues. However, there is one workshop, organized by the FAO and the Delhi-based Centre for the Development of Instructional Technology. This workshop, entitled the South Asian Workshop on Women and Media in Development, is delivered on an annual basis.

Legislation:

(55) Although increasingly more women are receiving training in media communications, little has changed with respect to their participation in the media agenda. As such, many women's and social activist groups are trying to bring legal reform to the issue of gender justice in the media. Australia has been successful in putting guidelines in place. Called "Fair Exposure," these guidelines cover "all aspects of the portrayal and presentation of women in the media." Unfortunately, Australia is a case in point. Few other Asian countries have been able to enact any similar measure to improve the status of women in the media.

(56) In India, however, there is an interesting piece of legislation, entitled the *Indecent Representation of Women (Prohibition) Act* which essentially prohibits "indecent representation of women through advertisements or in publications, writings, paintings, figures or in any other manner." To do so may call for punishment of a fine and imprisonment of up to five years.

Agenda for the Future:

(56) "...in an era where mass media products are owned in one country, telecast or published from another and watched or read in a dozen others, the relevance of national codes of conduct

or national legislation is increasingly being questioned." For instance, "Advertisers are already using STAR TV to evade stringent national broadcast norms and to gain simultaneous access to buyers in 37 Asian countries. Liquor ads banned in India and Taiwan are regularly aired on STAR TV. Advertisers no longer need to cut beach scenes, which offend Malaysian censors, or dress lime cordial in whisky bottles to evade Indian regulations banning liquor ads. Satellite and cable TV offers access to the top five percent of homes not just in India but over most of Asia."

(56/57) Research/Policy Issues:

* The impact of uncontrolled advertising on disempowered populations, such as minorities, indigenous people and women.

* With a gender perspective, carry out a regional study of media developments in terms of strengths and weaknesses and identify a plan of action.

* For media producers to either adopt within or adhere to a policy that protects culturally taboo or gender sensitive issues.

Bhasin, Kamla. Keynote Speech: "Women and Communication Alternatives." Proceedings from the Women Empowering Communications Conference. Bangkok, Thailand, 12th - 19th February, 1994.

*   These proceedings were collected off the Internet computer network and therefore are not delineated by page number.

Mainstream media is anti-development from the standpoint of economic equity. "Mainstream media are a tool to propagate the mainstream paradigm of development, a tool to strengthen the existing status quo and power structure; a tool to increase disparities, to turn people into consumers of goods and ideologies. Globalization of media, is absolutely and closely linked with the globalization of economy. In India, for example, it was our economy which was gradually opened-up and then our airwaves were opened to CNN, BBC to XYZ, you name the acronyms and they were all there."

The idea that women have of sustainability is very different from current development paradigms, as expressed through mainstream media. She believes that the "present path of 'development' is unsustainable." She goes on to quote Mahatma Ghandi when he was asked by a British journalist if he would want India to have the same living standards as that of Britain. Ghandi responded by saying: "Sir, that tiny country Britain needed to exploit half of the globe to have it's present standard of living. How many globes will India need to exploit to have the same standard of living?"

In terms of what predominates in the media, she quotes Julius Nyerere: "It's very unfair that we Africans cannot vote for the president of the US because we hear about his elections twenty four hours a day, as much as America does, but the Americans probably don't even know who Julius Nyerere is."

She does not think that women can really challenge and change the mainstream media without similarly challenging the overall political and economic systems. With respect to future challenges, she believes we have much to learn from poorer people of the South: "There is some hope for the world and for us, hope which comes from the fact that the consumer culture has still not been able to reach millions of poor people. It comes from the fact that millions are still living in very ecological ways and I believe we need to have a closer partnership with these so-called marginal people. It is their lifestyles which will have to become our models if we want to survive."

Problems with Mainstream Media:

*   "mainstream media are first of all man stream" ...the mainstream media is owned, controlled and oriented to men... it is patriarchal in its structures and processes; it stereotypes and commodifies women; it also ignores women's contributions to society as well as the extent of violence directed at them;

*   it is used as a tool to control economic and political power; to maximize profits and perpetuate the status quo;

*   the centralization of control is also a problem in that a very few number of media magnates (i.e. CNN, BBC, STAR TV) decide what the world gets to see and how this information should be interpreted;

*   there is an element of propaganda involved in mainstream media... there is greater emphasis on monologue as opposed to dialogue... "People are becoming passive consumers of news and views rather than active citizens"; and

*   it supports an increasing amount of violence which is beginning to deaden people's sensibilities, particularly in terms of linking sex with violence.

"So when we talk of alternative communication we will have to challenge all these aspects of mainstream media."

Brunet, Jean and Serge Proulx. "Formal versus Grass-Roots Training: Women, Work, and Computers" in Journal of Communication Summer, 1989.

(77) Access to the computer and computer training has witnessed a substantial extension and democratization. Still, women are more likely to use training to survive in a transformed workplace than to advance their interests.

(78) The authors examined 87 training programs for the computer novice in Montreal, Quebec as well as a project founded by women to democratize computer knowledge, La Puce communautaire (The Community Microchip).

The commercial training programs were primarily offered by teaching establishments or consulting firms with a few offered by computer firms of various sorts. Only a third specialized in training individuals, the rest targeted institutions. The trainees enroled by their institutions were mostly from the private sector; those training individually were primarily support staff but also included professional and technical personnel and some students and unemployed people.

(79) The consulting firms were much more likely to train managers. Hence, the teaching establishments were more likely to train less educated women while consulting firms tended to serve males in professions and management. 51% of the establishments had more women than men enroled. Most clients were under 40 years of age.

The most frequently taught subjects were applications such as word processing and data bases and introductory courses. The focus of virtually all courses was work related and pragmatic.

(80) New technologies are rarely used to teach.

The 'popular laboratory', developed to encourage women and others who felt left behind in a working-class Montreal neighbourhood, targeted schools and community groups and set up workshops.

(81) Women comprised 81% of clients. In general customers were well educated, women from the neighbourhood were less educated than those who were drawn from outside. Those who were more educated were more likely to be unemployed and to be studying computing in order to increase their chances in the job market. With very few exceptions the women were poor.

Attractive features for women taking the course were the low fees, flexible schedules, geographic location, the variety of courses, the community and women's focus, and a welcoming approach.

(82) Few of the Puce's clients had a computer at home or at work. By and large they saw the course in pragmatic terms as useful for getting or retaining work. Recreational, general interest or study benefits were rarely mentioned, although increased family interaction was cited by some attenders.

Many respondents indicated that their view of computers was considerably more positive after taking the course. Computers came to be seen as more familiar, approachable, usable and useful than they had imagined and this led, in many cases, to a positive and pleased feeling. Concerns about their effect on privacy, unemployment, work stress and health (particularly involving eyesight), and a disuse of some intellectual capacities remained.

(83) Even though a significant number were not working or did not work with computers, a third of respondents reported significant change in their way of working after the course, including, for some, getting a job.

The Puce has two programs, a full-time "professional" training program teaches basic skills such as word processing. It is state financed and trainees are paid to participate as part of a policy to reintegrate welfare recipients into the marketplace.

The part-time general program attracts two sectors: more educated women with low income and poorly educated working women with moderate incomes.

[Thus, even while training is of some assistance to women, they are being trained unequally, separately, and for state as well as their own reasons].

(84) Social and economic relations which benefit men are reproduced.

de Bruin, Marjan with Suzanne Francis Brown, Hilary Nicholson, Gayatri Persaud and Elaine Wallace. 1994. "Women in English-Speaking Caribbean." In *Women Empowering Communication.*

Employment and Gender:

(66) The issue of women working in the media has not been addressed, with the exception of the COMBROAD report, however, the data in this study were incomplete. Nevertheless, it appears that women represent between 33 and 45 percent of those employed in media organizations. But, as in other areas of the world, women hold relatively few senior level positions. For instance, "In Grenada, women make up 40 to 45 percent of the media workforce, but only 12 to 15 percent of senior management."

(67) Interestingly enough, there appears to be more women at senior levels working in radio and television. "In some of the smaller countries the major electronic media are headed by females... One lower level, in the middle management, the percentage of women is slightly higher." Women can also be found on the Board of Directors, and in many instances form the majority of board members.

(68) When it comes to remuneration and career opportunities there is relatively little difference between women and men. However, it appears that many women have experienced institutional discrimination, such as: "long hours, neglect of family responsibilities, with no husband to keep the family and domestic side of life in order, and 'psychological pressure from the men in the establishment,' especially when women are in decision-making positions."

Women's Alternative Media:

(79) As in Asia, alternative may mean the same thing as mainstream depending on the context. Other forms of alternative communication include: popular theatre, dance, music, oral history, story telling, etc. Those most involved in alternative media efforts are the non-government organizations (NGOs).

(79/80) Regional groups include: the Caribbean Association for Feminist Research and Action (CAFRA) based in Trinidad, the Women and Development Unit (WAND) based in Barbados, as well as several bureau of women's affairs situated within government bodies.

(80) Nationally, "Each country has its own set of women's organizations producing and using alternative media... In Jamaica the main organisations producing and using alternative media are: Sistren, the Social Action Centre, the Association of Development Agencies, and Women's Construction Collective. Some national groups have set up Media Watch offices and monitor negative stereotyped portrayals of women.

Women's Media Associations and Networks:

(82) Until 1991, there was a Women's Feature Service (WFS) based in Kingston... but has since transferred its offices to New Delhi in India (due to administerial and financial constraints). At present, there is WOMENET which was set up by DAWN (Development Alternatives with Women for a New Era), in 1992.

Training:

(83/84) For both women and men, training in communications is available within the University of the West Indies (The Caribbean Institute of Mass Communications - CARIMAC) and on an ad-hoc basis as set up by local media houses. From 1974-1983 CARIMAC 40 percent of the students were female. This trend changed in 1979. Female students increased. Statistics for 1993/94 reveal that 74 percent of the students are female, with the highest concentration in TV and print media. There are fewer women participating in certificate programs. In St. Lucia, for instance, figures for the last three years reveal that 42 percent of participants have been women. It seems that employers showed a preference toward male employees and had a hard time justifying the financial sponsorship of women.

(85) Training in the area of development communications reveal that some efforts have been targeted toward the empowerment of poor rural women. "In Jamaica in May 1992, thirty women from rural areas participated in a one-week workshop in Photography and Print Production - Rural Women and Family Life: A Participatory Visual Communication Workshop." This effort was not initiated simply to provide women with new skills but to set a consciousness raising process in motion.

Legislation:

(86/87) There has been little legislation and policy measures with regard to the media and gender issues, however, there is a regulatory body, the Caribbean Association of Media Workers (CAMWORK) which has developed a complementary code of ethics: "Members of any affiliate of CAMWORK are hereby enjoined to refrain from making offensive and unnecessary references to and discriminating against an individual on the basis of race, colour, sex, nationality, religion or ideology." There are no policies within media houses that address such issues.

Research and Policy Issues:

(88-90) "The lack of up to date data and accessible information seems to be the common thread in all aspects of women and media in the Caribbean."

Required is research on:

*   the portrayal of women in Caribbean media, regarding their behaviour as both producers and as audiences;
*   how the Caribbean mass media addresses issues concerning women in development;

*   groups and organizations producing alternative media productions;

*   the training needs of women in the media.

These research efforts are required to back up policy decisions. Although the gap between women and men employed in the media is closing, women still remain in relatively lower level positions.

'Policy issues must also address gender-sensitive issues such as ownership and control, professional training, working conditions and salaries and the fight against self-censorship and political interference.'

Durndell, A. 1991. "The Persistence of the Gender Gap in Computing." In *Computers Education.* **Vol.6. No.4. pp.283-287.**

Introduction:

(283) In the U.K., there is both an awareness of and concern for the low level of women students enroled in the hard sciences, particularly in computer sciences. At a GASAT (Gender and Science and Technology) conference in 1990, it was revealed that there appears to be a universal trend with regard to women's declining participation in computer science studies. However, in some instances this is not the case. In Singapore, approximately 50 percent of computer science students are female. *[Why not carry out a research study of female participation in computer science education in Singapore... was surprised that this was not elaborated in the article.]*

Nevertheless, reasons for this decline were examined in a series of studies *[the article does not say where these studies were carried out or by who].* The findings of the first study revealed that: (i) there is a gender gap with regard to the use, ownership and experience with computers; (ii) this gender gap pertains also to scores on a computer quiz with males tending to outscore females; (iii) attitudes to computers were similar for both genders; and (iv) neither gender perceived female computer scientists as being unfeminine.

