Designing Inclusion

The development of ICT products to include women in the Information Society

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Strategies of Inclusion: Gender and the Information Society
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Table of Contents

CHAPTER 5. METHODOLOGIES TO ENHANCE GENDER SENSITIVE DESIGN

CHAPTER 6. EMPOWERING FEMALE DESIGNERS

CHAPTER 7. CONCLUSIONS

BIBLIOGRAPHY

APPENDIX 1

Chapter 1. Introduction

Ellen van Oost

Existing and new information and communication technologies form the backbone of an emerging new type of society: the Information Society. The European IST (Information Society Technologies) programme aims to "increase innovation and competitiveness in European businesses and industry and to contribute to greater benefits for all European citizens".[1] Emphasizing all citizens, the possible poor inclusion of certain groups of people is a relevant issue within the context of this programme. Knowledge of and access to these technologies are crucial for one's inclusion and chances in the Information Society.

Discussions and statistics on the so-called Digital Divide, illustrate that ICT can widen social inequalities or even construct new types of inequalities.[2] Gender is - next to age, social class and ethnicity - one of the most discussed and researched dimensions of digital inequality. Clearly, in recent years the girls and women have caught up on computer and Internet use, although significant differences remain in the time spent on, and in the type of use of ICT. On the other hand statistics show a very persistent gender gap with respect to educational and professional ICT-careers. At the start of the 21sth century, women still are relatively absent from computer science and the design of ICT products.

But the underrepresentation of women in ICT use and design clearly is not only a social issue. This theme is also economically and commercially of eminent relevance. Female consumers are an interesting and growing target group for commercial ICT products. Awareness of diversity of users when designing new technologies for the Information Society is an important prerequisite for high quality products that fit the needs of different types of consumers. And last but not least, it is ultimately relevant for companies to stimulate women to dedicate their talent and skills to the development of high quality ICT products.

These considerations have led the committee of the European Commission IST programme to decide to fund an international project, the SIGIS project. SIGIS was directed at the study and analysis of public and commercial initiatives to include diverse groups of women in the design and use of ICTs. This report is one of the products of this project. It is directed at commercial and private organizations and aims to provide knowledge and tools to help designers and relevant

practitioner communities improve their efforts to attract more women and girls to the use and design of Information Society technologies.

1.1. The SIGIS project

The Strategies of Inclusion: Gender and the Information Society project (SIGIS) involved conducting a total of 48 case studies of inclusion efforts by public, commercial and voluntary players in five different European countries (Italy, Ireland, UK, The Netherlands and Norway).[3] The case studies aimed to generate insight into strategic features, to learn from relative successes, and to provide a knowledge base to support and encourage development of new inclusion efforts. Such insight is needed to safeguard the development of an Information Society for all. It is also an important prerequisite for the commercial success of many new ICT projects.

The 48 cases cover education, training, and support networks for professional women in ICT sectors; training and empowerment of the socially excluded; design of new products, including mobile phones, web publications and games for female audiences; and experiences of ICTs and the meanings that they have for men and women in everyday contexts. The analysis of these cases will help policy makers, businesses, NGOs at local and national levels, and individuals deal with the challenges of new and not so new technologies. They illustrate the diverse ways that women and men think about and use new technologies, and the continuing imbalance in the employment of women in this dynamic sector.

The SIGIS project distinguishes two main domains which inclusion strategies can employ. The first domain involves the development and design of ICT products and – services geared towards diverse female audiences. These products often are produced and marketed by commercial actors, but in some cases volunteer and non-commercial organizations are the driving forces. The central questions related to this domain of inclusion strategies are: 'what are the characteristics of ICT products that are appealing for female audiences' and 'how can the design of these products enhance further inclusion of women in the Information Society?' Starting from these questions several case studies on product development and use were compared and analyzed. This report presents the results of these analyses and aims to advise designers in commercial organizations and practitioner communities on the various inclusion strategies that they can use.

The second domain that our analysis of inclusion strategies aims to inform at, is public policy in the areas of education and training, labour

market and consumption. Governmental organizations (national, local and semi-) and sometimes also non governmental organizations (NGO's) are the driving forces behind various inclusion initiatives which we examined. These types of inclusion strategies are elaborated in a 'twin'-report primarily directed at public policy makers.[4]

1.2. Framing the mind-set: Gender and ICT

The processes that constitute the interwoveness between gender and ICT are at the core of the SIGIS project. The research has built on the intellectual insights of (at least) three relevant scientific domains, that is, gender studies, technology studies and communication studies. Both gender and technology are studied as social and cultural constructions.

Central to gender is the process of attributing meaning in terms of femininity and masculinity. This shaping of gender takes place at three different levels. On the individual level gender is expressed in identities, skills, attitudes etc. On the structural level the gendered division of labour is the central issue and finally on a symbolic level we can see a cultural process where norms and values become associated with femininity or masculinity. The outcome of these processes, - thus what is actually perceived as masculine and feminine - varies over time and place. This implies that gender is not static and essentialist but rather is a dynamic and a multiple phenomenon. The case studies provide ample examples of different types of femininities and masculinities.

Technology is conceived as an outcome of social and cultural processes. Constructivist theories of technology reject the notion that technological objects have intrinsic properties. In this view, technology is seen not as autonomous from society, but as the product of social, political, and cultural negotiations among innovators, policymakers, and social groups. This conceptualization of technology opens up the possibility to research and analyze how gender is a relevant dimension in these negotiations as well as what role and position women have in the involved actor groups.

The processes of shaping gender and technology are closely intertwined. One can even speak of a 'co-construction of gender and technology'. Several scholars in gender studies have emphasized the role of technological competence in the construction of the hegemonic form of masculine identity.[5] The gendered division of the labour market and in educational choices are characterized by a firm bond between the technical and the male. Although ICT is a relatively young technology, it has not escaped from the dominant masculine

association. The technical branches of computer science and telematics hardly attract any female students. ICTs, however, are rapidly changing as are the societal gender relations – although not at the same speed. These changes open up the possibility of new types of femininity-technology relations that may stimulate the inclusion of women in the Information Society.

1.3. Methodology

The qualitative analysis of the 48 inclusion efforts in the five European countries in this study forms the basis of the search for successful and effective inclusion strategies. The selection of these cases was based on a balance between diversification and clustering. In order to obtain insight in the range and richness of national inclusion practices and initiatives, diversification with respect to the type of ICT-product and the type of target group was important. On the other hand, some clustering was desirable and necessary to enable cross-cultural and cross-case study analysis. For this report 15 case studies on private efforts to include women, 3 cases of public efforts and 9 user-oriented case studies were used for a comparative analysis. The 15 studies on private initiatives explore the diverse ways commercial actors and practitioner communities try to stimulate female ICT-use through the design and development of specific products that target groups of women in society. The 9 user-oriented cases focus on the user experiences of those products, as well as the understanding of non-use. These case-studies are referred to as 'user case studies'. The case studies that only studied the designer part of the case are referred to as 'designer case studies'. Especially those initiatives that were studied both from the design and from the user perspective proved fruitful for determining relevant dimensions for inclusion strategies. A list of these 27 cases can be found in Appendix 1. Concise descriptions of the most frequently used case studies can be found in special boxes in this report. Full descriptions of all case studies are available on the SIGIS website.[6]

The 27 selected cases were compared in various dimensions, such as the type of product; the target group; the way the design process was organized; the groups involved in the design; the way designers and producers constructed images of the gender of users; the way users appropriated the product into their daily lives; the type of activities users performed with the product; the meaning female users attached to the products and the activities. This cross-cut analysis, combined with relevant insights from recent literature, led to the distinction of five

types of inclusion strategies that were found effective in creating a positive bond between women and ICT:

- enhancing *informal learning*
- enhancing *self-inclusion*
- stimulating *fun and pleasure*
- stimulating *gender sensitive design*
- empowering *female designers*

Each of these five inclusion strategies will be elaborated in one of the following chapters.

1.4. Outline of the report

The outline of the report is as follows. In the chapters 2 to 6 the five types of inclusion strategies will be elaborated. Each chapter provides the outcome of the comparative analysis of the relevant cases in relation to the type of inclusion strategy and will end with clear and practical guidelines. In chapter 7 the central findings are summarized and some final conclusions are drawn on inclusion strategies with respect to gender and the Information Society. Below a concise description of each chapter is given.

In chapter 2 the focus will be on processes of informal learning. Learning-by-doing and acquiring knowledge through informal personal networks are crucial processes in which people gain ICT skills. Informal learning – in contrast to formal learning (courses and school) that will be treated in the 'twin' report on policies[7] – can be stimulated by the way the products are designed. What kind of tools can designers offer diverse groups of female users for improving their skills and expertise? Here we will especially focus on the case studies of web magazines that aim for female audiences. These web magazines aim to attract users from their traditional paper magazine readers – often middle aged women that do not necessarily have a lot of computer experience. These web magazines therefore provide a potentially rich and relatively 'safe' space for women to gain Internet experiences. The specific question posed in this chapter is how to enhance in the design of web magazines the processes of informal learning.

Chapter 3 elaborates the self-inclusion of female users. In contrast to informal learning that is primarily cognitive and skill-oriented, self-inclusion is a wider social process that builds on feminine as well as feminist ways of organizing groups aimed at empowering women.

Cases on web communities, mailing lists and discussion forums aimed at female users form the basis of this chapter. These web activities often are initiatives of private, volunteer groups of women practitioners. Stimulating and enhancing processes of self-inclusion of women contribute substantially towards inclusion in the Information Society.

Chapter 4 focuses on the role of playfulness and technological enthusiasm in inclusion strategies. Digital game playing used to have a strong masculine connotation with often rather violent playing scenes associated with boys and young men (e.g. Nintendo). However, more recently game playing and entertainment, have become an increasingly important and valued use of ICT among a much wider public. This chapter will present some of the major findings of the SIGIS case studies on games and entertainment activities for girls, including an analysis of the strategies of major commercial firms (Sony, Philips and some Norwegian companies). In the analysis we will combine the gender specific design approaches with the experiences of girl games themselves. It will also question the relevance of digital entertainment technologies for acquiring more 'serious' ICT skills.

Chapter 5 thoroughly analyzes the design processes in the cases where products geared at female audiences were developed. How is the design organized? What is the role of female designers? Are users involved in the design process, and if so, in what way? What methods are used to build an image of the envisioned user, her interest, her skills and her motivation? Recommendations are made on how to enhance a gender sensitive design practice of ICT products, geared at female audiences as well as for a more general public.

Chapter 6 leads us to the related question how the position of female designers can be improved, both quantitatively and qualitatively. This topic clearly is also an issue of public policy on education and labour market and is therefore also a subject in the 'twin' report on policies.[8] However, here initiatives of designer's professional communities and commercial producers are at the core of the recommended inclusion strategies.

Finally, chapter 7 will sum up the central findings and recommendations on inclusion strategies. The chapter will end with a reflection on the central issues of co-construction of gender and ICT and their implications for the inclusion of women in the Information Society.

1.5. *Guidelines for reading*

- Each chapter in which a specific type of inclusion strategy is elaborated (chapters 2-6) can be read on its own. Each chapter targets specific groups of designers. Chapter 2 especially focuses on designers of web magazines. Chapter 3 is directed at producers of web communities, commercial as well as groups of women practitioners. Chapter 4 aims at producers and designers of digital games. Chapter 5 and 6 target the general public of male and female designers that want to reflect on their methods and their work organization.

- Appendix 1 comprises a list of all case studies used in this report. The most frequently used case studies are also concisely described in boxes spread over the different chapters.[9] Page references for these boxes can be found in appendix 1.

- More detailed information on all case studies and other reports of the SIGIS project can be found and downloaded for free at www.sigis-ist.org.

- For each of the inclusion strategies, short and practical leaflets with guidelines for the inclusion of women are provided at www.sigis-ist.org. These leaflets can be used for further dissemination inside a company or community.

Chapter 2. Web Magazines and Informal Learning Strategies

Carol MacKeogh and Paschal Preston

2.1. Introduction

This chapter explores web magazines in terms of their role as sources of informal education, and in terms of their emphasis on the social nature of web use. These two factors are associated in that the social nature of the web enriches the education experience by providing a supportive environment for learning and opportunities for self-help. Some prior research on the role of informal learning with respect to gender is reviewed as this provides a useful background for the exploration of the potential for web based learning. A selection of SIGIS case studies of women's web magazines are then examined in terms of the ways they provide opportunities for informal learning and gender inclusion in ICT. This chapter will also briefly review some findings with regard to the social nature of the Internet and examine how community building, in the current case studies, may play an important role in the female users' socialization on the Net.

2.2. The role and potential of informal learning

There is a long-established body of research on education and learning addressing the phenomenon of gendered learning styles.[10] Some of this work addressed the possibility that the traditional 'formal' education and teaching styles may not suit women as much as men. Especially related to the technical field, these studies often describe the formal learning environment as a 'chilly' one for women. Men's experiences and competencies form the base line against which success is measured and the emotional aspects are undervalued. Given these trends related to formal educational and learning structures in ICT, it is clearly fruitful to explore how informal approaches might be expected to offer the potential for greater degrees of gender inclusion.

Indeed we may note that, quite apart from such gender/ICT specificities, there are other good reasons to take the processes of informal learning very seriously. Despite many terminological variations, the core idea of informal learning plays a major role in contemporary discourse surrounding the development, application and use of technology and/or effective strategies for the 'knowledge-based

economy' or Information Society. For example, in recent economic and business studies of technology and innovation processes, there has been a major emphasis on notions of 'tacit knowledge', 'learning by doing', 'learning by using' or 'learning from users' – all of which tend to converge around the processes of informal as opposed to formal learning or knowledge creation.[11] The same applies to many uses of the term 'networking' which has proved to be a popular buzz-word in contemporary analyses of innovation processes and effective industrial strategies or competitive performance. We may further note that notions of informal learning and knowledge exchanges now play a major role in the mainstream research and literature on the technical design of ICT products and services, not least since the shift from individualist and cognitive towards more social approaches to HCI (human-computer interaction). Indeed in a previous project where some of the SIGIS partners collaborated, various types of informal networking and knowledge sharing emerged as crucial components of the process of social learning related to the design and application of ICT.[12]

Furthermore, much has been written about the potential of new media in providing a wider range of potential learning opportunities.[13] Web based environments can potentially offer more possibilities for enriching the learning process. Multimedia text has been found to be supportive of a diversity of literacies, rather than prioritising traditional reading skills. Pedagogic criteria such as learning-to-learn and just-in-time learning contrast with the teaching approaches that attempt to provide a store of knowledge and skills before practice. These criteria are facilitated by web based technology. Formal education has been slow to incorporate the potential of new technologies. In contrast web based initiatives of their nature tend to apply at least some of these new learning methods.

We have described the phenomena of gender bias within formal education related to new ICT fields and the potential for new media to expand on traditional learning methods. Given these phenomena, the activities of the web initiatives aimed at women may be taken as particularly pertinent for our exploration of informal learning.

2.3. Web magazines as locus for informal learning

Four of the five SIGIS research centres selected web magazines as the focus for case studies. As their titles quite vividly indicate, all of the magazines are aimed at female audiences – Femme, Libelle, eVenos, Donna Moderna. A further related case study, Women on the Web, was

also premised on the role the web could play specifically for women. All five web sites were researched from the point of view of the producers, while three were also researched from the user perspective (eVenos, Donna Moderna, Women on the Web). Unless otherwise specified all the case studies referred to in this chapter are designer case studies.

> **Women on the Web**
> Women on the Web (WOW) The Netherlands is the Dutch branch of Webgrrls. WOW started in 1996. It is a 100% volunteer and independent organisation. The objective of WOW has been to make computers and the Internet more accessible for women. WOW tries to reach this objective by a range of inclusion activities, like facilitating mailing lists with information on computers and offering cheap courses and membership. In order to keep the women recruited inside, WOW also puts a lot of energy in socialisation activities. This has resulted in a vibrant women-only social community, which is appreciated by the users.
>
> **Key points:**
> - WOW appears as a successful inclusion strategy, as almost all respondents, including starters and ICT professionals, use computers and the Internet more, have more fun and use more different facilities because of WOW
> - More than half of the respondents gained self confidence regarding computers and the Internet and felt more independent and empowered because of WOW and the female role-models that it offers

These case studies shared a basic rationale. Whilst the web has often been celebrated as a space where gender and other identities may be blurred or subverted, it too has been defined as a space which does not welcome women.[14] The pervasive 'hacker ethic' has allowed certain modes of communication to dominate, that many women experience as unpleasant and alienating.[15] From the outset, the SIGIS project took the view that on-line products, that specifically address females, could form an important initiative to create gender inclusion. While it is diffucult to know to what extent the 'hacker ethic' may be more myth than reality, it is a pervasive discourse that impacts on potential female users (Women-on-the-Web user case).

The five designer case studies, that form the basis of the current chapter, investigated the motives and intentions of the creators of these magazines to see how they perceived their users, and how they modelled their sites in order to both recruit women onto the web and maintain their continued use. While these sites differed on many levels – for example, in terms of target audience, organisational structures, product design – a number of commonalties emerged which indicated

their strategic role in terms of creating gender inclusion. The case studies highlighted, in particular, the informal educational role in relation to technology that such websites can play, and related, the social nature of the sites.

