# The Good Person in Information Systems Development

A Reflexive Investigation of HCI in the Acquisiton Process

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In this thesis, I have described in detail the discou rses that have influenced me both in my PhD studie s and in my analysis of the research material. The a nalytical process of the discourses has operated in t wo parallel directions. While doing my research I ha ve been influenced by these discourses; meanwhile,w hen analysing that research, I have identified them.T he discourses relate both to information systems de velopmen        t and to sci             ence. The discour                ses surr               oundin g info                 rmati                  on syst ems development show signs of a shift towards a m ore organizational and humanistic focus. My analys is also distinguished several significant subjects wi thin the discourses. I argue that the ways they are construed and positioned relate to certain functi ons. The procure     r an      d the project leader are the two main enforcers of a truth régime t hat relates to a functional paradigm. Both th e users and t              he usability pra ctitioner are positioned outside of hege mony. The positioning of the IT exp ert as authority and the user as trouble maker both func tion to exclude…

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# Abstract

*The good person in information systems development: A reflexive investigation of HCI in the acquisition process* is an exploration of why the development of ICT (Information and Communication Technology) systems (IS) does not include more humanistic issues. I argue that this exclusion is one reason for the annoying situation of users and organizations: we are forced to deal with poorly designed systems that cause major frustration.

In this reflexive investigation I present theories, data, analysis and arguments in the form of a theatrical script. With the theatre metaphor I aim to make visible the ideological elements not only within IS acquisition but also within research, in particular HCI research.

The thesis includes three studies performed during 2003-2005: two interview studies with a total of 47 interviews, and one field study with extensive observations and 22 interviews. The material was analyzed with a focus on power structures and the ways common sense is constructed within the discourses of Information Systems Development (ISD). The theoretical perspective is inspired by discourse theory, social constructionism, and reflexivity.

The main argument is that ISD is pervaded by a truth construct in which rationality and logic constitutes the norm and everything else, including humans, becomes subordinate. In my analysis of the research material I see that user participation through informal "methods" and user representation does not lead to meaningful involvement; instead it adds to the power structures in which ICT expertise and technology determination are hegemonic. I distinguish several significant subjects within the discourses of ISD and argue that the ways they are construed and positioned relate to certain functions; for example ICT experts as authority and users as trouble makers both function to exclude users from ISD. HCI has an important role as a resistive discourse but to increase its impact we must refocus our attention on systems development, directing our efforts towards the procurers of ICT systems instead of trying to integrate human perspectives into the functional paradigm.

*Key words*    Human-computer interaction, information systems development, acquisition, procurement, reflexivity, discourse analysis

*To Bosse (who really doesn't have to read it)*

*I could have written all this otherwise […] in many differ-
ent ways, and with far different implications. This does
not make the account inaccurate or wrong. […] let's treat
this [text] in another way—not my 'telling the truth,' but
as a form of invitation. Consider it as something like an
invitation to dance, to play, and to deliberate about our
lives, our relationships, or societies and our future. If you
find it an attractive invitation, and I surely hope you do,
then you will enjoy reading on. (Gergen, 1999, p. 31)*

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# The Plot

We tend to be fascinated by all the new technology that pours into our world. Information and communication technology (ICT) has gradually filtered into most peoples' everyday lives and many say it has changed our society at its core. It has influenced work and leisure, workplaces and homes, people and organizations, adults and children, women and men, rich and poor; it touches on just about every structure in our society. Its development continues quickly and we see no signs of a slowdown: ICT is here to stay. It would not be that far-fetched to think that if ICT has had such a large impact on society its systems ought to be easy to use, useful, fun, and also enhance human capabilities. But is this the case? Over and over again researchers and the media report on ICT failures that cause problems for organizations as well as people (e.g. Avgerou, 2000; Corbett, 1992; Lindberg, 2005; Walldius, Sundblad, Bengtsson, Sandblad & Gulliksen, 2007); just about every textbook in ICT-related areas contains a section with examples of ICT failures.

I have long been fascinated by this contradictory situation and how it has appeared. Information systems (IS) do not arrive out of thin air; they come into being through a complex process involving many different interests. The narrative of ICT failure is of course part of a global structure; ICT as well as the determinants for successful IS are socially constructed, as shown by much research within the social sciences. I consider this to be a concern; in my conception of the world, it is a major problem that ICT influences people and peoples' lives in so many negative ways and I see technological determinism as a serious threat to our society's positive development. Much of the research within the natural sciences is founded on technological determinism and therefore in this arena it is important to focus on social patterns of Information Systems Development (ISD).

# Subplot 1: Human Perspectives in Information Systems Development

Friedman and Cornford (1989) tell a story of ISD, beginning in the late 40s and ending in the late 80s. In their analysis they construe three phases. Phase one (late 40s to mid 60s) was characterized by hardware constraints. There was an engineering approach to ISD; programming was considered to require logical and reasoning abilities and the workers were primarily mathematicians and engineers. System quality was measured in terms of technical efficiency. The staff working with ISD became increasingly remote from the users.

Phase two (mid 60s to early 80s) was dominated by software problems. There were many reports of failures: "by the beginning of the 1970s the computing world had become famous for failure: dangerous system errors, late deliveries, spectacular budget overruns and abandoned projects" (p. 115). This led to a general loss of confidence in systems developers and a desire to control the process. Standards and ISD process models were established. There was still an engineering approach to ISD, the models were Waterfall like and the focus was on elaboration of the middle phases. Data processing departments grew in size and their status rose in the organization. System quality was measured in terms of the promptness of delivery, the extent to which it matched users' needs, and the ease with which it could be altered and maintained. User resistance was regarded as a common phenomenon caused by user pathology; the solutions were either to ignore it or engage in salesmanship. At the end of phase two users were asked to "sign off" on intermediate products from ISD phases; it was also acknowledged that errors in analysis and design were far more common than coding errors. A drastic change in computer use and computer users led to phase three.

Phase three (early 80s to late 80s) was dominated by user needs, which Friedman and Cornford illustrate well with a quotation from a 1986 computer magazine: "The 1980's could go down as the decade of the user" (p. 171). There was a wide diffusion of PC and LAN. Sociotechnical and human factors research gained influence on ISD; user involvement, prototyping and iterations were commonly recommended. System quality was measured in terms of usefulness or impact on user effectiveness. The beginning and end phases of ISD (which are more user-intensive) were elaborated. New ISD models were put forth that include iterations and prototyping as well as user involvement. But advocates of these approaches still perceived themselves as crusaders so even if these tendencies were very prominent within research it could be questioned what impact they had in ISD practice:

*These policies may also be thought of, rather more suspiciously, as methods for allowing IS specialists to appear to accede to user demands without really doing so. That is, providing IS specialists with the jargon to respond to users in an outwardly sympathetic manner. To users the situation may be one where things change only just enough to allow them to remain, fundamentally, the same. (p. 326)*

But what has happened since then? Did the visions of phase three become realized? Where are we today? Are we in a new phase and if so, which one?

ISD involves many different people. My view of the process is that during a feasibility study (to explore the need and potential for new IS) a project might include representatives who have thorough knowledge of the organization's business, supported by ICT expertise. In all phases thereafter the conventional way to organize projects is to use a majority of people with different kinds of ICT expertise. The business is usually involved through a steering group or user representation of some kind, and sometimes functions as the project leader. At times, an IS project is divided into two groups: development and implementation. The primary task for the latter is the reception of the IS through activities such as user training; this obviously involves the business side more extensively than the development project. If the project has to acquire a standardized IS or an external contractor has to develop one, the business side has even less involvement, especially less user participation. In my narrative the primary focus for the users or other representatives of the business side is to sign off, indicating that the developer has delivered according to what was specified.

One of the concerns within human-computer interaction (HCI) is what characterizes a usable IS and what methods might lead to making a system usable. But the insights gained after more than thirty years of research do not seem to transfer into ISD practice. From the very beginning of ISD, human perspectives have been given little attention. For example, in 1992, Salzman investigated over 100 textbooks on the design process for equipment and manufacturing. Only 42 mentioned humans at all and then only marginally or a bit dismissively; the main focus was on machine performance and economic efficiency.

At the end of the 1980s, Friedman and Cornford thought a paradigm shift was on the way. They encountered many instances when users were given much greater emphasis and importance in ISD, especially within research. But even if research that somehow relates to ICT or the development of IS has continued on this path, I find few signs that this has taken root in ISD practice. The only permanent result has been a more extensive use of user representatives, but unfortunately not in a meaningful way: they are mostly held hostage, a show to legitimize what the developers are doing.

I hope that an analysis of the construction processes for reality, truth and subjects within ISD procurement can illuminate new perspectives about what is going on. Some attempts have already been made in this area (e.g. Beath & Orlikowski, 1994; Boivie, 2005; Friedman & Cornford, 1989; Hirschheim, Klein & Lyytinen, 1995; Isomäki, 1999) and I wish to supplement their work.

## Research questions

My primary research aim concerns why, after more than thirty years, HCI still has no real impact on the procurement and development of ICT systems. I have concluded that this is far too complex a question to have a single answer; there is no clear cause-effect relationship. My hope, though, is that revealing how different elements of HCI are treated by participants in the systems development process—and by those of us who are active within the HCI community—might provide insights that will support and enhance the discussion and potential for change. That is, I hope to offer food for thought and clues to action. I have therefore focused on the

discursive process within procurement of ICT systems. How truth is constructed, and how it becomes part of common sense in a normalization process, have been two important elements in the analysis. I am investigating three questions:

*How are concepts such as usability, users and user-centred design socially constructed within the procurement process of ICT systems?*

*What functions do these constructions have as they are represented and positioned within the procurement process of ICT systems?*

*How do régimes of truth enmeshed in the discourses of systems development and HCI relate to and interact within the process of normalization?*

# Subplot 2: Research

I have been struggling with science for six years, and I still conceive of it as somewhat intangible; it is contingent and fluent. It is not stable for all people or all contexts—it varies. One of the primary goals for a PhD student is to "become" a scientist: to learn the skills and intricacies of scientific practice. We tend to forget, when reading and writing a doctoral thesis, that it is the final result from a student. But the work that leads up to the written representation has been performed while learning how to do research. Hopefully, after the dissertation, the student will be able to take the position of researcher. Most of us probably experience a slow transition during our PhD studies, from student to student/researcher and finally to researcher. In this thesis I want to acknowledge this journey. This text represents not a final state but a contingent narrative. It has therefore been vital for me to make myself very present in the text. Another consequence is a dual focus in my thesis: on research and science by itself in parallel with my research area and research questions. The results of my PhD studies relate not only to the latter, but very much also to my main theme as a doctoral student: research and science. Of course, I have focused on research within HCI—I am not trying to do a PhD in the theory of science. But even though I have focused within my domain, as a PhD student, trying to learn how to become a researcher, I have still battled with the general question of science and its application in research.

In a thesis the research questions are usually presented as though they were formulated clearly at the very beginning of the research. What I have learned is that this is rarely the case. In fact, the final version is often constructed at the very end, during the writing process. The things we learn and experience during our PhD studies influence the end result. My journey into this thesis was not coherent or straightforward. My path took several twists and turns but after about a year and a half as a Phd student I came to realize that procurement with a social constructionism perspective fitted well with my previous experience within ISD in industry. I started studying power structures and the discourses of ISD and HCI.

When I started writing this thesis another area turned out to be imperative: the question of how different versions of reality and truth are constructed by both me as a researcher and the participants in my studies. On to the stage came reflexivity, which, for me, tied it all together. Not only has reflexivity been a natural part of my research, even when I did not know the label for it; it also gave me a way to zip together my experience in theatre and my experience in qualitative research.

Reflexivity has been an important part of my research journey, which I will describe in more detail later in the thesis. Reflexivity has been a continuous process in which, as a PhD student and researcher, I have contemplated ontological and epistemological questions. I have also used it for this written representation of my work. To put a focus on the constructive properties of the text as well as the content I have used a theatre metaphor throughout the thesis. I have also used Bertolt Brecht and his plays as an inspiration as I have found some of his theories to be related to my objectives. But I want to emphasize that I do not go along with other parts of his theories and especially that those theories are only a small part of my work. I have for example borrowed parts of the title from one of his plays. My motivation for this is to focus more on the theatrical metaphor in relation to reflexivity than on the play itself. Only a few small parts of the play marginally relate to some of my research questions.

This has been an eclectic journey in which I bound together several different theoretical concepts—like a puzzle. I could, of course, have integrated many other theories and perspectives but chose not to. Those that remain are the ones I feel have most successfully illuminated my perspective and my issues.

# The Scenography

HAMM (anguished):  What's happening, what's happening?
CLOV:                      Something is taking its course.

*(Beckett, 1958)*

Scenography is a description of all the visual staging aspects of a production. The space/setting offers a context for the play and is often part of the non-verbal aspects but it is very present during a performance. There is both a physically defined space in which the actors move around and the imaginary space that it refers to and in which laws of time, space and mass can be overturned. There is a dialectical relationship between the text and the space in which space influences how we perceive the text—and vice versa.

The setting for my thesis is both the written account and the work described in the thesis. It is therefore relevant to describe not only the textual metaphor but also my empirical studies and how I have analyzed them. This is my scenography.

Giddens (1987) describes how social life can be understood in terms of individuals moving in time and space. Contexts form the setting for actions that actors build on when they do and say things to each other. The setting is not a passive background; rather, the actors organize it and use it to justify and regulate their actions.

Theatre space is not given. Today, we have grown accustomed to a relatively stable format in which the audience is separated from the stage through a proscenium arch. But this has not always been the case, and it is not universal today. The conventional theatre room is a social construction that we have agreed upon but there are alternative forms and attempts to resist these conventions. Peter Brook, for example, is a director who has actively tried to eliminate the so-called fourth wall.