(284) The second study revealed that both female and male have similar motives for studying computer sciences. The third study examined the perceptions of male and female students from business and natural sciences with regard to computer sciences. They were relatively the same, but with a slightly stronger reaction from females. "A computer specialist was perceived to be cut off from humans and to spend most of their time interacting with machines." Since women tend to be more involved with human relations, this stronger reaction was of little surprise.

This, the fourth study, examines the following two questions:

*   whether there had been a general increase in computer use and knowledge, and whether gender differences in these areas had increased over time; and

*   how important the 'sitting at a terminal screen' image was in choice to avoid computer studies, whether it was gender differentiated, and in addition questions of confidence, specialization and male hostility, vis-à-vis choice to avoid computer studies.

The sample for this study (carried out in 1989) included 127 female and 78 male students who were enroled in their first year of either business or natural sciences at a Scottish polytechnic. These students were targeted because they would be the ones most likely to qualify for study in the area of computer sciences.

(285/286) The results of the study showed:

*   With respect to the open ended questioning of the study, 10 to 13 percent of the students revealed - both male and female - that they were not interested in sitting in front of a computer all day.

*   With respect to the statistical results, there were three factors of significance, each revealing a gender gap: (i) more women than men were concerned with the thought of sitting in front of a computer terminal all day (although the difference was not great); (ii) more women than men felt that it would be difficult to get a job in this area; and (iii) women had a strong reaction to "being in nearly all male groups in this offputting."

*   Comparisons between this and an earlier study carried out in 1986: (i) although both genders revealed an increase in using their own computers, males outnumbered females by more than two times; and (ii) with respect to using a friends computer, males again outnumbered females, by slightly less than two times greater.

*   On the computer quiz test, males did better than females in both study years, but there was less of a difference in the 1989 study.

Discussion:

(286) It appears that image plays a very strong role in determining a student's interest in studying computer science. "In relation to gender, it is not a directly unfeminine image, but rather one mediated through a gender connected series of images about sitting in front of screens, interacting with machines rather than people and being bored with this."

Recommendations included the following:

*   to have single sex tuition;

*   to provide computer workshops for females;

*   to also provide female role models from the computing industry;

*   illustrate that both female and male computer scientists can be normal people;

*   provide inservice training for teachers; and

*   provide more flexible and mixed hours to attract women.

Escobar, Arturo. 1984/85. "Discourse and Power in Development: Michel Foucault and the relevance of his work to the Third World." In <u>Alternatives</u> Vol.10. Winter 1984/85.

(379) "It is Foucault's fundamental contention that in every society the production of discourse is controlled, organized and redistributed according to a certain number of procedures. ...Discourses, according to Foucault, have systematic structures and they should be studied archaeologically, i.e. by identifying the different elements of which they are composed and the system of relations by which these elements form wholes. More importantly, they should be studied genealogically. Genealogy is concerned with the defective formation of discourse by nondiscursive practices, such as socioeconomic factors, institutions, administrative requirements, etc. The genealogist undertakes a diagnosis of a current situation by concentrating on the political technologies constituted by the interrelationship of contemporary forms of power and knowledge."

(380) Foucault distinguishes between three major types of struggle: ...forms of exploitation ...forms of domination ...forms of subjection.

(381) "To the multiplicity of forms of power, we must respond with a multiplicity of localized resistances and counteroffensives. These localized resistances, however, must be of a radical and uncompromising character if they are to confront the totality of power. Rather than a massive revolutionary process, the strategy must be aimed at developing a network of struggles, points of resistance, and popular bases."

(384) "The Discourse of Development: ...without examining development as discourse we cannot understand the systematic ways in which the Western developed countries have been able to manage and control and, in many ways, even create the Third World politically, economically, sociologically and culturally; and that, although underdevelopment is a very real historical formation, it has given rise to a series of practices (promoted by the discourses of the West) which constitute one of the most powerful mechanisms for insuring domination over the Third World today."

(387) "The Structure of Discourse: The result has been the uninterrupted succession of "development strategies" and sub-strategies, always within the confines of the same discursive space in which we are still encapsulated."

(387) "The Deployment of Development: The discourse of development that we have described briefly has made possible an endless number of practices through which new mechanisms of control, i.e. new forms of power and knowledge, are deployed. The deployment of development has operated through three major strategies:"

(i) "The progressive incorporation of problems... Once a problem was incorporated into the domain of development, it had to be categorized and further specified... underdeveloped... malnourished... illiterate... It constituted a whole political anatomy of the Third World which sought not so much to illuminate problems and possible solutions as to give them a visible reality amenable to specific treatments. This first strategy resulted in the formation of a field of intervention of power, the establishment of an ever more encompassing domain of intervention."

(ii) "The professionalization of development. This was effected through the proliferation of development disciplines and subdisciplines... It would lead in a few years to the consolidation of "development studies" in most major universities of the developed world... What was at stake was a type of knowledge that sought to establish the nature of Third World countries, to classify their problems and formulate policies, to pass judgement on them and visualize their future - to produce, in short, a regime of truth and norms about development. This second strategy sought the formation of a field of control of knowledge..."

(388) (iii) "The institutionalization of development. ...This strategy resulted in the dispersion of local centres of power-knowledge, i.e. the establishment of a multiplicity of sites of power which made possible the disciplinary system of development. ...development has been successful to the extent that it has been able to penetrate, integrate, manage and control countries and populations in increasingly detailed and encompassing ways. It has failed to solve the problems of underdevelopment, it can also be said, perhaps with greater pertinence, that it has succeeded will in creating a type of underdevelopment which has been until now, for the most part, politically and economically manageable. ...After four decades of "new knowledge," we still hold to the same basic tenets."

(389) "The requirements of capital accumulation on a world scale, and the contradictions inherent in such a process, on the other hand, determine the specificity of exploitation and greatly affect the constitution of the discourse itself. ...Yet the ways in which the discourse organizes these elements goes beyond the economic realm and cannot be easily analyzed in terms of direct causal relations."

(390) "Why such a host of food and applied nutrition programs... Should we not examine instead the ways in which the fundamental experience of hunger has been invested by Western forms of power..."

(390) "Counterdiscourses and Resistance: ...The leaders and intellectuals of the countries of the Third World began to speak on behalf of their own people, to use similar weapons in order to pursue their own interests, often times with the same vocabulary and espousing eh same goals. These counterdiscourses (some more or less accommodating or susceptible to co-optation, some more or less radical than others) operated for the most part within the same discursive space and within the same field of power of the dominant strategy."

Foucault, Michel. Chapter Five: "Two Lectures." In Power/Knowledge: Selected Interviews and Other Writings 1972 - 1977. Edited by Colin Gordon. New York: Pantheon Books. 1980.

Lecture One: 7 January 1976

(79) Foucault's perception of his work is that it is "fragmentary, repetitive and discontinuous." The focus of his work, related specifically to the last 10 - 20 years (1956 - 1976) because of two events: (80) 1. attacks directed against traditional morality and hierarchy, and 2. attacks upon the legal and penal system.

(80) Re: society... there is a fragility, once never suspected, that is becoming increasingly apparent... BUT also a discovery of the inhibiting effect of global totalitarian theories, i.e. Marxism (81) "In each case, the attempt to think in terms of a totality has in fact proved a hindrance to research."

The insurrection of subjugated knowledges:

(81) "...it seems to me that this local criticism has proceeded by means of what one might term 'a return of knowledge'. What I mean by that phrase is this: it is a fact that we have repeatedly encountered, at least at a superficial level, in the course of most recent times, an entire thematic to the effect that it is not theory but life that matters, not knowledge but reality, not books but money etc.; but it also seems to me that over and above, and arising out of this thematic, there is something else to which we are witness, and which we might describe as an *insurrection of subjugated knowledges*. ...By subjugated knowledges I mean two things: on the one hand, I am referring to the historical contents that have been buried and disguised in a functionalist coherence or formal systemisation... (82) On the other hand... a whole set of knowledges that have been disqualified as inadequate to their task or insufficiently elaborated: naive knowledges, located low down on the hierarchy, beneath the required level of cognition or scientificity."

(83) "... with what in fact were these buried, subjugated knowledges really concerned? They were concerned with a *historical knowledge of struggles*." This was not possible to realize without eliminating the tyranny of global discourses.

What the genealogical project does:

(83) "What it really does is to entertain the claims to attention of local, discontinuous, disqualified, illegitimate knowledges against the claims of a unitary body of theory which would filter, hierarchise and order them in the name of some true science and its objects. Genealogies are therefore not positivistic returns to a more careful or exact form of science. They are precisely anti-science."

What Foucault is doing:

(85) "If we were to characterise it in two terms, then 'archaeology' would be the appropriate methodology of this analysis of local discursivities, and 'genealogy' would be the tactics whereby, on the basis of the descriptions of these local discursivities, the subjected knowledges which were thus released would be brought into play."

A trap perhaps to once again subjugate/colonise local knowledge: (86) "And if we want to protect these only lately liberated fragments are we not in danger of ourselves constructing, with our own hands, that unitary discourse to which we are invited, perhaps to lure us into a trap, by those who say to us: 'All this if fine, but where are you heading? What kind of unity are you after?' The temptation, up to a certain point, is to reply: 'Well, we just go on, in a cumulative fashion; after all, the moment at which we risk colonization has not yet arrived'."

(88) Economism in theory of power... at core of Marxism, juridical, liberal/political power... "This economic functionality is present to the extent that power is conceived primarily in terms of the role it plays in the maintenance simultaneously of the relations of production and of a class domination which the development and specific forms of the forces of production have rendered possible."

Good question: (89) "Well then, the problem involved in the researches to which I refer can, I believe, be broken down in the following manner: in the first place, is power always in a subordinate position relative to the economy? Is its essential end and purpose to serve the economy? Is it destined to realize, consolidate, maintain and reproduce the relations appropriate tot he economy and essential to its functioning?"

"What means are available to us today if we seek to conduct a non-economic analysis of power? Very few, I believe."

What is power if not defined by the economy? (90) "Power represses nature, the instincts, a class, individuals. Though one finds this definition of power as repression endlessly repeated in present day discourse, it is not that discourse which invented it...

In summary:

(91) "So, no sooner do we attempt to liberate ourselves from economistic analyses of power, than two solid hypotheses offer themselves: the one argues that the mechanisms of power are those of repression. For convenience sake, I shall term this Reich's hypothesis. The other argues that the basis of the relationship of power lies in the hostile engagement of forces. Again, for convenience, I shall call this Nietzsche's hypothesis."

(92) "Thus we have two schemes for the analysis of power. The contract-oppression schema, which is the juridical one, and domination-repression or war-repression schema for which the

pertinent opposition is not between the legitimate and illegitimate, as in the first schema, but between struggle and submission... It is obvious that all my work in recent years has been couched in the schema of struggle-repression..."

Lecture Two: 14 January 1976

(93) "... we have a triangle: power, right, truth... how is the discourse of truth, or quite simply, philosophy as that discourse which *par excellence* is concerned with truth, able to fix limits to the rights of power? That is the traditional question. The one I would prefer to pose is rather different... **what rules of right are implemented by the relations of power in the production of discourses of truth?**"

"Power never ceases its interrogation, its inquisition, its registration of truth: it institutionalises, professionalises and rewards its pursuit."

Methodological Imperatives or Precautions:

1.	(95) "When it comes to the general organisation of the legal system in the West, it is essentially with the King, his rights, his power and its eventual limitations, that one is dealing." Foucault's intention here is "to give due weight, that is, to the fact of domination, to expose both its latent nature and its brutality. I then wanted to show not only how right is, in a general way, the instrument of this domination..."

	(96) "The system of right, the domain of the law, are permanent agents of these relations of domination, these polymorphous techniques of subjugation. Right should be viewed, I believe, not in terms of a legitimacy to be established, but in terms of the methods of subjugation that it instigates."

	Interesting point re: power and legality: (97) "... one should try to locate power at its extreme points of its exercise, where it is always less legal in character." (LIKE WHEN???)

2.	Should we ask: "Who then has power and what has he in mind? What is the aim of someone who possesses power?" NO!!!! Rather, we should ask: "how things work at the level of on-going subjugation, at the level of those continuous and uninterrupted processes which subject our bodies, govern our gestures, dictate our behaviours etc."

3.	(98) "Power must be analysed as something which circulates, or rather as something which only functions in the form of a chain. It is never localised here or there, never in anybody's hands, never appropriated as a commodity or piece of wealth. Power is employed and exercised through a net-like organisation. And not only do individuals circulate between its threads; they are always in the position of simultaneously undergoing

and exercising this power."