Producers provide two main activities for their users – the read-only activity of the web magazine, and the more interactive activity of online discussion boards and chat rooms.[16] This chapter concentrates on the web magazines in terms of their role as sources of informal education. These two factors are associated in that the social nature of the web enriches the educational experience by providing a supportive environment for learning and opportunities for self-help.

The four web magazines operate commercially. It is in their financial interests to increase the level and extent of their users' involvement. However, this does not undermine the (often unintended) educative and social dimension of the sites. In varied ways producers invited greater participation in online activities which encouraged learning by doing, and they provided forums for participants to more explicitly discuss technical matters. Producers were also aware of the importance of the social aspects of women's involvement on the web. In particular, the mail lists, chat rooms and discussion boards provided an opportunity for the users to develop social bonds and communities (see also chapter 3 on self inclusion).

An awareness of issues around gender and technology is an important pre-requisite when aiming to encourage women to become more regular on-line users. Technology – including information technology – has been culturally constructed as a male preserve.[17] This implies that many women do not feel confident in a technological environment. To facilitate informal educational opportunities, therefore, demanded a special mode of address towards the female users that impacted at the levels of skills, knowledge and attitudes. These themes will be elaborated in the next paragraphs.

2.4.   User-friendly technology

One of the common perceptions expressed by the producers of web magazines was that many women needed assistance to become web users. Generally, this was not based on a perception of female users as poor with technology, but in most cases it was felt that either women had no time for technology (Donna Moderna, eVenos) or had the ability but lacked the confidence (Women on the Web). For whatever reason, all the producers approached the user with 'kid gloves'. In particular, producers felt that the technology had to be 'easy to use' or

'user-friendly'. For example, the editor of Libelle felt very passionately about the importance of ease of use, and suggested that navigation should be : 'super, super simple; always visible, always knowing where you are, always recognizable … I would give my life if necessary to make sure that those requirements were met' (Libelle, p.15)

> **Libelle**
> The Libelle website is the website of the Dutch women's magazine Libelle. Despite the traditional target group of housewives, the website offers a lot of high quality information on computers and the Internet. It is a de facto inclusion strategy that resulted from the enthusiasm of the original designer of the website. The website is designed in such a way that also less experienced users can use the site without any problems. Strategies to make the site accessible are explaining jargon, offering a computer forum where questions can be asked, and using a clear navigation system. Besides these, the designers always make sure that users who do not have the latest systems can still enter the website.
>
> **Key points:**
> - Libelle has created a place for women on the Internet, which was not there before. In 1996 the Internet was seen as a place for men, but the Libelle website made clear that the Internet could also be a place for women
> - This case demonstrates the importance of enthusiasm of key-actors. It was not the purpose of Libelle to include women. However, the enthusiasm of the initial designer and reactions of the users led to de facto inclusion of women in the information society.

How did the producers explore the needs of their female users? In the case of Women on the Web the producers formally canvassed users to find out what they considered to be 'user-friendly'. All of the magazines had either discussion boards or chat rooms that proved to be another important link with the users. In other cases (eVenos and Femme) producers just built on their own perception (the so-called 'I-methodology' approach, see also chapter 5). However, the assumption of the user perspective on the part of staff was not carried out unwittingly. Staff was aware that they were involved in a process of identifying with the user or configuring a particular kind of user. In most cases the staff doing the identifying were female. In the case of eVenos, a division between the editorial staff and technical staff appeared to create a good dynamic whereby the designers kept the technology efficient while the journalists concentrated on simplicity and clarity of presentation.

Aside from employing 'easy to use' technology, the web magazine producers (or in some cases the creators or the designers) also identified and explained some further strategies that they employed for

the female user. The creator of Femme described some of the features of the web magazine that would be important for the particular target group: 'the user interface is important. Femme was for example built in such a way that it should be easy to understand, to use, to read. Big headings, easy to see the links. It should also give a visual impression, so we use many pictures…' (Femme, editor p.12) and the importance of 'many visual cues that make women feel comfortable with the design: colours, photos, words' (Femme, editor p.14). The editor also talked about the importance of continuity in that features such as navigation bars should be in one place. She pointed out that while these features are intended to facilitate the female user they are not necessarily gendered and could help men and women. In relation to the magazine as a form of informal learning, the emphasis on visual language expands the forms of literacy that users can employ.

The producers of Libelle also talk about visual presentation in terms of orderliness and clarity. Clearly flash and originality, which are often seen as fundamental to web design, are avoided in favour of coherent, even conventional, codes that approximate mediated forms with which women are already familiar. While there was a strong gender awareness with regard to the technical features, there was evidence that producers were, at the same time, avoiding designing overly-feminine sites. As the designer on eVenos put it:

'we didn't want a kind of big girly, flowery kind of site so we kept it regular – it could be any sort of portal – the imagery on the home page – well like it would always have fashion and stuff like that – so it would be obviously for women but still it wasn't blatantly over the top – over female sort of site but I think it works well'

The skills that are developed in reading an online magazine may be somewhat limited compared to the more interactive skills that can be facilitated by joining chat rooms and discussion boards. However, ease of use in exploring archives and understanding the logic of hypertext, are important first steps. These web magazines, with their emphasis on 'ease of use' have ensured that the facilities offered by online learning are used to advantage. The skills are developed incrementally at the learner's pace.

To conclude, in most cases the producers utilized a pervasive view that their targeted female users need help. Interestingly, this image was constructed by women as most of the key players in the production end were women. One might criticize these discourses around gender and technology that tend to stereotype women as inept users. But these discourses also created an atmosphere where commercial producers took great care to allow for the most phobic and incompetent women.

Figure 1 Part of the Libelle home page

2.5. Developing knowledge – providing information on the Net

In terms of developing the user's knowledge base the web magazines fell into two categories. Two of the magazines (Women on the Web and Libelle) employed specific strategies to tailor information for their users. The other sites (Donna Moderna, Femme and eVenos) had all at some stage provided information about new media but for varying reasons had ceased to do so.

Both the Women on the Web and Libelle sites explicitly aimed to educate the user. Their main approach was to provide information about the various technical features that they expected the women to use. The designers of Women on the Web argued that: 'Women always want to have control over technology. They want to know what might happen if they start to use technology, and want to know all the solutions for the problems they might run into' (p.11). The provision of supporting information formed an integral part of their strategy so that their users could know about the steps they were taking before they embarked on them. The use of the Internet to provide individually tailored, just-in-time information is an important dimension that more formal modes of education find difficult to provide.

Libelle provides another example of an overtly educative approach. The editor is committed to the task of making the Internet accessible to women. Libelles take care to ensure that the information is provided in an accessible non-technical language. In the computer-abc, a dictionary of words used in the world of ICT, jargon and buzz words are avoided,

or at least explained in order to disarm them of their power to unnerve a novice user. Similar to the Women on the Web study, this factor reflects the phenomenon of missing links, in that sites aimed at more experienced users often assume a knowledge of the logic underpinning an application.

Donna Moderna and eVenos provide some information about computers online but do not give the topic very much priority. Both magazines started channels that dealt with technology as a topic but discontinued. In the case of eVenos the technology channel was discontinued due to staff cut-backs. In the case of Donna Moderna it was felt that 'new technology' was no longer 'new'. They did not cease their technology channel for gender reasons but because they felt it was no longer a 'hot' topic. Donna Moderna did, however, provide a series of printed instructional leaflets some of which were distributed with the off-line version of the magazine. This has the benefit of reaching a wider audience, some of whom might not have previously used the Internet.

> **Donna Moderna**
> Donna Moderna is an Italian women's magazine which had it's own website since 1996. Research indicates that 80% of the users are female. The site deals with various topics and offers diverse forums. These forums offer a public space where female users can discuss topics that interests them. The Donna Moderna website is an effective inclusion strategy given the high number of women who use this site. Women using the Donna Moderna website are quite competent users of the Internet and computers. They showcase great facility in using the forum and various ICT technologies.
>
> **Key point:**
> The Donna Moderna forums show that discussion boards are an impetus in introducing women to an interactive role online

The approach to technology in Femme, a start up Internet magazin, again was different. They started from the perspective that women are interested in the technology. It runs counter to a strong conception of women as only interested in ICT as a tool to get a job done. Women are perceived as wanting to enjoy the technology rather than simply using it instrumentally.

Aside from the opportunity to provide knowledge about technology as a topic on their web magazines, the producers did play a role providing information on technical queries from users. Again, however, this facility with its potential to aid self-learning was underused in all but the Libelle magazine. In the case of Donna Moderna and eVenos staff did not feel that it was part of their role to interact with users—but, we

should also note that such differences may also be due to differences in the availability of financial resources. While technical queries with regard to the actual use of the web magazines were responded to, more general queries were not encouraged.

As will be discussed in the next chapter, user to user interaction provided the main means for those with technical queries to gain information. This does mean, however, that only those that decide to join the chat rooms and discussion boards can avail of this resource. Read-only users have limited access to knowledge sources about technology in general. This is an area that could be developed. As the users of Women-on-the-Web pointed out it can be easier to rely on an independent and more anonymous source of information, rather than feeling a dependence on friends or family.

The emphasis most web magazines put on traditional magazine content (beauty, fashion, romance) make them extremely relevant to their female users. The importance of providing material that motivates the learner is a key educational strategy, and the ability of the web to provide multiple layers of information makes this possible. Further, the concentration on traditional female content makes the sites oases of familiar material and comfortable reading in a virtual world that is not always seen as friendly or inviting. This latter factor which impacts on learners' attitudes, is a key aspect of the informal educational role that web magazines can play.

2.6. Attitudes and informal learning

Attitudes have also been found to be an important factor in relation to informal education and have been highlighted in particular with regard to new technology.[18] The web magazines revealed a number of strategies that impact on attitude change in terms of making women feel safe in logging on to these sites and in terms of making them feel that the web was relevant to them. Three of the web magazines (Donna Moderna, eVenos and Libelle) are off-shoots of off-line magazines that had already established female readership bases. The prominent use of the off-line magazines was seen as a means of encouraging women on to the web, promising something familiar and 'feminine'. Both these web sites were based on relatively traditional women's magazines, appealing to a broad mainstream base. As was pointed out in the eVenos study, the producers published a number of titles that were aimed at younger age groups but choose the more established Irish Tatler magazine as the 'sister' publication to the web magazine.

All of the web magazines operate chat rooms or discussion boards where users can interact with each other. The vibrant and supportive nature of these sites is evidenced in the fact that they are all referred to as 'communities'. The role of these communities in creating positive attitudes towards the web is discussed in the following chapter. While not all users join such discussion groups, even those that 'lurk' can see that these 'female' spaces are warm and welcoming and relatively 'safe'. They directly counter the masculinist versions of the 'hacker ethic' and play an important role in providing a 'non-chilly' space and emotional support to women interested in learning about aspects of ICT and the potential of the web.

2.7. The social dimension of informal learning

A key feature underpinning all the web magazines and the Women-on-the-Web site is their emphasis on the social role they offer users. While such web sites were initially viewed as spaces where anonymity would undermine social interaction, much recent research has emphasised the highly social nature of virtual activity.[19] Each of the women's web magazines that form the basis of the present study, encouraged if not instigated online sociality among their users. All of the web magazines had some form of mail lists, discussion boards or chat room where users could meet relatively independently of the producers. In all cases these were referred to as 'communities' of users, underlining the self-help aspect that these features made possible. This, in turn, added substantially to the potential for these sites to play an informal educative role.

User to user advice and assistance is a central element of the social dimension of informal learning. More experienced users were able to help a beginner (eVenos). Further, the one-to-one communication made it possible for fellow users to tailor information for each other (Women on the Web). As elsewhere, we find that participants in online communities can sometimes 'enjoy a far more strategic, precise and focused type of support than is available offline'[20] Perhaps more important than the type of information that these communities can exchange is the emotional support they can provide for the learner, a dimension that formal education has tended to lack. Online support may provide the confidence that many women have traditionally seemed to be lacking, especially with respect to technology. Indeed, as is elaborated in chapter 3, women as users of these ICT products play an important role in helping other women to develop the skills and expertise to use and domesticate the Internet.

Femme: strategies of inclusion in three web-based magazines
This study focuses on how producers of web magazines use different strategies of inclusion to provide for users/readers. Three different approaches are compared; one approach that was consciously developed to reach female readers (inclusion of women in particular) with approaches that cater either for a general audience (everyone, including women) or for a specialist, presumably very male dominated audience (women are of course allowed too).
The main difference between the first and last two approaches was that the approach developed to reach female readers emphasised the importance of 'community building' and offered MUDs that allowed their users 'to generate their own content'. The designers of web magazines were inclined to connect offering interactive services on web pages as a specificly female characteristic.

Key points:
- This case-study underpins the argument that interactive services are important to socialize women to become skilled users of Internet. The case shows the usefulness of community building and MUD's that allow users to make their own content.
- What we found was that the strategies aimed at women recruited and socialised this user group and inticed them to interact and communicate on the Internet, whereas webmagazines for men socialize their readers to become skilled users of a wide variety of ICT gadgets with a focus on technical features.

2.8. Conclusions and guidelines

In this chapter we have explored how all the web magazines provided some element of informal learning, skills and knowledge development. In the case of Libelle, this role formed part of the editorial policy and was handled in a highly structured manner with a well-organised computer guide (ABC) and a mail list dedicated to technical problems. Women on the Web was also developed with more deliberate educational goals. In the case of Donna Moderna, Femme and eVenos, the role was less formally structured, but was found nonetheless to play an important function as an inclusion strategy. eVenos appears to be the web site with the least didactic approach. While the editors and designers on the other sites talk about their role in educating women, eVenos staff has no such agenda other than to encourage women on to their site. Of course, this is precisely the kind of informal, and perhaps, opportunistic form of education that provides the first, and perhaps most important, step towards the Internet.

In as much as they encourage women to come on line and explore their product, they allow women to develop learning-by-doing skills. For

their own commercial reasons, the web magazines encourage women to explore hyper-text and access their archives. Again this may provide an important first step for many female users and the nature of the Net allows them to proceed at their own pace. Clearly, the more sophisticated the applications that such web magazines employ, the more their users are learning-by-doing.

The presence of channels supplying information on technology had been removed from two of the sites. While it appears that these were not among the most popular channels, clearly they would provide an opportunity for at least some user to increase their knowledge on new technology. The Women-on-the-Web and the The Libelle web magazine are examples of 'best practice' in this respect. Libelle is relevant in showing how a commercial initiative supports the production of ICT knowledge among their female public in an accessible manner.

Feedback from producers via email was varied across the web sites. While the chatrooms and discussion boards played an important role in providing tailored responses to particular technical problems, staff use of feed back was underdeveloped in at least three of the case studies despite instances where it was found to play an important role for users with specific problems (Donna Moderna, Femme, eVenos).

The familiar nature of the content was seen as an important indicator to the user that they were in a safe space. All of these cases suggest that the provision of traditional women's magazine content may have the advantage of making the web sites attractive oases of familiar material and comfortable reading in a virtual world that is not always seen as friendly or inviting to many women Further, the traditional nature of the topics covered was seen as an important motivator in that reading about such issues is a pleasurable activity while using web technology.

Below we will conclude with more concrete guidelines how 'informal learning' can be stimulated in the design and organisation of web magazines.

Best practice design principles for stimulating informal learning
- An elementary design principle is the importance to identify and define the target audience and the interests, capabilities and contexts of use of the intended product or service. Here, of course, it must be remembered that the 'female audience' is not a fixed or universal category, but highly variable with respect to its interests (e.g. genres or categories of content, and/or technical interests or capabilities).

- As regards the technical layers of design (the interface) the principle of 'less is more' is appropriate in order to mobilize the potential of informal learning. It is important to make an initial assessment of the technical competencies of the target audience. The most successful cases examined above suggest that the design of the entry-points or interfaces should seek to enable basic or elementary participation even for those at the lowest levels of competence amongst the social group targeted. The design may also include a platform approach to the access and use of more complex applications and functions, including an on-line channel for exchanges between users to share knowledge and learning.

- An initial assessment of the target group's context of use (e.g. individual householders or users located in a more social setting) is also required to inform the overall design of the project (not only its technical features and interfaces, but also its content). The design should address (be useable by) those with the lowest levels of technical competence amongst the target user groups, especially if these are isolated, individual users (e.g. in the home). If the context of use permits face-to-face social group access and use, this will both influence the approach to technical design and clearly enable greater opportunities for informal and social learning.

- As regards the second 'design layer' (content) in web-based information services, the design should identify and take account of the issues of relevance and interest of target audiences. The range (genres) of content or sets of functions/applications must be designed to appeal to the spectrum of interests of the female audiences being targeted.

- It is crucial to identify and define what kinds or levels of 'inclusion' the project is intended to promote ('inclusion in what'). For example, is it intended to recruit and maintain the target audience as basic users of ICT-based on-line services or is the goal to promote more sophisticated mastery of ICT? These cases suggest that the former types of inclusion efforts are much easier - and informal learning more likely to be successful - especially if promoted by the use of fun and entertainment type of content.

- A start-up and/or stand-alone ICT inclusion project seems to be much more risky and challenging compared to those associated with already-established services/products for which there is a

ready-made audience. In those type of inclusion projects it is recommended that designers develop alliances or networking links with existing media products/services with an already established audience among the targeted groups of women users.

