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Introducing Eco-Masculinities: How a masculine discursive subject approach to the Individual Differences Theory of Gender and IT impacts an environmental informatics project

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ABSTRACT (REQUIRED)

In this paper I introduce the concept of eco-masculinities as a philosophical and critical project to understand the links between gendered and pro-environmental behaviour. The background of the feminist project, the sociology of masculinity, and the post-gendered world to which they both aspire, alongside a brief history of the project of ecofeminism, occupy the bulk of the paper. In the last section I briefly consider how these philosophical approaches might impact upon analysis of an EU Project entitled Digital Environment Home Energy Management System.

Keywords (Required)

Gender, masculinity, poststructuralism, feminism, environmental issues.

INTRODUCTION

Ecofeminism, launched by, among others, Rosemary Radford Ruether, in her book *New Woman, New Earth*, in 1975, was a philosophy envisioning a harnessing of the perceived intimate connections between the women's movement and the environmental movement. She sought transformation of the world from one based upon the logic of domination to one "with an alternative value system." (Ruether 1975:204). Feminist philosophy, through exposure to the anti-essentialism of poststructuralist philosophy, and through such seminal writers as Judith Butler and others, has come a long way since 1975. Arguably much of the women's movement now embraces what is sometimes termed a 'post-feminist' appreciation of gender as a socially constructed aspect of culture in which men are as much caught up as women. The sociology of masculinity, or simply 'masculinities,' a field of study growing rapidly from small beginnings in the 1960s to a truly broad and encompassing body of work by the late 1990s and into the current century, has developed into a parallel, pro-feminist, and post-feminist movement, seeking equality between the sexes in a 'post-gender' world. Although both contemporary feminism and masculinities agree on the goal of post-gender equality, they also agree that the "relationship between women and men is not now nor ever has been, in most societies, an equitable one," (Whitehead 2002:1) There is therefore still much room for study of both feminism and masculinities, in all their differing aspects, and in varying contexts, on either side of the historical divide whereby "so many males come to believe in their innate superiority over women," (ibid). Ecofeminist philosophy, it may be argued, has in places yet to fully embrace the 'post-feminist' turn, some of its central tenets perhaps still wedded to the idea that women are "closer to nature than men" (Warren 2000:193). This paper proposes a new term, 'eco-masculinities,' to characterize an understanding of the potential connections between masculinities and pro-environmental behaviour, and aligns such a term, from the outset, with a post-gender philosophical approach.

In light of the recent Visby Declaration (EU 2009), whereby the EU in 2009 set its entire ICT policy (and several billion Euros of research funding) towards the goal of sustainability in ICT use, one particular context in which eco-masculinities need urgently to be understood is in the creation and use of information and communication technologies. One leading feminist voice in the field of Gender and ICTs is Eileen Trauth, and her Individual Differences Theory of Gender and IT. This is, of course, exclusively about women. A lone voice in masculinities in ICT is one article about the use of Gaydar, published by Ben Light in the European Journal of Information Systems. This is, of course, specific to the gay experience.

This paper seeks to extend the Individual Differences Theory of Gender and IT (Trauth et al. 2009), and take the field of the sociology of masculinity (Whitehead 2002) into new territory, in the field of Information Systems, where poststructuralist thought is only just beginning to surface, (Kreps 2010) and where gender studies have until very recently (Light 2007, Kreps 2009) meant exclusively women's studies. This paper attempts to shed light on the relation between pro-feminist and pro-environmental behaviour among men.

Finally, it asks if an information systems project introducing ICTs into people's homes to aid in domestic carbon footprint reduction, could help to suggest some research directions for a new field – 'eco-masculinities in ICTs' – extending the horizons of information systems, sociology of masculinity and ecofeminism. Nowhere is pro-environmental behaviour more crucial than in the home. As the DEFRA Report on the Effectiveness of Feedback on Energy Consumption (2006) makes clear: "Most domestic energy use, most of the time, is invisible to the user. Most people have only a vague idea of how much energy they are using for different purposes and what sort of difference they could make by changing day-to-day behaviour or investing in efficiency measures. Hence the importance of feedback in making energy more visible and more amenable to understanding and control." (Darby 2006).

