

Gendered User-Representations

Design of a Digital City

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Abstract: To explain why there were so few female users of the first digital city (DDS) in the Netherlands, a close analysis of the design-process and the re-design of a new interface is made. Policy-makers, financiers, and designers made the design-choices. Each group created their own, often unconscious, representations of which the users of DDS would be. These user-representations influenced the choices policy-makers and designers made and the amount of influence users received in the process. Because the policy-makers and the designers of DDS were masculine groups, a new interface was developed with more masculine connotations. The study of the often complicated and contradictory processes in which user-representations are created and which become dominant during the design-process, may be a useful way of finding ways in which more female-friendly designs of ICT can be developed.

1. INTRODUCTION

Women on the Internet are under-represented in the Netherlands. Women's lack of interest in technology in general, and more specifically in computers is often mentioned as a cause. In this article technology itself will stand trial: What explanations for the under-representation of women on the Internet can be found when the genderedness of the design-process and the resulting interface of Information and Communication Technology (ICT) is studied?

The term for the connection between design-process, the resulting interface and the number of male and female users, which are attracted, is 'user-representations.' According to Akrich [1] representations which designers make of users are incorporated into a technological artefact and become part of the 'script' of the technology. Scripts attribute and delegate

competencies, actions and responsibilities to the users of the technology, thus influencing who the users of the technology will and can be. When these scripts reveal a gendered pattern, we can call them gender scripts [6, 7]. Following this line of thought, the lack of female users of ICT may be explained by gendered user-representations created during the design-process. Designers of ICT learn to use explicit user-representation techniques, such as surveys or testing software on users to make user-representations. However, studies of the design of ICT indicate that user-representations are often made unconsciously. The resulting implicit representation can be formed with the ‘I-methodology.’ Designers see themselves as representative of the users [1, 7, 10]. As most software-designers are male, this may explain the low number of female ICT users.

While designers, or “innovators” [2], are studied most often in social-constructivist studies of the design of new technology, they are not the only group involved. Policy-makers are also relevant because they are involved in the design-process by making plans and policy, as are the financiers of a project. Financiers could influence the policy and user-representations through the terms they used for the granting of money for a project. The question of which user-representations had the most influence on the design of an interface is at the same time the question of which group became dominant during the design-process.

This article studies the creation of user-representations during the design-process of ICT and the effect they have on the choices made in the development of an ICT-system. This is done with the help of a case study of the first digital city in the Netherlands: De Digitale Stad (DDS), which will be introduced in the next section. Two major questions are asked: Which gendered user-representations are formed during the design-process, and how did they influence design-choices?

2. INTRODUCTION OF THE CASE: THE DIGITAL CITY

The Internet is an important new technology, however, it is difficult to study as a whole. Therefore, a small part of the Internet is selected with an identifiable design- and use-context. This is De Digitale Stad (DDS), the first digital city in the Netherlands. Digital cities are locally bound information- and communication-systems on the Internet. The founders and designers of DDS were from the hackers organization ‘Hacktic-network’ and a cultural and political platform in Amsterdam called ‘De Balie,’ in close cooperation with the Municipality of Amsterdam. The user-profile of DDS is available

because new users need to fill out a form in order to become ‘inhabitants’ of DDS.

As a case, DDS is interesting because one of the major reasons for its creation was to open up the Internet to broad public participation. To achieve this, the founders offered inhabitants of DDS free access to the Internet and an e-mail account. Moreover, they tried to make a user-friendly interface. Because the Internet at that time operated mainly with textual tree-structured menus, they did this by using the city-metaphor rather than Internet-terminology in the menus. Inhabitants could use e-mail at the ‘post-office,’ visit the Internet by going to the ‘railway station,’ and get information about the municipality at the digital ‘city-hall.’ Last but not least, as search-engines were not yet common, DDS was an important information source about Amsterdam at one locality. The period of time, which is discussed, is January 1994, when DDS was opened, until October 1994, when the second interface of DDS, DDS 2.0, a graphic interface, was introduced.