Chapter 3. Web-communities, mailing lists and discussion forums: Best practices of self inclusion

Leopoldina Fortunati

3.1. Introduction

In this chapter we will elaborate the relevance of women's web communities, discussion forums and mailing lists as important arenas for the self inclusion of women. Why are web communities, forums and mailing lists so important? First of all because the presence of women on the Internet opens up a new feminine dimension. This virtual but also public space offers opportunities for feminine public communication, which have traditionally seldom been little experienced by women. This chapter presents the results of our analysis of four case studies in this domain: the multi-thematic forum of the Donna Moderna designer case, the Lupus designer and user case, the eVenos user case and the Women on the Web user case. All case studies show inclusion in the Information Society which is experienced as a construction of a space for feminine public opinion on the Internet. Constructing a public space is quite a new experience for women. In the sense that traditionally women have spoken and discussed among themselves in the home, that is, in places of domestic intimacy.[21]

Women's talk has often had a private and circumscribed space in areas a long way from the bustle of mixed sociality, with the result that women have always been better at handling the dimension of domestic communication, while men dominated public communication. In the SIGIS case studies women are no longer limiting themselves to talking about their fears, worries and doubts to their closest friends or acquaintances. They also talk about themselves to a faceless and nameless public of lurkers and strangers taking part in the forum.

But the design of a space for feminine public opinion on the Internet immediately presents the problem of contents. The design of contents is influenced by the structure of forums. If we do not wish to condition the production of content too much, a good strategy might be to keep the forum dis-organised for a while, while we observe the most frequent issues and then re-organise it in sections corresponding to the main themes. The problem of content design is very delicate because it immediately impacts on the social construction of knowledge. Women's inclusion in these four case studies as regards cultural

contents was articulated in at least two directions: the search for a new kind of knowledge based simultaneously on information, experience and experimentation (especially Women on the Web and Lupus), and the co-production of freer, although from a certain point of view less warm, knowledge (eVenos and Donna Moderna). We noticed that what is happening in this direction is of fundamental importance. Only the massive presence of women in audiences can ensure a proper level of democratisation in the world of information and entertainment.

In general, this chapter articulates the way in which a space for feminine public opinion on the Internet has been created by the designers of these four websites and by their users. It describes the vibrant and deep space of Lupus, the space for everyday life that emerges in all its difficulty of management in Donna Moderna, the 'welcoming and supportive female space' of the eVenos board and the learning and socialising space of Women on the Web. But in particular it clearly exhibits how Women on the Web and Lupus can be considered two examples of best practices.

Figure 2 Home page of Women on the Web – The Netherlands.

3.2. Redefinition of knowledge

The construction of the new feminine space of public opinion that can be observed in all the four SIGIS cases, has allowed in all these cases a vast process of redefinition of knowledge as social construction. So

women's inclusion in the cultural contents of the Information Society implies a redefinition of the mechanisms of its production, the elements that it is made up of and its modes of transmission. The focus of mass knowledge is shifting from the vertical axis of specialist knowledge to the horizontal one of the travel companion, which is more on the same level, but also obviously more appropriate in respect to the thousand different situations that existence creates around us.

In particular Donna Moderna, eVenos and Lupus show that the interest is in knowledge that derives from common and collective production, such results can be shared in greater measure by the subjects involved. The practical knowledge that is sought for here and in other forums derives from information, experience and experimentation. As such, it lacks any elaborated structure of thought on the subjects investigated. We could say that there is a great attempt at democratisation of knowledge at work, which undermines the control over feminine behaviour exercised by specialised knowledge and by the front line of the feminine relations network (mother, sisters, aunts, female cousins, female friends). There is also a mode of transmission of knowledge at work that completely changes the vertical up-down relation with 'the' expert who gives an interpretation or a judgement based on specific knowledge. Today, in these forums, mailing lists and discussion boards people can obtain help together with an understanding of their problems, find solutions, correct their mistakes (Women on the Web), obtain support and comfort. These communities therefore work as informal and extemporary self-help groups.

With the Internet women (but also men) have been trying to remove the transmission of knowledge from the web of power, even if they have in this way had to forego the 'warmth' of knowledge retrieved from family and friends.[22] The detachment of knowledge from the identity of those who transmit or receive, allows Internet users to receive the thought of others in a much 'colder' way (with fewer emotional implications) but more freely (eVenos and Donna Moderna). On the part of users there is interest in knowing other women's taste, their possible approval or disapproval, empathising with those who are in a similar situation. We must therefore remember that knowledge – i.e. as regards health- is not always pursued as a positive thing. The Lupus forum showed that not every patient likes having too much information, because it can be frightening. However, most participants appreciate the simplified access to both the formal 'vertical' type of medical information as well as the more 'horizontal' knowledge and experiences of fellow patients.

3.3. Social cohesion

All of our case studies show how women's inclusion also translates into virtual social feminine cohesion. This phenomenon is well known in the literature dealing with web communities.[23] The different kinds of websites - whether web magazines, websites or mailing lists - create, together with the different modes of use, different degrees of social cohesion. Web sites that engage their female users in a higher degree of social cohesion are more effective in terms of self inclusion.

The forum of Donna Moderna, for example, in fact brings to mind the idea of 'pseudo community'.[24] The discussion here remains only skin-deep. Very rarely a subject is addressed in any depth. In this forum, moreover, no affective relations are developed with people, no pet names are used, there are no affectionate expressions. Communication is maintained within the narrow tracks of dialogue, often crossed by problems of definition of what it means to be a man or a woman. On the whole, there is a great refusal of the macro-categorisations of men and women as indistinct and undifferentiated universes. Everyone wants to claim their own individual specificity and be able to recognise new or unexpected similarities. It must be stressed that here the majority of the male forum users are single and are very interested in hearing the women's opinions of various aspects of everyday life, and often claim a psychological non-diversity of women.

The cases Women on the Web and the Lupus forums denote a very high degree of social cohesion. In the first case we can speak of a real 'protected' community, in that it is expressly open only to women. This community is based on the values of solidarity, mutual help, competence, reliability and reciprocal exchange of information. In

addition practices of real sociability are evident the social drink, the 'who is who' part of the website in which users of Women-on-the - Web can introduce themselves to each other, etc. The creation of this on- and offline community, may have been very effective as a way of socializing women in the Information Society. In the SIGIS project inclusion is not only conceptualized as recruitment, trying to get women inside, but also about socialisation, which is about 'remaining inside, (…)being accepted, and (…) becoming familiar'.[25] As a result of this strategy, several users of the Women on the Web have started their own company in IT, have chosen a career in IT or are much more confident in using their computer.

Sometimes a certain kind of social cohesion is built despite the design of the site. In the case of Lupus, even though the forum administrator recommended brevity, many messages are rather lengthy. Indeed, they become progressively longer. With the passing of time the expressions become more affectionate too, as if with the development of mutual knowledge the personal rapport has grown stronger. Diminutives abound and narration develops more and more, as for example when an introduction of oneself becomes the narration of the story of one's life. This community has developed on the sharing of a common experience (sickness). The discussion struck a deep chord in the life of the participants and faced the crucial problems of sickness and the everyday life of users with great seriousness.

In the eVenos case study the community is constructed to escape loneliness and isolation. It enables talking about embarrassing problems, and obtaining good advice. It offers relief from office boredom. The greatest attraction of the board appeared to be the sense of safety, openness and solidarity that the members experience inside the virtual space. The creation of identities is experienced through the use of visual icons and logos or the telling of stories. The problem that personal identity of Internet users can become fleeting –which might hamper social cohesion -   is coped by the Lupus forums by ensuring a great accuracy in defining a reliable identity. In the case names coincide, another recognizable nickname is chosen for to avoid confusion on someone's identity.

Both the Lupus and Women on the Web user case studies illuminated a transition from the virtual to the real. Friendships born in the forum that became dual relations through e-mail, but also through telephone and/or mobile phone, right up to face-to-face encounters. This double movement creates a mixed bag of extremely dynamic modes of sociability.

3.4. Acquiring digital skills in (virtual) social interaction

The SIGIS user case studies show the importance of participation and interaction in web communities, discussion forums and mailing lists in acquiring digital skills. An important element of self-inclusion is that women help each other to acquire the skills and expertise to master and domesticate the Internet. Informal learning, as we have seen in the previous chapter in the case of web magazines, has been the prevalent mode in which learning to use the computer, Internet and its facilities or improving one's knowledge of how to use these means of communication has taken place. Especially the two user case studies Women on the Web and Lupus clearly show how women's participation in these two virtual experiences has greatly raised their level of competence in the use of the computer and Internet.

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eVenos
eVenos refers to the online discussion boards of a women's online magazine. eVenos provides an extremely open forum for the users to create their own space. This has allowed women to create a 'female' space that they find welcoming and supportive. The eVenos discussion boards are not moderated, allowing women to develop a board that deals with issues that concern and interest them through negotiation. The result is that eVenos is hosts a vibrant, growing, Irish female community. This is a notable and real achievement given the fact that the web is traditionally seen as a male preserve.
Key points:
- Factors contributing to the success of eVenos; access during work hours, ease of navigation and interaction, autonomy for the site to develop through self-help, support from a resource such as a web magazine or other institution, a number of users who are new-media savvy, assurances of anonymity, and potential for a moderator.
- The development of small online discussion groups could complement other endeavours (perhaps educational) and would greatly enhance participants' knowledge of ICT and awareness of their potential

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In the Lupus forums patients make very articulate use of the various communicative technologies, (from e-mail, and chat, to the telephone, mobile phone, television, etc.) and set up also 'body to body' encounters. Nevertheless, the forum is seen as a strategic place of social encounter and organisation. The existence of this forum stimulates many women who have only just discovered the world of the Internet to overcome any hesitations or fears and plunge into it. A very obvious element in this forum as in the Women on the Web mailing lists is that the task of mutual inclusion in the Internet by forum users is carried out

with the help of those who have a bit more experience. Each person, as soon as that person learns something, becomes a teacher for someone else. Never has the double role – pupil and teacher – been so interchangeable as in the case of the computer and the Internet.

The process that these two virtual communities put into practice is that of an extraordinary unfolding of technologies and their modes of use in order to remain in contact and develop interpersonal relations both in the public virtual space and at a more private level. The computer and Internet are searched for all their possibilities and potential: e-mails, chat, other forums. Communication is continually punctuated with references now to one, now to another communicative mode. A cascade process of self-inclusion is created: the e-mail is opened, you learn to chat, to use the forum, etc.

However, learning goes beyond the well known ICT skills of using computers and computer programs. Perhaps even more important is learning the art of virtual communication: how can one express oneself in a digital environment. Understanding of and building confidence in the use of codes used in virtual communication, e.g. the use of punctuation, emoticons, abbreviations used in SMS. The use of punctuation for instance is quite expressive. We pass from messages that exhibit a kind of stream of consciousness eliminating all punctuation, to messages with long rows of exclamation marks, question marks, dots, to underline something important or to stress some particular point. Interjections are also quite frequent to show for example that some funny remark is being made: ha ha ha. Capital and small letters are also used a lot within the sentence for reasons of expression. So, one can say that 'text' as a typographic form is actually very expressive and rich. In addition the language in digital forums, like the Lupus forum, often is complex because it alternates the language of everyday communication with specialised medical language and at the same time it uses various genres: fairy tale, poetry, pop songs, the tale, mobile language, the narration of events, but also dreams. Female users not only learn to use but also shape new forms of digital communication.

3.5. Designing self inclusion

Can self inclusion of women be stimulated by a specific design of the website, discussion forums and mailing lists? In order to gain insight in this question user experiences were analysed in relation to differences in design, such as interface choices, interactive options, and content. The Lupus website forum is the most free, in the sense that it has been

designed largely by users both in terms of content and functional design. The webmaster in this case limited herself to respond to requests as they arrived from users. A combination of open structure and highly relevant content for the users implied that high levels of self inclusion of women were reached, both in terms of construction of new types of knowlegde, high levels of socialisation, and acquiring of ICT-skills and attitudes. Clearly in the Lupus case the deep-reaching and authoritative contents of the whole website constituted a favourable framework to attract many women affected by this sickness.

The virtual space organised by Women on the Web, the purpose of which was to supply women with useful information to teach them to use the Internet properly, was in itself more directive but it has turned out to be greatly appreciated by users. The logic of empowerment of women that is the inspiration behind the whole site is explained also by the fact that the association that promoted it declares itself to be feminist. The interactivity of this website, the proposed social events and possibilities and the mailing lists that offer updated information about viruses, news about the things happening in the ICT branch and job openings and the 'Frequently Asked Questions' (FAQ), are considered the most attractive elements of Women on the Web. On-line courses have also been promoted, to help women develop their skills and knowledge about computers and the Internet.

The multi-thematic forum of the Donna Moderna website was designed by the site editors, who shaped it on the model of the contents of the site and the magazine. This meant the use of a framework, at least on the general level, that has forced users inside the paths imposed by the social construction of women as it is produced by women's magazines (the wife/mother productive housewife and attractive woman). However the forum is very lively and considered an example of high-level exchange among users.

The discussion board of eVenos has also been designed by the producers. In fact 'the categories for discussion are predetermined, so that the selection of gendered topics is partially predefined. In any case the discussion board is the most interactive space on the site and offers a significant amount of freedom of expression' (eVenos) as does that of Donna Moderna.

3.6. Conclusions on self inclusion and guidelines for design

Clearly web communities and discussion forums can be important arenas for processes of self inclusion of women. The Women on the

Web user case study showed that almost all respondents, including starters and ICT professionals, use computers and the Internet more, have more fun and use more different facilities because of Women on the Web. More than half of the respondents gained self confidence regarding computers and the Internet, enlarged their skills and knowledge, and felt more independent and empowered. It seems Women on the Web was most effective in offering role-models of women that were competent and felt confident, leading both beginners and women that worked in IT to feel more empowered to work with computers.

The Lupus forum also created various processes of empowerment, in that they were able: 1) to find and spread medical information; 2) to find a meaning for the disease; 3) to focus on strategies for dealing with the course of the disease. Moreover they were also able to build a forum with multiple functions useful for the creation of a highly cohesive community and so capable to transmit safety, affection, solidarity, irony and so on.

In the Donna Moderna forum and in the discussion board of eVenos women improved their skills and knowledge in order to communicate about everyday problems of life, housework understood as preparing food but also what to wear, how to look after members of the family or themselves, problems of work or looking for work, as well as creating a virtual community space that is welcoming and significant.

Although acquiring ICT skills is very relevant in self inclusion processes, equally important is that women become acquainted and confident with new communicative modes and cultural dimensions that are a characteristic of the Information Society. This aspect describes clearly the quality of women's inclusion. Women learn to communicate in a virtual way, learn to understand and to use new virtual ways of expressing oneselves.

3.6.1. What is self inclusion?

What does women's self-inclusion in the Information Society mean and how can it be enhanced through the design and organisation of web communities, discussion forums and email lists? Self inclusion is a concept that gradually developed while discussing SIGIS case studies. Although it clearly is a concept in progress, we have distinguished at this moment the following characteristics of self inclusion:

- using computers and the Internet more, having more fun and using more different facilities; gaining more self confidence

regarding computers and the Internet; enlarging one's skills and knowledge, and feeling more independent and empowered

- experiencing the construction of a space for feminine public opinion on the Internet

- producing and sharing cultural contents, at least through a new kind of knowledge based simultaneously on information, experience and experimentation and co-production of freer, although from a certain point of view less warm, knowledge;

- redefining the mechanisms of knowledge as social construction, of its production, the elements that it is made up of and its modes of transmission;

- creating different degrees of social feminine cohesion at a virtual level;

- being aware that the prevalent mode in which learning how to use the computer, the Internet and its facilities or improvement of knowledge of the use of these two means of communication is informal learning;

- taking up and producing the communicative modes and cultural dimensions that are a characteristic of the development of the Information Society.

3.6.2. Guidelines for stimulating self inclusion

Self inclusion clearly is a process where female users themselves are in the 'driving seat'. The central issues to stimulate self inclusion thus are – to stay in the metaphor of cars – how to design 'cars' (websites) that seduce women to drive in them and how to shape suitable 'seats' (discussion and communication tools and rules). Although commercial actors are present in the SIGIS case studies, the most important actors are practitioner communities, like Women on the Web and Lupus.

- Formulate a concrete target group of females with a specific shared interest.

- Develop an interactive website directed at the profile of the target group (see also guidelines in chapter 2).

- Stimulate or require that women use their real name and identity (e.g. an obligatory registration for specific functionalities).

- Stimulate of even organise IRL (in real life) meetings and social interaction.

- Moderate discussion lists and forums in a open but clear way.

For commercial and public organisations who used general websites:
- Support and initiate initiatives where a public feminine space for public communication is developed.
- Support volunteer initiatives with content considered of interest to women (such as Lupus).
- Support and initiate political strategies and initiatives addressed to women only.

Chapter 4. Inclusion through fun and play

Helen Jøsok Gansmo

4.1. Introduction

This chapter will discuss the role of playfulness and technology enthusiasm as well as the importance of entertainment products as a path to recruit and retain more women as ICT users. The image of ICT and ICT professions are often held to be repelling to women. Women are seen to associate ICT with male hackers and nerds, to view their tasks as boring, asocial and only interesting to a masculine audience. Many of these men are seen to have acquired their positions and skills due to long and playful experience with computers. Entertainment has hence commonly been held as an important stepping stone towards becoming a skilled ICT user.