The Digital Environment Home Energy Management System (DEHEMS) project is a European Union funded project looking at how technology can improve domestic energy efficiency. The project partnership includes a mix of European local authorities, private businesses and universities and is supported by the EU under Framework Programme 7. The intention is to develop and test a "Digital Environment Home Energy Management System" (DEHEMS) for the home market, aiming to improve the current monitoring approach to levels of energy being used by households. DEHEMS will extend the current state of the art in intelligent meters, moving beyond energy 'input' models that monitor the levels of energy being used, to an 'energy performance model' that also looks at the way in which the energy is used. It will bring together sensor data in areas such as household heat loss and appliance performance as well as energy usage monitoring to give real time information on emissions and the energy performance of appliances and services. It will enable changes to be made to those appliances/services remotely from the mobile phone or PC and provide specific energy efficiency recommendations, for the household. The task for the DEHEMS project is not limited to the research, design and implementation of a new piece of technology but expands to influence the behaviour of the Living Labs participants and the

extra effort to convince them of the benefits (personal and environmental) of acquiring the proposed technology. The impact of such a system will be a massive increase in feedback on energy usage in the home.

THEORETICAL BACKDROP

Individual Differences Theory of Gender and IT

Trauth et al.'s Individual Differences Theory of Gender and IT has been developed over several years, and through the course of several projects. As explained in her recent paper in *European Journal of Information Systems*, (Trauth et al., 2009) the theory breaks down the binary conception of feminine and masculine, and allows for a clearly graded structural appreciation of difference. There are three 'constructs,' each with associated 'sub-constructs' and concepts. These constructs are: (i) individual identity, (ii) individual influences, and (iii) environmental influences. The first construct, individual identity, includes two sub-constructs: (a) personal demographics, "which includes concepts such as age, race, nationality, socio-economic class, and parenthood status," (Trauth et al 2009) and (b) career items, "which includes concepts such as the industry in which one works and the type of IT work in which one engages." (ibid). The second construct, individual influences, also includes two sub-constructs (a) personal characteristics, "which includes concepts such as educational background, personality traits and abilities" (ibid), and (b) personal influences, "which includes concepts such as mentors, role models, and significant life experiences". (ibid) Finally the third construct, environmental influences, includes four sub-constructs (a) cultural influences, "which includes concepts such as national, regional or organizational attitudes"(ibid) (b) economic influences "which includes concepts such as cost of living"(ibid), (c) policy influences "which includes concepts such as laws about gender discrimination, and policies about maternity leave" (ibid), and (d) infrastructure influences, "which includes concepts such as the existence of childcare facilities" (ibid).

With these theoretical constructs, Trauth et al have undertaken a range of interviews with women in the IT profession in recent years, and amassed evidence to suggest "that both research and interventions directed at increasing the retention of women must be flexible enough to respond to the variation that exists among women and within IT workplaces." (Trauth et al. 2009:476). Addressing the issue of retention of women in the IT workforce, in other words, is not a simple matter of whereby "all organizational factors affect all women in the same ways" (ibid.) Such research clearly needs also to be undertaken with men in the IT profession, but with some amendment to the underpinning theory. This paper sets out the amended theoretical position such research, in this author's opinion, should adopt.

The Discursive Subject in the Sociology of Masculinity

Using Trauth et al.'s structural framework does not preclude a poststructuralist understanding underpinning and bringing additional depth to such a theory. The binary feminine-masculine construct having already been discarded by the Individual Differences Theory of Gender and IT enables us also to discard simplistic 'oppressor-victim' dualism in our understanding of the relationship between men and women, which has been common to many feminist thinkers, and to ideas such as hegemonic masculinity, patriarchy, and functionalist notions of 'gender order'.