In spite of the founding goals of DDS, in the first year of its existence, inhabitants were far from “everybody.” Only nine percent of the inhabitants were women. Policy-makers and designers were aware of this because a user-survey was held after the introduction of the first interface. The survey influenced the design-process in two ways. First, it influenced their way of looking at which users they wanted to have in the future. In other words, it influenced the user-representations of policy-makers and designers during the re-design of DDS. Second, it affected users ability to participate in the design-process.

3. USER-REPRESENTATIONS BY THE POLICY-MAKERS AND FINANCIERS

To study the user-representations from the standpoints of policy-makers and financiers, the documents developed before and after the opening of DDS were examined. In documents made by DDS policy-makers and financiers of the Municipality of Amsterdam, user-representations are explicit. DDS was meant to “make knowledge accessible to a broad public-group” [16] and DDS would become “extremely user-friendly so that even computer-illiterates could participate” [14]. Moreover, documents suggest that ‘everybody’ should participate in building DDS. So their user-representations were very broad, and even included computer-illiterates. In their documents, they connected these representations directly to the interface, as they wanted to make it user-friendly.

If these first user-representations are compared with the users DDS managed to attract, DDS would probably have been described as a failure.

DDS drew a one-sided population of young, highly educated, white males. And although 20% of these users had no prior experience with computer-networks, there is a big difference between having no experience with networks and being computer-illiterate. However, DDS was described as a big success “because of the public interest in it” [15]. Thus, the success of DDS was measured in terms of how many users DDS had, and not in terms of the type of users it attracted. As women are often more computer-illiterate than men [3], measuring success in these terms was a gendered choice.

Moreover, in these documents, the goal of reaching diverse user-groups is no longer connected with the development of the interface. User-friendliness of the interface was no longer a criterion in the design-policy after the opening of DDS. Instead, in designing the interface, ‘experimenting’ was encouraged: DDS should “clearly position Amsterdam as an innovative city” [15]. The two Departments that became financial supporters also pursued these goals. In order to get money DDS had to implement two projects. One involved experimenting with discussions on the Internet and the second, writing a handbook about how to make a digital city. By giving DDS these assignments, the financiers stimulated the innovative and exemplary-function of DDS. The implicit user-representation of innovation and experimentation fit the profile of masculine users better than feminine users.

Users might have influenced the design. But the number of users who could influence the design of the new interface of DDS was gradually reduced. This happened in spite of an active group of inhabitants who demanded influence. These inhabitants wanted the same rights as inhabitants in an ordinary city, such as the right to choose a City Council [5]. In policy-documents made after the opening of DDS, influence by ‘everybody’ was replaced by ‘inhabitants of DDS.’ For example: “in the building of the city emphatically the perspective and wishes of the inhabitants will be a guiding line” [17]. The consequence of this substitution is that potential new users gradually disappeared from sight. Because of the large under-representation of women amongst the inhabitants of DDS, this meant that women’s interests disappeared as well.

Contrary to what policy-makers had written in their documents, they finally decided not to give democratic influence to the inhabitants. The policy-makers gave two reasons for this. First they said that the inhabitants of DDS were a very specific group and not the kind of people they wanted to attract. This argument seems a good way of avoiding closure of the interface to underrepresented user-groups such as women. On the other hand, the policy-makers did not even consider investigating what the users they did want to attract would like to have changed in the interface. Because of this, it seems that the second reason given for not involving inhabitants was more

important. They said that they had a lack of time and manpower to organize democratic procedures and to execute the changes inhabitants wanted in the design.

4. USER-REPRESENTATIONS BY THE DESIGNERS

Within the first year of the existence of DDS, the interface was re-designed. Instead of the textual interface, with which DDS had started, a graphical interface was designed: DDS 2.0. The interface was mainly made by Hackers of Hactic-network. They had been responsible for the maintenance of the old interface and had a high interest in changing the interface because of problems with the security and maintenance.

They said they were so busy solving problems that emerged once DDS went on-line, that hardly any of the ideas of inhabitants could be executed unless the inhabitants did the programming themselves. In other words, only people with programming skills, with a fascination with the Internet and computers, and who were enthusiastic enough to work on DDS for free, were able to affect the design of DDS. Four inhabitants did join the design-team of DDS. Not surprisingly, all four were male hackers. Thus, the design-team consisted of six men and one woman. The design of the first interface of DDS had been done by a more gender-neutral design-team.

