Interaction, A World of Differences
A Vision on Informatics from the Perspective of Genderstudies[i]

Cecile K.M.Crutzen

Open University of the Netherlands, PO box 2960, 6401 DL Heerlen
Cecile.Crutzen@ou.nl

1. Underrepresentation of women as a symbol of power

The underrepresentation of women in the Informatics discipline is a symptom for deeper lying phenomena of power which are visible in existing hierarchical binary oppositions in Informatics. My central research question was: "What is missing in Informatics if femininity is not present in all possible processes in which meaning is constructed?" "Why did the hard core of methods and theories of the Informatics discipline become a symbol for masculinity and why is femininity constructed as situated only in the discipline's soft border of the interaction with the users of IT-products?" A research strategy could be a deconstruction of implicit and explicit binary oppositions linked to gender in the discourse of Informatics. Analysing these kinds of power oppositions could prevent the risk within this research of reducing masculinity and femininity to sexual and biological fixed attributes.

2. Use-design as source of doubt

In my research project 'Interaction, a world of differences' I have taken Genderstudies to be an interaction partner for the deconstruction of the oppositions 'use-design' and 'subject-object' assuming the closed core of Informatics might be opened in a confrontation with the epistemological and ontological assumptions of another discipline. Interdisciplinary research is helpful for breaking through the obvious acting within a discipline and can cause change by re-valuing 'the other' and can result in a changed view on the activities: use and design of IT-representations. The chosen oppositions, 'use-design' and 'subject-object', function as sources for doubts on the discourse and the acting, methods and theories in Informatics.
The deconstruction has revealed that the binary hierarchical opposition between use and design in Informatics is based on the following:
– Use and design are treated as activities in different worlds; a world of senders and a world of receivers, while the IT-products are seen as the exclusive links between these worlds.
– IT-representations are perceived as the products of a design process if the product is new and innovative in the receiver world whether or not that the process of making is a routine process of applying obvious methods and routines.
-The symbolic meaning of use and design is constructed as an opposition in which design is active and virtuous and use is passive and not creative.
Designers see themselves and are seen as makers of a better future and working in a straightforward line of progress. Designers follow the ideal of making IT-products that cause no disturbances for and fit completely within the expectations of the users. The concept of 'user friendliness' is based on this notion of non-problematic interaction and security of interaction. Good design is defined as making a product for users that should not create disharmony or doubt in the life of the users.

3. The hierarchical opposition between use and design

One of the main causes of the hierarchical opposition between use and design is that oversimplified models for interaction and communication are used in Informatics. In models such as the transmission-model and the impulse-response-model there is no room for processes of meaning construction. 'Communication' is defined as the transmission of representations between a sender and a receiver through a neutral channel. Transmissive models of communication do not have 'a message to the message'. The meanings of a message, the role of sender and receiver are fixed and separated. The sender has the active role and the receiver has

the passive role. The channel of communication is conceived as neutral. It cannot influence the interaction between sender and receiver. There is no room in the models for negotiation or doubt. Interaction and communication are only defined on a technical and syntactical level but are used on a semantical and pragmatical level to construct planned and closed interaction. The semantical and pragmatical ambiguities which occur in 'being-in-interaction' are ignored. Ambiguity is seen as troublesome and inconvenient and thus is to be prevented and solved on the technical and syntactical level. However, changing routine acting is always very difficult because routine does not have much presence in each world of interaction. In closed worlds differences from the dominant meaning and acting are seen as errors, failures and dissidents. Doubt is only seen as a feeling of insecurity and not as necessary prerequisite for change. There is a dominant belief in the objectivity of values. Qualities as 'good', 'innovative', 'friendly', 'secure' and 'reliable' can be measured objectively and their achievement can be planned in advance. The design of IT-products is characterised as decision making, problem solving, optimising, controlling, prescribing and predicting, and therefore have become an activity of displaying power. Through the use of expert languages and methods within the closed interaction world of Informatics the dominance of design over use is established.

The dominance of design discloses and mostly prevents the act of discovery of the users by the designer and acts of discovery on the part of the users. Design is focused on generalised and classified users. Users are turned into resources which can be used by makers in the process of making IT-products. Users do not have room for starting their own designing processes. Those who do not fit in pregiven classes are seen as dissidents. Design in Informatics is seen as making a product for a remote world, which interaction can be modelled from a distance and without being experienced. This product oriented view re-enforce the hierarchy and distance between use and design.

4. A process oriented view on use and design

Deconstruction of the 'use-design' and the subject opposition reveals a process oriented view on use and design. In this process oriented view designing can be conceptualised as changing and changed acting, as a projection to future acting. Doubting the obvious use of IT-representations can uncover this projective acting into the future. 'Being-in-interaction' with open IT-representations means that the activities use and design are always intertwined.

In open interaction worlds doubts on representations are possible and can be effective in a change of the acting itself and in a change of the results of this acting: the interpretations and representations. The 'preferred reading' of representations can be negotiated. There is room between interpretation and representation. Differences and different meaning construction processes are respected.

Open IT-representations are 'actable' for an actor. Actability is not a condition of the IT-presentation. Mutual actability is a process between an actor and a representation and depends on the presence of an IT-representation for an actor. Mutual actability is the process in which the intertwining process of use and design can be based on doubting the obvious way of interacting and the ready to hand routines of the IT-representation. The intertwining of use and design needs the presence-at-hand of the IT-representations. Their readiness-to-hand should not be fixed.