Four of the five countries that participated in the SIGIS project conducted one or more case studies related to digital games, fun or entertainment. The relevant question for the SIGIS project was whether digital games, fun and entertainment might be an interesting and fruitful strategy for inclusion of girls as computer users. Further, can fun and play contribute to change the image of both women and ICT?

Six case studies of game design and inclusion initiatives and three user studies form the base of this chapter (The Gender Game, Boys and Girls stay in to play, Kidcom, IT Beat designer and user cases, The Gathering designer and user cases, Fun user case). This chapter presents the major findings of the crosscut analysis of the cases. In the next section, we will deal with the design of computer games or electronic gaming devices. In the third section, we will focus on the social dimension and social activities related to digital fun and entertainment. The fourth section elaborates on the experiences of girls and women themselves. We will conclude with guidelines for designing interesting and relevant games and entertainment activities directed at including girls.

4.2. Designing digital games for girls and women

The domain of digital games is a fast growing sector in the ICT. Still, there are perceived to be large differences between men and women in how and if they play digital games. Within the gaming community and industry, there seems to be a rather well established discourse about gender and games. It holds that women and girls are not interested in

action games the way men and boys are, and that they in any case are less willing to spend long hours gaming. In such a discourse, the computer games are seen as fine, and the women are seen in need for adjustment. Or in the words of Professor Higgins in My Fair Lady 'why can't women be - like men?'

Some game producers have tried to turn this around. They argue that women are fine, but the technology must change in order to include more women as computer users. Mattel's Barbie Fashion Designer is an iconic example. Through utilising stereotype images of women, Mattel produced a technology just for girls. However, when gender is perceived as fixed and dichotomous, we run the risk of reproducing dichotomous and stereotypical thinking in other settings as well. In addition, such a female technology leaves little room for different types of women to operate within or to be intrigued.

Rather, the SIGIS investigations have followed a perspective where we see that images of both gender and ICT are open to flexible interpretations, and that they influence each other mutually, they are co-constructed.[26] Both ICT as well as gender are perceived as dynamic and as objects of change. One of the key insights from such a perspective is the reminder that things could have been and still can be otherwise.[27] This may be seen as a third strategy where both gender and ICT are changed.

How then, if at all, do game designers try to include women or girls as players? We have studied three cases in which producers of gaming products explicitly or only partly tried to include (more) girls in their consumer public (Kidcom, Boys and Girls Stay in to Play and the Gender Game). Some of the inclusion initiatives aim at a particular group of girls/women (the 'women in particular' strategy). Other initiatives try to reach women by targeting both men and women (the 'everyone including women' strategy). Further, these cases differ in how or to what extent they target their (female) users in their design. We have found three types of design practices that will be elaborated subsequently.

4.2.1. Game designers regard themselves as the typical user

The designers and programmers in the game companies are commonly young men who are enthusiastic gamers. Many game designers thus regard themselves as expert game players who know what their users will like. The so-called I-methodology, where designers assume themselves to be representative for the user, was used quite commonly among the studied designers (see also Chapter 5). This methodology

can impede a clear perspective on the wishes and preferences of other user groups (elderly, girls, women, boys/men who are not typical gamers). The Gender Game case describes how some designers of computer games apply this I-methodology when producing games they themselves prefer and like. Further, they do not regard women gamers as an unexploited market potential. Rather, these game designers stress an outspoken scepticism, partly based on experience, towards designing games for women only. Actually, they also question the fact that women do not play games (typically seen as masculine). They claim that if women do not play games, this is more due to women's priorities and lack of experienced game playing friends.

Thus, in this practice the designers see designing women-only games or games aimed at including a female audience as useless. They do not see the potential flexibility in either gender or ICT.

The Gathering
The Gathering is a computer party for computer interested young people in Norway. Even though the computer is an important element, the participants most of all come there to meet up with friends and get new friends. The female attendance is between 10 and 15%. Even though the (female) participants see the gender gap, they claim that this will change by itself since increasing numbers of girls are introduced to the computer from an early age and they do not experience it as a problem. However, being a serious computer enthusiast and a girl does seem to be a problem. Girls are very often seen as just being into chat and not doing serious computing. They are engaged in the 'wrong' type of activities and are therefore not given much credit.

4.2.2. Combining designer and user perspective

Philips on the other hand started the KidCom as a project to find out 'what attracts girls aged 7-12' because they were interested in opening a new market – girls' technology. In the design team, a lot of effort was made to gain insight into girls' interests, daily life activities and environment. Women were invited to join the design team, psychological literature on gender was studied and girls were interviewed.[28] The KidCom case describes an attempt at combining the I-methodology with a user perspective. Based on the insights from this strategy Philips decided to develop a personal electronic communication and play device for girls.

Interestingly, the user research in the KidCom case did not have the outcome that girls wanted 'pink boxes'. On the contrary, they wanted darker colours and less childish forms than the designers had suggested.

Girls even claimed they would be even more interested if the product was not positioned as a typical girls' product. The designers however still chose a somewhat 'pinkish' color (purple) and round forms, which they explained by arguing that this would satisfy the expectations of the (paying) parents. This statement, however, was not based on actual research but on the perception of the designers themselves.

In a later phase of the design process, Philips decided that KidCom should be positioned as gender neutral with accompanying gendered software applications. With this decision to position and market the Kidcom as gender neutral, Philips made an interesting move. They aimed to market the KidCom to all children, whereas the design actually was largely based on girls' interest and preferences. This clearly contrasts the dominant design practice where products aimed at everybody are most often based on male user representations.[29] In the end, however, Philips decided to stop the project, mainly for technical reasons.

This design practice that focuses on 'what girls want' could serve to validate feminine skills and preferences. The KidCom designers, however, focussed extensively on the contrast between boys and girls, and thus run the risk of reinforcing and reinscribing perceived gender differences rather than playing on the flexibility of both gender and technology.

4.2.3. Game designers focus on different users

Two of the smaller and younger computer game design companies in the Gender Game case aimed at designing more flexible and cross-gender and cross-generational games that would tap into both women's and men's interests, and games targeted at new markets such as the family segment. This type of strategy can be labelled as 'trans-gender' or 'gender cross-over' design, as these games are based on both male as well as female interests and values.[30] In doing so, gender dichotomies may rather be blurred instead of emphasised. These strategies were based more on a user perspective. Through tapping into existing interests of inexperienced game players, they hoped to create new market segments such as the girls market or the family market. One of the companies actually reported that families had bought a computer only to be able to play their family game.

Due to the lack of market potential for women-only games and the competitive and saturated market for games for boys, the Boys and girls stay in to play case describes an effort to design electronic entertainment or ICT based play for girls (and boys). Their strategy was

based on the assumption that parents seem more willing to pay for entertainment and edutainment for girls rather than electronic games. Additionally, these designs attempt to tap into established girls' interests and preferences. The design process was found to be based on creating products that girls want, and not what they 'should' have, either in terms of being worthy and educational, or anti-traditional feminine interests. Although the themes in the games certainly are 'girly', they do not emphasise old-fashioned stereotypical female roles. Self expression through a diary and playing with the idea of 'love' are probably timeless interests, and the pop star aspiration is unashamedly fun and even creative. The producers emphasise interactivity and multi-user games where the users can play together rather than compete. Even more, they try to create flexible, multi-level products with content of equal interest to girls and boys, but which may be played and explored in many different ways depending on the various users.

The strategies found in this design practice certainly try to exploit the flexibility of the technology. They seem to gain from focussing on different potential users as well, even though the flexibility of gender still may have more potential. Nevertheless, these seem to be interesting strategies to include girls and everybody as ICT users.

4.3. Organising digital entertainment

Digital entertainment reaches much further than only computer games. The organisation of happenings and gatherings are a powerful way to engage diverse groups of girls and young women in playful experience with computers. Probably the most explicit, ambitious and comprehensive inclusion strategy is described in the IT Beat designer case. IT Beat is an inclusion initiative that targets inexperienced young teenage girls not interested in ICT, and aims to change the image of ICT education and professions. Their strategy is to start from established girls' interests, such as popular music and pop stars, without labelling these as girly. In stead of focusing on the technology, they try to entice the ICT inexperienced girls to have fun through the indirect use of ICT. Anne Cantelo, one of the organisers of IT Beat, argued: 'if you want to make something happen, you have to appeal to what they're actually interested in, it's no good thinking about what they should be interested in…As opposed to the old route - teach kids because they have to learn, I want kids to learn because they desperately want to, because they are doing it in a fun way'. This project hopes to transform the girls to active learners of computing through focussing on the activity rather than the technology. They also

offer a variety of 'cool' women role models from different IT professions who the girls can relate to. Through this, they aim to transmit knowledge about ICT jobs as varied, interesting, glamorous and well-suited for girls as well.

In IT Beat, technology had on the one hand a central position, but in the design of the activity the technology also deliberately staid in the shadow of the glamour of the pop star. This is in fact a strategy making the technology behind an activity invisible. In the theory of domestication of technology, a technology that is most widely and obviously used in home situations (like television and telephone) is hardly perceived of as technology by its users.[31] In this way, conditions are shaped in which computers may be severed from their masculine, nerdy image that might impede certain types of girls.

ITBeat: Don't leave it to the boys

ITBeat is an UK initiative put together by e-skills. E-skills is the agency responsible for ensuring the skills levels of the UK workforce in IT and telecommunications. IT Beat is financially supported by the UK government, the science museum and a number of private companies, including IBM. ITBeat aims to change young girls' perception of IT and jobs in the IT sector by inviting girls aged 11-15 to take part in a competition, where they are asked to design a website for their favourite pop star. The finalists of the competition are invited to a slumber party, the ITBeat awards party, where they have the chance to meet their favourite pop stars.

Key points:
- The key message of ITBeat is that young girls and women have to realise that they can choose for IT. Women are portrayed as individuals, who, when given the confidence and support, can choose to make careers in technology and can succeed; creative and technical ability cannot be seen in essentialist terms. It is the individual who can make the difference.
- By means of glamorizing ICT and making it more relevant to the lifestyle and aspirations of young girls, ITBeat has highlighted girls' enthusiasm for technology and their ability to use technology creatively and to enjoy using it.

In a way, the second case study, The Gathering, is rather an opposite initiative. Here the computer and computer activities form the central core of the happening. The organisers aim to get all computer interested youngsters (mostly boys and a few girls) out of their bedrooms and into a community. Some years they invited girls to participate for free or at reduced cost, but did not find that this particularly increased the amount of participating girls. Rather, they argue that it is important that the girls are allowed to play by the same rules as the boys because these girls oppose special treatment due to their sex. Although stimulating girls is not a formal goal of The Gathering, the organisers are

consciously supportive of the skilled women they see, and feel it is important to show both the insiders and the outsider of the ICT enthusiast community that there actually are a lot of highly skilled female participants. They try to achieve this through the mere presence of women participants, through directing media attention towards them and through recruiting them to the organising committee.

In the case of the computer parties, the image of computing as fun for boys but not for girls is challenged. IT Beat strategy confronted this image by creating a space in which teenage girls can have fun with computers in the context of their (otherwise strongly gendered) interest in 'boy bands' and pop culture. In this way, it also says you can be a girl in stereotypically feminine ways (liking boy bands), and in stereotypically masculine ways (having fun with computers). The two are not mutually exclusive. The female Gathering participants induce a similar challenge. They show that girls also enthusiastically use the computer for a variety of entertaining and fun tasks.

4.4. Experiences of women playing with ICT

In this part, we will outline the SIGIS findings on the digital playing experiences of girls and women. In all of the cases we find many girls and women who like to play computer games, they like to use the Internet to download music, they like to surf, to communicate both for the sake of communication it self, to find information about general topics and to find practical advice for their own computing. Further, they seem to enjoy both writing stories on the discussion boards on the Internet and reading the stories of others. They also enjoy the horizontal expertise available through the other Internet visitors rather than the more typical vertical and one-way expertise offered through columns in off-line magazines, and they enjoy the feeling of accomplishment, having managed to overcome a technical barrier or figured out how to make some progress with their computing either through trial-and-error or through the help of others.[32] This suggests that focussing on play is probably a beneficial strategy of inducing active learning.

The games women in Fun and The Gathering user case play and prefer, do not fall into an easy categorisation according to 'traditional' or 'feminine' tastes. These women also like sports, racing and violent games, and may thus represent the post-modern female player indicated in the Gender Game. The women in Fun enjoyed their game playing because of the flexibility and freedom in games in terms of being able to explore the world in any order they liked. They also liked controlling

the main character or creating their own character. They often played or created multiple femininities and masculinities in a game. Clearly these female gamers were not in need of predesigned gender identities, neither traditional nor anti-traditional, but they enjoyed games that allowed them the flexibility to explore different worlds. They disliked complicated functionalities/controls, unrelenting tempo and steep learning curves.

4.4.1. *The relevance of social networks*

Several case studies (The Gender Game, The Gathering designer case and the Fun case) indicated the importance of a social network of playing friends. The existence of a local circle of friends and relatives who offered access to games strongly influenced initial enrolment into playing digital games. This informal network was important in terms of informal education, offering access to a network of skilled players, advice on new games and on how to overcome obstacles in the games. This circle of friends also provided access to second-hand games and consoles as well as informal game evenings. Amazingly enough, the technology enthusiasts gathered for five days and nights at The Gathering report that they do not spend more than three to four hours every day in front of the computer. Social interaction is by far more important to the participants than computing.

However, within such social networks it was also observed that gender dichotomies related to ICT are reproduced. The Gathering user case for instance observed that boys/men at the outset are assumed to have better skills than girls/women. While boys are seen to have 'serious' fun, girls just have fun. Chat and design of web pages, which is seen as a typically girls' activity, is seen as something everybody can do, and it is thus not given any credit. It is thus rather paradoxical that game playing, a more typically boyish activity, is given a lot more credit and status than girls' play. Gaming communities apparently fail to go beyond the asymmetrical character of gender. The young women find it difficult to be taken seriously as computer enthusiasts, because most boys and men take it for granted that they are only interested in communication.

> **Fun: Girls just want to have fun**
> The Fun case study examined four inclusion stories which to varying degrees encouraged women to participate in playing digital games. The first story was about a formal strategy of a company to create gender-neutral advertising of consoles. It turned out that this strategy was largely ineffectual in terms of recruiting females to become owners. While advertising can associate a technology with certain discourses and meanings it is clearly not sufficient to change behaviour. The second strategy explored was about inclusion through console re-design. After the redesign of the PlayStation (PS) the number of female registered owners doubled from 10 percent to 20 percent very quickly. The company felt this rise in female consumption was due to the new small size, the rounder shape and the new price point which made the console more affordable. Interviews with owners of the PS indicated that these factors were important, but the range of games available on the platform actually motivated the women's purchase of the re-designed console. The third inclusion story indicates that local social networks play a crucial role in enrolling and socialising female players. All the interviews emphasised the importance of a (male) relative or friend who introduced them to the culture and afforded them access to both a console and games. In the final inclusion story female users described the dominance of males in the digital games culture. Female players are present in digital games cultures although they are largely invisible. According to these interviewees the best strategy would be for both designers of games and those who market games to design and market more androgynous games and accept the mixed gender nature of the game playing community.

4.4.2. The ambiguity of invisible technology

Still, the girls and women interviewed in the SIGIS project do enjoy their entertaining ICTs, because they find it social, a suitable distraction from other activities. ICTs can enable their other interests. They enjoy the indirect learning ICTs offers, be it learning more about a game, a cake recipe or how to make your own home page on the Internet. However, many case studies also found that while women and girls enjoy themselves with ICTs, they tend not to perceive their activities as technical. The IT Beat user case finds that when technology was enjoyable and fun, the girls no longer thought of it as technology. The Fun case reports that the women players were astute technology users, but viewed the computer as just another medium in their lives. This is similar to the invisibility of the computer as such in the teens' extensive leisure computer use reported in the Pupils case.[33]

What we see then is that it is not the technology itself which is regarded as fun. But, through the fun and enthusiastic use these women make of the technology they also implicitly learn more about the technology it self. Still, the Fun case reports that the women played console games rather than PC games. None of these women had any interest in

programming and tinkering with the inside of computers. Thus, playing console games is not an automatic route into learning about computer systems, networks and programming. On a similar note the IT Beat user case finds that since the girls did not see their activities as technological, just fun, it might be sometime until girls stop associating technology with something alien to their lives. It is clear that the girls do enjoy using technologies and are able to use them, even if they at that point no longer are technologies in their eyes. Depending on the range of the inclusion goals, this may or may not represent a problem. Many girls are certainly included as playful computer users, but it remains a question whether this entices them to follow a career within ICT.

4.5. Inclusion through play: conclusions and guidelines

Based on these research findings we suggest that by stimulating positive experiences of fun and pleasure related to ICT, girls and women may in a playful way acquire more computer skills and interests. Thus, images of both gender and technology may change in fruitful manners. Based on this we suggest the following guidelines for the design of fun and play that may include more girls and women as computer users.

Successful design strategies for including girls and women through play

- Start from established girls' interests, such as popular music and pop stars, without labelling these as girly. 'Girlishness' is a feature women themselves may bring to the technology, but it is seldom wanted if created by the producers.