Following Whitehead's (2002) highly instructive history of the sociology of masculinity, we can see such a problematising of the concept of maleness only came about following – and in response to - Simone de Beauvoir's classic *The Second Sex* (1973 [1953]), in the aftermath of the Second World War and all the social changes that followed it, and took at first only very halting steps away from a traditional understanding of men's role in society.

Functionalist notions of a proper 'gender order' in society began to give way to a dawning understanding that the socialization of men and boys, alongside that of women and girls, into the traditional roles assigned to them by pre-war society, could better be seen as "fundamentally damaging for both females and males." (Whitehead 2002:20) As the 1960s unfolded such critical scrutiny gathered pace, concluding in a critique of the male sex role focused on "the cost to men which the ideology of a dominant but dysfunctional masculinity elicited, particularly in terms of fractured relationships, damaged health and inflexibility (ibid p21). This approach, however, assuming men and women to be passive recipients of socialization processes, and more 'modern' gender roles to be the answer, had to await later developments before being subjected to appropriate scrutiny.

The psychoanalytical approaches of Freud and Jung have, despite their acknowledged influence, both been subject to a great deal of criticism by feminists and masculinists alike, for the misogyny and archetypal/mythological gender roles associated with their ideas and influence upon theory. Liberal and Marxist feminists, meanwhile, for all that their goal of gender equality seems on the face of it laudable, have also been criticized for their uncritical acceptance of either the established social order, needing only to change sufficiently to allow for women to become assimilated, or an overturned social order, in which women would be freed from the capitalist power relations that should be regarded as the sole source of their

oppression. Both such approaches, focusing on changes to the social order, seem to ignore any requirement for men, also, to change.

Central to the issue of considering women and men as political categories, which lies at the core of feminism's attempts to redress the historical imbalance, is the issue of power. Notions such as radical feminism's *bette noir*, Patriarchy, and the later more nuanced, Gramscian concept of hegemonic masculinity, both rest on an understanding of the nature of power, with which Whitehead takes issue. These notions of the power of men over women in our society, importantly, rely upon what Foucault described as a juridico-discursive model of power, an understanding of power as something essentially repressive, negative, and constraining. There are five aspects to what Foucault describes as this model of power: (i) There is a negative relation between sex and power: sex is always something that power constrains; (ii) Power acts juridically - as a law - determining how sex should be treated; (iii) Power acts only to suppress sex; (iv) Power says sex cannot be permitted, cannot be spoken of, and ultimately doesn't exist; (v) Power works in the same manner at all levels: everywhere, there is uniform repression. Of course Foucault spends much of his three volume 'History of Sexuality' (Foucault 1998) contesting this conception of power. On the contrary, he argues, power is in fact positive, and immanent; it is being exercised at all times and from all points in any relation. Nor is it applied externally upon such relations, but internally within and between them, and in idiosyncratic configurations at all levels of society, rather than in some simple top-down hierarchy. There are no individuals who are singly or collectively exercising power within society, whom the rest ultimately obey; all individuals are caught up in the nexus - this discursive field - of power relations. Resistance to power is therefore part of the power relationship, and not external to it, and takes different forms in different contexts, (Foucault 1998).

The most significant element of this reconception of power is the re-appearance of the subject - the individual, and their individual differences, identities, and influences. The subject is ultimately absent from notions of hegemonic masculinity and patriarchy, in which the generalised mass of men become 'the oppressor,' or in which some cabal or secret society of rational actors are ultimately and deliberately responsible for the ideological forces they 'deploy' through all men, whose subjectivity and individuality becomes subsumed - erased - within this generalised field of oppressor-victim dualism. (Whitehead 2002 p99) Through this concept of the discursive masculine subject as an independent actor within a field of immanent power relations, both expressing and resisting, in idiosyncratic and deeply contextual ways, what are otherwise seen as hegemonic masculine attitudes, this research locates Trauth et al.'s Individual Differences Theory of Gender and IT within a Foucauldian model of power and subjectivity, thereby significantly broadening the reach of the theory. The constructs of: (i) individual identity, (ii) individual influences, and (iii) environmental influences, newly contextualized in a power/knowledge domain, remain, but with added depth. Individual identity gains new power in relation to individual and environmental influences, becoming part of the discursive matrix of power relationships, both in service of traditional roles, and in resistance to them, at levels both conscious, and unwitting. The behaviours of both men and women in IT professional contexts take on far greater depth and import when both are seen as either maintaining or undermining traditional gender roles, with personal demographics, characteristics and influences that may conspire in one direction whilst career expectations, cultural, policy and infrastructural influences seem to require of one the opposite - and vice versa.