The doubt in acting should be possible but should not lead to desperation or to a forced routine acting. IT-representations can only be present in a world of actors if they cause doubts and if the representation is at the same time 'leavable' and reliable. The use of IT-representations means designing and redesigning a flexible network of interactions between human and non-human actors in which the connections can always be disconnected by the actors involved in the network.

The making of IT-representations, based on theories and methods, is using IT-representations. Using an IT-product is negotiating not only on the content of the product but also on what kinds of actions of the IT-product are suitable for the situation of the actor. This process of intertwining is always individual and situated in the interaction. It depends on the affective disposition and the state of mind of the actor. The acting and interacting of people will be influenced by the acting of the IT-representations which are made ready. Processes of

negotiation and constructing are necessary not only with the contents of the representations but also with the behaviour and memory of IT-representations to make the range between desperation and obvious acting, leavable, useful and reliable. IT-representations have a presence of leavability if representations allow the user to use the IT-representations as a routine but also give the users the opportunity of learning in which kind of situations the IT-representations are adequate and in which situations the IT-representations should be abandoned. Therefore, the ways of interaction of IT-representations should be as diverse as possible and the presentation of the behaviour of the IT-representations should not be to determine the acting of the users.

Translations and replacements of IT-representations do not need to fit smoothly without conflict into the world in which they are made ready for. A closed readiness is an ideal which is not feasible because in the interaction situation the acting itself is ad-hoc and, therefore, cannot be predictable. The ready-made behaviour and the content of IT-representations should be differentiated and changeable to enable users to make IT-representations ready and reliable for their own use. Users should design their own future by repeatedly giving meaning to IT-representations.

5. The gendering of 'use-design'

My recommendation for the Informatics discipline is: The enclosure and the repair of a variation of 'transformative critical rooms' which were closed in the past. These 'rooms' should be opened and redecorated with differences. The concept of a 'transformative critical room' as a place of negotiation between interpretation and representation is found useful for the construction of mutual actability. In my research project I have started this process of opening through examples of constructions of such critical rooms. The examples I have developed are:
– conceptualisation of analysis as an ongoing conversation on vision instead of solving problems,
– rewriting the ontology of the object-oriented (OO)-approach to make it possible to look at OO-realisations as plays of artificial actors directed by users,
– integrating doubt on the IT-methods and -theories in the IT-education by an interdisciplinary approach.

The hierarchical opposition 'use-design' is gendered on the symbolic level and is linked to other oppositions such as technical-human, hard-soft, secure-doubtful. These symbolic links are established and re-enforced through the military, mathematical and technological traditions of the Informatics discipline and through concepts of female Informatics based on essentialist and deterministic views on femininity and technology.

Strategies destabilising this matrix of links are not easily found and executed for female IT-professionals. To say yes to the established horizon of the Informatics discipline means to lose the potential of doubt because socialisation demands a commitment to the practices of the discipline. To say no means to reinforce the link between the technical-social and the male-female oppositions. A forced socialisation of women into the Informatics discipline will not change its methods or assumptions. Giving the responsibility of changing Informatics to women by means of the incorporation of human and ethical aspects or by taking it as a necessary condition for involving more women is based on the stereotyping of the sexes and will only freeze the binary oppositions. Design strategies such as Prototyping or Participatory Design are not sufficient for disconnecting the dominance of design over use, if there is not a displacement of the binary opposition of use and design and of a changed meaning on their relation. The relation of design and use is basically interactive.

6. Living in borderland

To ignore IT-products is impossible. Therefore one should be pragmatic and live on the borders between the binary oppositions, recognising that these borders cannot be found at the border of the discipline but only within the discipline itself. Through living on the borders women can

cultivate an erotic relation to IT-representations, feeling attraction and antipathy simultaneously. In that relation women can blow up the separation of use and design, and intertwine use and design through doubting the ready-made interactions. Through the creation of an opening in this cleared room between use and design processes of intertwining use and design and of changing the (inter)acting (re)presentations can be started.

Transformative critical rooms are the necessary conditions for making the gendering of the Informatics domain visible and present and allowing for a symmetrical dialogue between the female and the male in which differences can continue to exist. My answer to the research question is not a closed solution. It is the designing behaviour of women and men which can vivify the differences in future worlds of interactions.

An extended abstract of the research project can be found:
http://www.ou.nl/info-alg-ntw/differences/summary.pdf

---

[i]The lecture was a summary of the researchproject:
Crutzen, Cecile K.M.(2000), Interactie, een wereld van verschillen, Een visie op informatica vanuit genderstudies, proefschrift Open universiteit.
More literature are
-Crutzen, Cecile K.M./Vosseberg, Karin (1999), Die Interaktion zwischen objektorientiertem Denken und feministischer Kritik – eine dynamische Verbindung. In: Dreher, B./et al. (eds.) (1999), Software Engineering im Unterricht der Hochschulen SEUH '99. Stuttgart: Teubner Verlag, S. 149-165
-Crutzen, Cecile K.M./Gerrissen, Jack F. (2000), Doubting the OBJECT World. In: Balka, Ellen/ Smith, Richard (eds), Women, Work and Computerization, Charting a Course to the Future, Boston: Kluwer Academic , S. 127-136