4. (99) "... when I say that power establishes a network through which it freely circulates, this is true only up to a certain point... One must rather conduct an *ascending* analysis of power, starting, that is, from its infinitesimal mechanisms... and then see how these mechanisms of power have been - and continue to be - invested, colonised, utilised, involuted, transformed, displaces, extended etc., by ever more general mechanisms and by forms of global domination."

(100) "What needs to be done is something quite different. One needs to investigate historically, and beginning from the lowest level, how mechanisms of power have been able to function." (101) We need to look at the manifestation of power at the local level rather than simply lump all power mechanisms under a generalized form of dominance... and ask, how would local level systems of control support the interests of the bourgeoisie, i.e. what was the political usefulness of surveillance of the insane?

(102) "The bourgeoisie could not care less about delinquents, about their punishment and rehabilitation, which economically have little importance, but it is concerned about the complex of mechanisms with which delinquency is controlled, pursued, punished and reformed etc."

5. (102) "As for our fifth methodological precaution: it is quite possible that the major mechanisms of power have been accompanied by ideological production." ...different from ideology per se... "All this means that power, when it is exercised through these subtle mechanisms, cannot but evolve, organise and put into circulation a knowledge, or rather apparatuses of knowledge, which are not ideological constructs... We must eschew the model of Leviathan in the study of power. We must escape from the limited field of juridical sovereignty and State institutions, and instead base our analysis of power on the study of the techniques and tactics of domination."

(105) Why has the theory of sovereignty become apparent through legal codes?
1. a criticism of the monarchy.
2. has allowed a system of right to be superimposed upon mechanisms that support domination.

(106) "...these two limits, a right of sovereignty and a mechanism of discipline, which define, I believe, the arena in which power is exercised... The code they come to define is not that of law but that of normalisation."

Chapter Six: "Truth and Power."

The question of power and knowledge:

(109) "... if one takes a form of knowledge (*savoir*) like psychiatry, won't the question be much easier to resolve, since the epistemological profile of psychiatry is a low one and psychiatric practice is linked with a whole range of institutions, economic requirements and political issues of social regulation?"

(112) "... it is not so much a matter of knowing what external power imposes itself on science, as of what effects of power circulate among scientific statements, what constitutes, as it were, their internal regime of power, and how and why at certain moments that regime undergoes a global modification."

Problem with 'event' v.s. 'structure':

(114) "But the important thing is to avoid trying to do for the event what was previously done with the concept of structure. It's not a matter of locating everything on one level, that of the event, but of realising that there are actually a whole order of levels of different types of events differing in amplitude, chronological breadth, and capacity to produce effects... The problem is at once to distinguish among events, to differentiate the networks and levels to which they belong, and to reconstitute the lines along which they are connected and engender one another. From this follows a refusal of analyses counted in terms of the symbolic field or the domain of signifying structures, and a recourse to analyses in terms of the genealogy of relations of force, strategic developments, and tactics."

On genealogy:

(117) "... a form of history which can account for the constitution of knowledges, discourses, domains of objects etc., without having to make reference to a subject which is either transcendental in relation to the field of events or runs in its empty sameness throughout the course of history."

Problems with ideology:

(118) "The notion of ideology appears to me to be difficult to make use of, for three reasons. The first is that, like it or not, it always stands in virtual opposition to something else which is supposed to count as truth... The second drawback is that the concept of ideology refers, I think necessarily, to something of the order of a subject. Thirdly, ideology stands in a secondary position relative to something which functions as its infrastructure, as its material, economic determinant, etc. For these three reasons, I think that this is a notion that cannot be used without circumspection."

Problems with repression:

(118/9) "The notion of repression is a more insidious one, or at all events I myself have had

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much more trouble in freeing myself of it, in so far as it does indeed, appear to correspond so well with a whole range of phenomena which belong among the effects of power... it seems to me now that the notion of repression is quite inadequate for capturing what is precisely the productive aspect of power. In defining the effects of power as repression, one adopts a purely juridical conception of such power, one identifies power with a law which says no, power is taken above all as carrying the force of a prohibition... If power were never anything but repressive, if it never did anything but to say no, do you really think one would be brought to obey it? What makes power hold good, what makes it accepted, is simply the fact that it doesn't only weigh on us as a force that says no, but that it traverses and produces things, it induces pleasure, forms of knowledge, produces discourse."

We must examine local sites of struggle/authority for the specific:
(127) "This new configuration has a further political significance. It makes it possible, if not to integrate, at least to rearticulate categories which were previously kept separate... And it has become possible to develop lateral connections across different forms of knowledge and from one focus of politicisation to another."

"Truth" in society:
(131/2) "Each society has its regime of truth, its 'general politics' of truth: that is, the types of discourse which it accepts and makes function as true; the mechanisms and instances which enable one to distinguish true and false statements, the means by which each is sanctioned; the techniques and procedures accorded value in the acquisition of truth; the status of those who are charged with saying what counts as true. ...In societies like ours, the 'political economy' of truth is characterised by five important traits...

1. Truth is centred on the form of scientific discourse and the institutions which produce it;
2. it is subject to constant economic and political incitement (the demand for truth, as much for economic production as for political power);
3. it is the object, under diverse forms, of immense diffusion and consumption (circulating through apparatuses of education and information whose extent is relatively broad in the social body, not withstanding certain strict limitations);
4. it is produced and transmitted under the control, dominant if not exclusive, of a few great political and economic apparatuses (university, army, writing, media);
5. lastly, it is the issue of a whole political debate and social confrontation ('ideological' struggles)."

(133) "'Truth' is to be understood as a system of ordered procedures for the production, regulation, distribution, circulation and operation of statements... 'Truth' is linked in a circular relation with systems of power which produce and sustain it, and to effects of power which it induces and which extend it. A 'regime' of truth."

Frissen, Valerie. "Trapped in Electronic Cages? Gender and New Information Technologies in the Public and Private Domain: an overview of research" in <u>Media, Culture and Society</u> 1992.

(32) 'The value system underlying technological practices including the NICTs are often seen as masculine; because they are not seen as a natural and logical expression of women's culture, women are discouraged from their use.' This raises questions about the meaning of gender expressed in the technology, the meaning of technology for gender relations and the effect of the value system underlying technologies on society and gender relations.

Technology has generally been seen to belong to the public sphere but NICTs facilitate new interactions of work, the public world, and home. They bring work and the public realm increasingly into the home; at the same time they contribute to a definition of the home as a sphere of leisure.

(34-5) In some of the literature, the values with which technology is associated are said to exclude women; in that way they are excluded from a very important power domain as well. Women are depicted as standing on the side of nature but power is on the side of technology with men depicted as dominating nature and women. These perspectives neglect diversity and complexity.

(35) Another observation from the literature is that ostensibly labour saving domestic technologies rarely have had this effect. This raises the question of whether the potential benefits of NICTs may also be subverted.

(36) In the predicted 'home of the future' NICTs reshape interaction and communication patterns within the home and between the home and the outside world. What are the implications of this for social relations in the household?

(37- 38) Research on gender and NICTs in the public realm has noted that women tend to use computers in the lower paid and less prestigious jobs and that the technology tends not to address women's practices. It has been suggested that since information technology has such great influence, women's relative exclusion from such could contribute to further marginalization.

(39) The quality of women's work often seems to worsen with computerization and women's concentration in the worst jobs may be increased. Still opportunities may be enhanced for some.

Some policy and political analysis attempts to encourage women to adapt and increase their involvement in the public sphere.

(40) Research on gender and NICTs in the private realm note gender differences in the use of domestic technologies and in the effect on home life.

(41) Men and boys are more likely to use IT in the home and to use them more for leisure activities. Men tend to exercise control over VCRs.

A language project for illiterate Moroccan women in Holland using interactive cable TV is said to have failed because it did not suit the culture of the women. (Mol, 1991)

(42) Concerning the effects of the technology on home life, separation along gender lines was increased (Prevelou). Another author suspects the 'rationalization of the private domain' might weaken the social functions of private households. (Mettler-Meibom)

The potential that IT may create new cheap female labour potential in the form of telework and homework has been flagged. This may also intensify the traditional gendered division of labour.

(43) At the same time opportunities for child-rearing women arise. Telework also creates the possibility that homeworking men might do more of the domestic labour.

(43) There is a further risk that changes in communication patterns might render women more isolated - in electronic cages.

Conclusion:

(44) NICT production and design is conducted largely by men in male environments; women tend to be conceived as consumers and, by and large, specific applications which might be useful for women are not imagined.

For women, the boundaries between work and leisure may be less clearly defined and the impact of information technology in the home may have different meanings for men and women.

(45) These technologies may substantially disrupt the distinction between separate spheres but there has been very little research on this.

Much of the feminist research to date has produced a bleak image of the relations between women and NICTs. However, feminist dogmas may be partly to blame. Research must also describe the active practices of women as to whether they do, or do not, use these technologies and expose the gendered value systems, practices and discourses which are at work.

Henwood, Felicity. "Microelectronics and Women's Employment: An international perspective" in M. J. Davidson and C. L. Cooper (eds.) <u>Women and Information Technology</u>. Wiley, 1987.

(97) Microelectronic or computer-based technologies are being introduced, around the world, into labour environments which are deeply divided, both within and among countries, on the basis of race and gender.

(98) As Kaplinsky illustrates, the effects of these technologies are very different at the three levels of automation: intra-activity, intra-sphere and inter-sphere, with increasing integration as islands of automation, then production units and spheres are linked. "Whereas the employment implications of intra-activity automation tend to be associated with skill changes and changes in conditions and quality of work, intra-sphere and inter-sphere automation can lead to significant reductions in the actual number of jobs."

(99) In the first stages of automation in the industrialized countries labour-intensive assembly tasks, especially in electronics and clothing, were transferred off-shore overwhelmingly to women in less-industrialized countries. Now many more tasks are automated and these off-shore jobs are at risk. Local firms in the poorer countries face difficult times. Without comparable automation they can not long complete on the basis of cheap labour. Yet adoption of automation technology, if successful, would lead to less employment.

(100) It is not clear how quickly computerized automation will spread to production in the NICs. There is some suggestion that they may have an advantage in moving to flexible production. Also some DCs (India for example) have lower-cost computer skilled labour. However, the countries and the demographic sectors which may take advantage of automation opportunities may not be the same ones which loose employment as a cost of not automating. "Assembly
jobs are almost exclusively held by women, whereas the new software and programming skills are being taught mainly to men, who stand to gain the most from these changes. Moreover, the employment opportunities of computerization are likely to be short term in the poor countries as these tasks will be increasingly 'brought home'.

(101) The same trend is likely to be repeated in the office service sector with female labour in data entry and processing shifting to poorer countries but then drying up as these tasks are transferred back, not to workers but to automation in the AICs.

Skills and deskilling:

(101-2) Thus, the skill implications of technological change varies between tasks, jobs and individuals. For example, where new machinery has led to the replacement of some workers by others (women) with the newly required 'dexterity', the resulting lower wages may not reflect

the skill level of the work but only its gendered skill 'label'. Thus 'skill' is a gendered social category as much as a technical one. A study of the deskilling effects of new clerical technology found that men were able to avoid having their skill label lowered by moving up the internal job hierarchy. They were deemed to have characteristics necessary for promotion, such as long-employment or geographical mobility, which women were unlikely to have.

(103) Being unionized has a similarly uneven benefit for men and women subject to apparently neutral 'deskilling.'

It appears that times of rapid technological change and reorganization of work highlight the intransigence and adaptability of gender powered distinctions about 'natural' skills and hierarchies. The rationalizations for sex-typing of jobs may become less hidden. "For instance, Game and Pringle found that the vacuum-cleaner assembly line was made up entirely of migrant women because it was thought 'too boring' for men. Yet, in the same factory, men worked on the washing-machine line doing very similar work."

This research questions the appropriateness of simple distinctions in the realm of gender and technology or skill.

(104) Moreover, the deskilling hypotheses has never adequately reflected the situation in the less-industrialized countries.

In sum, generalization on these issues obscures as much as it reveals.

In advanced industrial countries:

(106) Climbing the corporate ladder becomes even more unlikely for women as the clerical and similar jobs which occasionally provided leverage for women, are automated and the remaining jobs become more skilled [or skill-labelled]. Banking exemplifies this reduced opportunity for women's upward mobility in the face of increased automation, job segregation and decreased numbers of middle-level jobs. [Sometimes known as 'the declining middle class of jobs'] Women's retail jobs are moving in the same direction with teleshopping, [superstores], and linking of retail and banking sectors.