Ecofeminism

Within this discursive field of positive, immanent power relations and the subjectivities that take part in it, there is in addition a fundamental power relation between the human and the material, between the social and the 'natural'. Following Ruether's first foray into the concept, Mary Daly's *Gyn/Ecology: The Metaethics of Radical Feminism* (1978) was arguably the first work in contemporary academic philosophy to engage Ecofeminism, but Karen Warren has perhaps made the greatest impact with her summary *Ecofeminist Philosophy* (2000) and related articles, applying feminist theory to the "more than human" world. Warren presents Ecofeminism as a general school of thought, emphasizing the basic point—"that the morally loaded concepts through which we understand ourselves and reality (and through which 'we' humans have historically constructed knowledge) are at the core of the terrible ecological and social messes we currently face" (Cuomo 2002). Warren's Ecofeminism is therefore primarily a critical project, aimed directly at the dismantling of the structures of domination and oppression, and the main thrust of her argument is not so much the ecological interdependence of all beings, but rather the "material enmeshment of different forms of oppression and domination," (ibid).

Warren's core conceptual issue concerns "the nature of the interconnections, at least in Western societies, between the unjustified domination of women and "other human Others," on the one hand, and the unjustified domination of non-human nature, on the other hand." (Warren 2000:xiv) Her philosophical project aims to understand the nature of such interconnections, arguing that both gender and environmental interventions need to include awareness of such interconnections to be most effective. "Concerning issues such as land and water rights, forestry, and toxic dumping, women, the poor, and members of other subjugated groups suffer disproportionately from ecological damage. And even when the oppressed are not its worst victims, environmental malfeasance is a product of masculinist, colonial, and capitalist

assumptions and practices. Given this critique it may seem obvious that the heart of ecofeminism is the drive to eliminate all forms of domination. ” (Cuomo 2002) Warren’s understanding of power as a simple domination-subjugation relation (albeit with five types) [ibid p199-200] in the context of these interconnections, is under-theorised, and plainly juridico-discursive in Foucauldian terms. However, the fundamental proviso within Warren’s ecofeminist stance, that technological solutions, feminist concerns, and local and indigenous concerns must all overlap within the practices that are supported by policy, must form a key principle of pro-feminist green ICT policy recommendations, albeit with the pragmatic provisos she herself supports (Warren 2000 p45).