The same goes for the scientific space. Feyerabend (1975) suggested that professional anarchists use whatever methods they need to solve their problem. Science is not sacred and Feyerabend shows how the history of science involves many innovative uses of methodology in opposition to the general opinions within the scientific community. But he was not the first. Gergen (1999) describes several researchers who have suggested that scientific space is socially constructed: Mannheim in 1929, Fleck in 1935, Winch in 1946, Kuhn in 1962, and Gurvitch as well as Berger and Luckmann in 1966. According to Ashmore (1989) Durkheim first suggested that knowledge of natural science lies in culture and society. One of the most influential strands of research in this area is the Sociology of Scientific Knowledge (SSK). It investigates scientific and technical knowledge systematically, and argues that it is a contingent product of social, cultural and historical processes and not a rational reflection of existing knowledge (Knorr-Cetina & Mulkay, 1983; Woolgar & Ashmore, 1988). It has explored "theory choice, discovery, the structure of formal texts, scientific humour, evaluation and justification of action and belief, pictorial representation, theory and practical application, the construction of folk histories, and so on" (Mulkay, Potter & Yearley, 1983, p. 199). These authors do not attempt to explain how science works; their focus is on how scientists' descriptions of behaviour and beliefs are socially generated. They analyze reoccurring interpretive practices that are used and embodied in the discourse and how they vary in accordance with the social context (Gilbert & Mulkay, 1984; Mulkay et al., 1983).

Feyerabend (1975) asserts that scientists work in many different ways and if rules of methodology are mentioned they are often not followed or are, at best, used as heuristics; important results derive from a composite of different and often competing trends. Scientific knowledge is not particularly positive or free from bias. Van Maanen (1988, p. 95) describes it like this:

*there are always many ways to interpret cultural data. Each interpretation can be disputed on many grounds. […] Field data are constructed from talk and action. They are then interpretations of other interpretations and are mediated many times over—by the fieldworker's own standards of relevance for what is of interest; by the historically situated queries put to informants; by the norms current in the fieldworker's professional community for what is proper work; by the self-reflection demanded of both the fieldworker and the informant; by the intentional and unintentional ways a fieldworker or informant is misled; and by the fieldworker's mere presence on the scene as an observer and participant.*

Many other authors agree with this general idea. For example, Broady (1990) says data are not just given, they do not exist independent of the researcher; thus, to be successful scientists must carefully construct their object. Observations are influenced by theory because they involve auxiliary assumptions and because what counts as relevant and good evidence is also determined by the very theories that are being tested (Knorr-Cetina & Mulkay, 1983). Data is underdetermined as there are always alternative theories that could match the evidence just as well (Knorr-Cetina & Mulkay, 1983). Broady (1990) also asserts that many standpoints within the scientific field are, in effect, social struggles in which researchers have various kinds of investments and allegiances. These standpoints are socially very relevant but not scientifically motivated. Those who argue that science is socially constructed have explored how meaning is created in negotiation and through different strategies for persuasion (Knorr-Cetina & Mulkay, 1983). Moreover,

Latour (1983) shows how the status of the scientific laboratory has emerged from a few onto-logical changes such as the dissolution of the dichotomy inside/outside of the laboratory and the alteration of scales and levels. The opening review of previous theory, at the beginning of most scientific articles, functions as a skilful reconstruction in which the author excludes certain events and actions (Gilbert & Mulkay, 1984). The scientific community is in agreement that a specific format is privileged and constructed as authentic. This convention is so strong that I would say that it has become part of hegemony. Feyerabend (1975) argues that positivists and rationalists have interpreted science as a rational process in which methods are positioned as a guarantor for scientific superiority. But, he says, science has never worked and never will work according to any rational method. Science is just one knowledge tradition among others. Even the layman's knowledge is important. Scientific facts that are put forward as truths can even be harmful. Gergen (1999) provides the example of science having reduced the enormous variation of humans to a few racial categories, some of them being positioned as more intelligent than others, and points out that a fundamental motivation for life is the preservation of genes. Still, even Feyerabend concludes that there is of course a lot to learn from science.

# Theories of Theatre

For me, things fell into place when I realized that I am positioned at the intersection between research and theatre. In my research I have often used knowledge and skills acquired from theatre. My understanding of qualitative methodology has been enhanced by my experience of over 20 years with dramatic text and character analysis. This section is based on my own knowledge and experience within theatre but I have been inspired by some fundamental the-atre and performance literature (e.g. Brandell, 1971; Fortier, 2002; Heed, 2002; Kershaw, 1999; Meisel, 2007; Milling & Ley, 2001; Pickering, 2005; Tjäder, 2000). My objective in this section is to introduce the reader to the world of theatre.

Dramatic theory goes all the way back to the ancient Greeks, and drama itself must have existed in prehistoric times as can be seen on pottery, rock carvings and cave paintings. Some also assert that its origins lie in pagan and Christian rituals. The man who was probably the first theorist of drama is also the most influential: Aristotle. His theories have had a tremendous impact on how theatre and performance is understood. Aristotle's influential *Poetics* dates from the fourth century BCE, and most theorists since him have related to him to some extent.

One of the oldest and most persistent concepts in drama theory is *mimesis*, a term coined by Plato but refined by his student Aristotle. According to the classical way of interpreting Aristotle, drama is about representation through imitation. The actors as well as the whole drama imitate life; it is imitation of action through acting people. This is usually contrasted by the epic in which representation occurs through a story instead of actors. Mimesis is typically interpreted to mean the imitation that is typical of theatre while diegesis is the narrative form

that is typical for the epic. Aristotle (1961) said that literary creation, both epic and drama, imitates but with different means. For theatre to emerge it is not enough for an actor to simply tell a story; it must be shown through enactment. In creating his theories, Aristotle saw drama as a literary genre. But theatre is an activity, not a branch of literature. Since the beginning of the 20th century the dominance of mimesis has been in question.

Between roughly 1890 and 1925 theatre changed dramatically and many new perspectives arose, including symbolism, expressionism, and futurism. The theatre we know of today was formed during this period. A small number of twentieth-century directors and their disciples have set the agenda for much of the terminology and theory of the modern stage.

## Approaching the play

A dramatic text is fragmented. And to read a theatrical script requires practice and patience. It is full of holes, which are filled during analysis. The text is ambiguous and it is up to the reader as well as the audience to decide on the meaning and truth value of different utterances in the text. This makes it possible to present different points of view. There are innumerable ways to interpret what is going on in a script. A director carefully decides what to emphasize, hide, magnify or distort in order to arrange everything in the way best calculated to present her/his interpretation. Every aspect is chosen with finesse; little is left to chance. There is no one true way to analyze a drama. Not even the author is the highest authority of interpretation. The reader can choose to focus on what the author has said or written as well as the time period in which she/he lived, but that is not a prerequisite. And if a reader does consider the period, it is only one parameter among many. Part of the interpretation may mean changing or removing part of the text, which is acceptable if it is clearly motivated by the chosen interpretation and presentation; one does the same when choosing quotations from qualitative research material.

For an audience, the whole production provides information, through verbal clues as well as the physical setting or unspoken behaviour. Every activity on stage provides a possibility to construct a meaning. When a reader analyzes the play using the script many levels of approach are possible: The linguistic (everything written), the perceptual (anything that makes a direct impact on the sense of the audience), the socio-cultural (conventions peculiar to specific societies and cultures), the theatrical (theatrical conventions). Only the first is included in the script. "As a result, the study of drama is bound to call upon creative and imaginative skill, as well as skills of a critical and analytical nature" (Pickering, 2005, p. 222).

The dramatic text has two different text forms: those intended for speech (dialogue) and those that are not (e.g. title, names, stage directions, etc.). Both forms need attention. The title or the characters' movements are just as important as what they actually say. The dialogue and stage directions make it possible to analyze the time period(s), time(s) of the year or day, the time span for the overall play, the geographical location, the specific setting, decorations, images, lighting, properties, costumes, makeup, the use of masks, the characters' movements and gestures, sounds, etc. Objects are often charged with meaning or value and are part of the story; they sometimes have presence even if they are not present or visible. In the dialogue we can analyze not only the explicit words, but also rhythm, intensity, tempo, social relations,

motivations, intentions, pauses, silences, etc. The time period's culture, politics and religion can also be relevant as is the analyzer's own experiences; every new generation of readers brings new perspectives. This is similar to the process of analyzing research data. A great many parts offering different kinds of clues lead the reader to its interpretation.

Stage directions are usually used to inform the reader of important aspects such as movements or sounds. But they can also have a more literary quality if the playwright seriously contemplates either the subject of the play or dramatics in general. The stage directions usually differ typographically from the dialogue. They give the reader an opportunity to create an inner vision of the performance. Utterances—such as commands or directions—also work as stage directions.

The way a play is segmented contributes to its interpretation. The acts, or the macro sequences, are composed of scenes, which are middle-sized sequences. What defines these segments has changed over time. Classical theatre emphasizes unity in space and time within one act and each entrance or exit indicates a change in scene; scenes follow directly after each other and a new act means a break in the continuity. A micro sequence is something that is distinguished by the story, an idea, a relationship expressed in the dialogue or action. A text analysis on the micro level is very detailed and, even though it requires very different foundational theories, the minute detail resembles the work performed with conversation analysis. But "we are so used to equating the concept of language with the *word* that it is easy to overlook the fact that in the theatre it is but a small element in the overall communication that must take place" (Pickering, 2005, p. 58).

Words are reinforced and extended by the human body through gestures, postures, and facial expressions as well as other non-verbal means such as silences or pauses. Harold Pinter is probably the playwright best known for using the not said. In the performance of his plays pauses are known to be extremely important. "There may be total silence between two static characters on stage, but a great deal may still be happening" (Pickering, 2005, p. 66). Subtext is a concept originating in the work of Konstantin Stanislavski. Not only do the words carry meaning as verbal actions; for them to carry meaning there must also be an underlying purpose, a motivation for the characters to act the way they do and say the things they say. The reason an audience can read this is that this is what we do in everyday social interaction; this is also what I as a researcher have done very much with my field data.

Others have applied theatre to a scientific context. Bonnevier (2007) explores the queerness and theatricality of architecture. She proposes the term enactment for the entanglement of actors, acts and architecture. Through a series of staged lectures presented as a theatrical script with fictional characters, she argues that her writings are not only about, but also operate through, enactments. She asserts that her research themes (architecture, queer feminism and theatricality) influence both *what* she writes about as well as *how* she writes about it. Laurel (1991) argues for new technology that can offer both exciting interactive experiences and new forms of drama. She asserts that the best people to understand human interaction are dramatists. Her main argument is that much can be learnt from theatre and applied to the development of new technology. Finally, Rowe (2003) studied a theatre process called Playback Theatre and let that process influence his research process.

In parts of the world a special theatre form called science (or scientific) theatre serves as a popular way to spread scientific knowledge. It is usually a collaboration between scientists and a theatre company. The scientists can help with the script but also take part in the performance. The tradition of science has many theatrical elements: the texts of Plato, the anatomic theatre, museums, the laboratory, simulations etc. The researcher can be thought of as an audience that observes different aspects of life. In a way, theatricality is part of the construction of what science is. The ambition to improve the world by understanding it is also prominent both in science and theatre, in particular with Brecht.

## Brecht

Bertolt Brecht is one of the most influential theatre theorists of the 20th century. According to Rouse (1989), during the 1960s nearly every aspect of his theatre was adopted by mainstream West German theatre and by the end of the 1980s it had become an integral part of that theatre system. Brecht opposed the idea of imitation and instead wanted to develop a non-Aristotelian theatre, which he called epic theatre. He primarily related to the traditional interpretation of Aristotle's theories; some aspects of that interpretation relate more to tradition than to what Aristotle actually wrote. According to Brecht, the difference lies in different methods of construction. He claimed that the epic theatre is close to the old Asiatic theatre or aspects of the medieval mystery plays (Brecht, 1964/2001). In epic theatre it is possible to have several plots, without any specific start or ending. One of Brecht's aims with his epic theatre was to change the current practice so that the audience's intellect was stimulated instead of their emotions, but in a way that was still entertaining. For Brecht, the theatre of Aristotle meant an imitation of reality, which he did not believe in. But the epic theatre is not the opposite of traditional theatre; it is more of a shift in accent. The epic theatre turns to the audience with arguments instead of suggestions, it communicates knowledge instead of experience, and it calls for a standpoint instead of private feelings. The humans in the play are objects of investigation; they are not fixed and finished. The epic theatre is not realistic; it is more about showing models of the world. Brecht (1964/2001) called it philosophical, scientific, intellectual and pedagogical.

Brecht asserted that theatre should encourage the audience's critical awareness and ability to reflect on the action from a distance. The point is to have them see the social in the play; that can change society. He also wanted to find a balance between emotions and intellect, and rejected the habit of subordinating everything to a single track where the spectator "can look neither right nor left, up nor down" (Brecht, 1964/2001, p. 44). He wanted the audience to criticize human behaviour but he also had didactic ambitions; through both he hoped to change the world (Brecht, 1964/2001). For him theatre was a political instrument (Brecht, 1965/2002). Theatre is in many ways political as it involves characters who interact with a social order shaped by political forces (Pickering, 2005). My agenda is somewhat different from Brecht's. I have a social agenda but I do not relate it to the Marxist idea of freeing the workers from those in power. For me, it is more a struggle within each one of us; users as well as managers and developers.