(107) In manufacturing, micro-electronics have reduced women's employment in assembly and processing (as in the food sector). Shopfloor jobs are likely future targets as flexible manufacturing diffuses.

While new employment opportunities have accompanied each of these developments they have not been for the women who have been made redundant. For example, men's employment in Britain's computer and electronic capital goods sector has increased three times more than

women's employment and the latter has been concentrated at the lower end.

In the newly industrializing countries

(108-9) Women's labour in the NICs has supported the growth of the electronics industry and vice versa. In certain of the NICs it has provided the first experience of wage labour in the formal sector for women. In South-East Asia employment has been generated particularly in assembly, testing and packaging of components and assembly of imported components into electronic products and in each of these subsectors women have largely been employed. Up to as 70% are women under 24. They are often, and increasingly, better educated or from 'while-collar' families, and they are often migrants from rural areas, even from more-rural neighbouring countries. Their work and social experiences have been extremely difficult.

(110) A labour hierarchy has developed among these South-East Asian countries in which gender is implicated. The Latin-American NICs are much more oriented towards their internal market and indigenous firms have had some (threatened) import substitution success.

The so-called 'second generation' NICs are entering the field at an inopportune time in terms of the trajectory of phases of automation [referred to above.] Reverse engineering is less possible for the new technologies, cheap labour provides less of an advantage and industrialized country protectionism appears to be mounting. For these countries, therefore, the future of women's employment in industry is uncertain.

(111-112) In the realm of manufacturing, computer-based technologies are advancing in design, machine tools, and production itself. In Brazil these have been found to increase hierarchical control and the division between intellectual and manual labour. Programming jobs moved from the shopfloor to office. While it is primarily men's jobs which are affected, the future of women's access to these jobs may well be threatened. The wide diffusion of flexible manufacturing systems will affect women most directly. As yet little is known about this subject.

(113) In services, women's employment has increased in many NICs, in jobs from teaching and nursing to clerical and sales, with some fields becoming newly 'feminized' since the 1970s in some NICs.

Office machine, data processing and telecommunications technology are diffusing rapidly. The affect on each gender varies from country to country depending on who has done, and is now doing, the work which becomes automated or is exported.

(114) "If office work becomes more routine and there is a general deskilling of clerical tasks, this area may well become increasingly 'feminized' even in countries where men currently

predominate" or men may fight to hold on to this employment and its 'male' status. The effects of computerization in banking in India include little new employment and further polarization in the skill content of jobs. The new jobs are in systems analysis, software design or data analysis, while clerical and data-entry jobs are depleted and distanced from them. Women tend to predominate in the off-shore office services. Whether they will gain access to the higher level jobs remains to be seen.

(115) In sum, women seem nowhere to be gaining access to the good jobs resulting from the diffusion of computer technologies.

(116) Any examination of, or concern with, women's work and these technologies most adopt an international perspective.

Any increase in the number of women earning skills and training in science and technology is to be encouraged as a way to increase women's power and address social and political gender hierarchies.

ILO. December 1992. *Technologies for Rural Women: The dilemmas of landlessness.* Dhaka, Bangladesh: International Labour Office.

Chapter Eight
Information Dissemination and National Sensitization: The role of the media

(86) Key to the whole argument is the following: "The purpose of any programme which is geared to the benefit or welfare of the masses is ultimately to provide the know-how with which the desired level of progress is to be attained."

In lower income countries the dissemination of information via the media has incredible power. With the assistance of NGOs, donor agencies, government agencies and others, the dissemination of information assists women in breaking free of the cycle of poverty.

In most lower income countries, the mass media refers to radio, television and newspapers. Radio tends to have the greatest impact, since most people can afford one and the message is clear even to those who may illiterate.

(87) The impact of television is much more limited, since relatively few people can afford one. Use of a television also involves access to electricity which for many is not possible.

For women who are literate, the greatest impact is achieved by the print media, particularly reports that are focused on the issues of women. To reach a wider audience, however, consideration must be given to printing material in women's local languages.

(89) Also useful are brochures, videos, surveys, technical manuals, *inter alia.* However, it is essential that the particular socio-economic position of the women being addressed, be taken into account when preparing the materials to be disseminated.

"E.M. Forster introduces one of his literary works with a simple matter: "only connect." That is precisely the task of those who seek to bring Bangladeshi poor women into contact with the prospects of prosperity..."

IWTC. "Do It Herself: Women and Technological Innovation." Briefing Paper. n.d.

(1/2) The Intermediate Technology Group (ITDG) in the UK developed the "Do It Herself" program between 1987 and 1989. The program recognizes that women already possess a great deal of technical knowledge which is of considerable value. And yet women tend to be invisible when it comes to technology. What the "Do It Herself" program does is focus on "the role of women in technological change, in order to stimulate policy makers to take account of women's technical knowledge, and to encourage technical assistance strategies which incorporate the knowledge and skills of technology users." The program is based on research carried out by African and Asian academics who have examined women's role in technological adaptation and change. What their studies revealed was:

* Technology is more than just hardware. It is also skills, expertise, organization, techniques and knowledge, all of which are connected to production processes.

* Women's knowledge of production processes is scientific in nature, but is not recognized as such, and is often invisible all together.

* Women adapt or change production processes in response to factors that influence their lives, such as natural disasters, market demands, war, etc.

* Although women's knowledge and skills are central to household survival and food security, they are of low status. When their knowledge is recognized as being crucial, they tend to lose ownership of this knowledge.

* Women's informal communication systems, are crucial to the survival of their technological knowledge and yet they often remain unrecognized.

* Women make innovations based on their perception of life and the risks imposed.

(2) There were two seminars held to discuss the above: one in Bangladesh and the other in Zimbabwe, bringing together a total of 160 people from universities, NGOs, women's groups, the private sector, credit institutions, international agencies and government offices.

Some of the research and policy issues identified were:

* Women's local technological knowledge needs to be documented and disseminated broadly and from the grass-roots level up to policy makers.

*   Technology development must take into account and be based on existing local knowledge and skills, which would ensure local capacity to innovate and decrease dependence on external intervention.

*   Policies should encourage and protect those involved with small scale production, and should be aware that it is women who tend to be the experts on local production, processing and marketing.

IWTC. "Filling the Information Gap: How Do Women Get Information on the Technologies Appropriate to Their Needs." Proceedings from a communications workshop carried out by the International Women's Tribune and UNIFEM, New York, June 1990.

Background:

(1) Having access to technologies is only part of the problem. We must also realize that women are overburdened.

Problems associated with new technologies are:

*   inappropriateness of the technology itself;
*   lack of information on what is available;
*   lack of availability of technology at local level;
*   lack of access to training and credit; and
*   lack of appropriate forms of organization.

IWTC has been involved in two activities that address such issues and problems: (i) with the YWCA, the Tech and Tools Fair in Nairobi in 1985; and (ii) with UNIFEM, the Women and Food Technology (WAFT) Programme. This latter activity was established in 1985 and was designed to disseminate information about food-cycle technologies to women.

Where are we now?

(2) Based on activities over the past five years, two major conclusions can be made: (i) "the extension approach to technology dissemination is a very long term affair"... this approach must be made much more efficient and effective and/or the approach must be more market-oriented in that women "gain access to technologies through normal market channels and operate them within the context of small businesses." *[There was no discussion as to why this happens.]*; and (ii) there has been a lack of appropriate communications materials, particularly in terms of providing rural women with such information.

(3) The purpose of the this workshop, carried out by IWTC and UNIFEM is to examine the "desirability and feasibility of adapting the extension approach to technology dissemination to a more business-oriented one and of using more innovative communication techniques in both identification of rural women's needs and technology dissemination." There are two target audiences for this approach: (i) the poorest of rural women who are involved in low-risk, low investment, low profit activities; and (ii) women who desire to establish business ventures that would involve more complicated technologies and greater profits.

How do women get information on what is available and viable?

(3) Conventional channels, such as agricultural extension workers and commercial sector information systems, tend to bypass women.

(4) We must also question, in terms of what information about technology is available to women, whether or not it is actually useful to them.

One response to the above mentioned concerns is to re-package material into a form and format that corresponds with the needs of poor rural women. As outlined in this paper, in doing so there are a number of crucial questions that must be asked:

* How can we ensure a sustained and timely delivery of information?
* What institution can best respond to such a challenge?
* Do we have any basis for determining what kind of information a woman needs to have about a technology in order to make a decision so that an effort can be made to provide useful information?
* How and who can begin the process of re-packaging information?
* What are the institutional linkages which need to be forged to ensure the ongoing flow and transformation of information that will actually reach rural women?

(5) A question that is being asked, and will continue to be asked, "Isn't the technology information available for rural men equally appropriate for women?"

How do women get access to what is available and viable?

(6) Aside from the technology information required by and for women, they have a concomitant need for: "cash or credit, technical skills for operation, maintenance and repair, access to technical services, business skills and access to business and legal advice." One must also keep in mind, the socio-cultural constraints unique to each situation.

IWTC and UNIFEM. "Reaching Rural Women with Information on Technology." Report of a Brainstorming Meeting on Strategies for Disseminating Appropriate Technologies to Rural Women, New York, July 1990.

Introduction:

(1) Appropriate technologies have incredible potential to positively transform the lives of women. And yet women, particularly rural women, have relatively little access to information about these technologies. They have fewer channels than men to such information and even when they have equal access, many are illiterate and cannot benefit from printed material. It is possible to reach these women, however, as information on family planning, health and nutrition has reached a considerable number of women in rural areas.

The goal of this meeting, as organized by IWTC and UNIFEM, is to brainstorm on ways "in which innovative communication techniques can be used in identification of rural women's needs and technology dissemination." People attending the meeting were individuals involved i communications, media, women's groups, technology institutions, and UN agencies. This first meeting was followed by regional workshops that took place in Zimbabwe, Senegal, Thailand, and Ecuador.

The Target Group:

(3) It was decided that rural women have the greatest need for such dissemination efforts, for the following reasons:

*   they are frequently overworked and overburdened,

*   they are active in food production and agricultural activities, as well as small business and trading efforts,

*   they have many differing characteristics that must be addressed: education levels, age, size and scale of activities,

*   they need different types of technology, and therefore need different types of information, and

*   their ability to gain access to technological information is varied depending on specific situations and their socio-economic condition.

(4) It was agreed that these women are not a homogeneous group. Nevertheless, one particular group was identified: ""second generation" rural women with experience in manufacturing,

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trading or other productive activities... who could be targeted for information on food-cycle technologies"... others at the meeting felt that only very poor women should be targeted... discussions took place as to what hinders these women from gaining access to technological information, i.e. literacy, problem solving skills, gaining control over resources, etc. It was decided that women need to believe in themselves.

Appropriate technology and Technology Information:

(8) Technological development is often approached without the input of women, who may either be involved with the use of such technology, or may be affected by it. The information that women need about such technologies must be relevant to their situation. "While acknowledging that women needed to be more involved in the development of technology, participants recognized the need for the development and dissemination of more relevant information to rural women about a range of technologies which would allow them to make decisions regarding technologies, be it an individual farmer who wants an improved hoe or a group of women farmers who would like to obtain an oil press with which to start a small business."

It was also realized that women need accompanying support such as credit, training, equipment and business skills.

What kinds of information do different groups of rural women need?

(12) Women's specific needs and situation must be taken into account. There are methods for determining such needs. Two methods are: (i) rapid rural appraisal which is a "cost-effective, short process for gathering information using key village informants and a multi-disciplinary assessment team"; and (ii) the participatory/community approach which is a "longer-term procedure involving discussions with many women, talking with them about their needs and concerns." The most important factor here is that the assessment must directly involve who will be affected by the technological development.

(13) To involve women in this process, they must see that the new technology will facilitate an improvement in their standard of living, will bring about a higher income, will be time, energy and labour saving, will be reasonably priced and will have low maintenance and repair costs.

Technology information for rural women: the message and the medium.

(16) If we look at family planning efforts it is evident that the dissemination of information can get through to rural women. Technological information, however, is generally targeted toward men. If women are to benefit equally, dissemination efforts must be oriented to women's situation and needs, and should be presented in formats applicable to them.

(17) Various formats suggested were radio, television, listening groups, video, written material, demonstrations and theatre. Whatever format is used, material should be entertaining, use real-life examples, be personalized and should build on knowledge women already possess.