Hackers had a high status amongst the policy-makers of DDS. They were seen as the forerunners of Internet knowledge in the Netherlands. Because of this, and because the policy-makers were too busy to spend time discussing the new interface, the designers got a great deal of freedom in designing the new interface. Their user-representations became dominant in the design of DDS 2.0.

Apart from the few users who joined them, the designers were not influenced by the wishes of ordinary inhabitants. They made few explicit user-representations. The representations they did make were abstract, such as 'everybody' or 'other hackers'. However, they did use themselves as representative of potential users. Akrich calls this the implicit representation-technique of the 'I-methodology'. Thus, the designers' interests, skills and knowledge were the major guideline for the design of DDS 2.0. As most designers were male hackers, they made representations of masculine, highly competent and technologically interested users.

5. INFLUENCE OF THE USER-REPRESENTATIONS ON THE DESIGN OF DDS

The new interface, DDS 2.0, was made within a year after DDS was opened. The designers believed that a graphical interface with sound-options would be easier to use. However, the user-survey amongst inhabitants of DDS showed that women were on the whole, more positive about the user-friendliness of DDS 1.0 than men [10]. Thus, the need to change was felt more by male inhabitants of DDS.

Consistent with DDS' goal of innovation, DDS 2.0 was one of the first organizations in Holland to have a graphical interface using the World Wide Web standard (WWW). To be able to use this interface, users needed special software and "a considerable amount of hardware: at least a 386 computer, a color-monitor and a fast modem" (Belangrijke software veranderingen DDS 2.0: 1). This kind of hardware was not yet commonly used by private computer-users, and certainly not by women [11]. The user-survey of inhabitants of DDS shows that the female inhabitants generally used older hardware with slower connections than the male inhabitants did.

To meet the needs of inhabitants with older hardware, designers did maintain a textual interface, which was used by female inhabitants more often. However, this interface was different from DDS 1.0, so inhabitants had to re-learn how to use DDS. Moreover, the designers themselves were very critical about the user-friendliness of this interface and described navigating through it as 'annoying.' Because there are more women than men with computer-fear, and because women do not like to experiment with learning how to use a new interface [3, 12], this has been a negative development for women.

Because inhabitants were given no influence on the design, their complaints did not affect the design. One of the things they were most dissatisfied with was that if inhabitants wanted to communicate with each other, they had to leave the interface and change the software-programs. A policy-maker stated that this more or less reduced users to consumers of information [13], instead of the active participants the policy-makers had wanted. Because female users had significantly more frequent contact with fellow-users than male users [10] these changes were specifically annoying to them.

6. CONCLUSION

By analyzing the design-process of DDS, more insight has been gained about factors that determine which user-representations will become

dominant during a design-process. User-representations of the groups involved in the design of DDS were studied: policy-makers, financiers and designers. Not all of these groups were equally successful in incorporating their user-representations in the design. Policy-makers allowed their representation of users as ‘computer-illiterates’ and ‘diverse groups’ to be put aside. In doing so, they neglected the fact that DDS was a success only amongst young, highly educated, male users. Moreover, together with the financiers, they stimulated DDS to become more innovative and experimental. In this way, they stimulated the designers to experiment with a new interface and functionalities, creating a more masculine design in the process. Thus, the user-representations of the designers became dominant. The designers used themselves as representative of future users. As almost all designers were male and technologically highly competent, they re-designed the interface of DDS with the main purpose of making it innovative. As a result, communication became more complicated, over-all user-friendliness was reduced, and access to advanced hardware and software was required. This re-design of DDS has had negative effects on (potential) female users.

During the design-process of DDS, user-representations were often contradictory and many were made unconsciously. These unconscious user-representations such as the I-methodology used by the designers or the abstract ‘innovativeness’ and ‘precursor-role of DDS’ by the policy-makers and financiers, have been the most influential representations during the re-design of DDS. Thus, in this case study, the findings of Akrich are confirmed that “contrary to what is expected and put forward by designers, implicit methods seem to be more powerful than explicit ones” [1]. This suggests that making implicit user-representations explicit during the design-process would help make more female-friendly ICT designs.