Central for Brecht is the concept of *Verfremdungseffect* (sometimes translated as Alienation and therefore shortened to A-effect): arousing a sense of estrangement by using both sceno-

graphy and acting techniques, such as placards or projections, or talking directly to the audience, or singing. One important technique is the montage of scenes in which the juxtaposition of images is more important than the story line. He wanted each episode to be clearly identifiable and not just follow indistinguishably one after another (Brecht, 1964/2001). *Verfremden* means to make strange and the aim is for the playwright, director and actor to use a set of techniques to display an underlying cause for the events and social interaction by removing their familiar context. Verfremdung is the direct opposite of empathy. Brecht wanted to replace the natural, the familiar, the obvious with surprise and curiosity with no final meaning. Ehn (1992) suggested utilizing the Verfremdungseffekt in design to present well-known things in a new light. Here is how Brecht describes it himself:

*The A-effect consists in turning the object of which one is to be made aware, to which one's attention is to be drawn, from something ordinary, familiar, immediately accessible, into something peculiar, striking and unexpected. What is obvious is in a certain sense made incomprehensible, but this is only in order that it may then be made all the easier to comprehend. [...] A common use of the A-effect is when someone says: 'Have you ever really looked carefully at your watch?' The questioner knows that I've looked at it often enough, and now his question deprives me of the sight which I've grown used to and which accordingly has nothing more to say to me. I used to look at it to see the time, and now when he asks me in this importunate way I realize that I have given up seeing the watch itself with an astonished eye; and it is in many ways an astonishing piece of machinery. (Brecht, 1964/2001, pp. 143-144).*

Brecht was working in a period and culture that had important influences on him. Much was going on in Germany during the first part of the twentieth century, including extensive political movements that affected the entire world. The existing orders were undermined socially, morally and economically. There was also great movement in the cultural arena. Germany moved from having bourgeois, conventional and non-challenging theatre productions, characterized as mindless entertainment (Carlsson, 1984), to being at the forefront of a reformation of the theatre (Innes, 1972; Patterson, 1981).

At the turn of the century realism and naturalism dominated the theatre scene in Europe. According to Asplund (2000) naturalism strived to present the true nature of everyday life on a detailed level; it focused on the ordinary person living an ordinary life filled with hardship. Naturalists emphasized the need for a scientific approach in which the work was based on studies of real events. Within theatre, Asplund sees André Antoine as one of the pioneers of this approach at the end of the 19th century. Authenticity was imperative: both acting and stage image should mirror reality. Audience members should feel as though they were looking in on real action, almost like a voyeur. Even if Brecht had no naturalistic ambitions—indeed, he rejected the naturalistic theatre (Brecht, 1965/2002)—he claimed to be portraying a certain kind of realism, by showing the social and political forces that shape our reality. This is not exactly the same perspective I adhere to. I do not claim that the forces I am showing are "real", but they are part of a reality that the people involved experience and construct as real.

One of the reactions to naturalism was expressionism. This tradition was particularly important in Germany. One of the major theatre producers in the first part of the 20th century was the very productive Max Reinhardt, who formed a transition between naturalism and

expressionism. He developed a kind of stylized realism, and his use of stage machinery revolutionized the theatre (Patterson, 1981). Those involved in expressionism opposed realism and naturalism and rejected materialism. Wanting to express humankind's hopes and fears, they emphasized strong inner feelings and portrayed life through the distortion of the artist's vision. They projected human emotions onto objects and created powerful visual and auditory images by using distorted, exaggerated or abnormal expressions; language was subordinate. Some focused on spiritual issues while others worked to transform social and political conditions (Brockett, 1981). Out of this latter movement grew the political theatre of Piscator and Brecht. Even though Brecht opposed expressionism on many levels, Patterson (1981) finds several obvious influences: the non-psychological representative characters, the non-realistic settings, the montage structure, and the protests about the inhumanity of the world.

Brecht saw a clear line between his theatre and Elizabethan drama, extending through Lenz, early Shiller, Goethe, Grabbe and Büchner (Willett, 1977). He was also inspired by the Japanese Nō theatre and Erwin Piscator. I will therefore describe these influences briefly. Brecht used the same kind of loosely linked events, not narratively tied to time, which can be found in the plays of Shakespeare; Goethe and Schiller also used them (Willett, 1977).

Johann Wolfgang Goethe is of course one of the most influential German writers. Though many of his texts have been dramatized, he did not write many plays, but he did work actively with many theatre productions (Asplund, 2000; Brockett, 1981; Carlsson, 1978). He collaborated for a time with Friedrich Schiller who is considered a better dramatist (Asplund, 2000). They were both active during the second part of the 18th century and were briefly part of a tradition that came to be called "Sturm und Drang" (storm and stress). Participants in this movement rebelled against neoclassicism and emphasized nature and the individual; they were inspired by Shakespeare and Rousseau (Asplund, 2000; Brockett, 1981; Bryant-Bertail, 2000). Jacob Michael Reinhold Lenz was also part of this dramatist group. At the turn of the century both Goethe and Schiller had left Sturm und Drang; as they became close friends and collaborators they exerted a strong influence on each other (Brockett, 1981; Carlsson, 1978). They argued that drama should transform ordinary experiences and lead the audience into an ideal realm; their plays were highly philosophical (Brockett, 1981). Schiller, for example, was highly influenced by Kant (Carlsson, 1984).

Georg Büchner lived during the first half of the 19th century; he was very politically involved as a socialist revolutionary and even formed his own political organization (Asplund, 2000). He died young and did not receive recognition until 40 years after his death and in principle remained unperformed until 1900; Woyzeck is considered his most prominent play. According to Brockett (1981) Büchner foreshadowed both naturalism and expressionism and is now considered one of the major dramatists of the 19th century.

One of Reinhardt's students was Erwin Piscator. A firm believer in Marxism, he wanted to use theatre as a political instrument. He aimed to educate the worker and wanted "to cause the audience to consider their social environment critically" (Innes, 1972, p. 30). Early in his career he was highly influenced by the Agitprop (Agitation and Propaganda) theatre of Russia, which he established in Germany. But the format of this movement became too limiting for him and he transferred his work to the professional theatre. Though he is mostly known for extensive

use of technological devices on stage, he also formulated and experimented with many of the theories that Brecht later adopted (Asplund, 2002; Innes, 1972; Brockett, 1981). In fact, Brecht worked with him for about two years in the late 1920s, before he became established as an author and director (Innes, 1972). Piscator wanted to use theatre as a method to make people conscious and to get them to take a stand on issues regarding themselves and their society (Asplund, 2002; Innes, 1972).

During the 1920s many Japanese and Chinese troupes visited Germany and this aesthetic had an influence on both Piscator and Brecht (Innes, 1972). According to Brockett (1981) Nō or Noh is one of the first Japanese theatrical forms, dating back to the late 14th century. It is influenced by Zen Buddhism and is highly stylized and controlled without a traditional storyline. Costumes and properties are conventionalized, the stage is standardized and even the intonation follows set rules. Brockett characterizes it as a musical dance-drama, which uses retrospection to evoke an emotional state or mood.

## Why theatre?

If it is so difficult to read a theatrical script, why do I want to use one in my thesis? Part of my reflexive ambition is to include the reader in the analysis. A script is by nature made complete through an analytical reading. What makes it difficult to read is exactly the demand for an independent analytical reader. Just as Brecht used theatrical mechanisms to arouse a sense of estrangement in the audience, I use the theatre metaphor and in particular the theatre script with the same objective. From the very beginning theatre has been both reflexive and critical. It has scrutinized society as well as itself, both as art and practice.

In a play, there are always people involved, either as characters or as real people who give the characters substance, or as real people looking at the performance. Theatre is remarkable in the way it creates relationships between the characters and the audience. By exploring what it means to be human we are led to an understanding of ourselves and of our potential or we are invited to question our motives and values in the light of what we see. This aspect of theatre was very important for Brecht. For him living was an art in itself and theatre was practiced not only on stage but also in everyday life (Brecht, 1964/2001). He had a vision of theatre "as a dynamic arena for social experiment and a view of the social as an experiment" (Kershaw, 1999, p. 84). Or as he said, "The theatre is the handmaiden not of the poet but of society" (Brecht, 1964/2001, p. 213).

Sometimes plays are based on documentary material, perhaps in the form of interviews. For example, in *Twilight: Los Angeles*, Anna Deavere Smith recreates interviews with people who experienced the Rodney King riots in Los Angeles (Fortier, 2002). But even when this kind of drama is based on careful research, it still presents one interpretation. That was very apparent in Smith's play, which was therefore perceived as very provocative.

With theatre meaning is constructed in many different layers by the playwright, the actors, the designers, the director and finally by the audience. The audience is always implied in a drama; some plays even put the audience on the stage or include them in the performance. For both playwright and director, the counterpart in the communication process is the audience

that evaluates the performance and thus serves as critic. "The skills to read each other's latent thought and feelings are what we, the potential audience, practice every day of our lives in the everyday world" (Meisel, 2007, p. 33). The audience "reads" a new text mediated by the director's reading of the script. Research works in a similar way. I have "read" the field and then written about it and thereby created a new text which is interpreted by the reader who constructs yet another text.

In many ways, the analysis of a play resembles a qualitative analysis of field data. In the search for a coherent and trustworthy interpretation we invest much work and analyze many different layers systematically. Being a field observer is like being an actress who is studying a dramatic text and while interpreting it is also slowly learning it. When we know the text we have an emphatic understanding of it but it is one interpretation and it is never the "only" or the "correct" one. For me the text of my thesis represents the phenomenon that I have studied. Every theatre production is unique and at the same time they all share certain prerequisites and similarities. I once directed "Romeo & Juliet" by Shakespeare as a clown act. During the preparations I studied several different versions of the text and made a thorough analysis of the play even though in the end only a very small portion of the text remained in the performance.

Interpersonal relationships and communication are fundamental to human life; therefore "dialogue" is an essential feature of reality. The dialogue form is not especially innovative; it was used by Plato as a literary form for his philosophical contemplations. Within theatre theory, Stanislavski, Craig and Brecht, among others, have utilized it. Dialogic form can be perceived as repetitive or exhausting and considered non-serious or peripheral to the "real" content (Woolgar & Ashmore, 1988). The theatre metaphor acknowledges the dialogic quality of everyday verbal activities. We borrow words and phrases from other contexts. Dialogue can show a text's multivocal character; the explicit presence of multiple voices reminds the reader and the writer of the continual interpretation that is going on (Woolgar & Ashmore, 1988). When we say something it takes on a character based on our perspective, intention and world view. But we are also influenced by the history of the language. Each word carries a flavour from where it has been used before and we create meaning based on an enormous mass of connotations and associations that the words carry with them. In this way language is populated by other people's voices (Gergen, 1999; Wetherell, Taylor & Yates, 2001a).

Bakhtin is one of the primary theorists when it comes to multivocality in speech. He argued for defining addressivity in speech: an utterance does not exist without a receiver. When we say something it is in relation to someone and we adapt the utterance based on our construction of the receiver: her or his background, context, and knowledge (Bakhtin, 1986). We always answer or anticipate utterances or texts from other people. Meaning does not emerge until two voices come into contact: "Meaning […] is like an electric spark when the speaker and listener connect" (Wetherell et al., 2001a, p. 69). This notion of utterances existing in a social milieu is what Bakhtin calls dialogicality (Wertsch, 1991). One side of this is that an utterance is also an answer to previous utterances (Wertsch, 1991). Even our thoughts are dialogic in that we rerun previous dialogues (Wetherell et al., 2001a).

The theatre metaphor illuminates that what is in the thesis is not the "real" participant even if that person does exist and has uttered these words. But it still is a representation. In a realistic text

the presence of a quotation signals that something real and genuine really is being reproduced (Van Maanen, 1988). In this thesis, my purpose in framing the quotations within a theatrical script is to emphasize that reality indeed is not claimed; I am arguing for a representation constructed within my observation and my focus. Both field studies and a performance have ephemeral qualities. Pickering (2005, p. 235) describes the theatre experience as liminal:

*[I]t is not in real time yet not entirely removed from it; the reality of any situation in a theatre is both fact and fiction and the dialogue we hear is sometimes so real that we accept it as having been created at that moment, still knowing that it is artificial.*

Theatre takes place here and now and any attempts to capture its "live"-ness are problematic. Memory fades quickly; video and sound cannot capture the event equivalently. The memory is always partial, in two ways: we only remember part of the experience and we are subjective in regards to what and how we remember (Rowe, 2003).

The dramatic text is open, incomplete; only when it is first performed is the art completed. Just as any description of a field study is incomplete. Both need people and an extension in time and space. Theatrical performances exist only in the present; they are fleeting and exist only in the moment. Even video recordings are a different representation of the actual phenomenon. Just as it is with field observations. Thus, theatre is more than just the text; it is fundamentally about performance.

*Performance widely conceived refers to any performative human activity […] Everyday life is a performance in this sense. Performance in a narrow sense refers to certain recent developments in the performing arts [---] Performance as a concept in theatre is the notion of theatre in its entirety [---] drama [… is] a part of theatre and theatre [… is] a part of performance. (Fortier, 2002, pp. 10-12)*

In a performance it is impossible to register everything that is going on; we have to make choices and thereby certain aspects will be excluded. Just as it is with field observations. So as readers we have to "experience a *sensation* of visuality, tied less to an idea of the mediating stage than to the world directly evoked by the play text" (Meisel, 2007, p. 45). The text encapsulates the image of a potential performance. It is about words but the dramatic form has its own requirements and many of the words relate to things that are not words. Therefore the reader must consider everything as potential pieces of live theatre. The dramatic expression is part literary, part extra-literary.

Theatre is a performing art; to me, research is also a performance as it is a representation of something. A drama requires physical space—a spatialization. It is obvious when reading a theatrical script that it will not come to life until it is reproduced in a space; the same is true for quotations. They are given meaning within the frame of a written representation that differs from the one they got when they were performed in a space I once experienced. Field data is a textual representation of a real-time event. I strive in my text to give you as a reader access to a virtual space, which is a version of the spaces I have experienced interlaced with spaces that I (re)create in the drama. The theatrical script is a fictive performance as it has the potential to be performed; my drama is also fictive as it has already been performed and could be again but

in the written text lies only the potential. The use of characters also focuses on speech and its consequences instead of what the participants mean or their motives.

# The Empirical Setting

I have conducted three different studies. I performed the first one in 2003/2004 at the National Tax Board where I conducted semi-structured interviews with 20 people, each for 60 to 90 minutes, over a period of two months. The interviews focused on strategic questions around ergonomics, HCI and systems development. I carried out all but one interview together with another interviewer, and all but one took place in small conference rooms, all at the National Tax Board. The study was commissioned by the National Tax Board and performed together with the University of Uppsala. The primary focus was on strategic questions regarding systems development and usability. The participants were people in strategic positions such as managers, controllers, and strategists. Others were project managers for large projects, union representatives, usability experts and methodology experts. The participants were selected by the human resources (HR) department based on discussions among us researchers and the employees at the HR department. The data also included several documents that related to strategies and policies in regard to ergonomics, HCI and systems development.