(17/18) Repackaging was also discussed. Often material pertaining to technological development is not presented in a format that rural women can use. "Repackaging technical information by changing the format and presentation of materials using more graphics and illustrations, making a poster in local languages, using fotonovela, producing a video or slide-tape, are all ways of presenting materials in more accessible and understandable forms."

Crucial Linkages:

(20) It was realized that to reach rural women, crucial linkages must be formed: (i) between the commercial and non-commercial sectors, (ii) between NGOs and local trades people (i.e. blacksmiths), (iii) between rural women and local fabricators, and (iv) between research and development institutions and NGOs.

Models and approaches to scaling up:

(22/23) Many agreed that the extension route is slow and also works in a top-down way, which is not always beneficial to the learning process. Furthermore, several people stressed that the extension method is often biased toward the technology as opposed to the client. One positive method identified is a technique referred to as the Communication for Technology Transfer in Agriculture (CTTA), developed by the Academy for Educational Development in Washington, D.C. This model "was derived from social marketing techniques and emphasizes user participation in technology development and dissemination, focusing on the four "P's" of marketing: price, product, place and promotion as well as two added P's: policy and politics... Unlike the extension approach which tends to be a top-down approach, CTTA incorporates client participation and defines communication broadly as anything regarding the client and the 6 P's... Seeing extension services as a dynamic process, CTTA was able to increase outreach of extension services in Honduras from 3,000 to 16,000."

(26-30) **Strategies, Policies and Ideas:**

*   Link women and technology information to issues of global concern such as environment, the debt crisis, natural resources, rural-urban drift.

*   Establish withdrawal programmes with burden on local participation to minimize dependency.

* Develop communication materials that: are user friendly, use local languages, include the information women need to make informed decisions, personalize the message, and are responsive to the factors that motivate.

* Find someone in the community who can translate information into a form or format understandable by local women.

* Look for pockets of entrepreneurship and use these women/men to spread information.

* Understand the prevailing media and channels of communication (look for existing channels of communication and use a combination of media).

What can donor agencies do to support the technological information needs of rural women?

* Set up a communication unit to build support for communication strategies.

* Subcontract local and/or regional and international media groups, NGOs, to implement communication programmes and projects.

* Sensitize women political leaders and women in government.

* Organize regional workshops to focus on women and technology information.

* Promote production of materials that are user-friendly to women.

* Support training of highly visible women or women in political wings to be carriers of women and technology message to decision-makers and constituents.

* Develop a "clearing-house" of information about successes and lessons learned in other agencies with regard to women and technology information to create a knowledge base and let organizations know what others have been doing.

* Include men in the message.

Jansen, Sue. "Gender and the Information Society: A Socially Structured Silence" in Journal of Communication Summer 1989.

(196) "The price paid for the absence of a critical consciousness about gender in discussions of communications and technology is the reproduction of old patterns of power and privilege in the social distribution of knowledge."

Characteristically, only "the objects men make and manipulate and the work they do" is defined as technical.

(197) In the same way, men's paid labour is considered to be the essential productive labour which contributes to a nation's gross national product.

(198) Attention should be paid to the interaction of gender and information technology in part because studies suggest that the de-skilling associated with the computer industry may particularly affect women. Also, the knowledge 'lost' in the digitalization of information may be humanistic knowledge and values.

The absence of women's consciousness and consideration of the gendered nature of this technology has the effect of conceding to technological designs which reproduce [or deepen] old patterns of power and privilege.

(199) A good way to creatively respond to the tension between feminist approaches and mainstream technology discourses is to 'commute' or travel between the two worlds, juxtaposing the two for critical momentum.

(200) Established concepts of observation, empiricism and objectivity have been effectively challenged by feminist writers. Both the kinds of problems that science addresses and the kinds of methods scientists use have been shown to be contingent rather than neutral or without perspective.

(201) Moreover, these methods are inscribed with gender as a result of women's pivotal role as 'other'.

Feminist scientists have used other methods, based more on attempts to understand and preserve nature and on rethinking or omitting previous assumptions as to the role of gender in, for example, biology. They have also reexamined the models underlying physics and social science.

(202) Traditionally, scientific consciousness has discarded that which might be considered female or not objective.

(203) Computers, or 'clean machines' reduce the concept of information to numbers and arithmetic operations - the kinds of messages which circuits can accommodate.

(204) Reasoning is largely reduced to classification.

(205) Following Gilligan, classificatory reasoning can be seen to be closer to the masculine-gendered mode of reasoning than it is to context-based or relational information.

(207) Women's language deals well with the everyday world and the material context providing options for "a necessary epistemological correction. As the ones 'who are not allowed not to have a body', a finite position, and situationally embedded knowledges, female thinkers are well placed..." [to articulate new understandings of knowledge.]

The immediate project requires women to bring to the discourse of technology women's experience of embodiment and skill.

(208) "Recognition of the situational embeddedness of knowledge does not require acceptance of relativism or rejection of the quest for 'objective' knowledge." "Harraway points out that .... relativism is a way of being nowhere while claiming to be everywhere equally." The objective is not to destroy science but to promote the idea of science as on-going and mediated by vantage points and culture.

(209) Resituating science within a responsible theory of knowledge would lead to a 'successor science' which could empower "interrogations of the design codes and communicative models embodied in plans for global information systems." It would require reflection upon the ends as well as the means and substantive as well as functional forms of rationality. (As Weber, Habermas and others have urged.)

Women have created handcrafted information systems from recipes and home remedies to midwifery and art and have reconfigured malestream technologies such as the telephone and chatlines. "Feminist informed technologies would presumably incorporate elements drawn from these alternative networks, designs, artifacts, and uses" as well as from female articulated principles of social order.

(210) "A feminist design aesthetic would presumably favour development of decentralized, egalitarian, accessible, process-oriented information technologies that advance expressive as well as instrumental values." It might divert the focus on capital-intensive and immensely powerful technologies in favour of more human-centred, resourceful and durable technologies.

Leigh-Doyle, Sue (ed.) "Women in Non-traditional Fields: Guidelines for Action from Bangladesh, India, Pakistan and Sri-Lanka" ILO Discussion Paper No. 63. Geneva, International Labour Office, Training Policies Branch.

(Introduction) A series of consultative workshops were held in 1989 and 1990 as part of a regional project involving senior governmental and NGO officials. Over time, national action plans have been developed for each country. Further policy seminars are intended, in part to encourage regional cooperation. The recommendations from each of the four countries are quite similar.

Among the recommendations listed, the following are notable.

- Information programmes on women's issues, traditional attitudes and stereotyped gender roles should be aimed at a variety of target groups. Biases against female employees should be eliminated and non-traditional training for women increased.

- Training institutions and NGOs could facilitate these tasks at the community level and with a variety of media.

- Statistics on training and employment should be disaggregated by gender.

- A pilot Women's Resource Centre should be established to provide supports such as family care, education and technology training. A Data Base Centre should collect and disseminate information, research and studies.

- Trade unions should better represent women.

- Emphasis should be placed on achieving equal conditions of employment for both genders and supports such as maternity leave and child-care. NGOs should assist women working in the informal sector.

- Female labour inspectors should be trained.

For the complete list of policy recommendations, by country, and a description of some initiatives taken by each country, see document.

Light, Jennifer. 1994. "Not the Old Boys' Network: Women's Groups and Global Computer Networking" Unpublished paper. Department of History and Philosophy of Science, Cambridge University, U.K.

(1) Studies have documented women's distance from computers in various spheres: among girls in math and science classes; from the values implicit in computer languages and games; in the university environment of dimly-lit computing labs, few mentors and hostility; and in the pornographic and harassing environment of open fora in cyberspace.

This 'problem' can be approached constructively using what Naomi Wolf calls "power feminism" by emphasizing "proactive reshaping of technologies that embody traditional social relations to allow room for a new gender dynamic."

(2) If women act as consumers with a point of view they can play a part in shaping the market. The upcoming World Conference for Women could play a major role in positively redefining women's relations with computers.

(4) The gender identity of a technology can be modified by the modes of interaction users develop - witness the telephone, originally intended as a business instrument but substantially transformed by isolated women. Computerized telecommunications share this empowering potential for "adapter reinvention" to aid women's networking. Women's desire for separate space is exemplified on Echo in New York, where there are 3 women-only channels. Perhaps cyberspace can become a 'women's room'.

Advantages for Women's Networking

(5 -6) Computer-mediated communications (CMCs) have capacities which offer women the potential for community and control: They facilitate group decision-making; common interests are stressed because of the absence of identity cues unrelated to the issue at hand; community and cooperation may also be fostered by the lack of salience of non-issue related differences; spacial limits to organizing for political purposes are reduced.

(7) Women's groups report that isolation can be reduced and empowerment enhanced in a liberating way. Within communities networks facilitate the voicing of opinions.

[Women's networks referred to include:
Echo: Women's Action Coalition, Women in Telecommunications, and Women's Online Network, New York;
Elletel Agence Femmes Information, France;
Big Sky Telegraph BBS connecting Montana Women's Centres;
PENFEMME on the Santa Monica Public Electronic Network

Mexican women's groups against NAFTA
on the Institute for Global Communications networks;
Women's Networking Association, Cameroon;
gn.women.unwcw, Association for Progressive Communication, fee.

Constraints

(8) The suitability of a network is affected by whether or not it is public, based on subscriber fees, whether there are public terminals and instructional sessions, whether a group moderates its use and establishes policies. (The National Women's Agenda Satellite Project was stalled by NASA's control over topics which could be discussed.)

(9) Potential users may lack infrastructure such as wiring or access to a computer, encouragement from parent organizations, knowledge or resources. Urban bias is a problem on the peripheries [spacial and otherwise].

"Women's networks considering the politics of aid might benefit from study of the UNDP-sponsored Sustainable Development Networks (SDNs), networks linking 'sources and users of information on sustainable development in government, research, non-governmental organizations, grassroots and entrepreneurial organizations on a global scale' [managed by a UN-appointed Coordinator]." See UNDP SDN Brochure and SDN Workshop Report.

(10) The UNDP provides funding, starter kits, works with existing networks including APC, GeoNet, Telecommunications Cooperative Network, FidoNet and Internet. Where infrastructure is inadequate local media and resources sustain the links.

(11) Broad-based networks such as Internet are expensive, institutional affiliation is virtually a necessity except where Freenets are established. For this reason, discussion groups devoted to gender issues may be heavily biased in favour of academic interests. There is real concern that networks could make information more expensive and increase the distance between those who can afford to be online and those who cannot. Technology transfer and donor aid will be necessary or the gap between the information rich and the information poor will grow.

(12 -13) Outreach, education, helpdesks, help menus and user-friendly software are vital if women's groups are to make use of this technology. In poorer countries in particular the technology may be seen as 'foreign' in additional senses and not as malleable to local needs. As M. Munasinghe [1989,12] says: "Once the technology is understood by some and used by many in the developing world, it becomes domesticated, familiar, non-threatening, and therefore becomes capable of being harnessed to meet one's own needs."

(14) Language may be a final barrier to access. For a world-wide women's network, translation and mediating regional language differences may be both expensive and vital.

Conclusion: Engendering and Regendering Technology, The UN 1995 Conference on Women

(14) Computer networking can facilitate women's access to the decision-making and power essential to participation as stated in the Human Development Report 1993. Information dissemination is making it more difficult for governments to monopolize what is known while enhancing media awareness of events all over the world. Empowerment, in particular group empowerment, increases with communication and information.

(15) Previous consensus-building through networking aided the impact of women's NGOs at the 1992 Earth Summit and the 1993 World Conference on Human Rights and is underway for the 1995 UN Conference on Women.

(16) If women's groups regender or engender networks for political purposes, it will consequently reshape our notion of women and our notion of computers.

MacBride, Sean. 1980. *Many Voices, One World: Communication and Society, Today and Tomorrow.* Paris: UNESCO.

Chapter Four: Images of the World

Equal Rights for Women

(189) Women's inequality, relative to the socio-economic position of men, is their greatest violation of human rights. This is certainly the case when it comes to education and employment opportunities. "As an alarming example, two-thirds of the illiterates in the world are women, and the education given to girls as compared to boys tends to be inferior and is more often curtailed at an early age." Women need and deserve equal access to education, social participation and communication... often denied as a result of patriarchal structures and processes (e.g. religions and laws established as rules for governing society... but largely from a male perspective).

(190) With few education opportunities, women's choice of occupation is also limited. This is certainly true of work in the field of communications. "Journalists dealing with serious issues and political events are seldom women, and few women become editors or hold directing positions."