This can be done in two ways. First, policy-makers, financiers, and designers should be aware that their choices will influence which users they will attract. By not consciously deciding who their design is meant for, designers may unconsciously design it for themselves. In the case of ICT, this often means that they design for masculine, young, technologically highly competent users. Second, policy-makers, financiers and designers should use more explicit methods to represent users. By involving potential users in the design-process, the user-friendliness of the design would have received more attention. Instead, policy-makers and designers of DDS choose to make DDS innovative. This made DDS more suitable for experienced computer-users, excluding amongst others many women. Involving female users in the design-process of DDS could have helped in redressing the imbalance between male and female designers and users of ICT, instead of creating yet another toy for the boys.

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REFERENCES

1. Akrich, M. (1995). User Representations: Practices, Methods and Sociology. In Rip, A., Misa, T.J. and Schot, J. (Eds.). *Managing Technology in Society. The Approach of Constructive Technology Assessment*. pp. 167-184. London and New York: Pinter Publishers.
2. Bijker, W.E. (1995). *Of Bicycles, Bakelites, and Bulbs. Toward a Theory of Sociotechnical Change*. Cambridge, MA: MIT Press.
3. Brosnan, M. (1998). *Technophobia, The Psychological Impact of Information Technology*, London and New York: Routledge.
4. Herring, S.C. (1993). Gender and democracy in computer-mediated communication. *Electronic Journal of Communication* 3(2).
5. Lieshout, M. van (1999). The Digital City of Amsterdam, between public domain and private enterprise. In Van Bastelaer, B. and Lobet-Maris, C. (Eds.). *Social Learning regarding Multimedia Developments at a Local Level: The Case of Digital Cities*.
6. Oost, E. van (1995). Over 'vrouwelijke' en 'mannelijke' dingen'. In Brouns, M., Grunell, M. (Eds.). *Vrouwenstudies in de jaren negentig*. Bussum: Coutinho, pp.289-313.
7. Oudshoorn, N. (1996). Genderscripts in technologie. Noodlot of uitdaging. *Inaugural speech University of Twente*.
8. Rommes, E., van Oost, E. and N. Oudshoorn (1999). Gender in the Design of The Digital City of Amsterdam. *Information, Communication & Society*. 2(4), 476-495
9. Rommes, E. (October 1999) Co-construction of use and design in DDS. Paper presented at conference 4S, San Diego.
10. Schalken, K., Tops, P. (August 1994). The Digital City, A study into the backgrounds and opinions of its residents. Paper presented at the Canadian Community Networks Conference, Ottawa.
11. Shade, L.R. (1997) Access to the Internet for Women's Groups Across Canada. *Women, Work and Computerization, Spinning a Web from Past to Future*, Proceedings of the 6th International IFIP-conference, Springer, pp.113-122.
12. Turkle, S. (1991). Computational Reticence: why women fear the intimate machine. In Kramarae, C. (Ed.). *Technology and Women's Voices*, pp.41-61. New York: Routledge and Kegan Paul.
13. Flint, J. (1998): interview held with the present director of DDS.
14. Meerten, R. van (September 27, 1993). Projectvoorstel De Digitale Stad, Archive Municipality of Amsterdam BBI/93/103/1.
15. Meerten, R. van (July 1, 1994). Projectvoorstel 2e fase De Digitale Stad. Archive Municipality of Amsterdam BBI/93/103/11.
16. Stikker, M. (1993). De Digitale Stad 15 januari - 1 april, De Balie i.s.m. Hacktic Network, precise date unknown, Archive DDS.

17. Stikker, M. (1994). De Digitale Stad, Sociale Bouwstenen voor een Elektronische Samenleving precise date unknown, Archive DDS.
18. Anonymous (1994) Belangrijke software veranderingen DDS 2.0. Archive DDS. Available on-line: <http://www.dds.nl/dds/info/soft.html> (2-2-98).