The second study was carried out in 2004/2005 at the Swedish Defence Material Administration (FMV); there I conducted semi-structured interviews with 27 people, each for about 90 minutes, over a period of two months. The interviews focused on the Swedish Defence's procurement process, systems development projects and HCI. All the interviews were conducted by two interviewers; I was one of the two in 24 interviews. About half of the interviews took place at the participant's office desk, and the others were in small conference rooms at FMV or the headquarters (HQ) of the Swedish Defence. The study was commissioned by an HCI group at FMV and the primary focus was to investigate the procurement process within the Swedish Defence and the role of HCI within this process.

The first step was to perform a three-week analysis of the organization through the company phonebook, the public website, the internal intranet and interviews with key personal. This gave us an idea of whom we would meet for in-depth interviews. Ten of the participants were chosen in relation to one specific ongoing project; they represented about 75% of the project members. The other participants were people who were identified as deeply involved in the procurement process; they came from different parts of FMV as well as the HQ. The data also included several documents that related to the procurement process in general and the specific ongoing project in particular.

The last study was a field study; during the spring of 2005 I closely followed a feasibility study at Lernia. The project was initiated during 2004: an external consultant with experience from other similar projects was engaged and a project directive for a new intranet was written in collaboration with the consultant. A quantitative survey of the intranet was carried out in

January/February 2005 among the employees, by a company that specializes in such surveys. The feasibility study was carried out between the end of February and the beginning of July of 2005. The project group consisted of a project manager, the external consultant, two persons from the IT department, one person representing a staffing department and one person in a managerial position representing a project with potential relationships to the intranet. The steering group was composed of the heads of the IT department and the communications department. The feasibility study included several project meetings; seven four-hour workshops with a selection of people, primarily managers and ICT people; three meetings with other companies to listen to their experiences with similar projects; five presentations to managerial bodies within the company; and two meetings with developers of intranet solutions. The feasibility study resulted in a report that recommended that the project continue with requirements specification and procurement during the fall of 2005 and development and implementation during 2006.

I carried out that study alone. During the feasibility study I observed all the preplanned meetings with the project group and the steering group, with other companies and developers, as well as all the workshops and presentations. I took notes and the sound was recorded with an mp3-player. I did semi-structured interviews with all project members at the beginning and midpoint and after the feasibility study, and with the steering group members at the beginning and after the feasibility study, for a total of 22 interviews. Most interviews took place in meeting rooms close to the person's own work space, and some were done over the phone; they lasted between 20 and 120 minutes. In addition I was given access to some email exchanges among the project members, and to all documents produced during the feasibility study, in all their different versions, as well as a project space established on the Internet where plans, documents and discussions were assembled. To capture the progression of the project, every day I printed out changes made to the project space.

In the interviews I used an interview guide in which I tried to formulate the questions so that they were open and stimulated the participant to tell stories instead of giving opinions or just speaking generally. The guide was similar for all three studies but evolved over time and was related to the organization at hand.

All interviews from the three studies, as well as the project meetings and steering group meetings in the third study, were transcribed verbatim, often excluding non-verbal aspects such as pauses, interruptions, and overlapping sounds.

## Analysis

When I first analyzed the data from the first two studies I was not yet clear about the discursive approach, so I performed my analysis in two stages. At the end of each study I did a categorizational analysis in which I read all the material with the ambition of being unprejudiced, doing a broad scan for themes, social patterns, variations, contradictions, and silences. I did it in three iterations during which I alternated between the overall picture and the parts, like a hermeneutic circle (Kvale, 1997; Starrin & Svensson, 1994). After the third study, I reanalyzed the data from these two studies using a discursive perspective instead. This time I included all the material from the three studies. I read and re-read the transcripts and the collected documents in order

to identify coherent (even if contingent) patterns relating to the theoretical concepts such as discourses/interpretative repertoires, ideological dilemmas, and subject positions; in particular I focused on variations, contradictions and silences and analyzed the function such variations might have (see section on *Discourse Analysis* in chapter *The Props*). I did this in several iterations during which I cut and pasted interesting sections into new, more focused material, and then I continued my analysis from there.

It is difficult to make coherent such a vast and straggling load of empirical material as I had. But I found that the theatre metaphor was useful for this. The analysis continued when I started to construct scenes for *The Script*. Through the process of constructing different scene structures and scene sequences, I contrasted the data against the research questions. In particular, questions on legitimization, power, truth claims and truth régimes became clearer and illuminated by this work. Through these various analyses, I successively refined the research questions.

When I decided on a discursive approach I had already completed my first study. In the succeeding studies, I adjusted some of the interview questions so that I could give the participants more space to talk about human issues relating to HCI.

As I use a reflexive perspective I could have, to a larger extent, analyzed myself as an actor in the social interaction, particularly during the interviews. Unfortunately this is one of the limitations caused by time constraints. In the last study I did include more reflexivity, for example during the interviews; I invited the participants to reflect on my participation and the potential influence that might have had on their process.

My analysis is about showing certain identified representations and the functions they have in a particular context. How close these representations are to some kind of reality is outside the scope of this study; for example, if all participants say that everybody is working with usability I have not focused on this as a true description of what is actually being done; instead I have analyzed what function this representation has in the given context. I also want to emphasize that I do not position myself as having any epistemological privilege related to the participants. Just because I emphasize that this is *my* interpretation does not mean that I claim that it is more "true" or "correct" or "better" than the one the participants might have themselves; I just know it probably is different from theirs. Their interpretation has its place and has been given privilege in the practice and internal documents of the different organizations.

Finally, I want to emphasize that my analysis appears on many different levels and many different places in the thesis. In *The Props* I describe the discourses I have identified followed by a general analysis of how they appear in relation to my empirical data, my research questions and to myself as a subject. In *The Characters* I describe the subject positions that I have identified and analyze them in relation to both academic literature and my empirical data. *The Script* contains several analytical descriptions. First, I have positioned the informants' quotations in an attempt to direct the reader towards certain phenomena through their local context. I relate to these analytically through three voices: one is the relaxed voice of the PhD student and the other is the voice of the Researcher who speaks quotations passages from other researchers. These researchers' theories are for the most part described in the chapter *The Props* and they mostly relate at a detailed level to ISD and HCI. Finally, I use the stage directions as a more formal analytic voice in which I focus on questions of power, normalization and truth régimes. The

final chapter, *The Epilogue*, can easily be perceived as a conclusive description of what the thesis has tried to accomplish so far—not least due to the textual form. This is correct to some extent but even this chapter encompasses analytical elements. My objective for the chapter is to tie it all together analytically and describe the general conclusions from the thesis.

# The Organizational Setting

There are many ways to present the organizational context for my studies. I have focused on a general description, to give a feeling for the cultural and formal construction of these institutions. I should also point out that it is a historical narrative in that I describe the setting as I perceived it when the studies were conducted; some things are still relevant but many things have changed since then. For a detailed description of the studies at the National Tax Board and at FMV see Persson, Stockhaus, Gulliksen and Artman (2004) and Swartling, Dovhammar, Arvola and Artman (2005).

## The National Tax Board

The National Tax Board is a government authority that conducts complex business and has about 3000 employees. Its commission is to control and serve the Swedish people on issues connected with tax and enforcement. This means that the board has at least three different stakeholders: the Swedish government, the citizens, and the employees. The board is assigned to administer the authority so that its commission is carried out correctly and efficiently. This work was once handled in two separate authorities; the main commission of the central one was only to administer the other local branches (the tax authorities), which were commissioned to maintain contact with the citizens. But as of January 1, 2004, there is only one authority that is supposed to handle both the administration and the control and service to the citizens; in a sense it controls itself. Since the National Tax Board controls and serves citizens at the same time, it is just as important to provide information as to hide it.

The National Tax Board does all its systems development in-house at its IT division. But more divisions are involved, essentially, five parts of the organization. First is the central management, which is in charge of systems development on a strategic level; second is the IT division. Two business divisions provide support to the local tax authorities on all relevant tools; one of those is the ICT systems. The final part is the local tax authorities, which include the formal procurer and the end users.

All the divisions are on the same organizational level (see Figure 1). But the organizational roles are divided so that one part of the organization procures the ICT and another part supplies it. The local tax authorities are the formal procurers while the support divisions usually are the acting procurers. The developer is the IT division. The support divisions and the local tax authorities have as a primary focus the company's overall business and not systems development—in contrast with the IT division.
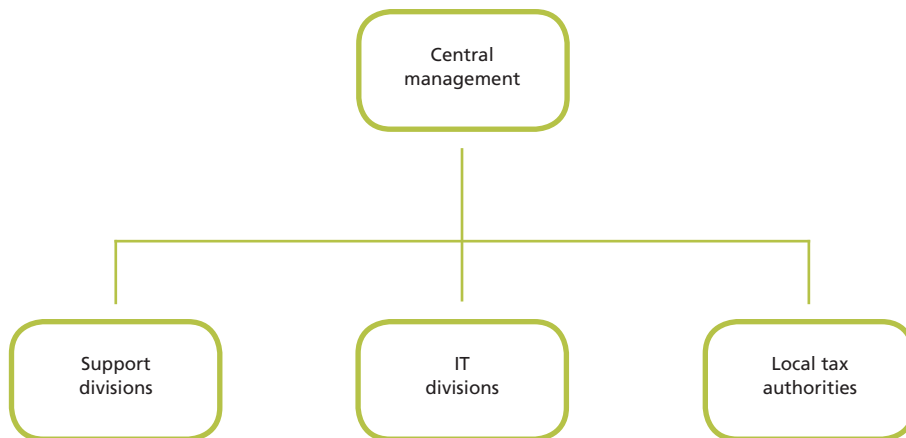
Central
management

Support
divisions

IT
divisions

Local tax
authorities

*Figure 1: The different parties involved in the systems development process at The National Tax Board*

For about ten years, the National Tax Board has been working with user-centred design in collaboration with two major Swedish universities, Uppsala University and the Royal Institute of Technology. It has carried out several user-centred projects and positions and has also implemented HCI methodology in the IT department.

## FMV

FMV is one of the oldest organizations that procure and acquire technological systems for the Swedish state. It is a civil government agency with its origin in Krigskollegium (the Royal War Council), which had already been established in the 1630s. Even though the agency has changed its name, in principle its main task has remained the same over time: to strengthen the operational capability of the total defence system by acquiring material in a cost-effective way. The main customer is the Swedish Armed Forces, but FMV has several other customers, including the police and the coast guard. In many cases, FMV works as a middleman between the armed forces and the developers. Today, FMV focuses on governing the design and purchase of new materials so that its products are adapted to the network-based defence of the future. This leads to a focus on new and advanced technology.

The HQ procures ICT systems from FMV, which in turn executes the procurements through contracts with industry (see Figure 2). FMV does not do any development on its own; its responsibility is to initiate and supervise contracts with industry based on the procurements from HQ. Some parts of FMV construct this arrangement as accountability for the whole life cycle of ICT systems: the production, implementation, maintenance and development or closure of ICT systems. Many formal processes have been defined and the procedures for handling procurements and systems development are extensive.
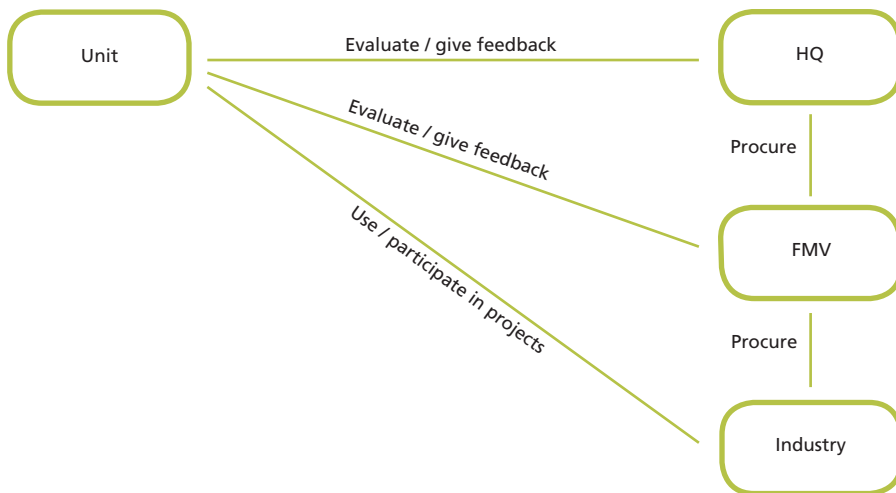
*Figure 2: The different parties involved in the systems development process at FMV*

The individual units within the armed forces are the end users of the ICT systems; they inform the people in charge of procurement at HQ of the needs that arise during the evaluation and use of the systems. They are also in close contact with FMV as it evaluates both old and new equipment. Finally, during implementation FMV often engages them to evaluate the system. They can also have direct contact with industry if they experience problems with an existing system and report them to the companies in charge of maintenance and support.

## Lernia

Lernia was once a public authority but is now a joint-stock company owned by the Swedish government that operates on the open market. It has about 3500 employees and about 70 local offices all over Sweden. According to the company's website, its main areas of business are "staffing, skills enhancement, rehabilitation and downsizing advisory and services." The central management includes staff members involved in financing, personnel, business development, ICT and communications. The company does not engage in in-house systems development; the IT department is concerned with strategic ICT questions and supports other parts of the organization with requirements gathering, specification, procurement and verification.

# The Props

"Properties, or 'props', as they are usually called, are any objects used, or related to, by the actors on a stage" (Pickering, 2005, p. 181). The props in this drama are not the traditional bits and pieces of physical artefacts but the most prominent discourses in the truth régime within which I am situated. Instead, they are related to *my* research and *my* life as a PhD student. These concepts have influenced me, my community, and my research as well as the people I have studied and their communities.

