IFIP - The International Federation for Information Processing

IFIP was founded in 1960 under the auspices of UNESCO, following the First World Computer Congress held in Paris the previous year. An umbrella organization for societies working in information processing, IFIP's aim is two-fold: to support information processing within its member countries and to encourage technology transfer to developing nations. As its mission statement clearly states,

IFIP's mission is to be the leading, truly international, apolitical organization which encourages and assists in the development, exploitation and application of information technology for the benefit of all people.

IFIP is a non-profitmaking organization, run almost solely by 2500 volunteers. It operates through a number of technical committees, which organize events and publications. IFIP's events range from an international congress to local seminars, but the most important are:

- The IFIP World Computer Congress, held every second year;
- open conferences;
- working conferences.

The flagship event is the IFIP World Computer Congress, at which both invited and contributed papers are presented. Contributed papers are rigorously refereed and the rejection rate is high.

As with the Congress, participation in the open conferences is open to all and papers may be invited or submitted. Again, submitted papers are stringently refereed.

The working conferences are structured differently. They are usually run by a working group and attendance is small and by invitation only. Their purpose is to create an atmosphere conducive to innovation and development. Refereeing is less rigorous and papers are subjected to extensive group discussion.

Publications arising from IFIP events vary. The papers presented at the IFIP World Computer Congress and at open conferences are published as conference proceedings, while the results of the working conferences are often published as collections of selected and edited papers.

Any national society whose primary activity is in information may apply to become a full member of IFIP, although full membership is restricted to one society per country. Full members are entitled to vote at the annual General Assembly, National societies preferring a less committed involvement may apply for associate or corresponding membership. Associate members enjoy the same benefits as full members, but without voting rights. Corresponding members are not represented in IFIP bodies. Affiliated membership is open to non-national societies, and individual and honorary membership schemes are also offered.

ORGANIZATIONAL SEMIOTICS

Evolving a Science of Information Systems

IFIP TC8 / WG8.1 Working Conference on Organizational Semiotics: Evolving a Science of Information Systems
July 23–25, 2001, Montreal, Quebec, Canada

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Similarly testing of the interface(s) for a suitable tone could then be carried out directly through a RIC-SIC analysis of the final system and comparison of the analytic results with those specified by the designer. Such an approach would reliably save the cost of user acceptability testing (for 'tone') since it would be reusing the testing work done in the setting up the tables used by the designer.

Research work will be needed both to establish the required granularity of the results produced by the analytic method, and to generate tables capable of distinguishing between the different user target groups in terms of the RIC-SIC ranges that are suitable for them.

REFERENCES

Knapp, M.L. & Vangelisti, A.L. (2000) "Interpersonal Communication and Human Relationships" (4th edition), Allyn & Bacon, Needham Heights, MA.

Parks, Malcolm R. (1994), "Communicative Competence and Interpersonal Control", in Knapp, M.L. & Miller, G.R. (eds.), "Handbook of Interpersonal Communication" (2nd edition), Sage Publications, Thousand Oaks, CA.

Pollard, A.J. & Thomas, D. (2000), "CyberPower and CyberSolidarity", in Simpkins, Scott, Spinks, C.W., & Deely, John (eds.), Semiotics 1999, Peter Lang, New York, pp 243-261.

Pollard, A.J. & Thomas, D. (2001), Technical Report SBU-CISM-01-10, South Bank University, London. (http://www.sbu.ac.uk/~pollara/semiotics/techrep-CISM-01-10.doc)

Shneiderman, Ben (1998), "Designing the User Interface" (3rd edition), Addison-Wesley, Reading, MA

Wiemann, John M. & Giles, Howard (1996), "Communication in Interpersonal and Social Relationships" , in Hewstone, Miles, Stroebe, Wolfgang, & Stephenson, G.M. (eds.),, "Social Psychology" (2nd ed.), Blackwell, Oxford.