We must also realize that in both developing and developed worlds, information about women tends not to be generated by them. The media has a strong role to play here. "The media seldom depict women as significantly involved in work, in the pursuance of careers, or in public life." Women are depicted as being tied primarily to the domestic sphere and incapable of enacting any significant decision-making power. Issues that truly concern women or which honestly reflect who they are, are few and far between.

(191) "A number of studies conclude that the overall effect of the portrayal of women in the media is to reinforce, rather than to reduce, prejudice and stereotypes."

Matterlart, Michele. Keynote Address, Day One, February 12, 1994: "Women, Media and Power." Proceedings from the Women Empowering Communications Conference, Bangkok, Thailand, 12-19th February, 1994.

*   These proceedings were collected off the Internet computer network and therefore are not delineated by page number.

Matterlart starts out by discussing the Women's Feature Service (WFS) based in New Delhi. She gives a good definition of what the WFS actually is and does: "The WFS produces and transmits by electronic mail almost 600 features annually from 60 countries in English and Spanish. The features are written from a progressive perspective by over 120 Third World women journalists. Anita Anand, a resource person for workshops and training sessions with NGOs and the UN in the North and South, directs this global network."

She also discusses another similar endeavour: the Feminist International Radio Endeavour (FIRE) which is based in Costa Rica... uses short wave radio... low costing, broadcasts daily... sharing women's stories from a global perspective.

Discusses too the National Film Board efforts of Canada, particularly Studio D, headed up by Kathleen Shannon... who has produced several excellent films dealing with women's issues: "Not a Love Story", "To a Safer Place", and "If You Love This Planet."

Pastizzi-Ferencic, Dunja (Director, INSTRAW). 1988. "Bringing Women's Dimension Into Development: The Role of Communications." Proceedings from the consultative meeting on Communications for Women In Development, Rome, Italy, October 24-28, 1988.

(1) A difference between developing and developed countries is that in developed countries there tends to be a situation of information overload, whereas in developing countries there tends to be a lack of information... this gap is often referred to as the "missing-link."

Radio is one of the most important tools for dissemination... it has low production and transmission costs, is affordable by most and can reach relatively remote areas. Radio can be used as a tool for education, providing formal education, distance education and information about development related activities.

(2) A popular channel for development education on the TV are *telenovelas*, soap operas that are focusing on contemporary issues affecting women today. Videos are also a good dissemination format, both adaptable and flexible to both producer and user needs.

New forms of communication include: (i) computerized training, (ii) tele-conferencing, (iii) communication satellites, (iv) low power television, (v) databases, and (vi) computerized libraries.

Introduction:

(5) Women continue to be presented in the media in negative stereotyped images. "Clearly, the majority of the images and roles for women that are found in the mass media of any country - in television and radio programming, the press, advertising and many feature films - still present women as decoration or as home-bound, physically and mentally passive and subservient creatures."

(6) New information technologies are changing the nature of work. In some ways these technologies have led to a lessening of work. But in other cases, it has encouraged new forms of work, though not necessarily more work.

Relevance of communications for women in development:

(6) Communications geared to facilitating women in development issues and concerns are difficult. For some, even attaining access to a radio is difficult. For instance, "Studies carried out in India... indicate that up to 60 percent of rural women and 30 percent of urban women claim never to have listened to radio! It could be generally stated that not many development projects use communications technologies, and the number is even smaller for WID."

(7/8) Nevertheless, the radio is still used more than television, due to the low production costs. Television is more expensive and is generally concentrated in the urban areas.

(9) In Latin America, many of the *Telenovelas* are focusing on WID issues. "In Mexico, for example, the *telenovela* "Ven Conmigo" (Come With Me) attempted to reinforce the National Plan for Adult Education. The main reason for producing the series was that 8 million adults in Mexico did not receive basic education. The series "Ven Conmigo" had 180 half-hour episodes and was broadcast on the same time schedule as the traditional commercial soap operas. It was deemed to be one of the main agents leading the registration of about 1 million illiterate adults in the National Plan for Adult Education."

This format is used also in India. "The series "Adhikar" (Rights), for example, presented women's rights to property, equal pay, dowry, divorce, alimony and widow remarriage."

(9) For women, film is also a popular communications medium.

(10) Video too is a positive medium but is used less than others. At the same time, it is important to note that video is a valuable medium for women to record their positive experiences and to share their development concerns with other women.

Sound-slide packages are much less expensive and are still advantageous in some developing country contexts. As a teaching tool, they are relatively low in cost and are easily adaptable to specific situations.

(12-15) Identification of new possibilities for using communication technologies for women in development:

1. computer assisted training: for instance, some countries are using this format for the training of farmers;

2. teleconferencing: this new form of communication has been very popular among women, making it possible for two or more groups to communicate and share ideas, graphs, documents and data, simultaneously and within a relatively short period of time;

3. databases on women in development: there are several excellent databases designed for, about and by women: Isis International, INSTRAW, the Women's Information Network for the Asia-Pacific region (WINAP), and the Economic and Social Commission for Asia and the Pacific (ESCAP); and

4. libraries on compact disc: INSTRAW, in particular, has had a central role in bringing together a library collection of materials focusing on women in development.

(15-18) Priority areas for action at the national and/or local level:

A. Criteria for determining appropriate communication technologies:

 * financial and other resources available,
 * infrastructural costs,
 * developmental needs of the population,
 * possible concrete uses of the technology,
 * potential reach of each communications technology,
 * contribution towards a more participatory model of development and "horizontal communications," and
 * potentials of each technology for widespread use in developing countries.

B. Selection of content and related factors for consideration:

 * creating culturally acceptable content and content sensitive to the needs and level of comprehension of the targeted population;
 * adequate presentation of content to identified users: e.g. literate versus illiterate audiences;
 * finding links to those national or local development priorities which would serve the population in general and women in particular; and
 * identification of the national and local, government and non-governmental institutions, enterprises and groups which would give their expertise in creating adequate content.

(20) Modalities of international cooperation in using communication technologies for women in development:

Communications such as those described in this article can also improve South-South linkages. This is beneficial to those in the South in terms of not having to rely on the North to act as an information broker. Computer networking is particularly amenable to this form of communicating.

Rasmussen, Bente and Tove Hapnes. 1991. "Excluding Women From the Technologies of the Future? A case study of the culture of computer science." In Futures December 1991.

(1107) In the field of computer science, male professors and male students tend to reinforce powerful patriarchal values, which directly or otherwise works to marginalize women. Academically, there are relatively few women studying computer science at higher levels of education. In this day and age, information technologies have the power to change the world regarding economic growth and production. Women have much to offer and as such their absence in this occupational field must be investigated and given greater attention. Why are women choosing not to enter this field?

(1108) There is an androcentric belief that women are fearful of computers and lack the self-confidence to do well in the field of information technologies. This study looks at the gender politics involved.

Historically, there has been a strong bond between computer technology, engineering and the military... not to mention the fact that educational structures are in themselves patriarchal (based on the validation of supposedly male knowledge as "the knowledge."

This study looked at students studying computer science at the Norwegian Institute of Technology (NIT). Women have represented 8 - 10 percent of the student population.

(1109) Four student groups were identified: (i) female students who are in the minority and within academia are viewed as being "different" from other women (because they are entering a male-dominated occupation), (ii) "hackers" who are all male... not necessarily the brightest students, but the most obsessed (work on computers largely from midnight to mid-day... think, talk and sleep computers), (iii) the dedicated students who are also all male... they are seen as loyal, industrious and committed to working long hours, and (iv) the normal students, also male and who form the majority. "They are called 'normal' by the female students because they, like the female students, go home in the evening and have interests other than computers." It is clear from this study that the behaviour and attitude of the hackers, in particular, has tended to marginalize women. The hackers are often referred to by women as "key pressers"... who, when pressed further, are described by women as computer nerds who are obsessed with computers.

(1110) "This hacker image is represented by Sherry Turkle as 'the image of getting lost in the thing-it-itself'."

Culture of the young male programming virtuosos:

(1110) Hackers, who tend to work through the night and into the day, work on large and ambitious systems. They tend to have a self-important view of themselves. They use an 'in-

group' language known only to themselves; they socialize together... going to see sci-fi films, eating pizza and talking computers.

(1111) In many ways, they live the life of a stereotyped artist... their whole life revolves around computers... it is a passion. They also have an obsession with control: "They work for the joy of the process and the grand feeling of achieving control. To the computer they are the boss, and it is a great feeling to beat the computer. To win means to have control; they have solved the problem."

Female students: on the periphery:

(1112) Women are different from other male students by their professional identity.

(1113) The major difference between women and men when it comes to computers, is that women tend to view the computer as a tool; they are concerned with the use of technology in practice. Women's interest in computers moves beyond the machine itself. "In choosing telematics or cybernetics, women become more 'engineers' than computer scientists, and in choosing information systems, they choose the user side, or the 'soft' side of general computing. They feel that the most exciting thing about computer science is all the different things that you can make, and the problems that you manage to solve. They do not find it especially interesting to make a million numbers go through a machine one millisecond faster." Women are also interested in making computers user-friendly.

(1114) Women tend to interact almost exclusively with the 'normal' male students; they have a weak relationship with professors and no relationship with the hackers or dedicated male students. Professors seem to agree that "good" students are those who put in a minimum of 60 hours a week (although it should be noted that professors do not regard the hackers to be as "good" as the dedicated students).

(1115) Females, who claim to have a life off-campus, spend less time than the hackers or dedicated male students on their academic work. Professors tend to view them as such as not-so-good students.

(1117) In response to their marginalization: "The female students show their dissatisfaction and protest through an active participation in changing their education. They do not, however, criticize the content of the study and the subjects that are taught, but they are concerned about the methods and pedagogical matters. They do not visualize an alternative computer science, but they think that a change in the *order* of subjects and working methods would make computer science a better subject for the students, female as well as male."

Conclusions:

(1117) Hacker values that are shared by professors and other male students:
*   machine fascination and interest in the possibilities of computers;
*   work addiction and total absorption in computers;
*   playful attitude towards the computers.

Hackers are the pure type when it comes to the above-mentioned values. In truth, all men seem to own these values but in varying degrees... these values are in opposition to those held by women.

Women's values: "They are not especially interested in computers as machines, they do not want to play with computers, and they definitely want to do other things than sit around a computer."

How to increase women's participation: "The proportion of women at Nordic universities who study computer science increases when computer science is situated within departments of business (25%), social sciences or humanities (50%). Here computer science is connected to women's interests in the use of computer technology and computer technology in a societal perspective."

There definitely needs to be more concern for users of computer systems; women's contribution would be valuable in this sense.

Reyes, Elizabeth. "The WACC, Isis and IWTC Story." Proceedings from the Women Empowering Communications Conference." Bangkok, Thailand, 12th - 19th February, 1994.

*   These proceedings were collected off the Internet computer network and therefore are not delineated by page number.

In 1991, the World Association for Christian Communication (WACC - based in London), with Isis International (based in Manila) and the International Women's Tribune Centre (IWTC - based in New York) got together to organize a conference on women's media and communication networking activities - this conference. The goal of the conference is to "assess the developments in the women's movement in the past two decades and to plan new strategies and directions toward the 1995 UN 4th World Women's Conference and NGO Forum in Beijing and WACC's World Congress in Mexico."

Rodriguez, Regina and Uca Silva. 1994. "Recovery of a Lost Decade: Women and Media in Latin America." In *Women Empowering Communication.*

Employment Models:

(129) Employment patterns of women working in the media do not vary widely in Latin America. As in other fields of employment, what is of critical importance is that women hold relatively few senior level positions. Furthermore, women who do manage to acquire such seniority tend to go along with dominant male paradigm. For instance, "In the case of Chile, some research has indicated that meagre representation is compounded by the fact that those women who hold positions generally take after the predominant logic, so that the minority presence of women in the media does not automatically bring changes for women." In 1989 in Chile there was only one female international commentator working in radio and one heading a news department. In terms of print media in Chile, 43 percent of reporters were women, whereas only 18.5 percent were editors. There are similar figures for Columbia. In 1989, of 14 Columbian periodicals, three women held editorial positions. The same is true of radio in Columbia. Within the 27 news stations, four women held management positions. Again the same is true of Mexico: "Journalists and Writers are mentioned in an article about the communications media in Mexico City (G. Lopez Garcia, 1992), half the reporters and announcers on TV are women, while 41.4 per cent of those on radio and 25.8 percent of those working for newspapers are women. Nevertheless, 89 percent of those processing the information are women. With a few exceptions, none participate in media decision making."