ECO-MASCULINITIES AND ICTS

Any essentialist and universalist suggestions that women are “closer to nature than men” (Warren 2000 p193), and any similar claims amongst early work in masculinities that there is some essentialist core to all men that needs to reconnect with nature (Bly 1990) clearly need to be avoided. Such notions of the individual subject belong to a positivist rationalism whose fundamental tenets have been debunked by the philosophical and critical projects of post-war sociological theory, and have no place in the consideration of eco-masculinities (Kreps 2010). Indeed, it is perhaps within this very positivism that we may find those elements of ‘traditional’ masculine roles which are responsible for the industrial oppression of nature, and in the poststructuralist understanding of the discursive subject find the resistances that flow from our attempt to live as a part of, in harmony with, and to save and nurture it, with green technologies. The oppressive elements of power relations between men, between women, and between men and women, contain and depend upon material fundamentals such as control of and access to physical resources. The power relations within actor-networks are here implicated in a new light that might give new depth to ANT theorists’ understandings of non-human actors. As all ANT theorists know, “Technologies do not...evolve under the impetus of some necessary inner technological or scientific logic... If they evolve or change, it is because they have been pressed into that shape.” (Bijker and Law 1992:3) Eco-masculinities invites us to extend discursive power relations to include “non-human Others” (Warren 2000). In the intimate scale of domestic technologies a micro-politics of power relations might be possible in which disturbing the embedded programmes of oppressive hierarchies within the artefacts industry produces for the home could result in a rebalancing not only between men and women, but within our relations with the physical impact of our domestic lives upon the natural world. Such a rebalancing at socio-technical levels, involving both the emancipation of women and the freeing of men from the burdens of control, and lifting the weight of those social imbalances upon the earth, would constitute a whole new ethos of pro-environmental behaviour. On a grander scale, beyond mere human agency into the realms of planetary ecology (Lovelock 1979), this implies the feedback mechanisms of environmental change and disasters can be viewed as an inevitable balancing resistance, forming a counterpart to those elements of oppressive behaviour in men and women that extend to the world of nature.

Pro-Environmental Behaviour

The concept of ‘pro-environmental behaviour,’ has been defined as “behaviour that consciously seeks to minimize the negative impact of one’s actions on the natural and built world (e.g. minimize resource and energy consumption, use of non-toxic substances, reduce waste production).” (Kollmuss & Agyeman 2002). A number of models exist for understanding this behaviour, and how to promote it. Such models range from straightforward rationalist, or ‘deficit’ models of environmental behaviour change (Burgess et al. 1998. p. 1447) which assume that educating people about environmental issues automatically results in more pro-environmental behaviour, to more sophisticated social psychology models, altruism models, and in-depth sociological models. Deficit models have been largely – and easily - discredited – not least because they assume that people act rationally - with the related awareness of the gap between knowledge and behaviour that has therefore become the focus of research and theorising. The causes of this gap are multiple, but basically include the difference between direct and indirect experience – i.e. television pictures of climate change are too remote to promote behaviour change, and also the effect of normative influences – i.e. dominant cultural practices override environmental awareness (Rajecki 1982).

Social psychologists Ajzen & Fishbein (1980) have been popular amongst the researchers looking at this problem, if only, as Kollmuss & Agyeman point out, “because they developed a mathematical equation that expressed their model which led researchers to conduct empirical studies.” (ibid 2002) These and other rationalist attempts however have largely failed to explain pro-environmental behaviour. The links between knowledge and attitudes, attitudes and intentions, and intentions and actual responsible behaviour, according to Hines et al. (1986–87) are themselves heavily influenced by ‘situational factors’ including economic constraints, social pressures, and opportunities to choose different actions. (Kollmuss & Agyeman 2002)

Blake (1999, quote in Kollmuss & Agyeman 2002) calls the attitude–behaviour gap the Value–Action Gap and criticises most pro-environmental behaviour models because they fail “to take into account individual, social, and institutional constraints and assume that humans are rational and make systematic use of the information available to them” and identifies

three barriers to action: “individuality, responsibility, and practicality.” Individually, one must have the right attitude and temperament to act. One must also feel personally responsible, and be sufficiently responsible for one’s carbon footprint to be able to act to change it. Finally, one must have the practical means with which to undertake such action, not just individually, but institutionally and socially.

Eco-masculinities, then, suggests a model of pro-environmental behaviour that incorporates a rebalancing of the power relations between men and women, a new understanding of women’s and men’s individual differences and discursive subjectivities that frees them from reproducing oppressor-victim dualities, and in so doing and at the same time disturbs the relation between human and non-human, bringing an appreciation of the need to change our relations with the natural world from one of domination to one of co-existence and care. Such a model, indeed, would bring a sense of personal responsibility into one’s relationship with the non-human world, and thereby greater impetus to reduce one’s carbon footprint. But it also brings to the surface the pressing need for the artefactual non-human actors in our society to at the same time undergo major modifications – reflecting the new relation to the non-human world - and reducing energy consumption.