- Try to entice the ICT inexperienced girls to have fun through the indirect use of ICT. Try to make the girls active learners of computing through focussing on the activity and leaving the computer as an almost invisible means. This strategy, however, is ambiguous towards the goal of recruiting girls to computer education and professions.

- Design more flexible and cross-gender and cross-generational games that would tap into both women's and men's interests, and games targeted at new markets such as the family segment. Cross-gender ambitions may be a clue to designing better games.

- Create products that girls actually want, and not what they 'should' have, either in terms of being worthy and educational, or anti-traditional feminine interests. Although the themes can be 'girly', they should not emphasise old-fashioned stereotypical female roles. Especially older girls (from age 8/9 years) often do not like stereotypically 'girly' items.

- Do not focus extensively on the contrast between boys and girls. Design departing from gender dualisms runs the risk of reinforcing and reinscribing perceived gender differences rather than playing on the flexibility of both gender and technology.

- Do not base design solely on the I-methodology where the designer regards himself as a representative user. Rather, focus on potential users and their wide preferences.

- Make the technology flexible and open to alterations in line with the user's preferences and interests. This seems to cater for a larger group of different users.

- Emphasise interactivity and multi-user games where users can play together rather than compete. Even more, try to create flexible, multi-level products with content of equal interest to girls and boys, but which may be played and explored in many different ways depending on the various users.

- Stimulate social activities and communities where young women can meet and enjoy playful computing experiences together. In the case of mixed gatherings (boys and girls together) be aware that girls' activities and skills are not marginalized.

Chapter 5. Methodologies to enhance gender sensitive design

Els Rommes

To what extent and in what ways do companies take female users into account in their design decisions? Although commerce has been criticized for designing for a dominant group in society, the notorious young, white, able-bodied, highly educated male, companies have increasingly diversified their audience, distinguishing various target groups with individual needs and preferences. In this chapter, design methodologies of companies and of private organizations are studied in light of their sensitivity to gender differences among users. What successful projects and best practices for including gender in the design of ICTs can be distinguished? Design practices for designing games, websites, mobile phones and computer parties will be analyzed. This chapter is mainly based on the following cases: The Gender Game, Boys and Girls stay in to play, the Kidcom and the Fun case study.

Although we tried to find ICT artefacts specifically designed for women or girls, only a limited number of these were found. In the TILAB case study, the development of the next generation of mobile phones was studied, in which some gender considerations were taken into account. As one of us noted, when attending a leading ICT industry conference in 2002 searching for ICT designed for women: 'listening and talking to many of the participants, it became clear that there was very little concept of the users, let alone attempts at targeted development for particular market segments, including women or girls' (Boys and Girls stay in to play). Based on our research we concluded that the lack of games for girls is partly due to the fact that there is still a strong prejudice in the game sector that girls are not game-players.[34] Also in the Netherlands, Ireland and Norway it was hard to find games specifically developed for girls or women. In the Netherlands we made do with a game specifically developed for girls that was however never introduced to the market (Kidcom). In Ireland we studied game consoles that were adapted slightly to make them more suitable for female users (Fun). In Norway several game developing companies were studied, but only one of them was in the process of developing a game for girls (The Gender Game).

It was considerably easier to find websites targeted at women, both in the public and in the private sector. We analyzed commercial web

magazines aimed at women (Donna Moderna, eVenos, Libelle). In addition, we studied the design of websites, which were founded by organizations with idealistic goals (Lupus, WOW). Finally some private sector projects were analyzed that aimed to include girls by organizing parties and meetings (The Gathering, ITBeat). The question is, in what ways did the designers of these initiatives take gender into account during their design process?

In this chapter, the constraining and supporting aspects of the context in which new gender sensitive products are developed and the factors that make it easier or more difficult to include gender in the design process are studied. Consecutively, various design methodologies and the way gender gets drawn into the design process are discussed, followed by a review of the importance of the consciously sexed composition of the design team. Then the user tests some companies employ are critically reviewed. This chapter will conclude with recommendations for producers and designers who want to make their design process more gender sensitive.

5.1. Design context of products for women

What factors in the design context may be influential in deciding whether a design team pays attention to the inclusion of gender in the design of their artifacts? It is to be expected that commercial organizations will pay attention to women as long as they present a promising, profitable market. However, there are several instances of private financing that overlook gender issues and women, even if they represent a profitable market. In the development of new ICTs for women, this kind of hesitance seems common. As the history of the development of the eVenos web magazine showed 'the fact that the target audience was female was to some extent chance. The company's offline publishing titles are predominantly aimed at women and it was for this reason that they decided on a women's online magazine rather than as a result of any research into target markets.'[35]

Several SIGIS case studies indicate reluctances by companies to take the risks associated with targeting a relatively unknown user group, such as girls or women. As we concluded in The Gender Game, after studying four companies that develop games, all companies 'were cautious about designing games particularly for women. (…) The safe thing was to work from the well-known. (….) to go for already established markets'. Large game producing companies such as Philips and Sega mentioned similar reasons (Kidcom, Boys and Girls stay in to

play).[36] Not only the producing companies had problems taking risks and incorporating a new target group in their design. Managers and designers of those companies felt restricted in their choice for a target audience by those commissioning work, e.g. the publishers and distributors of their product: we 'need to make games that publishers want'(Kidcom, Boys and Girls stay in to play, The Gender Game)

So which companies do target girls or women? The design team of the Kidcom had just developed a new kind of technology that they wanted to develop further and for which there was no established market yet. Similarly, Stewart found that the company he studied more or less by accident found that the specific aesthetics and the interaction style they designed, were particularly attractive to girls. Similarly, the Gender Game showed that the company studied had to find a different market segment, because 'they wanted to make smaller quality games that did not need 40 men and 3 years to be developed, but something that could be done by four men in four months. They ended up with girls. This strategy of (accidentally) discovering a new niche market may be especially fit for smaller companies, that are 'perhaps not able to compete in the mainstream technology-led market' whereas it may be a strategy 'that is not available/compelling to major economic players' (Boys and Girls stay in to play).

Analysis of several other case studies indicates that the presence of feminist entrepreneurs may be very influential in knowing about the potential market that women represent (Donna Moderna, Libelle). Even though the manager of the Dutch women's magazine 'Libelle' explicitly stated that 'Libelle does not work from an emancipator or feminist perspective', the woman who was hired to design the website did identify herself as a feminist with the main goal to 'make the Internet more accessible for women and to develop opportunities for women'. Her contribution was vital in making the Libelle site successful in introducing many women to the Internet.[37]

Summarizing, four factors may be relevant in pointing designers to a potential market of ICT products for women. Firstly, it helps if a company is too small to compete on the existing market and is in search of a niche market and small enough to take some risks. Secondly, a company is more motivated to develop a product for women if they have just developed a new technology, or a new way of using it (e.g. interaction style or aesthetics) for which no market yet exists. Thirdly, companies need to be aware of the potential market girls and women represent. Up till now, it seems that traditional, male dominated firms have mostly discovered women as a potential market 'by accident'.

Fourthly, the presence of feminist entrepreneurs helps in detecting women or girls as a target group.

The Gender Game
The Gender Game is a case study that investigates the thinking behind the design of computer games. Designers of four Norwegian game companies are interviewed for this case. All of these designers are aware of the potential problem of getting women included in game playing. However, all of our informants were cautious about designing games particularly for women. They believe that there is not a sufficiently large demand for such games. Therefore they would rather pursue a strategy where women as well as men are targeted, through so-called family games or games that allow for a broader spectrum of interests and preferences. The main problem was described as getting women sufficiently interested in computer game playing. None of the informants really had good ideas about how to achieve this goal.

Key points:
- The informants were quite unanimous in their argument that high quality of games would make them attractive to females as well as males. For example, the use of well-known stories as the backdrop of games design was assumed to be a road to success in this respect
- It was considered an effective strategy to focus on role-playing and strategy games. Such games were assumed to attract more women to computer games

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5.2. Design methodologies, predicting what women want

What happens after a company has decided to include girls or women in their target group: how do they take gender into account when making their design decisions? In most cases, designers are faced with a relatively unknown user group when they target ICT at women. Therefore, there is a greater need for an explicit description of the potential user. Companies use various ways of making 'user representations', of constructing images of the target group of the product. All of these techniques are ways to find out what the users of the target group want, expect and need from the technology.

The techniques with which images of potential users are constructed, the user representation techniques, can either be explicit, when information is directly collected from consumers, or implicit.[38] Implicit techniques are based on statements made on behalf of the users, meaning that potential users are not directly involved in the design process. The most commonly used technique seems to be that designers refer to general beliefs about the way men or women 'are'. In other

words, they rely on stereotypes. Almost as important is the implicit representation technique referred to as the 'I-methodology', in which the designer assumes him- or herself as exemplary for the user. In some cases, experiences pertaining to similar products were examined. Finally, some explicit user representation techniques were used, in which potential users were directly involved in the design proces, e.g. with user tests or with user feedback after the product was introduced.

Besides the interests of end-users such as female readers of a magazine or girls who want to play a game, companies also have other interests that need to be taken into account. For commercial companies, the interests of the financiers may precede the potential wishes of the (female) end users.[39] Designers of magazines or websites, need to take the wishes of advertisers into account. The Donna Moderna case study shows that advertisers' interests was one of the main reasons that women's magazines pay so much attention to beauty and fashion. Similarly, in the Boys and Girls stay in to play and the Kidcom case study it was found that the designers of games for children were very interested in what parents are prepared to buy for their children. For instance, the choice of giving the KidCom a pinkish colour, was made to indulge the expected wishes of parents, even though girls had clearly indicated not to want a product with a pink colour. Other examples of groups that designers have to take into account in addition to the end users are competitors in similar or different products, the government, and financiers such as publishers and educators.

5.2.1. Relying on stereotypes

From the start of the design process of most products that were studied, an important goal of the design-process was to define in what ways girls 'are' different from boys. There is a positive and a negative side to the focus of companies on the ways in which girls 'are' different from boys. On the one hand, a focus on 'what girls want' could serve to strengthen and give value to femininely connotated skills and preferences. Femininely connotated behavior with the computer, such as using it as a communication device, is undervalued in comparison with masculinely connotated behavior such as playing shooting games (The Gathering).[40] On the other hand, by developing a product based on 'typical girls' interests', designers run the risk of reinforcing and re-inscribing the perceived gender differences. The capacity for a 'transformation of gender,' as discussed in chapter 4, of this inclusion initiative was not found in any of the case studies.

KidCom
The goal of the KidCom project (launched by Philips) was defined as "finding out what attracts girls aged 7-12 and use these findings to develop a personal electronic device". Because Philips was unfamiliar with the target-group the composition of the design-team, the design methodology and the user representations were given great attention. In this project, gender was treated in an essentialist way, as the designers spent much effort on trying to define in which ways girls 'are' different to boys. Children were also involved in the design process, they influenced the development trajectory of the projects and the type of product developed.

Key points:
- The KidCom is one of the few examples of a commercially developed electronic game aimed specifically at girls
- The design process of the KidCom was based on the assumption of there being a difference between boys' and girls' preferences. There is a positive and a negative side to this focus on ways in which girls 'are' different from boys. On the one hand, this could serve to strengthen and give value to skills and preferences with female connotations. On the other hand by focussing on possible differences between boys and girls and by developing a game based on 'typical girls' interests', Philips runs the risk of reinforcing and re-inscribing the perceived gender differences

Again, reducing risks seems to have been an important factor in the design process by working with 'established feminine interest' (The Gender Game). Equally important was the fact that designers were convinced that some things just 'belong' to women's or girl's products 'like fashion and beauty' (Femme). In some cases, the designers not only referred to generally held convictions about 'the way women are with ICT', but founded these beliefs on other implicit techniques. Philips, for example seems to have been very thorough in constructing their image of girls, as the Kidcom project team started with a literature study on gender differences. The books and reports they used, however, have been extensively criticized by feminists for the way they dichotomize and naturalize perceived 'biological' differences between men and women.

Many designers looked at 'comparable products' and the way they target women. Most often, popular print magazines aimed at girls or women were used as a source of inspiration (Boys and Girls stay in to play). As a result, 'the interfaces of these girl games [are] similar to the girls magazines that inspired them, with lots of colour (especially pink!), cartoon images, and non-rectangular windows'. Editors of web magazines were both inspired by the paper magazines, but also by the few web magazines for women that were around at the time the product was developed (Femme). Besides women's and girls' magazines, some

designers mentioned they had been looking at girls' books, or used diaries of potential users and watched girls' favourite television programmes.

The most common way of constructing an image of the potential female user of the product was by relying on stereotypes about women, in an attempt to construct an image of their future users as 'different' from the audience they had been designing for before. Hence, no matter what the precise target group of the private organizations that we studied were, older women or girls, highly educated women or women living in disadvantaged areas, the same general beliefs about what women want resurfaced in every case study. Women were represented as being neither interested nor skilled in technology and preferring 'user-friendly' interfaces. Moreover, women were, according to the designers, not into technology for fun but more for directly useful applications, without flashy pictures, seeing technology merely as a tool for other goals. And women are supposed to be, more than men, interested in 'open' play forms without many rules, in community building, in interaction and women prefer 'feminine' content, such as fashion, horoscopes and relationships. Considering how often these images about women were repeated in each case study, these are very persistent general ideas about women and ICT that surface when designers start to design a product for women.[41] These general ideas about what women 'are' or what they 'like', were important in guiding design decisions. In the case of the development of games for girls the products that emerged were in the end not called games, but 'play environments or tools' (Boys and Girls stay in to play, Kidcom). In this report (chapter 4), however, we have shown that 'fun' may be a crucial inclusion strategy for women and that girls do like to play. This example shows how designers' beliefs about women can guide the direction of the design to a large extent even though these ideas often do not fit the experiences of many women.

Some designers used specific guidelines in making design decisions, for example they aimed at 'high quality', games with a 'good storyline', or the designers wanted to make a magazine for 'advanced' users or a website with a 'clear' navigation system. Although these guidelines appear to be gender neutral, in most cases they have a clear gender connotation. The computer web magazine editor who stated that his magazine was for 'all' advanced computer users, later specified that he did not mean 'women and children' with this category (Femme). Similarly, the Gender Game case study revealed that the seemingly gender neutral criterion of a 'good story' in a computer game, in the understanding of game producers means a story that comes close to 'the

standard narratives of books written for boys', including lots of violence and competition. It is important that designers deconstruct seemingly gender neutral criteria that they use in the design context, for their implicit gender connotations.

5.2.2. I methodology and composition of the design team

One of the most commonly used design techniques is to make design decisions on the basis of what the designer would like. In every product that we studied, be it computer games, web magazines, mobile phones, or a set to support the organization of a role model day at school, this technique was used. In the past, the use of the I methodology has been considered problematic, because most designers are male and run the risk of making a design that only men will like if they design for themselves. Indeed, the Gender Game case study revealed that this was still problematic in several game companies, where only men worked, who 'assume that other people will like the same elements as they do, so they just make games that they themselves enjoy'. However, using the I-methodology is not necessarily a bad thing. There may be specific conditions under which the I-methodology can contribute in constructing a correct image of what potential users may want. Using the I-methodology prevented a designer of the eVenos webmagazine from making her design too stereotypically addressed to women, as she became irritated herself at being addressed in an 'old fashioned' way (eVenos).

If the I methodology is used, it is crucial that the designers are very similar to the end-users of the product. To achieve this, several companies did consciously ask women to join the design team (see the next chapter for ways in which to achieve this). The project leader of Kidcom argued for the conscious inclusion of women in the project-team by suggesting that the female project members 'would surely know what seven-year-old girls like and prefer. They have been there themselves'. Women were thought to have a better, i.e., 'a natural' feeling of what elements for instance would play a role in the design of the device, or how the product should be marketed. For similar reasons, designers of an Irish web site not only referred to themselves, but also to 'girls in the office', who had the same age as their intended audience (eVenos). In several other projects, the introduction of more female employees happened less consciously but still had some effects (Femme). In the Gender Game case a positive aspect of having a female developer of a computer game was found: 'the only female character, Soline, (…) has been made a bit more visible in the game

because the female developer thought it was important. And in two projects, the fact that a woman was the responsible manager was the main reason a project to include women started at all (Women in Computing).[42] In all these cases, the I-methodology was introduced in a reflective way, resulting in more attention for women's issues in the design process.

There are two aspects that need to be taken into account when a reflective I methodology is used. In the companies that produce web magazines, virtually all programmers and designers of the website are male. In contrast, virtually all editors and writers of the content are female. This unequal distribution introduces the danger of having femininely connotated content in an interface with masculine connotated preferences. Moreover, in the Donna Moderna and eVenos case studies it was found that the women had less to say in the design of the site, e.g. because they were not responsible or were junior recruits and had no direct input into the development of the site. Hence, if women are introduced in the design process as a way of introducing a more reflective form of I-methodology, the hierarchical position in which a person is introduced is also very relevant.

Secondly, not every woman is representative of the women that the designers need to aim for. Even if female designers are similar to the end user in terms of their age or interests, the mere fact that they are part of a design team and hence have access to the latest technology, to an extensive network of skilled computer users and are interested and skilled in the use of technology, makes them very different from potential end users.[43] They are socialized in a design culture which may in itself be masculine. It may very well be that education in participatory and interactive design techniques is more relevant in deciding whether someone knows what (female) end users want than the mere fact that someone is of the same sex as the targeted end users. As some male designers of a computer game for girls stated 'I think we specifically do not design things for boys, we are not technically – into computer based, programming based design company. Our background is in design and interaction design – the user is very important for us' (Boys and Girls stay in to play).[44] All in all, even the reflective I-methodology needs to be used with care.