The narratives of these props are constructed primarily from the stories I have come in contact with—this is what I bring to the drama. I have not tried to cover everything—this is my story and the things that have been relevant to me. The stories I am talking about are both theoretical and experiential in origin. They come from the myriads of academic books and articles I have read; similarly, anyone involved in academia, or even an avid reader, would also embody many varied kinds of literature. Lectures and discussions I have attended and been part of are also important sources. This is always the case in research, but I want to make it explicit that even though I believe many researchers would agree with me, there are other stories that could be told that I have either not taken part of or not taken up as props in my research. Therefore, some researchers might object to certain classifications, inclusions, exclusions, interpretations or applications that I have made.

The props that I present here are varied and do not all function on the same level; some relate to the scientific plot, and others to my research questions within HCI and procurement. But they are all "objects" that relate to my "stage" and the actors positioned there with me. They are tools that I have used and that have influenced what I have studied, how I have done it and the result. They are part of the reason why the research questions are formulated the way they are.

# Information and Communications Technology

In spite of ongoing failures in the application of information and communications technology (ICT) people still take it for granted that ICT will succeed and progress (Avgerou, 2000; Beath & Orlikowski, 1994; Boudreau & Robey, 2005; Doherty & King, 1998). It is clear that ICT under-performs in relation to expectations (Hornby, Clegg, Robson, MacLaren, Richardson & O'Brien, 1992); one sign of this is the productivity paradox. That is, even though ICT is everywhere we cannot see the result of these investments in a rise in productivity. The idea began with a statement by Robert Solow (1987). Since then many researchers have offered different explanations such as problems with the measurement itself, the statistical assumptions, or the time for society to adjust; some even suggest that although ICT affects all parts of an organization's processes it will only affect productivity indirectly (Edquist, 2005; Lundgren & Wiberg, 2001; Powell & Dent-Micallef, 1997). Many have concluded that ICT investments must be combined with other measures in order to provide benefits (Lundgren & Wiberg, 2001).

What is ICT? Some construct it as a material artefact with inherent attributes that influences people and their actions. Technological determinism positions technology as an objective external force that guides human actions (Boudreau & Robey, 2005; Hosein, 2002; Orlikowski, 1992; Wilson; 2002). Technology is constructed as the primary force for organizational change (Crowston & Myers, 2004). In particular, during the 1980s ICT was constructed as a silver bullet, which would solve everything. Writings by McFarlan (1984) and Porter and Millar (1985) are good examples of this discourse. As the latter (1985, p. 160) put it,

*The importance of the information revolution is not in dispute. The question is not whether information technology will have a significant impact on a company's competitive position; rather the question is when and how this impact will strike. Companies that anticipate the power of information technology will be in control of events. Companies that do not respond will be forced to accept changes that others initiate and will find themselves at a competitive disadvantage.*

Even though organizational issues are acknowledged as important, the systems development process is still technology driven (Doherty & King, 1998). Technological determinism constrains what people think just as any discourse does; Lauesen (1998) tells a story that makes this very clear. In one project, many usability problems were identified, but when management heard about it they instinctively assumed that it was caused by user resistance and not by the ICT system itself. And they were genuinely surprised when external parties informed them that it was actually the system that was the problem. Cooley (2004) also gives an example in which management and developers considered a new system a great success but the end users did not agree. The former concluded that it was a question of user resistance. But after the users complained for three more years, an evaluation of the system included the users' objections; this time the conclusion was that the system was so poorly designed that it had to be shut down. Technology-driven design specifies every little technical detail but disregards what people actually do, and how they use and share information; therefore, users' irrational behaviour always comes as a surprise (Davenport, 1994).

A different kind of ICT, more flexible and compliant, starts with the use and not with the rationality of technology (Harris & Hendersson, 1999; Hirschheim & Klein, 1989). This also involves a construction of ICT in relation to human and organizational issues in which ICT in itself just is not enough (Ashurst & Doherty, 2003; Davenport, 1994; Orlikowski, 1992; Peppard, 2001, 2003; Walldius et al., 2007). From this perspective these issues are more important than economy or technology to the success of an ICT implementation (Powell & Dent-Micallef, 1997; Raymond & Paré, 1992). Here, organizational contexts influence both the development and the use of ICT (Grudin, 1996); they structure expectations, experiences, priorities, tasks, and resource allocations.

In this view, technology is essentially social; there is a relationship between the actors who develop technology and those who consume it, and both are relevant and necessary social groups (Cooley, 2004). ICT is positioned as an organizational process, so people with intimate knowledge about this will be in charge and not the ICT functions, though of course they must be involved (Porter & Millar, 1985; Powell & Dent-Micallef, 1997). In order for ICT to have a lasting effect, a change has to involve both the technological artefact and a change in people's frame of reference and behavioural repertoire (Powell & Dent-Micallef, 1997). Technology is both a medium and a product of human actions (Orlikowski, 1992). Therefore, technology is involved in social change when human agents allow it, and changes in organizational practice are accomplished in use rather than caused by technology in itself (Boudreau & Robey, 2005).

Overall, then, benefits are realized in the use of ICT and not in ICT per se (Ashurst & Doherty, 2003; Balic, Berndtsson, Ottersten & Aldman, 2002; Eason, 1988; Ehn & Löwgren, 1997; Markensten, 2005; Orlikowski, 1992, 2000). The organizational consequences of ICT are enacted in use rather than embedded in the technology (Boudreau & Robey, 2005). Ehn and Löwgrens (1997) concept of Quality-in-use is one example which focuses on the actual use situation. It studies and evaluates a system from three perspectives: its structure (material and mediating qualities closely related to software engineering), its function (human and organizational context, objectives, ethics), and its form (the use experience, aesthetics beyond beauty).

In this view, machines need people to become productive (Powell & Dent-Micallef, 1997). Because users must find it in their interest to use a system, the key to realizing benefits is determining who the system is intended for and for what its purposes are (Wilson, 2002). Within this perspective is positioned the procurement research project that I am part of (see section on *Procurement*) and I think Orlikowski and Davenport sum it up very well:

*On its own, technology is of no import; it plays no meaningful role in human affairs. It is only through the appropriation of technology by humans (whether for productive or symbolic ends) that it plays a significant role and hence exerts influence. It is only through human action that technology qua technology can be understood. (Orlikowski, 1992, pp. 409-410)*

*Technology, after all, is neither the savior nor arch demon of the information age. At its worst, it distracts and misleads it. But at its best, new systems can support the kind of information use that results in real business change. (Davenport, 1994, p. 120)*

How people construct technology in everyday talk has a great influence on how they think

and act; an emphasis on technology per se tends to mean that people emphasize technology and not use when they choose where to allocate resources (Orlikowski, 2000). Historically the construction of ICT has moved from a more technological definition into a more complex and social definition (Powell & Dent-Micallef, 1997). ICT started out as a tool for automating and centralizing repetitive administrative tasks, but has evolved into much more interactive systems for complex processes involving new organizational forms and issues of control, judgment and strategy (Avgerou, 2000; Grudin, 1991; Peppard, 2003; Porter & Millar, 1985). Doherty and King (1998) visualized the changing nature of ICT in organizations; their thinking is summarized in Table 1.

| Perspective | Historical | Current [1998] | Future |
|---|---|---|---|
| Primary benefits | Increased productivity | Improved decision-making | Strategic benefits |
| Focus | Automate existing processes | Seek process improvements | Completely reengineer organization |
| Scope | Stand-alone functional applications | Increased integration | High levels of integration |
| Environment | Relatively stable | Increasingly dynamic | Highly dynamic |
| System development | Highly centralized | Relatively centralized | Increasingly decentralized |
| Information provision | Highly formalized | Formal reports + ad hoc enquiries | Highly disseminated |
| Organizational impact | Moderate impact | Strong impact | Very strong impact |

Table 1: The changing nature of ICT in organizations according to Doherty & King (1998, p. 42)

Within the procurement perspective of HCI, my research group has had trouble finding both previous research and an arena for many of our questions (see section on Procurement). It was therefore exhilarating when I found several publications within the field of Information Systems (IS or sometimes MIS) that deal with much the same issues we do. According to Grudin (1996) the IS field is the area that has focused on the organizational effects of ICT use. For a long time researchers in this field held as almost an axiom the idea that user participation is a necessary condition for successful systems development (Ives & Olson, 1984). IS come from a wish to examine ICT use in an organizational context and was established at the end of the 1950s. Its main contributions came from computer science, operations research and management science; since then, research from many other disciplines has been influential (Adam & Fitzgerald, 2000).

Several researchers have examined great numbers of publications in order to track trends within the area (e.g. Crowtson & Myers, 2004; Dickson & DeSanctis, 1990; Orlikowski & Iacono, 2001; Wu, Lin, Cheng, Liou, Wu, Lin & Wu, 2006). Wu et al. (2006) narrate the history as follows. At first, they say, the research was descriptive and defining, as very little empirical research was conducted before 1979. During the 1980s the primary focus was on IS planning and evaluation; during the 1990s the most common areas were resource handling (primarily selection and evaluation of software), IS planning (primarily strategic planning), IS staffing (e.g. user work satisfaction, carrier paths, competence), IS evaluation (e.g. criteria and methods) and IS management (e.g. ICT enabled business change). They see trends in two new areas: ERP and e-commerce.

In a somewhat different narrative, Crowston and Myers (2004) construct three major perspectives: *economical* (focuses on input and output; treats actors as profit maximizing units and tends to use a quantitative and positivistic approach), *institutional* (focuses on institutional regulations that constrain behaviour; tends to use a qualitative and historical approach), and *socio-cultural* (focuses on socially defined discourses, meaning production, norms, beliefs etc.; tends to use a qualitative, interpretative and critical approach). They found very few publications within the latter perspective and it is within that category that I would position myself.

In a third narrative, Orlikowski and Iacono (2001) describe five central conceptualizations. The largest set of articles fit within the *nominal* view: technology was only invoked by name while the conceptual and analytical emphasis was elsewhere. This perspective was closely followed by the *computational* view, the traditional computer science approach in which technologies' capabilities are researched (e.g. algorithms and data modelling) and often based on assumptions closely related to the technological determinism in which human and social issues are largely excluded. Not far behind came the *tool* view which focused on the engineered artifact; what it can do to support the user and how it works are regarded as technical matters (e.g. as labour substation, information processor, enhancing productivity); and the *proxy* view which focuses on measuring different aspects of ICT such as diffusion or user perception. The smallest set of articles was conceptualized as the *ensemble* view. Here ICT is perceived within a package of socio-economic components with a focus on dynamic interaction between people and technology.

Wanda Orlikowski is the primary researcher of a structural perspective, which is constructed in part as an answer to technological determinism (Orlikowski, 1992, 2000; Rose & Jones, 2005). Of the perspectives described above, I would position her in the socio-cultural perspective or the ensemble view. The structural perspective, which starts with people and their actions instead of with the technology, is closely related to the perspective I am using in my research. In this holistic theory on ICT, organizations and human actors, none of the three is given precedence. She constructs an ongoing process in which ICT is part of a structuralization of humans and human actions within the norms and rules of an organizational setting. *Technologies-in-practice* is the set of rules and recourses that is constituted in people's reoccurring involvement with the available technologies (Orlikowski, 2000). When Orlikowski first formulated her theories, ICT as an artifact embodied certain structures but she later changed her thinking to more closely follow the theories of Giddens (1984):

*Some forms of allocative resources (such as raw materials, land, etc.) might seem to have a 'real existence' […] In the sense of having a time-space 'presence', in a certain way such is obviously the case. But their 'materiality' does not affect the fact that such phenomena become resources […] only when incorporated within processes of structuration. (p. 33)*

Her studies make it easier to see how, in the context of certain organizational norms and rules, the agency of users affects the ways a certain ICT system is used.

The technological deterministic perspective does not acknowledge that things happen when the users get a hold of the artifact. Within a structural conceptualization, human agency has much more impact on use than does technology itself (Boudreau & Robey, 2005). Agency is about the ability to make a difference (Orlikowski, 1992). A human agency position (Boudreau & Robey, 2005; Orlikowski, 1992, 2000) argues that people are knowledgeable and innovative and relatively free to use technology in different ways and not necessarily in the way the designers intended; thus these theorists reject the use of technology as a determinant of social change. From an agency perspective ICT is socially constructed and its interpretation and use is flexible. This does not mean that interpretations and use are limitless; social and technical constraints do exist.

To me it is clear that the discourse of ICT is very specific and distinct and fits well with Avgerou's (2000) construction of ICT as an institution. The term institution "refers to authoritative, established, rule-like procedures in society, with a self-sustaining character […] Institutions are taken-for-granted standardized sequences of activity" (Avgerou, 2000, p. 236). My narrative will partly be an effort to show how the discourse of ICT works in this way.

# Information Systems Development

The decision to start a systems development project is not simple; it involves both informal and formal processes and several people with different agendas (e.g. Mirel, 2000). The initial idea might be formulated based on an existing system or inspiration from new technology or a need for change. It is a social process that includes managers, users, and developers, among others. But in the end, one or several parties formulate a decision to somehow "get" an ICT system. This process can be called acquisition, purchase or procurement.

Ehn and Löwgren (1997) tell a story about systems development located within software engineering. At the end of the 1960s a program was formulated in which design could be approached through logic, mathematics and statistics. Computers, as well as users, organizations and systems development, were perceived as subsystems in a complex hierarchical system in which each part could be defined separately. Design became a process for "problem-solving by individual decision-makers among sets of possible worlds" (p. 304). This narrative loses track of other important design aspects such as the social and historical character of the process, or the way that the creativity of users and designers involves more than just problem solving. The analyst's work was simply to discover objective facts about the social and human needs, and a

basic assumption was that users could give complete and explicit descriptions of them. I agree with Ehn and Löwgren who argue that this rationalistic approach has since dominated systems development. Still, some methodologies do attempt to approach the matter somewhat differently, for example agile methods.