DEHEMS – A PRO-ENVIRONMENTAL DOMESTIC TECHNOLOGY

Can the DEHEMS system, therefore, be regarded as men’s or women’s domestic technology? Cockburn suggests that technology does exist in the domestic sphere – in food preparation, home organisation and maintenance, in caring activities, entertainment and leisure. But she also argues that such domestic technologies are rarely defined as ‘technology’ in the most commonly understood sense. “White goods are equated with family consumption and hence a female user, and this is what in part confers low value” [Cockburn, 1997, p. 363]. Until very recently the aspects of broadband, attachment to gas and electric mains, and gadgets associated with plugs might all have suggested this was more of a ‘traditional’ men’s technology. Yet a very recent survey suggests that the average social gamer, sitting at her computer connected to the internet, playing, among other games, Farmville, is a 43 year old woman (Robyn 2010). Royse et al (2007) have suggested that a blanket term such as ‘technologies of gender’ cannot be applied easily to the use of the technology in relation to women (or men). They proposed the alternative model of ‘technologies of the gendered self’ which would give a more “useful theoretical tool for understanding how women negotiate particular technologies and how their various work of negotiation can produce different results and different interpretations of the consumption of technology as a gendered practice.” (Royse et al, 2007: 561). But, as Sappleton and Takruri-Rizk (2008) have discussed, masculinity and technology are certainly symbolically intertwined in the modern world.

CONCLUSION

Although it has not been possible to do justice to this subject in a short conference paper, it is hoped that this introduction to the concepts behind the notion of eco-masculinities, and its potential impact for ICTs, nonetheless proves useful for readers in the Information Systems field. Significantly, as it moves through its iterative process, it is hoped that the DEHEMS project will offer opportunities for the researchers to begin to incorporate questions in its surveys and focus groups, that could help to shed light on these issues. Will ICTs for domestic carbon reduction become technologies of the gendered self – and will such gendered selves be pro-environmental, pro-feminist male gendered selves? The potential, indeed, in the green revolution, is for precisely these kinds of post-gendered technologies to evolve, and with them the type of usage I have described in this paper. If so, they will be greatly welcomed.

REFERENCES

1. Ajzen, I., and Fishbein, M. (2002) *Understanding Attitudes and Predicting Social Behaviour*. Prentice Hall, NJ, (1980) quoted in Kollmuss, A., and Agyeman, J.: *Mind the Gap: why do people act environmentally and what are the barriers to pro-environmental behavior?* *Environmental Education Research*, 8, 3.
2. Beauvoir, S de., (1973) [1953] *The Second Sex* Trans. and ed. Parshley, E. Vintage Press, New York
3. Bijker, W. E. and J. Law (1992). *Shaping Technology, Building Society*. Massachusetts, MIT Press.
4. Bly, R (1990) *Iron John* New York: Addison-Wesley
5. Cockburn, C. (1997) *Domestic Technologies: Cinderella and the Engineers*. *Women’s Studies International Forum* 20, 361-371
6. Cuomo, C. (2002) *On Ecofeminist Philosophy Ethics & the Environment*, Vol. 7 Issue 2, p1, 11p;
7. Daly, M. (1978) *Gyn/Ecology: The Metaethics of Radical Feminism*. Beacon Press

