Breaking out of the Mould;
Gendered Mapping and Children's Mapping

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Gendered Space and Local Spatial Knowledge

Local spatial knowledge (LSK) has a strong gender component, and in several manifestations. Command over space is a fundamental source of social power; and conversely, limited access to certain spaces relatively dis-empowers groups of people, most commonly, women. Gendered space refers to the specialised gendered knowledge of distributions in space, the differential access to, ownership of, and use of, resources, and the nested scales of cultural and economic landscapes associated with the life experiences of men and women.

The significance for gendered spatial analysis follows from women's high involvement in land and natural resource use, and their specialised local technical and management knowledge; and the necessity to measure and map the double burden of rural women engaged in agriculture and NRM. Women's land resources are often denigrated as 'unused wastelands' or the like, and the products they make from bio-resources or non-timber forest products are not recognised as having economic or even livelihood value. The 'no market value' label is often elided into 'primitive', 'undeveloped', 'not modern', etc.

Ignoring specialised natural resource knowledge held by women is also a failure to protect biodiversity, because it loses gender-specific information valuable throughout society. Rural women have specific technical knowledge of economic resources and livelihoods important to them – such as foods, medicinal herbs, and craftwork materials such as dyes or fibres. Because these are considered 'only' as women's materials for women's work, they remain often invisible in 'official' discourses, whether in local (men's) accounts, external reports or government statistics, and therefore also in conventional maps. The use and management of women's space remains equally invisible, notwithstanding the enormous deleterious and anti-productive effects of women's restricted rights and entitlements to land and land resources.

Many societies demonstrate a lack of access to gendered space because of socio-cultural restrictions on where and when women can visit locations or zones, usually unspoken but clearly known restrictions; this includes limitations on the women's modes of travel, whether by foot, bicycle or public transport. In a range of cultures e.g. in south and southeast Asia and parts of Africa, it is taboo for women to ride bicycles (or to use pedal-powered machinery, etc.) because society considers it a physically inappropriate posture. Rural midwives in Zambia could not ride the bicycles provided to them by a donor agency to

reach their patients; - but no worries, their husbands or brothers rode the bikes and the midwives sat side-saddle on the carrier. From India, for example, the relative spatial seclusion of village women and female 'discomfort' in male public spaces like village tea shops. Lary et al (2004) set up participatory mapping of youth meeting areas in Dar es Salaam to understand young people's experiences with violence and forced sex, and thus, with HIV. There are numerous North situations of female-unfriendly locations limited by safety or harassment or simple economic restrictions, especially in the larger cities.

The gender aspect of the use of space is often invisible. Much of it cannot be seen - women's use of forest resources is much more likely to be the collection of foods, medicines, fibres, taking place under the closed canopy; and production in the lower stories of forest gardens, rather than large-scale removal of trees for timber or agricultural clearing, usually done by men. Satellite imagery is not sensitive enough to show the vital elements of women's specialised involvement in agriculture and natural resource use. This is still true even with the arrival of expensive (e.g. IKONOS) imagery with a 1 m. ground resolution. Land use responsibilities specific to women in many farming systems operate at a very small and 'invisible' scale, i.a., intercropping and multi-cropping, weeding activities (time-consuming, but not easily visible), home gardens and forest gardens, vegetable growing, etc. "They may, in fact, be limited to particular resources, or even particular products of those resources, certainly much smaller than a single pixel in most land use or property images in use today." (Rocheleau et al. 1995, p.64). Hoeschele (2000) studied the (standard) GIS misrepresentation of "wastelands" used by adivasis in Kerala India, resulting from mapping land cover instead of land use; he called it "geographic information engineering" vs. social ground truth.

Moreover, the gender aspect even when it could be, is not seen, because most census data do not show the richness of women's real lives (nor much of men's), because of the general focus on monetised activities, and because they make highly restrictive assumptions about the roles and capacities, and thus the spatial activity patterns, of women. It follows that the mapped versions or other spatial databases are unable to show gender distinctions, "… women's spaces are often nested between and within lands controlled by men." (Rocheleau et al., 1995, p.64). [1]

GIS in a Gender Straightjacket – Limits on what is Represented

Hall (1996) identifies GIS as a 'masculinist', materialist and positivist technology handling only discrete, bounded, pre-defined units of analysis, and unable to cope with ambiguity, fuzziness, abstract concepts or synthesis, and instead straight-jacketing emotions and spiritual values. Her call is for work on the "feminisation of GIS". Kwan (2002) refers to several feminist activist-political philosophers who call for the need for women to fully engage with GIS, appropriate its vision, and 'write the cyborg'. GIS is criticised ".. for the objectifying way of knowing and the transcendent vision – or the god's eye view – it enables." (Kwan 2002,

[1] Similar gender differences in levels of mobility in developing countries are mirrored in the restrictions, and thus the "invisibility", of the large proportion of house-bound and non-car owning women in the USA, or Belfast (McIntyre 2003).

p.274) (cf. Schuurman & Pratt (2002) 'feminism and critiques of GIS'; McLafferty (2002) 'mapping women's worlds').