A systems development model guides the order of the primary activities in a systems development project, including the criteria for moving on to the next stage. Methodology has a great impact on how participants in the systems development process perceive things (Beath & Orlikowski, 1994). In the beginning, development projects did not use a model; the system evolved through multiple rounds of t code-and-fix: the developer first wrote some code and then fixed the problems that appeared. One of the first real systems development models, and the one that everyone keeps coming back to, is the Waterfall model in which the main activities (i.e. requirements analysis, design, code and debug, test, operations) follow discretely after one another and any changes in previous activities can only be enforced on the stage immediately before. The model is document-driven and is still widely used (Neill & Laplante, 2003), even though it has been proven to work particularly poorly with the development of interactive systems (Boehm, 1986; Davis, Fusfeld, Scriven & Tritle, 2001; McCracken & Jackson, 1982).

Over time, other systems development models emerged. Iterative development involves doing part of the activities (e.g. analysis, design, programming, testing) several times and the result from each iteration is usually some kind of prototype. With each round the developers learn something new, which is incorporated in the next turn. Evolutionary or incremental development also involves doing some of the activities several times but here the system version in each turn is an operational system; the learning activity comes through actual use of the partial system (Boehm, 1986; Davis et al., 2001; Lauesen, 2005). The spiral model was one of the first attempts to include a more human-centred approach to systems development (for more examples see the section on *User-Centred Design*). This model is risk driven and the system evolves in cycles. In each cycle the developers first plan the objectives and activities, and then construct a risk strategy which also defines the criteria for when to enter the next cycle; it uses both specifications and prototypes but in relation to the need identified in the risk strategy (Boehm, 1986).

An important stage of the systems development process is gathering the requirements and formulating the plan. This is the stage that many see as the main reason for ICT failure (Cegrell, Ekstedt & Forsgren, 2002; Davis et al., 2001; Følstad, Jørgensen & Krogstie, 2004; Harris & Henderson, 1999; Taylor, 2000; Turk, 2006). One assumption in a practice of technology-driven systems development is that requirements can be defined early and remain stable. This notion was rejected as far back as 1982 (McCracken & Jackson, 1982; Thomsen, 1993), but it is still considered to be the ideal, though others acknowledge that it is not realistic (Davis et al., 2001; e.g. Endres & Rombach, 2003). Particularly within the rationalistic perspective, the objective of system design is to meet specified requirements. Changing requirements is an inherent phenomenon in the needs of humans and organizations; just because a systems development project has begun does not mean it is stagnating. People and organizations exist in an ongoing changing reality, which is influenced in part by the project itself and the knowledge gained within it.

Requirements are often categorized as functional and non-functional. The first is defined as "ordinary" (Bray, 2002, p. 15) and what the system should do or its behaviour; the latter refers to how well it should do it and is defined as the systems properties or qualities (Chung, Nixon, Yu & Mylopoulos, 2000; Lauesen, 1998; Ncube & Maiden, 1999; Robertson & Robertson, 1999). Usability is often located as non-functional requirements (Rosson & Carroll, 2003). One approach to this systems development stage is rapid prototyping in which the initial organizational and user analysis is replaced by intensive prototyping; to design a prototype, however, is not the same as prototyping a design (Lim & Long, 1994).

Some researchers have tried to figure out what factors determine the chance of an ISD project being successful. Often a project's failure is related only to whether or not it meets the budget and time frame. But as many have noticed, these questions are a matter of resources and do not say anything about the ICT system itself. Therefore, other theorists include matters of quality, fulfilment of user needs and fulfilment of organizational objectives (Doherty & King, 1998; Taylor, 2000). For Davis et al. (2001) the primary question is about commercial and technical aspects; they do not include use, user needs, user involvement or other questions regarding usability. Cegrell et al. (2002) do include users but only to state that they must be informed and motivated; they do not see users as potentially critical factors when it comes to organizational and business knowledge; otherwise they focus on technical factors, logistics and some organizational issues. Others construct organizational issues as the primary parameter (Doherty & King, 1998; Hornby et al., 1992; Orlikowski, 1992; Peppard, 2001).

Some researchers have investigated how to define what organizational issues are. Ashurst and Doherty (2003) construct organizational issues as those that ensure that the impacts of the future system on humans and on broader social and economic aspects will be desirable ones. Doherty and King (1998) divide organizational issues into organizational alignment (the degree of fit between a system and its organizational context), organizational contribution (ensuring that a system will contribute positively to the organization's performance), and human issues (those that have a discernible impact on employees' working practice and environment).

Organizational issues have only been given limited attention within systems development (Ravichandran & Rai, 2000). Hornby et al. (1992) analyzed 15 of the most commonly used systems development methods and concluded that there was only a patchy coverage of human and organizational issues. Doherty and King (1998) showed that developers do consider organizational issues important but that they are very difficult and no tools or methods are available to respond to them. They argue that developers sometimes exclude organizational issues because they feel they lack expertise on them. The systems development practice of today is still primarily technology driven (Doherty & King, 1998). The reward system and control system actively work to prevent analysts from including organizational issues; instead they are rewarded for delivering technically valid systems in time and on budget (Doherty & King, 1998). As a result, organizational issues are only considered when they appear as a problem, generally when the system is already deployed. One element in constructing systems development is to separate development from use (Orlikowski, 1992); this confines the scope of the process to the systems development project and makes it easier to exclude broader organizational and human issues.

The organizational context for systems development varies, which influences the project; Grudin (1991, 1996) differentiates between contract development, product development and in-house development. These do not operate under the same conditions, even if designers operating within the first context in many respects have tried to copy the conditions for the last (Thomsen, 1993). Another relevant differentiation is between package development (which results in a system intended to be sold externally) and bespoke development (which results in a system intended to be used internally) (Keil & Carmel, 1995).

Technological improvements have progressed with an impressive speed but unfortunately improvements in usability have not followed as quickly. Harris and Hendersson (1999) say the reason is deeply rooted assumptions of systems development. They construct this in relation to a bureaucratic rationality in which organizations and people act rationally according to certain explicit rules, every need can be identified in advance, and the focus is on identified regularities and on finding a perfect fit between a design and the pre-defined regularities. But no inherent property of ICT constrains it to be closed or rigid (Orlikowski, 1992); actually it has every possibility of being flexible and open. This rationality constructs human behaviour as something that can be manipulated—and doing so can help one achieve instrumental goals (Fairclough, 2001). Still, no studies show convincingly that the traditional systems development methods actually result in better ICT systems:

*Rather than being the logically coherent, philosophically consistent, and cost-efficient patterns of action that the pioneers of methodological movement envisaged, the methodologies that became common practice with time provide, at best, systematic compromises of the conflicting aspects of the systems development process, and often misleading reassurance of doing so. (Avgerou, 2000, p. 239)*

Many researchers have illustrated what happens when ICT is confined to a rigid definition. Löwgren (1995) constructs ICT within an engineering perspective in which there is a predefined problem that is clear, precise and well described, preferably in a requirements specification. Schön (1995) positions this rationality within the realm of the past three hundred years of Western ideas and institutions, in particular with positivism. He goes on to describe how problem solving is reduced to the manipulation of available techniques to achieve chosen ends. In a more creative design process the relationship between problem definition and problem solving is much closer, but at its core it is unpredictable (Löwgren, 1995; Schön, 1995). Markensten (2003) gives a good example of how a technical and rational perspective caused a procurer to base its arguments on idealized models of work and use instead of the way it was actually practiced. Orlikowski (1992) showed how this perspective resulted in a system that inhibited productive and effective work for users. Hornby et al. (1992) showed that many use an approach that focuses on task and technology. I am convinced that doing so is still very common and it fits well with the bureaucratic and engineering rationality.

One element of the traditional ISD practice is the way requirements are represented. The form of documentation is technical in its approach and successfully inhibits the user from having any real influence (Beath & Orlikowski, 1994). An example of this is the extensive use of UML even though many projects have negative experiences with it, especially when used for requirements

analysis (Boivie, Åborg, Persson, Löfberg, 2003; Cajander, Boivie & Gulliksen, 2007; Verner, Cox & Bleisten, 2006). Within the rationalistic systems development perspective, ICT is seen almost as a religion and systems development is the process in which the priests (the developers) lead the heathens (the users) to their salvation (Beath & Orlikowski, 1994). A rationalistic perspective on systems development constructs the activity as problem solving (Bray, 2002; El Emam, Quintin & Madhavji, 1996; Gildersleeve, 1970; Robertson & Robertson, 1999) in which the project's objective is to uncover what kind of problem the user/customer is having and then to design a solution for that problem.

A different approach would be a more open process in which problems, needs, wishes and visions (both current and the possibility for future) are made possible in an ICT system. Instead of a rational, logical, problem-solving process it is a creative, social and unpredictable process. The first process is very much related to a classic engineering discipline. Skilful action involves intuitive knowing. That kind of knowing involves more information than any description can provide (Schön, 1995). Kapur (2004) analyses how ICT/business projects differ significantly from engineering projects. Table 2 summarizes some of the differences he describes.

Several alternative models and methods try to compete with traditional systems development, including ETHICS (Doherty & King, 1998; Mumford, 1983, 1986, 1993; Ravichandran & Rai, 2000), the Mentor Project Model (Thomsen, 1993), Creative Design (Löwgren, 1995), Soft Systems Methodology (Checkland & Scholes, 1990; Ravichandran & Rai, 2000), Concept of use (Grudin, 1991), Goal Cards (Balic et al., 2002), a procurement approach (Markensten, 2005), MUSE (Lim & Long, 1994), and benefit realization (Ashurst & Doherty, 2003). Even though extensive research has shown their benefits and superiority over linear ISD models, they have not been widely established in general practice. Elements of them, such as prototyping and iteration, are becoming more widely used, but not the full perspective that they facilitate (Laplante & Neill, 2004).

Hirschheim and Klein (1989) used a set of paradigms to describe the situation.[*] *The functional paradigm* strives to offer rational explanations as to how individuals act within a social system; systems development is instrumental reasoning; system design is a technical process that transforms system objectives in an objective, verifiable and rational way; the developer is a neutral and objective expert. *The social relativistic paradigm* strives for explanations within the frame of individual awareness and subjectivity; systems development is creation of meaning; systems come into being through social interaction; the developer acts as a facilitator to stimulate reflection, cooperation and learning among all stakeholders. *The radical structural paradigm* focuses on the structure and analysis of economic power relationships. It presumes that a fundamental social conflict is embedded in society between the interests of those who own the sources of production and labour; systems development is part of the class struggle in which the owner class exploits labour and the developer must choose to work either as an agent for the management or as one who supports the users.

During my years as project manager and later in undergraduate courses in computer science, I was drilled in the rationalistic systems development perspective. I have experienced both how poorly it fits with the development of interactive systems and how seductive it can be to

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[*] Hirschheim and Klein (1989) describe four paradigms. The three I describe are analyses of the current systems development practice while the fourth is only theoretical. Since my narrative is about actual practice I leave the fourth out of the story.

| Differentiating attribute | Engineering projects | IT/business projects |
| --- | --- | --- |
| 2. Clearly defined end | Conventional and common | Seldom |
| 3. Customer expectations | Realistic and stable | Unrealistic and changing |
| 5. Change process | Controlled, documented | Uncontrolled, ad hoc |
| 6. Built-to-last | Long life | Short life |
| 7. Linear and bounded project phases | Conventional and common | Seldom |
| 8. Build to specifications v. requirements | Build to specifications | Build to requirements |
| 9. Standardized terminology and symbols | Conventional and common | Seldom |
| 10. Well defined deliverables | Conventional and common | Few and not possible |
| 11. Estimates | Based on history | Best guesses |
| 12. Schedules | Easy to create and stable | Difficult and unstable |
| 14. Customer involvement | Not involved | Heavy involvement necessary |
| 17. Impact of staff turnover | Low to medium impact | High impact |
| 18. Fabrication v. creating from scratch | Mostly build by fabrication | Mostly build from scratch |
| 23. Earned value and percent complete | Applicable metrics | Not applicable in its classic form |
| 24. Legal (contractual) obligations | Conventional and rigorous | Poorly defined |
| 31. Customer training | Minimal to no training | Extensive and in depth |

*Table 2: Engineering projects versus IT/business projects (Kapur, 2004, p. 17, extract from Figure 1.10)*

assume that everything can be calculated and formulated in advance. For me, the turning point came during a lecture in HCI; suddenly I realized that it was possible to construct systems development within a different kind of paradigm, one that puts humans in the forefront.

# Organizational Development with ICT

Within the procurement perspective to which I adhere (see section on *Procurement*) one of the main arguments is that systems development is primarily a question of organizational develop-

ment and the primary factors for successful ICT implementation are organizational issues (see section on *Information Systems Development*).

Giddens (1987, p. 153) defines an organization as "a social system which is able to 'bracket time-space', and which does so via the reflexive monitoring of system reproduction and the articulation of discursive 'history'". Today people, and particularly organizations, are in a continuous state of change that derives from many different sources. Changes can be individual, strategic, or external, and they do not necessarily occur in sequence. Wastell (2002) describes the phenomenon as a battle between discourses in which a new one is trying to establish itself within the already existing ones. Guest (1984) describes planned organizational development as having different stages: diagnosis (describe organizational context; identify problems and opportunities), and then action and process maintenance (building up and maintaining change activities). For example, the change can result from analysis and presentation of new information, collaborative activities involving both those being changed and the change agents, or economic and political sanctions by an established elite (Guest, 1984). Organizational change is often initiated and controlled by management—and they also set the objectives. Even though many managers would like the process to be primarily rational, this is often not the case. Many agents are involved, including managers, shareholders, employees, customers, suppliers, local communities, and governments, and they will try to impose their preferred methods for both organizational transformation as well as ISD so that it best serves their interest (Monod, Truex & Baskerville, 2002). Czarniawska (1997) uses narrative as a qualitative method for studying organizational change with ICT and has found this to be particularly useful for that context. For example, she uses drama as a metaphor when analysing narratives in offices of the Swedish public administrations; in this work she is much inspired by theorists such as Goffman.