Boys and Girls stay in to play

This case study tells the story of a small firm of designers and artists that creates and sells creative interactive computer-based products to publishers and other intermediaries in the market. In particular they produced a series of "girl games", entertainment CD ROMs for early teenage girls for a major general store chain, an interactive television series for children of both sexes, and 'edutainment' products for children. They find their 'multilayer' approach to design and particular graphic style is attractive to both girls and boys.

Key point:

In general one of the strengths of the products identified by this firm is that their products appealed to 'non-users', those with little interest or no attraction to some of the 'mainstream' computer games and entertainment, or to technology in general. This can be seen as a strategy for product differentiation: creating products that appeal to non-core markets in computer based entertainment.

5.3. User testing

The inherent problems of using implicit representation techniques in constructing images of the target users may by now be clear. As an alternative, explicit techniques such as testing products on potential users are suggested. With the help of these techniques, potential end-users influence the design of the product they will later use more directly. In most projects SIGIS studied the priority that was given to user testing was small and the way potential test-users were recruited was not very systematic.[45]

There were some factors that stimulated user testing. It seems that it is especially important for project teams to know about the wishes of the target group when the target group differs from the more familiar ones, and if designers make a design for end-users that are different from themselves (Kidcom, The Gender Game, and TILAB). In the TILAB case study it was also concluded that companies are more careful and pay more attention to user testing after a recent failure of a similar technology. Finally, a highly competitive market helps to motivate designers to engage in extensive user testing (eVenos).

Several design teams felt they did not do enough user testing, as a result of time constraints (TILAB, Donna Moderna). Moreover, user testing is often only done towards the end of the project, when the main design decisions have already been made. This seriously constrains the influence end-users can have on the design (Women's Square, TILAB). In the Boys and Girls stay in to play case study, involving users at such

a late point in time was a serious disadvantage to the designers, as they had to re-do a whole months work because the test users did not understand the interface. The earlier potential users are involved in the design process, the more influence they can still have on the design of the product and the less chance that designers find out too late that they are on the wrong track.

How do companies find potential users to perform their tests on? In general, designers do not pay much attention to the selection of users to perform user tests on. Often, family members, office employees or people that 'happen to be around the office' are asked to perform some tests. And even if companies do pay attention to the selection of users to test, inadvertently things may go wrong that make them less comparable with the users designers want to reach. For example, TILab, an official user testing laboratory, created 'research professionals' who may no longer be the representative of the end-users.[46]

Some good practices were found, as several companies invested time and energy in finding representative end-users. The Norwegian company Art Plant, that was in the process of developing a game for horse enthusiast girls, actually visited their audience, as one employee told: 'I have been to a stable, talked with girls there, and asked them what they would like in a game (The Gender Game). The designers of KidCom and the Scottish game for girls tested their game at a school (Kidcom, Boys and Girls stay in to play). This was a very important part of the process, as several designers remarked.

Interestingly, many of the companies that were studied have reported a new way of testing products on users. This new technique has become available as a result of the development of interactive technology. In the eVenos case study it was reported that: 'there was a bottom-up process with staff reporting the interactive features of the web as their main source of knowledge about the user. Staff reported that this process, unlike market research, gave a far greater say to the users.' Users reporting their preferences, problems and wishes back to the designers via the computer and the Internet were also found in the Libelle, Donna Moderna and Femme web magazines. This feedback by experience via the website was not only an important instrument of web site designers, but was also reported as an important feature in the development of some games (The Gender Game).[47] The feedback users give, has in several instances changed the image the designers had of their users (Femme, eVenos).

The feedback some users have given to designers via the website did influence several design decisions. The reason for Libelle to pay

attention to Internet and computers on their web site, is simply because readers asked for it and staff even used the feedback of the users of the website as input for the printed magazine. Similarly the web magazine Donna Moderna founded several computer literacy projects for women, whereas in Lupus an interactive forum was opened thanks to the pressure of users of these websites. Although these interactive features of ICTs seem to be very effective in endowing users with more influence, the users that give feedback on websites are a specific group of users. They are per definition more active, engaged and articulate than 'ordinary' users. By solely focusing on their wishes and demands, designers run the risk of ignoring potential wishes by users that are less good at articulating their demands. Or more fundamentally, designers run the risk of ignoring and excluding potential users that are still non-users of the website.

5.4. Recommendations for gender sensitive design

- Smaller companies, with feminist managers, in a less competitive market who have recently developed new technology for which no market yet exists are more likely to include women and girls in their target group.
- Designers do not necessarily design for the end-users, but often for the people that pay, for what they prefer themselves, or for what stereotypical women prefer.
- Seemingly gender-neutral design criteria such as 'quality' or 'good storyline' need to be deconstructed to show their implicit gender connotations.
- The I-methodology is one of the most commonly used design methodologies. This needs to be used in a reflective way, by giving female designers with a similar age and position as the end-users a larger say in all aspects of the design process. But even if the designers are similar to the potential end user in many ways, they still need to be aware that they are not in every way representative of the end user.
- Direct user representation techniques, in which potential users were involved in the design from an early point on, seems to have helped in creating a more nuanced image of 'what women want' and in empowering female end-users.
- With the help of computers and the Internet, a new way of giving end-users influence in the design process has become

59

popular among designers. The specificities of users that communicate with designers via web sites or e-mail need to be taken into account by designers, as they may not be representative.

- Designers need to pay more attention to the selection of potential users to be involved in user tests, to make sure that they are representative of the end users designers aim to reach.
- The earlier potential users are involved in the design process, the more influence they can still have on the design of the product and the less chance that designers find out too late that they are on the wrong track.

Chapter 6. Empowering female designers
Lisa Pitt

6.1. Introduction

The previous chapter has shown the importance of including and empowering women as designers in ICT, as an effective strategy both to make ICT products more female friendly and to make the Information Society in general more inclusive. It became also clear in the previous chapter that it is vital to get women into senior positions so that they can also be decision makers in the design process. Moreover, getting women in senior positions is seen as a key to providing inspiration to other women and to outdating the informal and formal 'old-boy' type networks. Encouraging women in these areas of work, is also a critical question in human 'resource' terms, as fewer women gaining qualifications and experience in the field, means that employers are unable to draw on the pool of talent from the entire population (Women in Computing). All individuals should be able to pursue their interests and have access to the same job opportunities. Most importantly, getting more women in ICT is a way to move away from dichotomous definitions of the relationship between gender and technology and to challenge stereotypical assumptions of 'feminine work characteristics', as highlighted in the Work up case study.

This chapter is mainly based on the WITI, Women in Computing and Untold case study. The focus of this chapter is on inclusion strategies that support women who are already working in and around ICTs. Inclusion at the retention and progression stage has been described in SIGIS research as 'socialisation', as opposed to 'recruitment', which is discussed in the 'twin' report on policies.[48] It is achieved by taking steps to make the environment more gender aware or gender friendly, or by offering users resources to make the most out of existing structures. But first, the specific problems that female designers face will be summarized. Consequently, empowerment is described as the main strategy to address gender specific working practices and cultures. Best practices from SIGIS case studies, such as founding communities, increasing visibility of female designers and education, will be described. Finally, some challenges that developers of empowerment strategies face, will be discussed.

6.2. What is the problem?

SIGIS research has revealed the persistence of gender stratification and imbalances in ICT industries.[49] Our case studies have shown that although men and women can face similar challenges, such as long hours or pressures from the IT market's downturn, being a woman might make the situation more precarious, for instance for those with childcare responsibilities (e.g. WITI).[50] Moreover, existing gender imbalances create implicit gender specific work conditions and cultures. An example of this practice was described in Women in Computing case study where a female-only computer lab was set up in an attempt to counterbalance the usually male dominated computer labs at the computer science department.

WITI
Women in Technology International (WITI) is a voluntary organisation established by women working in and with technology. WITI has branches across America and in Australia, Britain and Ireland. The aim of WITI is to retain and support women in technology. WITI runs meetings on a regular basis, usually taking the form of a training session, where a particular topic is covered such as setting goals, body language, presentation skills, or dealing with a downmarket. WITI aims to provide role models, a learning experience, and a collective body of like-minded people.

Key points:
- WITI is highly valued by its members, and is treated as a resource on which women can draw in order to help them achieve specific career goals as well as offering them an environment where they feel strong and among peers.
- WITI is an inspirational experience, where women learn from other successful women who have been able to achieve their career goals. There is therefore very much a focus on making the individual realise that they do have a choice to make their own decisions.

Many female designers described gender insensitive working practices or overtly demeaning behaviour (e.g WOW users, WITI and Untold). The founder of Untold, a group aimed at supporting women in and around digital design, remarked: 'the reason there are so few women is that jobs are acquired through networking and there's a lot of the small companies that have been set up by these boys straight from college who often didn't know many girls in this kind of industry. (…) Quite a few women have told stories about how there's quite a lot of porn, quite a macho environment and they feel they have to fit in' (Untold). Female designers can feel isolated and excluded from social and professional networks because of the establishment of 'old-boys' networks, or as was found in the Untold case study, the co-existence of

old and new boys' networks, effectively making female digital designers invisible.[51]

6.3. Empowerment as a strategy of inclusion

We have found several initiatives to counter inequalities and support women in ICT industries.[52] A key theme in these strategies is that getting more women into ICT can be achieved by 'empowerment strategies'. Empowerment in this context distinguishes itself from 'positive discrimination', by placing more emphasis on individuals' potential, talent and interests, and giving responsibility to the individual. It facilitates not only the valorisation of women's contribution to the field of IT, but also women's personal and professional development and career progression.

Empowerment is achieved through the creation of women friendly spaces to provide women with motivation, inspiration and confidence and seeks to provide practical and emotional tools to support women in their (choice of) studies and careers. It was found that many empowerment strategies studied in SIGIS, were based on the personal experiences of the women who created the strategy, and who themselves worked in the field of ICT. These bottom-up strategies contained three broad principles. First, that networks are important for women working in technology, secondly that women in these areas of work need visibility, and thirdly that support can be achieved through learning and education in the form of mentoring or training sessions covering 'softer skills'.

1. Communities and networks

Communities and networks aimed specifically at women are needed to address women's feelings of isolation and exclusion from social and professional networks. This seems to be especially important for women who feel isolated in a male dominated area, as one of the WOW users said: 'I was looking for other women who are also fascinated by computers, I wanted something else than those men all the time, I had gotten tired of men' (WOW user study). Creating such spaces offers new avenues to get people together to share ideas, meet like-minded people, learn from one another's experience or find out about job openings.

The WOW cases also showed how online communities that were women-only provided a mutually supportive and unthreatening environment where women feel safe, facilitated through behavioural rules and the presence of moderators. In the Untold and WITI cases,

social networks are established to discuss informally professional and personal issues, creating a more inclusive work culture. Professional networks allow people to learn, meet, and share experiences across companies in the sector or field (Untold, WITI). Real life discussions are also seen as effective when they engage all levels of industry, including designers and company directors, share experiences and reflect on issues critical to those working. Discussions that seek to bring more understanding of the relationship between gender and technology were also found to be valuable (Untold).

2. Visibility

Communities offer something individuals can identify with. In addition, they increase visibility, by making individuals feel that they are 'wanted', and providing opportunities to be heard and seen. Exhibitions to showcase talented female designers (e.g. Untold), or websites acting as a source of information and platform for discussion and exposure (e.g. Untold, WITI) are all part of this process. It should also be noted, as the Women in Computing case study pointed out, that visibility and the impact of the strategy can also come from the attention it brings to the issues that are being addressed, not just from the spotlight that has been put on individual designers.

3. Training and education

Training and education offer support to help women feel confident and inspired. Self-belief and seeing professional goals as attainable are important when making career choices. WITI places much emphasis on the power of inspiration, and role models are believed to play a key part in doing this. This type of support also offers an opportunity for formal and informal mentoring programmes and training sessions to learn from the experiences of more senior colleagues and women in the field. The research demonstrated how individuals valued training sessions focusing on softer skills and career development too. A WITI member commented for instance that WITI's focus was far less technical than the focus of other organisations, but that this was precisely why she attends the WITI training sessions because 'you may have learnt something at WITI that you can bring into a job interview or bring into your next job, or by helping you think about the way you conduct yourself essentially'. These learning environments do need to be gender aware and women friendly, so that individuals do not feel intimidated. There are instances when women-only spaces might be appropriate, but the context and objectives of the inclusion strategy need to be taken into account.

Core skill acquisition is rarely an issue among the highly qualified women interviewed in the SIGIS research, although this was an obvious focus of the Women in Computing strategy where computer related courses and female only computer labs were established. It appears in contrast that training sessions covering softer skills, such as goal setting, presentation skills or body language, used in conjunction with mentoring, appraisal and feedback programmes, can also be highly effective. Additional sources of information through websites and leaflets are also seen as a good way to keep up to date with events and training, especially useful for those who cannot attend training sessions.

Women in Computing
The Women and computing initiative at the Norwegian university NTNU aimed to get more women to study computer science through, amongst other things, advertisement campaigns. The inclusion strategy of the initiative achieved a substantial rise in the number of female students. The initiative helped increase the percentage of female computer science students from 5,7% in 1996 to 37,7% in 1997. This percentage has remained high since, although it dropped a little in 2002 and 2003. Many of the female students that entered the programme reported that they had been influenced by the campaign when they chose computer science. The attractiveness of computer science was related to good career prospects and a relatively high status of the educational programme.

Key point:
- An important feature of the advertising campaign was that women were made to feel welcome and wanted as computer science students. Women really appreciated this feature and it stimulated their decision to study computer science

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6.4. Addressing the challenges of gender inclusion

The SIGIS cases discussed in this chapter have revealed three key problematic areas or challenges in designing strategies to empower female designers. The first challenge is to ensure that women specific strategies weaken rather than strengthen gender inequalities. How can we address the needs of women without reinforcing stereotypes of what women and men want or do? Questions thus emerge as to whether gender issues should be mainstreamed into other employment issues or treated as the central problem, a question raised also in the IST WWW-ICT project's review of research into the gender gap in ICT.[53] SIGIS also found evidence that women working in these areas reject the idea that they should receive preferential or differential treatment on the

grounds of gender (WITI, Untold and Women in Computing). Such treatment is seen as failing to recognise the qualities of individuals: women simply want choice and opportunity. Finally, there is a problem in making assumptions about what women want, as noted by Rommes in the previous chapter on design methodologies.

Untold
Untold started as an exhibition at the ICA (Institute for Contemporary Arts), in London (UK), in the summer of 2002, showcasing work by female digital designers. Following the success of the exhibition, Untold set up a website acting as a continuation for the exhibition and further developed into a platform for discussion on gender and technology. Untold also functions as a social and professional network and a community of individuals working in and around digital design. The strategy was perceived very positively by those who were involved, primarily because they felt that inappropriate behaviour and the gender imbalance in the sector in general was an area that needed particular and urgent attention.

Key points:
- Even if Untold does not exclude men, targeting women in particular is seen as critical. Women are underrepresented in digital design and women working in the field suffer from the gender imbalance in the sector and the young masculine cultures that exist therein.
- Due to this situation female digital designers receive little exposure and fewer job offerings. Often, they have to work in environments with little or no gender sensitivity.
- Untold aims to raise awareness of the situation in the sector by moving debates on gender and digital design beyond the rhetoric of inequality, to that of the impact of gender in their field of work, whether in creative or artistic terms, potentially leading to more gender aware work environments as well as avoiding simplifications of what men and women might be capable of or interested in.

The cases show four effective strategies to avoid these pitfalls. First, by offering a better understanding of the key issues through public debates and discussions (see Untold) and by putting efforts into broadening the reach of these discussions. It is interesting for instance to note how Untold initially labelled itself as 'a platform for women digital designers' and later renamed itself as an 'organisation that seeks to further the understanding of gender and technology'. This was a deliberate attempt to shift the focus away from women-only to broader gender questions. As one male member of Untold pointed out, an organisation that describes itself as aimed at 'female digital designers' is not trying to engage male digital designers. Since many digital design companies are run and set up by men, this kind of broadening for wider engagement is very important.

Secondly, users need to feel a connection between the aims of the initiative and their own values, lifestyle and needs. It goes almost without saying that the scheduling and location of meetings and training sessions need to make them accessible to women. Users favour networks that do not necessarily require a heavy time commitment, especially since long working hours are already an obstacle faced by many working in ICT (see e.g. Untold, VVS).[54] Moreover, a high profile or well-designed campaign might lead individuals to rethink their position, but capitalising on what people are really interested in is key. One woman interviewed in the WITI case study noted how when she first heard about WITI, it 'pressed all the right buttons', whilst another described it as 'very democratic'. It is important to understand the needs and interests of individuals, who choose to work in the field and avoid stereotyping, which is likely to reinforce existing inequalities. Hence, a bottom-up approach is important in formulating the needs of the target group.