Kwan (2002) also supports feminist analysts that a feminist methodology should emphasise reflexivity, i.e. to problematise the relationships amongst research, researchers, and researched, to acknowledge the partiality of the 'knowing subject', and recognise unequal power relations in social science research. This general condition of reflexivity is exaggerated by the display functions of GIS in making visual re-interpretations, - and especially when we depend entirely on GIS products for interpreting rural women's lives (cf. Rocheleau). This provides another argument for complementing and triangulating GIS and remote sensing data with close sensing from direct participatory research tools, stories, etc.

Ismail (1999) and Kwan (2002) argue for the incorporation of qualitative, implicit, and emotional knowledge to be elicited through qualitative rather than quantitative methods (discourse, story-recording, sketching, video) and transcribed to visual and GI. "Rich and contextualized primary data …. and multiple views of the world." (Kwan, 2002, p. 272) [are] one weapon in the armoury of subversive strategies for 'feminist visualisation'. (cf. counter maps)

Similarly, Varanka (1996) interpreted the emphasis in standard cartography on the principles of 'Plain Style' – the simplicity of context by eliminating competing viewpoints, and the emphasis on mathematical accuracy, utility, and lack of iconography, plainness – as "manly"; as opposed to other objectives of recording ambiguity, fuzziness and spiritual values that are seen as "feminine and juvenile". Varanka (p.1) proposed that the "unacknowledged consequences of Plain style mapping are [masculinist] cultural repression [of] emotive statements and abstractions such as worldviews and spirituality."

Children's Mental Maps

Mapping children's mental maps and views of space has been addressed to elicit children's special knowledge, about hazards, natural resources, safety, spatial potentials for protections and play, etc. David Sobel´s Mapmaking with Children (1988) aimed at elementary children, is a clear exposition and justification for encouraging children to acquire the appropriate skills.

There are many positive experiences from training, even young, children to use mobile GIS with PDA's (hand-held computers) for mapping their neighbourhoods and elements of space which are of importance to them. This approach is encouraged in North American urban communities by the Orton Family Foundation and Common Ground community mapping project, and the *Green Map* www.greenmap.org system is a means for PGIS education and exploration in urban areas, now world wide, in over 60 countries, (500+ examples). There are increasing number of countries – Cameroon, Nigeria, Uganda, South Africa, Argentina, Brasil, Chile, Colombia, Costa Rica, Cuba, Jamaica, Peru, Uruguay, China, Malaysia, India, Indonesia, Philippines, and Thailand. The focus is on mapping community's perceptions and values of their local environment, with many maps being made by children. (Youth Mapmakers. http://tinyurl.com/yfdwqvt) Other examples of children's cognitive maps use photographs, or local

symbols and sense of place. Children can participatorily map their former neighbourhood spaces and 'lost homes' in post-disaster situations, e.g. after the 2004 tsunami in Sri Lanka. (McCall 2005)

A series of innovative and radical participatory planning exercises carried out in the US and Canada in the 1970s by William Bunge and his associates, especially by the "Society for Human Exploration", and the "Detroit Geographical Expedition". The mapped items and map legend of Geography of the Children of Detroit (SHE, 1971) includes: automobiles, trucks, dogs, cats, dead shrubs and trees, bicycles, rubbish, trash, broken bottles, paper, litter, cans. Bunge´s (1969) Atlas of Love and Hate mapped "areas friendly to children" and "areas hostile to children". Peter Gould and Rodney White worked with mental maps and spatial perception studies with school children in the UK and USA (Gould & White 1969; 1995); and there are have been studies of space-time mapping in USA with children and the variability due to disability and ethnicity, which they called "geo-ethnography".

There are fewer field studies outside of North America or Europe. Some exceptions are: perception of residential desirability by children in western Nigeria; a study of children's cognitive maps in urban neighbourhoods in Jordan included the differences between boys and girls, as well as social factors; pre-teenage children's vernacular perception and experience of maps in Hong Kong, and mapping environmental experience and awareness in the culture of young Kenyans - Kenyan children's "views of place". There is a growing number of Indian studies of neighbourhood environmental mapping and PGIS by children (e.g. Mallick & Kalra 2005), e.g. mapping drinking water conditions in a Delhi community. The Centre for Science, Development and Media Studies (CSDMS) in India is instigating more involvement by school children, http://tinyurl.com/yloz775; http://www.csdms.in/NM/

Children's Views of Environment through Pictures and Mental Maps

Children's interests and preferences and priorities and needs and problems etc. can be shown as pictorial representations – the question is can those be transformed into maps showing spatial information? The basic methodology is that children first make and show pictures of good / bad, nice/ nasty, safe / dangerous environments simply as pictures which are then talked about, individually and in groups to get better understanding and interpretation by the researcher. The subsequent step is that the environmental issues (both positive and negative issues) have to be associated with specific locations, or general, areas. Why? – in order to progress towards better understanding of the environmental issues, and to progress towards amelioration and mitigation of the environmental problems.