Avgerou (2000) describes organizational change and ISD as two separate processes with distinctly different forces. For example, ISD tends to occur gradually, stepwise and cumulatively while organizational change is erratic and often transient. But technology has always played an important role within organizational theory (Orlikowski, 1992; Wynn, Whitley & Myers, 2002). Human behaviour is shaped by the organizational context as human actions are always situated; organizational conventions and rules define legitimate and appropriate behaviour, and enforce it through rituals, practices and traditions (Orlikowski, 1992). People within an organization share basic assumptions and beliefs; these influence and define the perception of the organization and its environment unconsciously and in a taken-for-granted way; they are simultaneously tools for interpretation and a formula for action (Johnson, 1992).

Many studies have shown that system use is also influenced by others' use or opinions about use; and by support for the system among higher management (Hartwick & Barki, 1994). Usually individuals have little control over how and when they should use technology and the meaning such interaction constructs. But these constraints are institutional and not inherent in the technological artefact. The way that people interact with technology will act on the organization's institutional properties, usually by enforcing them and rarely by changing them. Users seldom think about the institutional consequences of their behaviour but when they use technology the way it was intended, they enforce the institutional structures; when they use it

in unintended ways they might unknowingly undermine and sometimes change the norms and thereby the organizational context and the strategic objectives intended (Orlikowski, 1992).

It is easy to attribute successful change to management and failures to resistance to change by the employees (Galliers, 1998). In a change process it is important to pay attention to different stakeholders' perceptions; doing so involves a focus on mindsets, learning and knowledge (Baets, 1998). Those who question, criticize, or object to new IS are often marginalized and positioned as resistant to change (Cukier, Middleton & Bauer, 2002). We can either construct humans as opponents to change or construct a situation in which humans will actively welcome change if they believe it is beneficial for them (Mumford, 1983). People carry with them many stories that can be valuable assets for an organizational change process. Through sharing those stories they can be stimulated to believe their visions can be attained and that the process can be the foundation for a creative change (Gergen, 1999). It is important that those involved in any organizational transformation feel involved; a user representative is not enough. Key is the opportunities "to make important job decisions, making an important contribution to one's organization, self-determination, the freedom to set one's own work pace, achievement, and success" (Barki & Hartwick, 1989, p. 59).

It is important that an organizational change through ICT be anchored in the current work practice (Thomsen, 1993); Brown and Duguid (1992) argue that organizational change might be threatening because it can "disorient members and deny the affordances on which they rely to get their work done. Every structural change would require building, to a greater or less [sic] extent, the background to each member's working knowledge" (p. 188).

Organizational change is more likely to occur when a system is seamless; the more seamless the system, the more likely it is to be used unreflexively, making it more likely to constrain the user's behaviour (Orlikowski, 1992). One way to construct this is to say that the better the match is between the users' perception of the ICT system and their perception of their work practice the more control can be exercised over them. But this also inhibits potential innovation through users' agency, which a more flexible system would support.

Within organizational theory, users have traditionally been constructed as machines (Kilduff, 1993) and the underlying assumption has been that an organization is like a system in which it is possible to manipulate individual and collective behaviour through controlled change of certain factors (Ravichandran & Rai, 2000). An extension of this perspective is Business Process Reengineering (BPR), which aims to re-evaluate current business processes and integrate them with ICT (Powell & Dent-Micallef, 1997). In this view, what an organization does is constructed in the form of processes and visualized through diagrams that primarily show a vision of the information flow. The first version of BPR was very radical and aimed at reconfiguring an entire business with ICT as a central force (Grover, Teng & Fiedler, 1993; Valentine & Knights, 1998).

Marketed very aggressively, almost evangelically as the only solution, BPR gained a lot of attention, but was not followed by success stories. Instead many of its advocates, such as Davenport (1998), have openly revised their belief in ICTs potential to change organizations. Failure rates of 50% to 70% have been reported and few managers are satisfied with their BPR programs (Galliers, 1998; Pettigrew, 1998; Powell & Dent-Micallef, 1997; Valentine & Knights, 1998;

Worthen, 2002). The risk is that the process will end up being more important than the actual people involved—as often happens with technological determination (see section on *Information and Communications Technology*). The underlying philosophy of BPR relates to classical perspectives in which profit maximization is the key and little concern is given to cultural or contextual issues (Galliers, 1998). Instead of just focusing on ICT there is a need for a more balanced, holistic stance. No analysis of an organization can be completely objective; it will always be based on preconceived assumptions of organizations in general and the specific one at hand, and may be framed within certain political intentions rather than rational and logical actions. Organizational change is usually not only about changing objective facts; it is often related to a change in how people perceive the organization, themselves and how things work. Such changes, particularly if they are major, are very difficult to implement and require an evolutionary approach (Johnson, 1992).

Several researchers have tried to shift the focus in BPR. Valentine and Knights (1998) tell of a revised perspective that is more careful in its rhetoric and argues for a close connection between human and technical issues in the re-engineering process; a major element is sensitivity to organizational context. Bjørn-Andersen and Turner (1998) studied a company whose reengineering work began not with the business processes but with the goal of a flexible, learning organization where the processes naturally emerged when individuals or groups of individuals perceived a need for them. Galliers (1998) took a similar route, combining BPR with a socio-technical approach. His perspective conceptualizes IS design as an organizational change strategy in which the technical design is framed within a larger objective for a redesign of the social system; it does not assume radical or processual change (Galliers, 1998; Ravichandran & Rai, 2000). According to Ashurst and Doherty (2003) this perspective has a lot in common with research into benefit realization. The primary approach, in the socio-technical perspective, to increase user satisfaction and productivity is participation (Clegg, Coleman, Hornby, MacLaren, Robson, Carey & Symon, 1996; Ives & Olson, 1984). But it also includes a notion that users can be manipulated in a controlled way in order to control a desired organizational change (Orlikowski, 1992; Ravichandran & Rai, 2000). The "correct" objectives are embedded in a well-designed technology and therefore one of the most important elements is management's commitment (Orlikowski, 1992). A structural perspective, on the other hand, constructs the deployment and diffusion of technology as a much more complex process (Orlikowski, 1992).

The classical IS that is used for organizational change is ERP (Enterprise Resource Planning): large standardized systems for a multitude of business processes. SAP is probably the best-known version. The interest in ERP largely followed the interest in BPR; at least academically, that interest has receded somewhat. Despite many reports of dissatisfaction and failure, like those of BPR, ERP is still very much in use in industry (Rose & Kræmmergaard, 2002; Swansson, 2002; Westrup, 2002). ERPs are typically implemented within a technological deterministic perspective in which it is assumed that changes only occur and are only wanted when driven by the new system (Oliver & Oliver, 2002).

The machine metaphor is in stark contrast with the agency perspective offered by Boudreau and Robey (2005) and Orlikowski (1992, 2000), which raises important questions in regard to organizational development with ICT. In this perspective, people are constructed as

knowledgeable, innovative, and relatively free to use technology in different ways and not necessarily in the way the designers intended; they also reject the use of technology as a determinant of social change. These writers provide many examples of users determining how an ICT system is deployed. In the hands of the users, even systems with strong constraints, like ERP, have either not been used at all or the users have altered the intended use. An agency perspective is a core element of the structural perspective on ICT and organizations, and is put forth primarily by Orlikowski (1992, 2000). In this perspective people constitute structures through recurrent technology use. These rules and resources are what Orlikowski calls *Technologies-in-practice*. The use is a situated and recursive process and even if constraints exist the users are not limited to a predefined set of possibilities; the artefact's physical attributes do pose limitations as to what is actually possible. According to Orlikowski, the structures are not embedded in the technology; they emerge during the users' ongoing situated interaction with technology. This perspective focuses on the everyday practices of knowledgeable people within an institutional context. Changes in technology or work practice are often a conscious result of peoples' knowledgeable actions; structural consequences are much more likely to be unintended. The concept of technologies-in-practice creates an opportunity to investigate the extent to which users realize the designers' intentions with a technology. It shifts the focus from returns on technology to returns on the use of technology.

It is within Orlikowski's theories that I position myself. I think she manages to integrate all the relevant aspects in a very elegant way.

# Human-Computer Interaction

Human-Computer Interaction (HCI) is not as clear-cut a science as physics, for example. It is fairly new, even though progress was seen to begin in many related areas as early as the 1940s; it is often proclaimed that HCI was formed as a science with the first *CHI Conference on Human Factors in Computer Systems* held in 1982.

Probably because of HCI's multidisciplinary character, different people tend to focus on different things when they talk about it. Some argue that it stems from the development of new interfaces within computer science; they might mention, with a touch of melancholy, a 1968 conference at which Douglas Engelbart and his research team made a presentation that included prototypes of ideas that eventually evolved into just about everything that we today perceive as fundamental in the interaction with computers: the personal computer, windows, GUI, icons, keyboard, mouse, hypertext (Internet), and email (Pew, 2003).

During the 1960s and 1970s many computer scientists had great visions about future interaction (e.g. Engelbart, 1962; Kay, 1972; Licklider, 1960; Sutherland, 1964). They saw a totally new world appearing, and a lot of what they predicted has come into existence. It is still very important within HCI research, in both academia and industry, to investigate both old and new forms of interaction and technology (e.g. Card, Hong, Mackinlay & Chi, 2004; Gaver, in press; Gaver & Martin, 2000; Moen, 2006; Oviatt, 2003; Stanney, 2003; Zhang, 2006). My undergraduate degree

is in computer science, I have always been fascinated with technical issues and I often end up helping friends and family with technical artifacts. And yet, I would not position myself within this particular perspective.

Others construct humans' mental and social conditions as primary. Many researchers within HCI have been highly influenced by cognitive psychology. The high point for this line of research was reached during the 1980s with the strong focus on how people mentally process their activities and their interactions with computers. At first most attention went to the human information-processing theories and experimental psychology, but over time more complex theories and models were constructed, for example activity theory (e.g. Nardi, 1996), and distributed cognition (e.g. Hollan, Hutchins & Kirsh, 2000). In the discourse of HCI many concepts derive directly from psychology, for example affordances (e.g. Norman, 1988), metaphors (e.g. Carroll & Thomas, 1982; Carroll, Mack & Kellogg, 1988), mental models (e.g. Norman, 1988; Waern, 1989), and representations (e.g. Laurel, 1991). Also, several of the field's methods make good use of psychological theories and methods, for example GOMS (e.g. Card, Moran & Newell, 1983), cognitive walkthroughs (e.g. Polson, Lewis, Rieman, & Wharton, 1992), task analysis (e.g. Waern, 1989), and usability testing (e.g. Rubin, 1994). Finally, some psychological concepts are prominent in the discourse of HCI, including learning, memory, knowledge, and cognition; virtually any textbook in HCI-related areas will include sections on these concepts.

At the same time other researchers have been concerned with more social aspects of HCI; many of them have been inspired by ethnography. Even though influential theories based on ethnography have come through, for example, situated actions (Suchman, 1987), the main focus has been descriptive. Researchers have tried to study and describe how people accomplish their work in different settings, including how they use technology (Monk & Gilbert, 1995). Though many of these studies have been highly influential in HCI research, an often related issue has been how the results of these ethnographic studies can "inform design" (e.g. Hughes, King, Rodden & Andersen, 1995; Siegel & Dray, 2005). This question is very prevalent in HCI; it has been raised at nearly every dissertation discussion I have attended, even when the researcher has explicitly stated that this was not the aim (e.g. Räsänen, 2007). I believe this has to do with the fact that in my HCI community the primary research takes place at technological universities and many of the researchers adhere to the more technological perspective of HCI. In particular, they are influenced by the discourses of the more traditional natural sciences, which are prominent at these universities. Those discourses focus on the concrete; the creation of things is considered beneficial while reflection and description are not.

In this area an interesting problem is how to translate thick descriptions, such as those generated with ethnography, into designs, and many approaches have been developed to do so. Some researchers with a background in ethnography or anthropology voice a feeling that given the way the "ethno"-concept has been reconstructed within HCI, they do not want to position themselves in it. I have observed an interesting situation in our department, which I believe is one example of this conflict. The department includes people with a background in anthropology and ethnology and the question of what kind of ethnography is practiced within HCI has been discussed multiple times. People who in ordinary talk construct their work as ethnographic do not necessarily do that in their thesis. One of our anthropologists never really

defines her method, even though she describes it meticulously; she talks about ethnography theoretically but the closest she comes to labelling her own work is as a socio-cultural analysis (Räsänen, 2007). An ethnologist also talks about ethnography but labels her own work as a phenomenological and hermeneutic approach (Lindquist, 2007). Meanwhile, two people with more technological backgrounds label their work as an "ethnographically-inspired approach" (Bogdan, 2003, p. 11) and as "ethnographic field study" (Normark, 2005, p. 13).

Interestingly enough, during my time at this technological university, I have primarily been influenced and inspired by these more humanistic approaches. Here, I have found theories and methodological approaches that correspond well with my interests and views on life in general, which of course influence the kind of research I conduct.

The picture changed at the end of the 1980s when a more design-oriented perspective was embraced. Ehn and Löwgren (1997) narrate a history of this perspective. They tell us that the focus was the skill and everyday practice of both the computer user and the designer. From Terry Winograd came the attention to reflection; design occurs in the interaction between understanding and creation. This matched the ethnomethodological approach of Lucy Suchman. Software design shifted from being a mathematical object into a process focusing on human learning and communication and acknowledging subjectivity. One major expansion of this perspective is what is now called *Interaction design*. This has been so important that researchers and practitioners have started to distinguish between HCI and interaction design. There are now undergraduate courses and degrees in interaction design, and practitioners who call themselves interaction designers might previously have called themselves specialists within HCI or human factors. In my department we have discussed the issue several times and so far have not been able to agree on whether it is one area or two separate ones. Or if it is a question of a subset, which one is part of the other? In spite of several attempts, for me, the difference is still very fuzzy—and so is the need for a new concept. I still construct it as a sub element of HCI.