Looking Inside

Understanding Communication in the Organisational Context of Software Design

M. Cecília C. Baranauskas[1], Juliana Salles[2] and Roberto S. Bigonha[2]

[1] *Institute of Computing- IC, State University of Campinas - Unicamp, Cidade Universitária Zeferino Vaz, Barão Geraldo, Campinas – SP – Brazil, 13083-970, phone: +55 19 788-5870, fax: +55 19 788-7470, cecilia@ic.unicamp.br*

[2] *Computer Science Department-ICEX, Federal University of Minas Gerais, Av. Antônio Carlos 6627, Belo Horizonte - MG – Brazil 31270-010, phone: +55 31 499-5860, fax: +55 31 499-5858, {jusalles, bigonha}@dcc.ufmg.br*

1. INTRODUCTION

Organizational issues involved in software development and application have long been the focus of the Information Systems (IS) field. Nevertheless, some approaches in the Human-Computer Interaction (HCI) field also have concerns about organisational aspects influencing the design and use of computational systems. HCI and Information Systems have evolved from different backgrounds and focus on a common end: to achieve high quality in software usage (Ehn and Lowgren 1997). While quality has been widely stressed in literature as a goal of the software design methodologies, quality as a result of the interaction among the groups involved in the design and development processes has not received the same attention. This work investigates the software production process by addressing communication among work groups involved in an organization that produces software.

Even though the organisation as a whole may have a single clear set of goals and interests, individuals and groups within the organisation may not share these goals and interests in the same way. Understanding and integrating the whole development process requires an understanding of how

different groups in the organisation engage in a process of negotiation towards the final product. Our focus in this work is on understanding the communication processes that take place between groups in a software design organisation, the nature of the changed messages in relation to their meaning for the audience, and how they impact and are propagated in the whole process.

2. UNDERSTANDING COMMUNICATION IN THE SOFTWARE DESIGN PROCESS

Semiotic approaches perceive the software interface as a communication act between designers and users, using the computer as medium (Andersen 1997). The designers establish the limits of this communication and create a set of signs that users can activate, which means that designers are the senders in this communication model. In this work, we argue that to understand the dimensions involved in the construction of the interface as a message, it is important to develop a better understanding of the dialogue that occurs among the many participants involved in the design and development activities. Besides designer/user communication, there are other groups also engaged in some type of communication through different channels: designers talk to marketing people, customer support mediates between developers and users, external consultants help both users' and developers' organisations, etc.

Several models of communication have been presented and discussed by thinkers from diverse philosophical schools. For a long time, Shannon and Weaver's Mathematical Theory of Communication drew strong influence in our understanding of communication. The direct transposition of the models derived from the Information Theory, to understand human communication has many drawbacks, however, as discussed in literature (Cherry, 1980; Brown, 1995; Liu, 2000). One of the difficulties is the unidirectional movement associated to the communication act, from a source (or addresser) to a receiver (or addressee). Receivers and senders actually engage in dialogues involving a process of meaning negotiation towards a common understanding.

In the software design process, not only designers and users, but also the remaining agents must engage in a process of negotiation in which communication acts occur and messages are exchanged using different channels. A fractal model of communication was proposed in our previous work (Salles *et al.*2000), to capture the nature of the communication processes involved in the software interface design.

3. META-MODELLING A PRODUCT DEVELOPMENT CYCLE

In our perspective, the interface is understood as a unity-message that reflects what was grasped through the fractionated messages. So, the interface as a unity-message is directly affected by the choice of channels and messages used to compose the fractionated messages during the design process. Usability engineers, for example, communicate with users using a usability test as channel. In designing the test, they communicate with the emergent artefact (the test) through a checklist as a channel, in an inner level. This means that, in designing the interface, or the unity message, many fractionated messages are being exchanged. Each one of these messages should be carefully designed to ease the designer-user communication through the unity-message.