(130) This same trend is also apparent in Argentina. Between 5 and 38 percent of workers in the media are women, but again these women are found in lower level positions. Another problem compounding women's lower status in the media profession, is that their "double day" situation is sorely ignored. "In terms of working conditions and job descriptions, hours are long and poorly defined. The work is competitive, and women are forced to find a balance between the double burdens of home and profession in generally unfavourable conditions."

(134/135) Despite all the negative stereotypes of women found in media presentations, one format that has been favourable in terms of presenting women and in considering women as an audience, are the *telenovelas*. "*Telenovelas* cross all borders and serve to unify women's situation across the continent. In the past decade, the telenovela, the continent's version of the soap opera, has had enormous impact and registered changes and repercussions on different levels... A producer of role models the *telenovelas* could be a central feature in any debate on cultural change and development... It is important to highlight the Brazilian *telenovelas*, which are markedly different from the traditional format of this genre. They incorporate new kinds of relationships between the sexes that are closer to reality and less stereotyped, while their female characters are more diverse and complex."

Women's Alternative Media:

(136) In Latin America, the alternative media tends to be represented by women's groups and networks, as well as non-government organizations (NGOs). According to a UNESCO study, the number of women's alternative publications increased by 143 percent during the 1980s.

(138) One of the most influential women's film house is CINE MUJER, based in Columbia. Established as a women's collective, CINE MUJER focuses on producing films and videos that reflect the process of women's development.

With respect to the distribution of alternative forms of media, most information is free with the exception of FEMPRESS, SEM (Women's Special Service) and Isis International.

The focus of women's alternative media is on issues concerning information and communications, health, work, human rights and violence against women.

Women's Networks: (141/142) The most prominent networks in Latin America are Isis International, FEMPRESS and SEMLA.

"Isis International was founded in Rome in 1974, at the start of the Women's Decade. Isis existed previously as an international women's organization in Rome and Geneva, but divided into ISIS-WICCE and Isis International. Isis International began with a resource centre and newsletter in English. In 1979, the newsletter also began to publish in Spanish. The Latin American and Caribbean regional programs relocated to Santiago, Chile in 1984, and in 1990 Isis International transferred its remaining programs from Rome to Manila, Philippines. Several different publications are edited in Santiago."

"FEMPRESS. Founded in Mexico in 1981, as the Unidad de Comunicacion Alternativa de la Mujer (Unit of Women's Alternative Communication) of the Instituto Latinoamericano de Estudos Transnacionales, ILET (the Latin American Institute for Transnational Studies), this women's news agency has correspondents in 15 countries throughout Latin America who collect information and send monthly reports to the FEMPRESS office in Santiago, Chile, from which the publication Mujer Fempress is produced and distributed."

"SEMLA, Servicio Especial Mujer Latinoamericano (Latin American Women's Special Service). This started in 1979 with the goal of carrying Latin American women's voices to the continent's major communications media. At first it received technical and economic support from the international news agency, IPS (Interpress Service). During the early stages, it was sent through the mail and worked with correspondents associated with IPS. In 1988, it established an office in Rome and later separated from IPS, becoming SEM (Women's Special Service). It is currently autonomous, transmitting by mail using the name SEM, with correspondents in 18 countries.

Headquartered in San Jose, Costa Rica, SEM publishes a bimonthly newsletter called *Mujeres* (Women).

Training:

(143) It appears that the most impressive training for women in communications has taken place in Chile. One such effort was a research project on "Women, Television and Education" which used a creative laboratory methodology. "The pilot project included the development of scripts for magazine-style programs, feature reports and mini-series, in response to women's demands." Other communication training efforts for women have been carried out by Isis International and WICCE, carried out in Chile but directed at women from Latin America, Africa and Asia.

Research and Policy Issues:

*   Mainstream media needs to incorporate a gender vision.

*   A better coordination of data on, about and produced by women.

*   Include a gender perspective into the curricula of university and other post graduate training in media communications.

*   For media establishments to intensify training opportunities for women, so that they may adopt and be supported in developing a critical approach to the media.

Shade, Leslie Regan. "Gender Issues in Computer Networking." Talk give at the Community Networking: the International Free-Net Conference. Carleton University, Ottawa, Canada. August 17 - 19, 1993.

(1) It appears that "gender and computer networking" is a very hot topic these days. "When I proposed this talk to Dave Sutherland in June, I was already working on a collaborative paper with Gladys We, a master's student in Communications at Simon Fraser University and the Publications Coordinator of the Vancouver Free-Net, on gender issues in networking , for the Internet Business Journal. Gladys had already co-written a similar article for Kinesis, a Canadian feminist paper. Later I discovered that Stephanie Brail, a free lance journalist, was writing an article on women and networking for On The Issues, a U.S. based women's magazine. Very soon thereafter, e-mail to Anita Borg, "keeper" of the Systers mailing list, and also a Consultant Engineer at Digital Equipment Corporation's DEC) Network Systems Laboratory in Palo Alto revealed that she was preparing a talk on gender issues for Interval Research in the Bay Area."

(2) The focus of this paper is on: (i) gender and computer networking, (ii) access to networking, *inter alia*, and (iii) use of networking by women.

Participation of women in computer science:

Internationally, there is a low percentage of women involved in computer science... both in terms of employment and education. This is due, in large part, to sex-stereotyping. "...about one third of the computer science departments polled employ no women faculty at all" (Cottrell, 1992)... "These figures aren't surprising given the early stereotyping of toys for boys and girls: Transformers for boys and Math-Phobia Barbie for girls."

Even women who are interested in computer science, will be subjected to a male locker room mentality and corresponding antics... or at least this is the fear.

To counter-act this somewhat negative situation, policies are required that will address: sexual harassment, mentoring opportunities for women students, making the workplace accommodate the needs of career and children.

(3) More men than women have computers at home... and access through libraries is often difficult. Furthermore, women need training that is relevant to their concerns. "Hands-on, face-2-face training is an option, as well as online "navigating the net" workshops."

With respect to women's participation in computer networks, they are at the low end, and account for 10 - 15 percent of users. Interesting to note is that "a recent post to "soc.women" on women's participation cited two differing figures: one reader said that after wading through 130 articles and deleting all those from men, she was left with only 12 posts from women. Another

reader countered by saying that she (he?) counted more posts by women than men: after eliminating all the cross-posts out of a total of 568 articles available on her node, 62 were left; and of that number, 44 were from women and 18 from men (Article 58511 soc.women August 10, 1993)."

Also of interest is that "SeniorNet" appealing to a more mature audience, appears to have equal participation between the genders.

Social Interactions:

(4) Women are often harassed on computer networks. Some say it is no problem, others do not agree. It appears that some women have actually "fallen in love" on the network line; others have been told only to respond if they are male... or have been called names such as "hairy legged feminazi".

(5) Working on all female forums are much more positive and deal away with such abuse... these also provide mentoring opportunities for women.

Some men also pretend to be women, just to get involved with a women's conference. "Pavel Curtis has noted that the most promiscuous and sexually aggressive women are usually played by men. If you meet a character named Fabulous HotBabe, she is almost certainly a he in real life (Bruckman, Curtis)."

Policy Issues:

*   Networks must be made available to all... particularly for women who are not institutionally affiliated.

*   Women need greater access to networks and terminals, often due to costs that women simply cannot afford.

*   Women need resources and tools that complement or are specific to their concerns and interests.

*   There should be more mentoring programs for women.

Stamp, Patricia. 1989. *Technology, Gender, and Power in Africa. Technical Study 63e.* **Ottawa: International Development Research Centre.**

(22) Historically, information about women - particularly poor women in developing countries - has not been generated by the women in question. As Stamp notes of Mueller's work:

> "Much of what members of the North American intelligentsia know about the women who live in Third World countries is made available to us through official modes of knowledge. Few of us have the opportunity to travel to meet and talk with even a handful women from other countries. Our knowledge is not of a directly experienced world. We are largely dependent for our understandings on texts which have been written in North America ...[as part of] Women in Development knowledge, produced in the social organization of Development to bring women to the attention of Development agency policy-makers and planners."

The Continuing Invisibility of Gender

(26/27) How technology either affects or is influenced by women, tends to be avoided, ignored or overlooked:

> "Compartmentalization of the "the women problem" is the chief means by which gender issues are excluded from socioeconomic study and planning. A telling example of this practice is a new book that is being used as a reference source by World Band planners: *Strategies for African Development* (Berg and Whitaker 1986). This book includes a chapter on women in development (Guyer 1986) that charts many of the problems of the subject, including a critique of agency programs in donor countries and a perceptive analysis of the reasons for the invisibility of women. However, this 603-page book indexes the topic "women" in only one other chapter, that on education, where inequalities for women in education are briefly mentioned and decried. Nowhere else is gender taken into account: indeed, the chapter on technology, entitled, "Manpower, technology and employment in Africa" (King 1986) is notable for its neglect of the issues so dramatically documented in a host of studies over the past 10 years."

African Women and Technology

(46) Women in lower income countries are caught in a web of political and economic dependency, which is often related to the men in their lives: their father when they are children, their husbands when they are married, and their brothers should they be widowed.

(47) As such, women have little power relative to men at the local, national and international levels of society. This lack of power is crucial when it comes to technology transfer, which has

the potential to so dramatically alter their lives. "Many researchers (e.g., Cain 1981:5-6) agree that the people responsible for technology choices are usually those least affected by them; those most affected, who must adapt and live with the choices, have the least say about them."

(48) Another related problem is that the role of women in production is often ignored because it does not fit in existing economic models (e.g., labour on market or household crops). As a result, information does not address their specificity in terms of what they need or how the transfer of technology affects them.

[A good example of this can be gained from the experience of Joachim Voss, the Director of Environment at IDRC. Working as an anthropologist in Rwanda on a project with seed geneticists, the objective of this development effort was to produce a bean seed that could produce greater yields and could also be prepared in less time. The bean that was produced previously had a very long cooking time and required women to get together in the village centre to cook the bean as a joint effort. The seed geneticists were successful in producing a bean seed that did indeed have the potential for higher yields and could also be prepared in much less time. Of interest, however, is that the yields actually declined. When examined further, it was realized that while the scientists assumed that the women would appreciate the decreased amount of time for cooking this was not the case. It was thought that women would have more free time. But in fact, they ended up having less time to themselves. With the time saved, husbands insisted that their wives help them with the production of cash and export crops. Furthermore, since the bean took less time to prepare and could be cooked by women individually, they had less time to legitimately socialize with other women. Clearly, the specificity of their situation had not been considered.]

(49) Women tend to be left out of project designs and planning. Both their knowledge and their socio-economic position are not considered.

(50) Two essential points are made: (i) that the term "appropriate technology" is more of a slogan than anything else... often technology is inappropriate when gender concerns/issues are recognized and taken into account... must always ask whose interest does the technology serve? and, (ii) a large part of development literature and/or policy tends to view women as welfare recipients... "rather than as active agents in development"... there is much to be learned about women and how they do things. Furthermore, it is assumed that projects designed for women specifically will provide them with the resources necessary, and this is not necessarily so.

(57) Regarding appropriate technology: "...evaluations of appropriate technology programs reveal that many projects do not achieve their objective of significantly improving women's lives."

(63) Regarding women as 'welfare' subjects: "Even though much of the WID effort over the past 10 years has had as an overt purpose the treatment of women as active agents rather than passive recipients of development, the aim has not materialized in a substantial shift away from the perspective. This is not surprising, given the lack of recognition within the liberal framework that a persons's potential as an individual agent can only be actualized through collective action and, hence, that collective action is the necessary subject of research and policy."

"Faulty perceptions of women are found throughout development activities. The discussion of bias in policy-making and policy implementation revealed both ideological and structural barriers to considering women differently."

Role of the Media

(105) Too little attention has been given to the relationship between women and the media. There are two important issues to be considered: (i) the media tends to disseminate negative or misinformed perceptions/stereotypes of women or about women... in this sense the media has undermined an accurate perception or understanding of who women are, what they contribute, what they have to teach, and how they deserve to benefit; and (ii) how the media is used as a means to transmit information about new technologies and techniques... *[as well as indigenous knowledge about how to do things.]*

(106) The media has been under utilized as tool for dissemination, "...chiefly because of poor planning and inadequate research on the media-related behaviour of women." For instance, in a survey carried out by Subulola and Johnson in 1977, examining the "beliefs on infant feeding and child care among 143 Benin City mothers in Nigeria, found that only 5 mothers cited radios and television as a source of information." The reason for this was because the information was disseminated in English rather than the local vernacular.