Thirdly, it was found that many people working in technology related industries felt that the challenges they faced were not necessarily gender specific, even if at times affecting women in particular. Hence, there is a need to clarify the imperative of having diversity in the workforce and to open up the field to wider audiences. Finally, inclusion strategies to empower women need to be normalised and integrated into an organisation's philosophy. As the WITI case study showed convincingly, most inclusion initiatives are organized by and are dependent on volunteer work by women who are often already overburdened. This makes these strategies vulnerable. Hence, it is necessary to make wider connections that engage key stakeholders, i.e. employers, recruiters or other institutions. Moreover, involving key stakeholders may give standing to the initiative, as the involvement of a well-regarded organisation like the ICA (The Institute of Contemporary Arts in London) gave importance to the exhibition described in the Untold case study. At the same time, the organisations or institutions selected to support the initiatives do need to be chosen carefully, as it was found in both the Untold and WOW designer cases that the independence of the organisation was an attraction for their members.

6.5. Guidelines to empower female designers

The core elements needed to make IT and New Media more inclusive have helped formulate specific guidelines for inclusion strategies based on best practice found in SIGIS case studies.

- It is important to distinguish and address individually what are perhaps the more tangible barriers to women's participation in the field, such as structural barriers, (e.g. work/life balance), the gendered work cultures and the problems of women's perceived incompetence. This means that initiatives need to address issues that appear to disadvantage women at a practical level (childcare, better access to finance for women to set up digital design agencies), whilst not neglecting the importance of building confidence, providing inspiration and building female friendly networks and spaces to challenge stereotypes.
- Networks, visibility and education are all critical to achieving gender inclusion and are all forms of empowerment.
- Empowerment strategies offer a good way to address the tensions emerging from gender inclusion through the judicious use of women friendly spaces open also to men.
- Effective empowerment strategies need to be relevant and aware of the needs of target users: strategies that are 'talking to me' and 'listening to me'. This is more than the 'I-methodology' in strategy design. It is about responding to the needs and wants of the users.
- The empowerment of women in IT and New Media needs to be endorsed at industry and company level, as well as by individuals themselves. There is a need for widespread support, which goes beyond volunteer initiatives and work of individual women.

Chapter 7. Conclusions

Els Rommes and Wendy Faulkner

This report involves the development and use of ICT products - including ICT-based services- geared towards diverse female audiences. These products are often produced and marketed by commercial actors, but in some cases voluntary and non-commercial organizations can also be the driving forces. The central questions related to this domain of inclusion strategies are 'what are characteristics of ICT products that are appealing for female audiences?' and 'how can the design of these product enhance the further inclusion of women in the Information Society?' Starting from these questions, several case studies on product development and use were compared and analyzed. In our studies, we have not only analyzed products geared at 'women only', but also explicitly chose to study ICT products geared towards 'everybody, including women'. This report presents the results of this analysis and aims to advise designers in commercial organizations and practitioner communities on the various inclusion strategies that they can use.

How can ICT products help in recruiting or socializing people into the Information Society? By using products, people may gain knowledge, skills and above all the self-confidence that may be useful for their engagements in other parts of the Information Society. However, giving women access to various products is in itself not enough to ensure inclusion in the Information Society. Traditional inclusion strategies for including women and other relatively excluded groups, such as providing access to the technology and the skills required to operate it, though important, are not necessarily sufficient to ensure effective inclusion. There is also the question of whether their use offers real and direct advantage for women. Our research suggests that the exclusion of many women from the Information Society is not just a problem of women not having access to technology or skills with ICTs, but is also a matter of there not being enough interesting or useful applications for women. This is why developing new products and services is such a crucial inclusion strategy.

What are the characteristics of products that are appealing for female audiences and that help include them in the Information Society? Based on best practices found in the SIGIS case studies, we have formulated guidelines for successful strategies that contain the core elements needed to make ICTs more inclusive for women. In the introduction,

we distinguished five types of inclusion strategies, which have been dealt with in the previous chapters:

- Providing platforms for informal learning
- Creating feminine virtual spaces to enhance self-inclusion
- Using fun to attract women
- Developing gender sensitive design methodologies
- Empowering female designers

The specific conclusions for each of these inclusion strategies can be found in each chapter. These chapters are specifically geared towards designers of commercial webmagazines, producers of webcommunities, designers of games, designers who need to know more about design methodologies and policy makers that want to know more about how to include and empower female designers. In this chapter, some general conclusions will be drawn based on the previous chapters.

The 'co-construction' framework, which was introduced in chapter 1, suggests that strategies which succeed in improving gender inclusion in the Information Society necessarily do create shifts in the 'meaning' of both masculinity/femininity and ICTs, even though the emphasis may be more on one or other of these elements (and even though people's accounts may change more slowly than people's practices). Hence, the following questions need to be answered: What women do the strategies discussed in this report reach? What is their potential for changing gender stereotypes? And with what products can women best be reached?

7.1.   Plural genders: one size does not fit all

Although the inclusion of men and masculinities in the Information Society have been taken into account in the SIGIS research, women and femininities have been the target following the conclusions from our initial statistical and literature analysis which showed that women's position in the Information Society is in several respects still problematic. But which women have we looked at?

As all the chapters in this report have made clear, there is a clear danger of trying to include 'women' in general, as this means essentializing women. Gender essentialism occurs when gender categories are treated as a homogeneous category, with the implication that all women (or conversely all men) are necessarily the same and share the same femininity/masculinity. The critique of gender essentialism is

empirical: we only have to look around to see the huge variety of 'women' and of ways of being women – hence the plural femininities (and, by the same logic, masculinities). One obvious source of variety, amongst men and women, is social location – where people live, where they work, where they are in family relationships, and so on, as well as age, class, ethnicity. For all of us, such defining features 'intersect' in complex ways such that our identities are multifaceted and change over time. Moreover, our research has repeatedly confirmed that distinctions of age, ethnicity, class and gender do not map in any straightforward way onto inclusion in the Information Society. ICT use and competence also intersect with these categories such that not all women are excluded from the Information Society and not all are excluded in the same way – even when they are within broadly the same social group. And not all men are included in the Information Society.

In short, genders are plural and fluid rather than essential and fixed. This is an important rationale behind the present day emphasis on 'diversity' politics. But the emphasis on diversity must not blind us to issues around which many women have common experiences, especially where gender inequality is commonly experienced. This after all is the rationale for gender inclusion policies. Indeed, several strategies we studied explicitly targeted 'all women'. Other strategies targeted 'everyone including women' but had the inclusion of women as a 'de facto' outcome.

7.1.1. Tailor to target audiences

A crucial implication of gender diversity is that there never can be a single 'cure all' strategy for improving gender equality, including gender inclusion in the Information Society. Rather, multiple, diverse strategies are needed, targeted on different groups in different settings. Indeed, the inclusion strategies studied in the SIGIS project that targeted 'particular groups of women' or 'particular groups including women' seem to have been most successful in reaching their aims. A range of groups and settings was targeted in these strategies – game playing children, teenage girls, university students, unemployed women, women working in ICTs, people living in rural communities, teachers, patient groups, mobile phone users, and so on. One of the main general conclusions we can draw is that strategies are more successful the better they take the specificities of the target group into account. Hence, designers of projects or products for women need to be aware of the following points:

- Awareness is needed of which groups are excluded from the Information Society and why, how to reach them and what each group's needs and interests are. After all, the 'female audience' is not a fixed or universal category, but highly variable with respect to its interests (e.g. genres or categories of content), technical interests, capabilities and experience, locations and social network.

- It is important to identify and define the target audience and its interests, contexts of use and capabilities. Effective services or products identify and target the issues of relevance and interest in their range (genres) of content or sets of functions/applications. An initial assessment of the target group's context of use (e.g. individual householders or users located in a more social setting) is also required to inform the overall design of the project (i.e. its technical features, interface and content). And it is important to make an initial assessment of the technical competencies of the target audience.

- Both strategies 'for women only' and strategies targeted on mixed groups can be effective in including women in the Information Society. However, inclusion strategies should be reasonably targeted, and not be cast too broadly; effective tailoring is necessary if inclusion efforts are to succeed in reaching the target excluded social groups and locations. 'For everybody' and 'for all women' strategies simply cannot work for everybody or for all women.

- Even when a specific group is targeted, within each apparently homogeneous group, differences in ICT interest, confidence and skill need to be accommodated. The most successful cases suggest that the design of the entry-points or interfaces should address (be useable by) those with the lowest levels of technical competence amongst the target user groups, especially if these are isolated, individual users (e.g. in the home).

- There are many reasons why designers do not tailor their products (sufficiently) for their target end-users, i.e. because they use themselves as exemplars for the users (the I-methodology), despite their differences from actual intended users, because research on end-users does not get high priority, because methods to find representative end-users are not developed enough or because they try to satisfy their sponsors instead of the end-users. It seems that the traditional images reflected in commercial products aimed at women are not

necessarily what women want but what designers think the sponsors want.

7.2. Addressing women; transforming stereotypes

In each case study we found that the task of deciding how to address women is a genuine problem for designers and policy makers. We found that designers often sought to resolve this problem of representing diverse intended users by simplifying the target user and appealing to gender stereotypes, even when diversity and complexity is recognized. All the web magazines and some of the game designs, for example, played on rather stereotyped notions of what girls and women like, i.e. by extensively using the colour pink and focussing the content on fashion and beauty-issues.

Often gender essentialist assumptions are couched, implicitly or explicitly, in terms of stereotypical gender binaries. Two common examples emerged in many of our case studies. Boys and men are deemed more likely to have fun with computers where girls and women are deemed to use them more instrumentally as tools not toys. And girls and women are deemed to be more interested and gifted in communication and social interaction where boys and men are deemed to be more interested and gifted in the narrowly technical aspects of computing. Such gender binaries have two very significant features. First, they are usually framed as if dichotomous or mutually exclusive: the 'masculine' side is, by definition, not 'feminine' and vice versa. Thus, the nerd stereotype says you cannot be into being technical and being social. Second, there is usually a hierarchy implicit, in which the 'masculine' side of the binary is valued over the 'feminine' side – hence the downplaying of the computing skills of computer enthusiastic girls. In these two ways, many gender stereotypes appear to 'naturalise' gender inequality: e.g., girls don't do technology because they are more interested in people.

As with other forms of gender essentialism, gender binaries can be challenged empirically. There are always counter examples – like the computer enthusiastic girls and computer reticent men – precisely because there are always significant differences amongst men and amongst women. Moreover, people's accounts of themselves (or others) are often more sharply gender differentiated than their actions. For example, the computer enthusiast girls studied at the Gathering computer party in Norway are seen (and see themselves) as 'just users' or 'chatters' where 'programming' and 'games playing' are seen as what boys and men do, and are valued more highly. Our observations,

however, showed an equal amount of attention given to these functions by both boys and girls.

7.2.1. Strategies to avoid binaries

Because gender binaries and stereotypes do not 'capture' real women and men, strategies based on essentialist notions about (presumed) gender differences can be counter productive. Such strategies fail to speak to the complexity of 'real' people and their lives. The most successful parts of women's web magazines were for example not the targeted 'information for women' sections, which were based on stereotypes such as that women are interested in fashion and beauty. Rather, the interactive parts of the site were succesful, in which women addressed each other's personal and complex lives and situations. Moreover, strategies based on stereotypes fail to speak to those many people who are different from the stereotypes – as we saw in the computer enthusiast women who felt excluded from the Norwegian university campaign to get more women into computer science (Squares and Circles) and in the Kidcom case study, where girls clearly stated that they did not to want to play with 'pink' toys. And even if such stereotyping strategies are effective in the short term, these same strategies can act to ghettoize women or reinforce gender inequality, precisely by mobilizing gender stereotypes. Hence, they may contribute to gender inequality by virtue of having 'taken as natural' pre-existing essentialist understandings of gender. There are, however, also some advantages to embracing gender stereotypes and binaries. Strategies, which embrace gender essentialisms by appealing to stereotypical understandings of 'women and ICT' can prove to be a reasonably effective means of engaging women, especially in the short run. Moreover, they can serve to validate women's perceived interests and practices.

All in all, the more effective strategies will combine the engagement of women (and girls), by adopting some simplifying understandings of gender, with efforts to move beyond or 'destabilise' other gender stereotypes which are particularly outdated, iniquitous or which palpably fail to acknowledge variety amongst 'real' people. Gender binaries and stereotypes around ICT have been challenged along these lines in some of the strategies we studied. For example, the ITBeat strategy challenged the dichotomous nature of a key gender binary by creating space in which teenage girls can have fun with computers in the context of their (otherwise strongly gendered) interest in 'boy bands' and pop culture. In this way, it not only challenges the equation

of masculinity and fun with technology, it also says you can be a girl in stereotypically feminine ways (liking boy bands) and in stereotypically masculine ways (having fun with computers); the two are not mutually exclusive. Many strategies we studied, however, revealed a real tension between embracing essentialist understandings of gender, for example to engage otherwise excluded groups of women, and challenging them. The following steps can be taken if designers want to address women without resorting solely to stereotypes:

- If the design needs to start from an explicit gender perspective, do not apply a dichotomous and fixed gender perspective but rather start with established interests of the target group, i.e. enthusiasm for horses or pop-bands.

- Products do not need to be 'labelled' with gender (e.g. pink web site with fashion as content). This is likely to exclude more users than it includes. Products that combine masculine and feminine stereotypes are more likely to be successful.

- Counter stereotypes by involving 'real' women in the design process, i.e. female designers or end-users. This can be stimulated by measures to:

    - Involve more female designers in decision-making positions in the design process. Hence, address the more tangible barriers to women's participation as designers, such as structural barriers, (e.g. work/life balance) or gendered work cultures (e.g. old boys networks). Initiatives need to address issues that appear to disadvantage women at a practical level (childcare, better access to finance for women to set up digital design agencies), whilst not neglecting the importance of building female confidence and female friendly networks and spaces.

    - Empower female designers who are involved in the design process, e.g. by creating networks of female designers, by increasing their visibility and the visibility of their works and by providing targeted training sessions focussed on their needs. If the I-methodology is used in the design process, use it in a reflective way that examines differences in the experience and situation of designers and their target audiences.

    - Designers need to find ways in which to empower the position of end-users, for example by involving potential users in the design process from an early point on. Make

sure that the potential users that are involved are representative of the target audience they intend to reach. Interactive media offer particular opportunities here, particularly in relation to ICT-based services.

- Make the products and services flexible and open to alterations in line with the user's diverse preferences and interests. This is also a way to show potential users the vast possibilities for use and users, and thus contributing to deconstruct the binary images of gendered ICT practices.

7.3. Products to empower women

The question regarding which services or products need to be developed in order to reach women is directly related to the question of why women need to be reached? In this report, we have looked at products and projects developed both by companies and by voluntary organizations. Commercial actors and voluntary organizations each have their own reasons for wanting to include women, reasons that may differ from the interest women themselves have in being included in the Information Society.

Why should women themselves want to be included in the Information Society? Why would it be a problem if women do not play (predominantly violent) computer games or if women do not choose a career as programmer? Including people in the Information Society only makes sense when there are some clear advantages to be had with this inclusion. Fortunately, we found many products and projects that offer real advantages for women. In chapter 2 and 4, we have shown that women want and appreciate fun and pleasure just as much as men and that games and web magazines are important products to give this to women. And in chapter 6 we showed that a career in ICT may be relevant for women in order to earn money, get social status, have an enjoyable career and influence the design of ICTs around us. In chapter 2 and 3 we have shown how relevant interaction platforms are for empowering women in their everyday life. By exchanging experiences and communicating with other women in similar positions, women gain self-confidence and feel more independent and empowered in everyday life. Moreover, by exchanging experiences, women address and challenge stereotypes about men, women and technology. And new forms of knowledge, based on combining external information sources with personal experiences, are facilitated, forms of knowledge that may alter traditional power relations e.g. between doctor and patient or between (male) programmers and (female) users.

There are additional reasons to develop products that reach women from the perspective of companies and (voluntary) organizations. Companies that targeted or reached women, even if this happened by accident, found themselves in interesting niche-markets. New markets emerged because new products could be sold, as was e.g. the case with several interactive products, because old products were sold to new groups of users, as happened for example with several electronic games, or because new groups of advertisers became interested, e.g. when web magazines became popular. Hence, our finding that companies often overlook (certain groups of) women as target users, especially in stereotypical male fields such as computers and electronic games, is generally to their own disadvantage. Some voluntary initiatives had targets for which ICT proved to be a very useful tool, such as supporting women with a disease or bringing feminist initiatives together (e.g. Lupus, Women's Square). Other initiatives had inclusion of women in the Information Society as their explicit target, e.g. initiatives that aimed to empower female designers (e.g. WITI, ITBeat), or that wanted to include and support women in the Information Society in general (e.g. The Gathering, WOW). For all these voluntary organizations, ICTs turned out to be relevant in empowering women by improving the life circumstances of groups of women, by creating networks and by taking joint political action.

All in all, 'inclusion in the Information Society' is about more than learning the skills to use computers, to play Internet games and to use mobile phones. It is even about more then about becoming a designer of ICTs. Being included in the Information Society is about improving the usability, the attractiveness, the relevance of ICT products (and services) for diverse groups in society – and in this way encouraging those groups to appropriate the technology and benefit from its use. In order to achieve this, however, several changes in ICTs need to be made. From the best practices we found in the case studies, we have learned that the most successful inclusion strategies can be profitable for companies, can lead to joint action for the empowerment of groups of women and can improve the lives of the individual women that are included. These 'best practices' lead to the following recommendations for developing products for the inclusion of women:

- ICTs can be used to empower women, either as user or as designer of ICTs. Empowering women can be done by creating interactive platforms in websites where users can informally learn from each other, by encouraging communities of game players where users can give feedback to the designers about the features of the product and by founding platforms for female

designers where group actions to improve circumstances can be started.