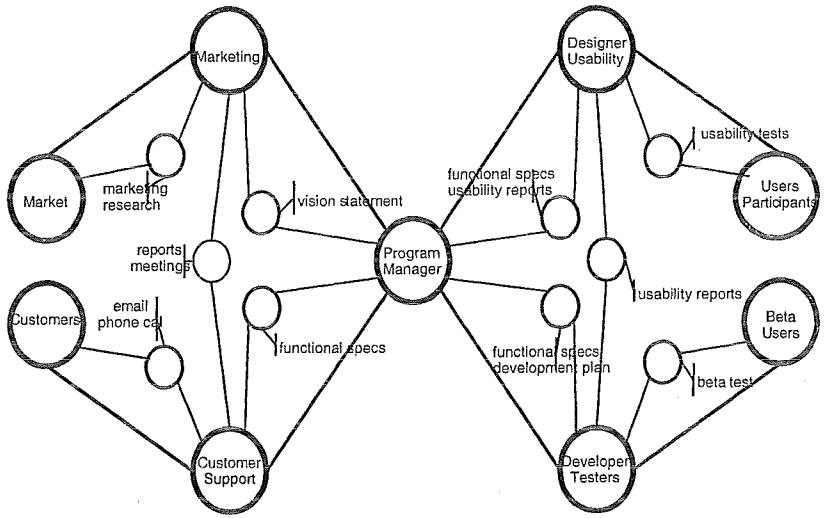

Figure 1. Meta-Model for the product development cycle at ORG

The meta-model was applied to a major software design company, here given the pseudonym "ORG", which employs leading professionals in all areas involved with the creation of off-the-shelf commercial applications. Figure 1 illustrates the meta-model applied to the product development cycle of this particular organisation. An overview of the communication among the groups is shown in a simplified way, with two levels of the fractal structure.

Results of a first analysis on the generated meta-model showed that new communication channels and new messages propagation could lead to a more integrated design and development process and potentially to a better product. The meta-model showed us, for example, different categories of "users" communicating to different work groups. Also, the already existent groups of support to the clients and beta-testers would be powerful additional channels to identify usability problems, as they have direct access to problems pointed out by users. Certain channels, despite being present, do not establish a psychological connection between two groups. As an example, while developers think in functions as units of implementation (consistently with marketing objectives), designers need a much broader view that is not communicated by the specification document.

Summarising, the fractal communication model organises an analysis space that unifies some current independent practices of design, while it highlights issues that deserve more investigation. This view of the organisational context of software development, and the several questions addressed with the support of this meta-model enable a search for continual improvement in the process and potentially the development of more usable and useful software.

ACKNOWLEDGMENTS

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REFERENCES

Andersen, P B, (1997) "A Theory of Computer Semiotics", Cambridge University Press, Cambridge.

Brown, G, (1995) "Speakers, listeners and Communication", Cambridge University Press, Cambridge.

Cherry, C. (1980) "On Human Communication Review, a Survey, and a Criticism", 3rd edition, The MIT Press, Cambridge.

Ehn, P. & Lowgren, J. (1997) "Design for Quality-in-use: Human-Computer Interaction meets Information Systems Development", in: Helander et al (eds.) Handbook of Human-Computer Interaction, Elsevier Science, The Netherlands.

Liu, K. (2000) "Semiotics in Information Systems Engineering", Cambridge University Press, Cambridge.

Salles, J.P., Baranauskas, M.C.C.,& Bigonha, R.S. (2000) "A Communication Model for the Interface Design Process", Workshop on Semiotic Approaches to User Interface Design, CHI2000,USA.

Levels of Abstraction in Maritime Maneuvering Operations

Johannes Petersen
*Center for Human-Machine Interaction, Oersted * DTU, Automation, Technical University of Denmark, DK-2800 Kongens Lyngby, Phone: +45 45253579, Fax: +45 45881295, jop@oersted.dtu.dk*

1. INTRODUCTION

An important part of maritime operations is to control the movements of the vessel – often referred to as *maneuvering*. In restricted waters and harbor areas the autopilot is often switched off and the crew has to perform the maneuvering of the vessel manually by controlling the forces produced by control devices (or actuators) such as rudder, main propeller, and thrusters. The increasing size of vessels and traffic-intensity has led to increasing demands on the crew's ability to maneuver vessels in a safe and efficient manner.

The maneuvering of large container carriers is a dynamic control task requiring on-line decision-making about appropriate interventions. This chapter describes different levels of means-end abstraction of the maritime work domain that are relevant for maneuvering tasks. It is argued that information systems supporting the decision-making processes of the navigating crew should provide alternative interpretations of maneuvering situations corresponding to the proposed means-end abstraction levels.