

Evaluation of the communicability in groupware interfaces according to semiotic engineering

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This work presents a general vision of the computers and the nets, the interfaces, the IHC - Human-Computer Interaction - the Semiotic Engineering and the evaluation method of communicability and, finally, the applications of groupware. It also presents the justifications to extend the evaluation of the communicability, method that originally was developed for interfaces mono-user, adding methodology to evaluate the communicability of applications of groupware.

Keywords Semiotic engineering; Human-computer interaction; HCI

Este trabalho apresenta uma visão geral dos computadores e redes, as interfaces, a Interação Humano-Computador – a Engenharia Semiótica e o método de avaliação da comunicabilidade e, finalmente, as aplicações de *groupware*. Também apresenta as justificativas para estender a avaliação da comunicabilidade, método que foi originalmente desenvolvido para interfaces monusuário, adicionando uma metodologia para avaliar a comunicabilidade de aplicações de *groupware*.

Palavras-chave Engenharia Semiótica; Interface homem-máquina; IHC

1. Presentation

First, computers had become trivial tools in the life of common citizens, inserted in their day-by-day and in their work environment. Later, with the creation of the personal computer, the tool started also to inhabit the residences. Recently, the computer networks – the Internet and the Web – had mainly transformed the habits, the work, the leisure and the learning processes [1]. Such factors had propitiated the creation of a new class of application software, called groupware. These applications facilitate the interaction between people who want or need communicate themselves, through their computers and the networks, for leisure, work or learning.

Currently, great part of computer users still find some or much difficulty in dealing with the existing software interfaces, as much in the individual level as in the level of groupware. The Human-Computer Interaction (HCI) is a multidiscipline area that studies the problems of usability of these interfaces. The HCI can be considered under Semiotic Engineering perspective, that presents a theory to evaluate the communicability of the interfaces [2].

The original proposal of the communicability in Semiotic Engineering is restricted to mono-user systems interaction. Case studies had been carried through with multi-users systems, as groupware applica-

1 tions, but they had not been tested enough and exhaustively to allow the extension of the original method
2 [3].

3 In view of the importance of information systems to the citizens [4] and understanding how the inter-
4 face usability can be a determinant item in the digital inclusion, this article argues the validity of the
5 extensions to the original method of communicability evaluation, so that also encloses the communica-
6 bility in the groupware systems. Is possible to believe that the interfaces designers, mainly those specific
7 for groupware interfaces, could be benefited by this work, fact that consequently would improve the
8 communicability of the interfaces, leading more quality to the final users and allowing that they reach
9 their objectives when interacting with computers, the networks and other users.

10 11 12 **2. Main concepts**

13 The interaction between man and his tools has becoming always more complex, therefore the tools them-
14 selves had also became more complex. The computer is a symbol of this complexity. Its diversity of
15 forms, application and interaction sample this affirmation [5]. This tool, in particular, has been targeted
16 of several critics, therefore, with its complexity, the majority of the manipulating – human users – al-
17 ready tried some type of frustration on not having been able to operate its interface.

18 19 20 **2.1 Computers and networks**

21 The creation of cheap computers, the microcomputers, in the seventies, allowed a continuous expansion
22 of the computer science technology to most diverse areas. Transforming citizens without no specializa-
23 tion into users of a tool that, before that, were only used for trained engineers and specialized people in
24 this area. It would be like if airplanes became so cheap and accessible that great part of the population
25 would have his particular jet and would have to learn how to pilot it – ability that demands currently,
26 years of studies and supervised training.

27 Still one another important factor, also occurred in the seventies, it was the creation of the necessary
28 technology to connect the microcomputers in networks. Both technologies – the microcomputers and the
29 networks – had popularized during the eighties and nowadays are present in industry, commerce, ser-
30 vices; also in schools, libraries, residences and very briefly, thanks to the popularization of mobile de-
31 vices, following its users wherever they were [6].

32 So, there is a problem to be solved: how to transform a complex tool into a simple device to use, justi-
33 fying the research for development of better interfaces for these tools.

34 35 36 **2.2 Interface problems**

37 The interaction between user and computer happens through an interface, based on hardware and soft-
38 ware, that evolved enormously along of time. While in years 50, 60 and 70 the interface was strongly
39 based on hardware, years 80, 90 and nowadays, software has been the central part in the communication
40 with the user.

41 Such fact justifies the concern with the development of interfaces and its respective developers – ana-
42 lysts and computer programmers – of information systems.

43 Traditionally, in a mono-user system, the communication happens between user and machine, through
44 an interface developed by a computer programmer, or, less frequently, by interface designer; so the inter-
45 face is the programmer representative and the communication happens between the programmer and the
46 user through the interface developed for the first one.

47 Originally, computer programming was seen as an art thing [7]. Each program would have interfaces
48 with features chosen from the preferences of its programmers. Given to the particularities and individual
49 preferences of each one, it is very difficult to get an interface standardization, what it would make possi-
50 ble to users to communicate more easily with new devices, created by the programmers.