The children – and especially their parents and their teachers - can then become involved not only in identifying the problems, but also in analysing them (i.e. recognising their causes and their interactions) , but also, in coming up with ideas for solving the problems. Participatory planning means that the local actors think of solutions as well as being asked about the problems.

Many of the items that the children draw are specific places e.g. dangerous sites, dirty water, pollution, play areas, etc. In spatial terms they will; be point data or line data or area. Some of the issues – preferences and problems - could be easily located in space (absolute locations). At the time of drawing the picture the children are asked to say where the environmental issues and items are to be found - 'Mark on a map, or on an airphoto or on a sketch maps or just as the names of the places.'

Many of the issues will be multi-locational; e.g. dangerous roads, dirty streets, pollution, all sports facilities, etc. Then the mapping can use a conventional map legend. Maybe the researcher has to investigate and interpolate to find out where all these sites are. A few of the issues however will be locationally non-specific, e.g. climate conditions, or bad weather or 'boringness' or feelings towards teachers or parents or authority figures. There is not much point in trying to map these.

In Mexico, Michoacán state: children made visualisations of pleasant and dangerous environments and the determining factors, including some interpretable as spatial components. An important issue is that of safety of children in urban areas, especially concerning the journey to school, with traffic and other hazards. The Neighborhood Road Safety Initiative (NRSI) in UK has sponsored mapping of children's "walk to school" in Liverpool. (Hull and Molyneux 2005).

References

Bunge, William W. (1969) Atlas of Love and Hate. Detroit: The Society for Human Exploration

Hall, Carol (1996) Gender and GIS. pp. 120-122 IN: Harris and Weiner (Comps) (1996) Varenius Tech. Rept. No. 96-7. http://tinyurl.com/yjxhhxt

Hoeschele, Wolfgang (2000) Geographic information engineering and social ground truth in Attappadi, Kerala State, India. Annals, Association of American Geographers 90 (2) 293-321.

Hull, Andrew; and Peter Molyneux (2005) Mapping our walk to school. Paper given at: 41st Society of Cartographers Annual Summer School, Cambridge, Sept. 2005. http://tinyurl.com/yfrotpq

Ismail, Fathima Munira (1999 - 2000) A Multi-Ethnic Analysis of Gendered Space amongst Rural Women in Sri Lanka. Davis, CA: University of California, Davis, Graduate Group in Geography, PhD Thesis.

Kwan, Mei-Po (2002) Is GIS for women? Reflections on the critical discourse in the 1990s. Gender, Place & Culture 9 (3) 271-279.

Lary, Heidi; Maman Suzanne; Katebalila, Malilo; and Mbwambo, Jessie (2004) Exploring the association between HIV and violence: young people's experiences with infidelity, violence and forced sex in Dar es Salaam, Tanzania. International Family Planning Perspectives 30 (4) 200-206.

Mallick, Rumi; and Himanshu Kalra (2005) Mapping the Neighbourhood. Innovation in schools.

i4d Information for Development 3 (11) 7-8. www.i4d.csdmd.in

McCall, Michael K. (2005) Mapping lost homes. GIS @ Development 9 (6) 24-27

McIntyre, Alice (2003) Through the eyes of women: photovoice and participatory research as tools for reimagining place. Gender, Place and Culture 10 (1) 47-66.

McLafferty, Sara L. (2002) Mapping women's worlds: knowledge, power and the bounds of GIS. Gender, Place, and Culture 9 (3) 263-269.

Rocheleau, Dianne E.; and Ross, Laurie (1995) Trees as tools, trees as text: struggles over resources in Zambrana-Chacuey, Dominican Republic. Antipode 27, 407-428.

Schuurman, Nadine; and Geraldine Pratt (2002) Care of the subject: feminism and critiques of GIS. Gender, Place, and Culture 9 (3) 291-299.

Sobel, David (1998) Mapmaking with Children: Sense of Place Education for the Elementary Years Portsmouth NH: Heinemann,

Varanka, Dalia (1996) The Social Implications of how People, Space, and Environment are Represented in GIS. Position Paper on GIS and Society. pp. 188-189 IN: Harris and Weiner (Comps) (1996) Varenius Tech. Rept. No. 96-7. http://tinyurl.com/yjeznog