Another important form of dissemination that should not be overlooked is "the traditional media" or word of mouth. "In a survey of 200 pregnant women, Odumoso found that over 90% had received tetanus shots. Although 79% possessed radios, only 4.5% heard about the immunization program via this medium. The rest learned of the program via word of mouth."

(109) **The conscientization of men:** There is a great need to examine how information about women is disseminated to men. Often, men in positions of influence and with decision-making power, know so very little about the women who will be affected by the policies determined by them.

[It often appears that only in crisis situations, and in areas in which women play a strong role, will men with authority eventually turn to women. Recently at an Interagency Coalition on AIDS and Development (ICAD) workshop on AIDS Orphans (Toronto March 1994), a common recognition among African men was that they need to turn to women to lead the way and to tell them what to do. They recognize that when it comes to the family and maintaining socio-economic relations at the local level, it is really women who know what is going on and how to solve day-to-day problems... particularly with respect to how to car for AIDS Orphans.]

The Liberation of Subjugated Knowledges

(129) Knowledge about poor African women tends to be constructed by people other than themselves, often by non-African men. "The alienation of Africans from their own knowledge of themselves is the other part of the epistemological dilemma. Given the deep differences between the West and Africa in both knowledge and practice of gender relations and in the construction of female identity, the crisis in knowledge has urgent implications for WID efforts."
Organizing for the Dissemination of Technology

(139/140) A model discussed by Rachlan (1986) is the "Human Action Model," which was developed at the Environment Research Centre of the Institute of Technology in Bandung, Indonesia. This model is designed to disseminate information about technology horizontally, via vertical changes of roles... see Table below.

| Year | Extension Worker | Target Beneficiaries of: | | | |
		Year 1	**Year 2**	**Year 3**	**Year 4**
1	Facilitator	Learners	---	---	---
2	Motivator	Facilitator	Learners	---	---
3	Advisor	Motivators	Facilitators	Learners	---
4	Resource Person	Advisors	Motivators	Facilitators	Learners

Source: **Rachlan. 1986. The Citanduy River Basin Management Project: from grass-roots experiments to full scale implementation. Institut Teknologi Bandung, Bandung, Indonesia.**

United Nations. 1985. *Forward Looking Strategies Community Action Guide.*

* PLEASE NOTE: Reference numbers in brackets refer to paragraphs in this outline as opposed to pages.

The following were suggested as either policy or further action/research to take place following the 1985 International Women's Meeting in Nairobi.

Advertising:

(85) High priority should be given to improving the portrayal of women in the mass media. There must be control of pornography as well as the objectification/commodification of women, and materials must portray positive images of women as well as equality between the sexes.

(206) Women must be involved in all aspects of communication policy, and must be in decision making positions.

(228) Governments and NGOs should encourage the mass media and other communication efforts to ensure public consensus about men and society as a whole sharing more responsibility in rearing children.

(367) The United Nations must carry out research activities to examine sex stereotyping in advertising and the mass media, and then take appropriate measures to eliminate negative images of women.

Audio-visual techniques:

(369) Women must be given priority in the training of audio-visual tools and equipment, and participate more fully in developing audio-visual programs.

Computers:

(208) Organizations involved with promoting the role of women in development, as both beneficiaries and contributors, should be given support to establish effective and efficient information and communication networks.

Dissemination of information about health-care and family planning:

(150) Governments should adopt policies that ensure that the information intended to reach women regarding the health of themselves and their families be relevant to their needs, and be suitably presented.

(153) Institutions and governments must make every effort to disseminate information about unsafe drugs and their ill effects.

(157) Governments should take extra measures to ensure that women be provided with the information and education necessary to assist them in making decisions about their desire to have children.

(158) Governments must provide girls with information and education about the adverse affects of pregnancy at an early age.

(159) All governments and organizations/institutes must ensure that drugs and other methods used to control fertility conform to sufficient standards of efficiency, safety and quality.

Dissemination of information about women's rights:

(48) Governments and institutions are responsible for disseminating information on women's rights. Women must be made to feel that they can protect these rights without fear of recrimination or intimidation.

(57) Government must have the capacity to both monitor and improve the status of women. To ensure effectiveness, this capacity must be realized at relatively high levels of the bureaucracy. In doing so, governments would ensure that women receive information about their rights and entitlements.

(366) International programs must ensure that women and men receive information about the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW).

Dissemination of information for consumer protection:

(229) Governments must make the effort to ensure that women receive information about unsafe goods, dangerous drugs, unhealthy foods and unethical and exploitative marketing practices.

Dissemination of information to rural women:

(184) Appropriate food-processing technologies can free women from time- and energy-consuming tasks and thus effect improvements in their health. Such activities can also increase the productivity and income of women. The design, testing and dissemination of such technologies should be appropriate to the women who will be users.

Education and training:

(207) There should be increased enrolment of women in education and training, as well as publicly operated mass communications networks. Women's employment in this sector should be geared to increased professional, advisory and decision making positions.

Environmental Awareness:

(226) All sources of information dissemination should be encouraged to increase the self-help potential of women in conserving and improving their environment.

Regional Information Systems:

(334) Governments within regions must collaborate in ensuring that the urgent need for information flows to facilitate the strengthening of women's role in the development process. Relevant, transferable and appropriate information should be a priority of regional cooperation among developing countries.

UN radio programs and films:

(370) "The present United Nations weekly radio programmes and co-production of films on women should be continued with adequate provision for distributing them in different languages."

Women's education:

(165) To ensure that women have equal access to education, there must be a strengthening of information and communication systems, particularly with respect to the repercussions of high absenteeism and drop-out rates.

van Zoonen, Liesbet. "Feminist Theory and Information Technology" in <u>Media, Culture and Society</u> 1992.

(9-10) In the cultured construction of genderedness, women are largely absent from the realm of what counts as technology - this is another way of saying that what women do is defined as not technology. Culture, which concerns the meaning and value attributed to social conditions, is as much at issue in the relations between gender and technology as are economics and politics. Failing to incorporate the cultural in examining the new information and communications technologies (NICTs) would lead to limited strategies for change.

(12) More is known about the production context of this technology than about its user, environmental and cultural contexts - its commodification, marketing, and representation.

(13-15) Policies being implemented at the national level often have a liberal feminist [or liberal] assumption that women are lagging behind and need to be moved to catch up to men's appreciation and use of NICTs. Technology is not questioned and gender is seen, largely, as a problem of role stereotyping to be broken down so that women can fully participate in the public sphere.

(16) An opposing view, termed ecofeminist [but also shared by others] depicts women as essentially more natural than men and equates technology, dominance, and maleness. Computer technology is seen as anchored in values which are generally considered to be male: objectivity, progress, rationality, productivity and competition. In the ecofeminist ideal these qualities would be replaced by feminine values based on emotionality, intuition and cooperation. In this context, NICTs may be seen, especially in the work context, as dehumanizing, unhealthy, and deskilling.

(17) Notwithstanding its theoretical contribution, this stance seems only able to commend total withdrawal; its stress on difference is not empowering.

(19) Both stances use universalist and historically specific notions of gender and neglect differences among women.

(20) Gender can be understood as a discursive construct, not limited to binary oppositions but including overlapping and often contradictory cultural descriptions and prescriptions which are combined with those based on ethnicity, class etc.

(21) "In fact to speak of gender as a discourse of sexual <u>difference</u> is therefore theoretically and politically inappropriate since it conceals that the prevailing gender discourse is one of sexual <u>power</u> and <u>hierarchy</u>."

(22) NICTs, with most technology, now belong to the domain of masculinity. Males, then, can reconfirm their gendered sense of self in this realm while women's genderedness may be confirmed by rejecting computers with their command and control character.

(23) However, the current meaning of NICTs is not pre-ordained by processes of manufacture and marketing but may be modified by their use in everyday life.

(24) The social meaning of the telephone changed, for example, and consequently, its production, distribution and marketing changed. NICTs also have open-ended qualities such that user and cultural practices might reverberate in the production context.

(25) Currently, in some places, both a game-playing and a pornographic context has encompassed chatlines and communications networks which position men and women differently in relation to the technology. (See Jouet, 1987)

(26) In conclusion, the effect of technologies on gender relations must be examined on a case-by-case basis with attention not only to intended purpose but also to the services it offers, its marketing and promotion, media attention, and the ways it may actually be used, as well as infrastructure, costs, etc. The style of communication, as well as other features, could be redesigned to be more welcoming to women.

(27) "Universal claims about the liberating or oppressive qualities of NICTs for gender relations can never accommodate such specificities."

Vargas, Nancy. "Women's International Radio Programme." Proceedings from the Women Empowering Communications Conference in Bangkok, Thailand, 12th-19th February 1994.

*   These proceedings were collected off the Internet computer network and therefore are not delineated by page number.

Vargas focuses on the form of women's communication needs: that women need the means to "inform, know, transform, face obstacles, search for strategies and answers, that is empower us with a communication created from our roots and identities."

She speaks about the FIRE radio program team in Costa Rica... these women have found ways to communicate as per the above concerns. They do feel empowered in what they have been able to accomplish. During the 6th Feminist Meeting of FIRE in November of 1993, members concluded that "We understand radio communication not in the mass broadcast sense but as a means and as an end, as a process of meeting, dialogue, participation with other women and with ourselves."

She also talks about the use of language as a constraint for women. She discusses how women have been largely excluded from the grammar of language... the whole idea of their efforts is to show "what is not visible in our patriarchal society"... to show life from women's perspective... because this perspective has not been given equal time or opportunity for expression, they cannot believe that language is objective.

Vyas, Anju. 1993. "Information for Research on Women and Development." In the IFLA Journal. Vol.19. No.2.

(149) Information is a means of empowerment for women. Nevertheless, information for women and about women and development tends to be holistic in its approach and is therefore time-consuming.

(150) Producers of women's information are: (i) governmental and intergovernmental channels; (ii) institutional channels, such as research institutes, universities, donor agencies, etc.; (iii) commercial channels, for instance, the book trade.

(151) User's of women's information are: (i) government policy makers, programme implementors, and evaluators; (ii) the general public; (iii) women at all levels; (iv) donor agencies; (v) non-governmental organizations; (vi) academic and other researchers; (vii) the mass media; (viii) information agencies and specialists; and (ix) other users and students. Information requirements about women will vary among users.

Required are information and documentation centres to keep up with the growing quantity of information on women, as well as specialized classification systems that better recognize women more directly.

(152/153) Activities and structures that are in place:

(i) Women's Thesauri. "Some notable examples are: *A Woman's Thesaurus: An Index of Language Used to Describe and Locate Information by and about Women; Thesaurus on Women and Family* (in Japanese by the National Women's Education Centre); *Thesaurus on Women in Development* by the ASEAN Women's Programmes and the *List of Descriptors on the Theme of Women* by ISIS International).";

(ii) Computerized Databases. Some of these include: "Catalyst: Resources for Women" which focuses on employment and career opportunities for women; ISIS (International Women's Database); Grace of GRIF (Feminist Research and Information Group); WIS (a UN database holding documents pertaining to women); Bibliofem of the Fawcett Library; and WISTAT (a UN database focusing on woman's indicators and statistics.

(iii) Specialized Reference Tools. There are many that have been developed over the last 20 years. "Some recommended indexing and abstracting services in this area are "Studies on Women's Abstracts", and "Women's Studies Abstracts"."

(iv)   Women's Information Networks. Some examples include: The Women's Information Network for Asia and the Pacific (WINAP)... which was initiated by ESCAP as a means to improve systems of information on women in the Pacific and Asia; and the Centre of Women's Development Studies in India, which has produced three bibliographies containing over 1800 items.

[Of course, there is also ISIS International (based in the Philippines) and the International Women's Tribune (based in New York).]

(v)   Women's Information Workshops and Conferences. There have been many over the last 10 years *[but not discussed here]*. "A series of workshops was organized by ESCAP for the Asia and Pacific region since 1986."

(vi)   Training Programmes. More recently there have been initiatives designed to train specialists in the handling of women's information, in terms of collecting, processing, storage, retrieval, repackaging and dissemination. One such programme has been set up by NWEC in Japan in collaboration with the ILO.

(154) Future Directions:

*   a need for constant dialogue between users and producers of information about and for women;
*   more literature surveys to identify gaps in research and existing literature;
*   sources of information should by analyzed and evaluated to better meet women's requirements;
*   repackaging of information should be improved to better meet the needs of the particular user group in question;
*   dissemination of material from governmental, institutional and commercial channels should be improved;
*   there should be more forums for information professionals who are focusing on information for and by women;
*   there should be more training efforts put in place to complement and support the above.

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