8. Darby, S. (2006) DEFRA Report on the Effectiveness of Feedback on Energy Consumption. Environmental Change Institute, University of Oxford.
9. EU - Creating impact for an eUnion 2015 - "The Visby Declaration" http://www.se2009.eu/polopoly_fs/1.22793!menu/standard/file/conclusions%20visby.pdf
10. Foucault, M (1998) *History of Sexuality Vol 1: The Will To Knowledge*, Penguin, London
11. Hines, J.M., Hungerford, H.R., and Tomera, A.N. (1986–87), Analysis and synthesis of research on responsible pro-environmental behavior: a meta-analysis. *The Journal of Environmental Education*, 18, 2, 1–8 quoted in Kollmuss, A., Agyeman J. (2002) Mind the Gap: why do people act environmentally and what are the barriers to pro-environmental behavior? *Environmental Education Research*, 8, 3.
12. Kollmuss, A., and Agyeman J. (2002) Mind the Gap: why do people act environmentally and what are the barriers to pro-environmental behavior? *Environmental Education Research*, 8, 3
13. Kreps, D (2010) My Social Networking Profile: Copy, Resemblance, or Simulacrum? A Poststructuralist Interpretation of Social Information Systems *European Journal of Information Systems* 19(1) Advance online publication 17 November 2009
14. Light, B (2007) Introducing Masculinity Studies to Information Systems Research: the case of Gaydar. *European Journal of Information Systems* 16, 658-665
15. Lovelock, J. (1979) *Gaia: a new look at life on earth*. Oxford UP
16. Rajecski, D.W. (2002) Attitudes: themes and advances. Sunderland, MA. In Kollmuss, A., and Agyeman J.: Mind the Gap: why do people act environmentally and what are the barriers to pro-environmental behavior? *Environmental Education Research*, 8, 3.
17. Robyn (2010) 2010 Social Gaming Research, Information Solutions Group, http://www.infosolutionsgroup.com/2010_PopCap_Social_Gaming_Research_Results.pdf
18. Royes, P., Lee, J., Undrahbuyan, B., Hopson, M., and Consalvo, M. (2007) Women and games: technologies of the gendered self. *New Media and Society* 9, 4, 555-576
19. Ruether, R. (1975) *New Woman, New Earth: Sexist Ideologies and Human Liberation*. New York, Seabury Press
20. Ruether, R (1993). "Ecofeminism: Symbolic and Social Connections of the Oppression of Women and the Domination of Nature". in Carol Adams. *Ecofeminism and the Sacred*. New York, New York: The Continuum Publishing Company. pp. 13.
21. Sappleton, N., and Takruri-Rizk, H. (2008) The Gender Subtext of Science, Engineering and Technology (SET) Organizations: A Review and Critique"; *Women's Studies*, 37, 3, 284 – 316
22. Trauth E, Quesenberry J, and Huang H (2009) Retaining Women in the US IT Workforce: Theorizing the Influence of Organizational Factors *European Journal of Information Systems Special Issue on Meeting the Renewed Demand for IT Workers*. Vol 18 p476-497
23. Trauth, E. M. (2000) *The culture of an information economy. Influences and impacts in the Republic of Ireland* Dordrecht: Kluwer Academic
24. Trauth, E. M., Quesenberry, J. L. (2006) "Are women an underserved community in the information technology profession" *Proceedings of the International Conference on Information Systems (Milwaukee, WI, December)*
25. Trauth, E. M. (2006). "Theorizing Gender and Information Technology Research." In *Encyclopedia of Gender and Information Technology*, (Trauth, E. M., Ed.), p. 1154-1159, Idea Group Publishing, Hershey, Pennsylvania.
26. Trauth, E. M., and Howcroft, D. (2006). "Critical Empirical Research in IS: An Example of Gender and IT." *Information Technology and People, Special Issue on Critical Research in Information Systems*, 19(3), 272-292.
27. Trauth, E. M., Quesenberry, J. L. and Huang, H. (2008a). "A Multicultural Analysis of Factors Influencing Career Choice for Women in the Information Technology Workforce." *Journal of Global Information Management*, 16(4), 1-23.
28. Trauth, E. M., Quesenberry, J. L. and Yeo, B. (2008b). "Environmental Influences on Gender in the IT Workforce." *The Data Base for Advances in Information Systems*, 39(1), 8-32.
29. Walsham, G (1993). *Interpreting Information Systems in organisations*. Chichester: Wiley
30. Warren, K (2000) *Ecofeminist Philosophy: A Western Perspective on What it is and Why it Matters*. Rowman & Littlefield, UK

31. Whitehead, S (2002) *Men and Masculinities: key themes and new directions*. Cambridge: Polity