- At an individual level, having more fun, gaining self-confidence, and feeling more independent and empowered are all valid outcomes of gender inclusive projects and products.

- Empowering women at an individual or at a group-level can be encouraged by creating, developing and supporting websites where a feminine space for public communication is developed or in which content considered of interest by women is given. Most effective are interactive spaces on the Internet, through which new kinds of knowledge - based simultaneously on information, experience and experimentation - can be co-produced and shared by women themselves.

- It is crucial to identify and define what kinds or levels of 'inclusion' the project is intended to promote ('inclusion in what'). For example, is it intended to recruit and maintain the target audience as basic users of ICT-based on-line services, is the goal to promote more sophisticated mastery of ICT, or is ICT a tool to reach another goal? The answer to this question may lead to various amounts of attention given to technological parts of the site, the way the technology is hidden or brought out and the extend to which informal learning is facilitated.

7.4. Concluding remarks

In our statistical and literature overviews, we have shown that inclusion of women in the Information Society remains problematic and that these problems will not disappear by themselves. Real inclusion work is needed. We have, however, also shown that there are wide varieties of interesting and successful inclusion initiatives underway in various European countries. SIGIS research offers opportunities to learn from these initiatives and to facilitate more (effective) inclusion strategies. For example, we found that one of the main reasons why some of the successful initiatives to include women in the end are discontinued is because they are not embedded well enough in existing markets, and within companies, government organizations and voluntary groups. Stand-alone ICT inclusion projects are vulnerable, particularly if dependent on the voluntary efforts of individuals; hence project initiators might be well advised to develop alliances or networking links with existing media products, audiences, organizations and companies.

Perhaps even more importantly, we found hardly any social learning between initiatives. Although we found a wealth of projects, new products and experiences, in many cases there was little evidence of connections between projects, let alone sharing of experiences. Where networks had become established and achieved some salience, they seemed effective in promoting longer-term cultural and institutional changes. One implication is that the outcomes of inclusion efforts need to be widely disseminated to improve social learning. However, previous research has shown the relevance of not only just mimicking previous initiatives, but also analyzing why and how they were effective for particular groups, for particular purposes and in particular contexts. Often, strategies need to be transformed to make them workable elsewhere, in different contexts.[55]

Hence, the analysis done in SIGIS case studies and reports not just recounts experiences, but also analyzes how, why and in what sense inclusion initiatives were successful. We hope that the descriptions of the various inclusion initiatives the SIGIS researchers studied could be an important resource in this respect.

- Inclusion initiatives and products need to be firmly embedded within existing organizations to reduce their vulnerability and dependence on the voluntary efforts of individuals.

- Initiators and designers hardly learn of each other's experiences. Disseminating case studies of inclusion initiatives widely may help in making future initiatives more inclusive for women.

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Appendix 1

This is a list of all SIGIS case studies used in this report. They are mentioned in alphabetical order. All these case studies can be downloaded from www.sigis-ist.org. Page numbers behind the titles refer to boxes where the highlights of the most frequently used case studies can be found.

1. Boys and Girls stay in to play (designer case) – box on page 57
Author: James Stewart, University of Edinburgh, Great Britain.
This case study tells the story of a small firm of designers and artists that creates and sells creative interactive computer-based products to publishers and other intermediaries in the market (http://www.rcss.ed.ac.uk/sigis/public/displaydoc/full/D04_2.09_UEDIN3)

2. Donna Moderna (designer case) - box on page 19
Author: Leopoldina Fortunati, Studio Metis, Italy.
A case study of a women's weekly, Donna Moderna, which is the most widely read women's weekly in Italy. The case assesses if and to what extent this webmagazine acted as a driving force in giving women access to and use of the New Technology.
http://www.rcss.ed.ac.uk/sigis/public/displaydoc/full/D04_2.10_METIS1

3. Donna Moderna (user case) - box on page 19
Author: Leopoldina Fortunati, Studio Metis, Italy.
This case study investigates, from the user's point of view, the effectiveness of the strategy for the inclusion of women in the Information society promoted by the women's weekly Donna Moderna. (http://www.rcss.ed.ac.uk/sigis/public/displaydoc/full/D05_2.09_METIS1)

4. eVenos (designer case) - box on page 31
Author: Carol MacKeogh, Dublin City University, Ireland
eVenos is a women's online magazine that was set up by a private publishing company. eVenos hosts a vibrant discussion board which may be considered an initiative to create gender inclusion due to its fairly unique female ethos.
(http://www.rcss.ed.ac.uk/sigis/public/displaydoc/full/D04_2.14_DCU2)

5. eVenos (user case) - box on page 31

Author: Carol MacKeogh and Barbara O'Connor, Dublin City University, Ireland

This case study follows on from the eVenos designer case-study. This case looks at the discussion board of a women's online magazine, which is regarded as a key impetus in introducing women to an interactive role online.

(http://www.rcss.ed.ac.uk/sigis/public/displaydoc/full/D05_2.07_DCU2)

6. Femme (designer case) - box on page 22

Author: Kristin Hestflått, Norwegian University of Science and Technology, Norway.

This case-study focuses on how producers of web magazines use different strategies of inclusion to provide users/readers.

(http://www.rcss.ed.ac.uk/sigis/public/displaydoc/full/D04_2.02_NTNU2)

7. Fun (designer case) - box on page 45

Author: Aphra Kerr, Dublin City University, Ireland

This case-study examines four inclusion stories which to varying degrees encouraged women to participate in a cultural activity which has traditionally been seen as a male dominated activity, i.e., playing digital games.

(http://www.rcss.ed.ac.uk/sigis/public/displaydoc/full/D05_2.08_DCU3)

8. ITBeat (designer case) - box on page 42

Author: Lisa Pitt, University of Edinburgh, Great Britain

This case study presents an innovative inclusion strategy, IT Beat, aimed at changing young girls' perception of IT and building their computer skills. Special consideration is given to the key motivations behind the initiative as well as its particular features.

(http://www.rcss.ed.ac.uk/sigis/public/displaydoc/full/D04_2.07_UEDIN1)

9. ITBeat (user case) - box on page 42

Author: Lisa Pitt, University of Edinburgh, Great Britain

This case study follows on from the ITBeat designer case and focuses specifically on the ITBeat party, at which around 250 young girls were present, and therefore explores the user experience of the ITBeat inclusion strategy.

(http://www.rcss.ed.ac.uk/sigis/public/displaydoc/full/D05_2.01_UEDIN1)

10. Kidcom (designer case) - box on page 53

Authors: Els Rommes, Marcelle Stienstra, Nelly Oudshoorn, University of Twente, The Netherlands.
This is a study of the design of an electronic device aimed at children, and the attempts of a large company to include girls in the design process.
(http://www.rcss.ed.ac.uk/sigis/public/displaydoc/full/D04_2.06_TWENTE)

11. Libelle (designer case) - box on page 16
Author: Irma van Slooten, University of Twente, The Netherlands.
This case investigates the design strategies of the website of the Dutch women's magazine Libelle and tries to understand the success of the site.
(http://www.rcss.ed.ac.uk/sigis/public/displaydoc/full/D04_2.05_TWENTE)

12. Lupus (user case) - box on page 29
Author: Leopoldina Fortunati, Studio Metis, Italy.
This case study investigates, from the user's point of view, the effectiveness of the strategy for the inclusion of women in the information society promoted by the site www.Lupus.it, a site mainly aimed at women.
(http://www.rcss.ed.ac.uk/sigis/public/displaydoc/full/D05_2.10_METIS2)

13. Squares and circles (designer case)
Author: Vivian Berg, Norwegian University of Science and Technology, Norway.
This case study deals with an initiative intended to increase the number of female students in a computer engineering programme.
(http://www.rcss.ed.ac.uk/sigis/public/displaydoc/full/D03_2.03_NTNU3)

14. The Gathering (designer case) - box on page 39
Author: Hege Nordli, Norwegian University of Science and Technology, Norway.
This case-study analyses the computer party 'The Gathering' in terms of a strategy of gender inclusion.
(http://www.rcss.ed.ac.uk/sigis/public/displaydoc/full/D04_2.01_NTNU1)

15. The Gathering (user case) - box on page 39
Author: Hege Nordli, Norwegian University of Science and Technology, Norway.

This case-study follows on from the Gathering designer case-study and analyses the experiences of users of the computer party 'The Gathering'.
(http://www.rcss.ed.ac.uk/sigis/public/displaydoc/full/D05_2.12_NTNU1)

16. The Gender Game (designer case) - box on page 51
Authors: Helen Jøsok Gansmo, Hege Nordli and Knut H. Sørensen, Norwegian University of Science and Technology, Norway.
This case study investigates the thinking behind design of computer games design in four companies.
(http://www.rcss.ed.ac.uk/sigis/public/displaydoc/full/D04_2.03_NTNU3)

17. The pupils case (user case)
Author: Helen Jøsok Gansmo, Norwegian University of Science and Technology, Norway.
This case looks at how pupils in Norwegian secondary schools use and think about computers and computer users in their school and every day lives.
(http://www.rcss.ed.ac.uk/sigis/public/displaydoc/full/D05_2.13_NTNU2)

18. The Work up case study (designer case)
Author: Leopoldina Fortunati, Studio Metis, Italy.
This case study analyses Work up, a high tech new economy company that was created and is run by a female electronics engineer, and which employs 40% women.
(http://www.rcss.ed.ac.uk/sigis/public/displaydoc/full/D04_2.11_METIS2)

19. TILAB (designer case)
Author: Leopoldina Fortunati, Anna Maria Manganelli, Studio Metis, Italy.
This case study deals with the strategies of inclusion in the transition-process from the GSM to the UMTS (a third-generation mobile phone).
(http://www.rcss.ed.ac.uk/sigis/public/displaydoc/full/D04_2.12_METIS3)

20. Untold (designer case) - box on page 66
Author: Lisa Pitt, University of Edinburgh, Great Britain
This report describes the work of Untold, a group based in the UK, offering female digital designers a platform to showcase their work and share experiences of working in the field.
(http://www.rcss.ed.ac.uk/sigis/public/displaydoc/full/D04_2.08_UEDIN2)

21. Untold (user case) - box on page 66
Author: Lisa Pitt, University of Edinburgh, Great Britain

This case study follows on from the Untold designer case. The Untold initiative was devised to support female digital designers. This case study focuses specifically on the Untold users and participants, in order to find out about their experience of working in digital design and how this maps against the activities of Untold.
(http://www.rcss.ed.ac.uk/sigis/public/displaydoc/full/D05_2.03_UEDIN3)

22. WITI (designer case) - box on page 62
Author: Carol MacKeoght, Dublin City University, Ireland
This case study provides an insight in the Irish branch of WITI an organisation to support women in technology (WITI).
(http://www.rcss.ed.ac.uk/sigis/public/displaydoc/full/D04_2.13_DCU1)

23. WITI (user case) - box on page 62
Author: Lisa Pitt, University of Edinburgh, Great Britain
The case study provides an insight into the user experience in the UK of an organisation to support women in technology (WITI).
(http://www.rcss.ed.ac.uk/sigis/public/displaydoc/full/D05_2.02_UEDIN2)

24. Women in Computing (designer case)
Author: Vivian A. Lagesen, Norwegian University of Science and Technology, Norway.
This case-study investigates the 'Women and computing initiative' at NTNU. This initiative is a quite large, successful and rather broad-spectrum inclusion initiative, aimed to get more women to study computer science.
(http://www.rcss.ed.ac.uk/sigis/public/displaydoc/full/D05_2.14_NTNU3)

25. Women's Square (designer case)
Author: Els Rommes, University of Twente, The Netherlands.
This case-study is about the design the 'Women's Square' is a location on the Internet where information from and for a wide range of women's organizations in the Netherlands is gathered.
(http://www.rcss.ed.ac.uk/sigis/public/displaydoc/full/D03_2.06_TWENTE3)

26. WOW (designer case) - box on page 14
Author: Irma van Slooten and Els Rommes, University of Twente, The Netherlands.
This case investigates the inclusion strategies used by the Dutch branch of the Webgrrls, Women on the Web, The Netherlands.
(http://www.rcss.ed.ac.uk/sigis/public/displaydoc/full/D04_2.04_TWENTE)

27. WOW (user case) - box on page 14

Author: Els Rommes and Irma van Slooten, University of Twente, The Netherlands.
This case study follows on from the designer case-study on WOW. It investigates the users of Women on the Web. (http://www.rcss.ed.ac.uk/sigis/public/displaydoc/full/D05_2.17_TWENTE2)

Notes

[1] Http://www.cordis.lu/ist/about/vision.htm

[2] Sørensen and Steward 2002

[3] www.sigis-ist.org[0]

[4] Sørensen 2003, Gender and Inclusion Policies for the Information Society

[5] Some core publications in the domain of gender and technology are Cockburn 1985, Wajcman 1991, Cockburn and Ormrod 1993

[6] http://www.rcss.ed.ac.uk/sigis/public/deliverables/

[7] Sørensen 2003, Gender and Inclusion Policies for the Information Society

[8] Ibid

[9] The editors are responsible for the contents of these boxes

[10] See for a recent overview Philbin et.al, 1995 and Ingleton, 1995

[11] See for example Choo and Bontis, 2002

[12] Williams et al, 2004

[13] Moran and Hawisher, 1998; Collis and Meeuwsen, 1999; Livingstone, 2002; French *et al* 1999

[14] See for example Rommes, 2002b

[15] Herring, 1994

[16] See also Schultz 1999

[17] Oldenziel, R. 1999

[18] ISC 2000

[19] Wyatt et al, in Woolgar 2003

[20] Nettleton in Woolgar 2003

[21] Tannen, 1992

[22] Wyatt, 2002

[23] Wellman 2002, Katz and Rice 2003, Rice and Katz 2001

[24] Smith and Kollock 1999

[25] Sørensen, 2002a

[26] Berg, 1996, Pinch and Bijker, 1987

[27] Henwood and Wyatt, 2000

[28] For further information on the design methodology, see also Chapter 5

[29] Rommes, Stienstra, and Oudshoorn, 2002

[30] The term 'gender cross-over design' is develop by Stienstra, 2003

[31] Silverstone 1999, Lie & Sørensen, 1996

[32] See also chapters 2 and 3

[33] See also the 'twin' report on policies, Sørensen 2004

[34] Preston and MacKeogh, 2003

[35] This seems to be a more general problem, Ruth Oldenziel concluded after having studied gender in the history of technology that 'in many cases, inventors-entrepreneurs only accidentally discovered a new mass-market of women', Oldenziel, 1998

[36] However, the public sector may not do much better in taking their potential users into account. As a case study in Italy shows, previously, 'great state companies (…) were very reluctant to become customer-oriented, because of this monopolistic role they had.' 'They counted on the fact that people would adapt. (…) If the planning had been done badly (…) because they did not really have a clear idea who the particular technology was aimed at, (…) well, [users] were forced to use it anyway, just as it was: there was no alternative' (Donna Moderna)

[37] These findings are confirmed by similar research in the game industry in the US. This research indicates that the market for girls and women is mostly been targeted by small companies, often run by feminist entrepreneurs, or by design-teams that more or less by accident discover that their product might be particularly suitable for women, Cassell & Jenkins, 1998

[38] Akrich, 1995

[39] Rommes, 2002a

[40] Cassell & Jenkins, 1998

[41] Shade, 2000, Berg, 2002, Spilker, 2002

[42] ''The initiative to start 'Women and Computing' was taken (…) by the newly elected prorector Rigmor Austgulen, a professor in medicine and a feminist.' And the reason a British public department subsidized the ITBeat project appeared to be the result of the 'secretary of state having both the role of the minister responsible for technology, telecommunications and so on, and also being the minister for women in this country, so she places high priority on women'

[43] Rommes, 2002c

[44] (Interaction) designers may draw on an extensive body of literature on how to find out what users like or want e.g. by using marketing and human computer interaction techniques (see e.g. Kotler, 1994; Nielsen, 1993; 'Special Issue on Participatory Design,' 1993). In some projects that were studied, these techniques were, indeed, employed (ITBeat, Kidcom)

[45] Recent studies of design cultures in ICT companies in Europe show similar findings: users seem hardly to be involved in the design process, especially in the smaller ICT companies (European & Commission, 1998)

[46] This is a more common finding: in practice many user studies are done with groups of professionals (often software engineers) (Pain, Owen, Franklin, & Green, 1993: 20). Similar phenomena in the selection of test-users have been studied in the testing of new drugs in health care (Epstein, 1996)

[47] Lindsay in boek Nelly

[48] Sørensen 2004, Sørensen and Stewart 2002

[49] Sørensen and Stewart 2002

[50] Slooten, Rommes, & Faulkner, forthcoming

[51] See also Gamba and Kleiner, 2001

[52] Especially Untold, WITI, Women in Computing, as well as Women's Square and the WOW designer and user case

[53] WWW-ICT 2002

[54] Slooten, Rommes, and Faulkner, forthcoming

[55] Williams, Stewart, and Slack, 2003