Some argue that HCI stems from studies of people's work with machines and the field of human factors or ergonomics. This can be seen in the name of the standard that defines some of the most important concepts within HCI, such as usability; it is called *Ergonomic requirements for Office Work [...]* (ISO, 1998), and the primary conference is called *Conference on Human Factors in Computer Systems*. Researchers who focus on this area "emphasize the relationship to the work setting and the effects of stress factors" (ACM SIGCHI). This research can also be found under the heading of Human-machine interaction (HMI). During the early work on human factors and ergonomics, HMI was the term used. For some time, the division between HMI and HCI was quite clear, but as more machines have become computerized, today they are basically constructed as synonymous.

Another concept that I have stumbled upon several times, for example in one of my three studies, is Human-system interaction (HSI). Just as with HMI there was a difference in the early days of HCI when the focus was very much on *one* user interacting with *one* computer. But since the early 1990s this has changed drastically, for example through a sub area of HCI called Computer Supported Cooperative Work (CSCW), which focuses on *many* users using *many* computers. Another factor is the diffusion of computerized technology into people's everyday lives. Therefore, today, HSI is also constructed as synonymous with HCI. One interesting

representation of this can be found in the name of another standard: *ISO/TS 16071:2003 Ergonomics of human-system interaction: Guidance on accessibility for human-computer interfaces* (ISO, 2003). This seems to bring the whole package together.

Research on work has had great influence on the HCI community. It was here that many started reconstructing the meaning of work and user; for example Pelle Ehn (1988) argued for a tool perspective. He also advocated for emancipating users and making the workplace more democratic through and in the systems development process. This political perspective pervades much of the work-related research. Ehn was part of a research group whose work came to be the foundation of the co-operative (or Scandinavian) design methodology (Bødker, Ehn, Sjögren & Sundblad, 2000). The HCI group that I have belonged to as a PhD student houses some of these researchers. This fact is often mentioned, not so often in our group but by other researchers who seem to take it for granted that the co-operative design methodology "is in the walls".

I have found this assumption to be rather restricting. There is an informal pressure to abide by this perspective and treat it, to some extent, as untouchable. Since I believe that one of the strongest forces in research is critique, I believe that we as a group lose ground due to this pressure. I believe that research should be engaging and it should try to influence people, organizations and societies (and I have previously been very involved with work in local unions), but I still do not feel that attracted by this particular political stance. Even though I sympathize with the employees I am of the opinion that an organization is one unit and therefore it is not only the employees that need attention. At the same time, I am convinced that if the employees are satisfied with their work situation this would generate a thriving organization. I am also convinced that, in general, employees inhabit invaluable information in regard to the work and how it is constituted. So for me it is not a question of empowerment as much as a more straightforward statement that everyone can gain something from employer involvement in systems development.

In conclusion, the work perspective is important to me, but more as a focus than as a theoretical or methodological approach. I believe that in today's highly computerized workplaces the interaction with ICT has a large impact on both the implementation of business, i.e. *how* we do it, and the business itself, i.e. *what* we do. More on this can be found in the section on *Procurement*.


Enough history for now. What does all this mean in practice? Clearly, it has something to do with the interaction between computerized technology and humans. The only standardized definition constructs HCI like this:

*Human-computer interaction is a discipline concerned with the design, evaluation and implementation of interactive computing systems for human use and with the study of major phenomena surrounding them. (ACM SIGCHI)*

In my HCI group many say that they perceive the group to be split into many small groups; they experience this situation as inefficient and alienating. We have therefore tried to figure out what the group should focus on in order to improve collaboration and the psychosocial work environment. In this work we have talked to and analyzed other HCI groups as well as our own.

The lasting feeling is that it seems to be rather typical for HCI groups to sprawl all over the place and the reason constructed is that it is rather typical for HCI as a research area. In our group we have competences from anthropology, archaeology, cinematography, cognitive science, communications, computer science, ethnography, industrial design, literary studies, and psychology. We are continually struggling with the question of how to utilize all this knowledge and experience (for interesting insights into this struggle see Lindquist, 2007). We often discuss the purpose of our research: is it to come up with new fascinating technology that people can use, or is it to support humans in their interaction with technology, or is it to expand HCI theoretically and methodologically? Maybe these goals should not be seen as being in opposition to each other, but in practice, the group is limited both in personal and financial resources and therefore always has to prioritize.

My own view is that this scattered construct of HCI undermines its potential and may be one reason why it has not had that much impact on the practice of ISD.

# Usability

The primary concept in HCI is usability; the foremost objective of most HCI researchers and practitioners is to develop more usable ICT systems. Even if many treat it as unproblematic—for example in *The Human-computer interaction handbook* (Jacko & Sears, 2003), an ambitious attempt to cover the essentials and the trends within HCI, the concept is never defined or even brought up for discussion—I would argue that the attributed meaning is often ambiguous. One of the most widespread definitions is from an ISO-standard: "The extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use" (ISO, 1998). But other standards such as *IEEE Standard for a software quality metrics methodology* (IEEE, 1998) and *ISO 14598-1:1999 Software product Evaluation* (ISO, 1999b) have their own definitions.

One problem that has been acknowledged is a need for definitions that are applicable to different use contexts. For example a focus on more everyday interaction outside of the work context might require assessment against concepts such as likeable, beautiful, satisfying, and exciting (Ehn & Löwgren, 1997); in games the concepts might be entertaining, challenging, and fair (Rouse, 2001); and for internet applications it might be sociability, consistent look and feel, and navigation support (Sharp, Rogers & Preece, 2007). Adler and Winograd (1992, p. 7) emphasize flexibility: "The key criterion of a system's usability is the extent to which it supports the potential for people who work with it to understand it, to learn, and to make changes. Design for usability must include design for coping with novelty, design for improvisation, and design for adaptation." I think this fits well with an agency approach in which system design is an ongoing process of development and use (see section on *Organizational Development with ICT*).

One common way to approach usability is by using other concepts such as learnability, flexibility, task efficiency, and error handling (e.g. Lauesen, 2005; Leventhal & Barnes, 2007;

Nielsen, 1994; Sharp et al., 2007; Shneiderman, 1998). Within IS research the terms ease-of-use or usefulness are more common. The former is often used as a synonym for usability (Landauer, 1995; Lauesen, 2005), the latter is related to whether the system actually does the correct thing (Landauer, 1995), if it supports the intended task (Franz & Robey, 1986). In any form usability is a quality concept of the system, always related to the user. It also works the other way around: usability is included in other concepts such as non-functional requirements, system quality, user satisfaction, or net benefit**.

In addition, many other definitions are far from the meaning the HCI community attaches to the concept. People outside the HCI community often use the term "user-friendly" as a synonym for usability, but it oversimplifies the concept. In addition the emphasis on "friendly" marginalizes the issues and not only narrows it to the user interface but also makes it a simple binary assessment—it is either friendly or not (Leventhal & Barnes, 2007; Norman & Draper, 1986).

For me, and many others within the field of HCI, usability is so much more than these words. If the issue was simply about the user interface then it would just be a question of constructing a really great interface that would satisfy everyone once and for all. Though some great user interfaces have been constructed the issue is not hardly resolved. In fact, just as the ISO definition above emphasises, it is a continuously moving issue since it is user- and domain-specific and users as well as organizations are in a continuous process of change. I think Cooper (1999, p. 207) exemplifies the user interface approach wonderfully:

*To me, usability methods seem like sandpaper. If you are making a chair, the sandpaper can make it smoother. If you are making a table, the sandpaper can also make it smoother. But no amount of sanding will turn a table into a chair. Yet I see thousands of well-intentioned people diligently sanding away at their tables with usability methods, trying to make chairs.*

Most of what has been said so far relates to both consumer products and workplace products. One major difference between them is the degree of freedom of choice. A consumer usually has great freedom: we can either not buy something or buy a new product if we are not satisfied. But in a workplace the user has less space for such decisions. Though several studies have shown how users still have more agency even in that kind of context, consumers keep on buying things that have very poor usability; therefore I suggest that many forces are influential. My focus has been on the workplace situation.

One problem is how to assess usability. A common way is through heuristics but they are often contradictory, vague or ambiguous; most important, they only work on a conceptual level since it is hard for anyone but the user to perceive the specific domain context (Landauer, 1995; Pew, 2003). Other approaches have focused on specifying measurable requirements (e.g. usability engineering; Lauesen, 2005). Within HCI, the solution is primarily user-centred systems development methods (see section on *User-Centred Design*).

Researchers have tried to see the relationship between usability-related concepts and system use or system quality. The most commonly used measurement of system quality is user satisfaction (Hwang & Thorn, 1999). Sabherwal, Jeyaraj and Chowa (2006) found that it might

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** Net benefit is an idealized sum of previous and expected future benefits, less all previous and expected future costs attributed to the system use (Staples, Wong & Seddon, 2002)

be more rewarding to strive for enhanced system quality (including ease-of-use) and usefulness instead of user satisfaction. This shift fits well with the procurement perspective in which satisfied users are only one element of usability. Staples et al. (2002) found a negative correlation between users' expectations and user satisfaction; that, is, when their expectations exceeded what was delivered they were less satisfied than when their expectations were equal to what was delivered. It becomes clear how this kind of investigation is socially constructed when the conclusion is that managers should ensure that users not have "unrealistic" expectations. They do not investigate whether or not it is actually the system that underperforms. They only look at expectations and then make a value judgement: that the expectations are the problem and not the system. But in fact, it might be that the expectations are unrealistic as to what the system potentially can deliver and that instead something is wrong with the system or the ISD. Other correlations have also been presented: usefulness and system quality influence use (Sabherwal et al., 2006), and perceived usefulness is influenced by user participation (Franz & Robey, 1986), ease-of-use (Karahanna & Straub, 1999), and system quality (Sabherwal et al., 2006)

For me usability is a critical aspect of a well designed IS. It needs to be considered from the very beginning and then continuously during the systems development process. Discussions related to benefits, goals, quality, or functionality all relate to different aspects of usability.

# User-Centred Design

For me User-Centred Design (UCD) is the concept within HCI that brings together usability and systems development. It is constructed as the solution that ensures that systems will be usable. But its content varies; it is an umbrella concept for a variety of methods, techniques, processes and approaches. One of the most prominent definitions is the one by Gould and Lewis (1985), which clearly inspired the ISO 13407 standard (ISO, 1999a) for a user-centred process. Four major elements are usually included. *User focus* bases the design work during the whole development process on the users, their uses, and their context; based on empirical studies, it is the belief that this is a prerequisite for good system design. *User participation* means users participate actively in the development process—either when project members make field studies of the application domain, or as part of the development team, or as a reference group, or as test persons. *Iterative development* is a process that tries out different design versions with the users and repeats the process several times. Requirements need to be visualized explicitly so users can imagine the future use; changing requirements are natural in the development of new systems and not something that is problematic or wrong. Finally, the *multidisciplinary project* means that apart from technical competence, a systems development project needs expertise from people who can analyze the users and their context as well as people who can transform this analysis into a design for a future system.

Some researchers have tried to define UCD more clearly; for example Gulliksen, Göransson, Boivie, Blomkvist, Persson and Cajander (2003) ended up with a set of 12 principles. They used

these principles to formulate a process they call the *Usability Design Process* (Göransson, Gulliksen & Boivie, 2003), which occurs in three major phases: *Requirements analysis* (pre-study and business analysis, planning the process), *Design* (iterative user-centred design comprising design, evaluation, analysis, redesign, evaluation, etc.), and *Deployment* (introducing and operating the system). The process is not standalone; it must be used within the context of other systems development processes.

One of the earliest attempts at a user-centred systems development model was *Usability Engineering*, a process based on classical engineering. It focuses on quantitative specifications: "If you can't measure usability you can't have usability engineering" (Good, Spine, Whiteside & George, 1986). It involves three stages: 1) user and task analysis, 2) usability specification, and 3) iteration of prototype design, usability assessment, and (re)design until the goals formulated in the usability specification are met (Ehn & Löwgren, 1997). But the focus on quantitative measuring has been criticized; Göransson et al. (2003) argue that it does not pay enough attention to design issues. Further, Ehn and Löwgren (1997) assert that it is primarily about effectiveness, efficiency and error free access—not about developing the appropriate system. Later attempts include subjective approaches and design issues, for example contextual design, which principally incorporates the spiral model and the participatory design tradition (Ehn & Löwgren, 1997).

More of an approach than a process is *Participatory Design* which started out with a political ambition to empower users but over time has come to be more of a general critique of the way, in traditional systems development, human competence has been reduced to formal descriptions (Ehn & Löwgren, 1997). The more political perspective is commonly referred to as cooperative design (see also the section on *Human-Computer Interaction*). Active user participation in the design process is constructed as both a means of improving systems and a democratic objective per se (Ehn & Löwgren, 1997). From my point of view, today, participatory design and user-centred design are often used synonymously.

Within the area of IS research a similar progression has occurred with a dual focus on human and organizational issues. One early attempt to handle both these issues was Mumford's (1983, 1986, 1993) ETHICS (Effective Technical and Human Implementation of Computer-based Systems). It is a linear approach to systems development that focuses on organizational and human issues. The main objective is to integrate business needs with user and customer needs, to design both organization and technology using a participatory approach.

More recently, Clegg et al. (1996) developed a socio-technical system theory approach, based on an extensive analysis of commonly used systems development methods, and theories within HCI, IS and IS development. Their set of tools and methods are specialised for designing work organizations and jobs, allocating tasks between users and IS, evaluating the usability of prototypes, and conducting task analyses. The tools are intended to base the work specifically on the expertise of the people who will actually handle and use the future systems; their approach is participatory and intended to be primarily owned and used by users and their managers with the aid of technical and HCI specialists. I believe many of these tools could fit very well with the procurement perspective.

Often when UCD is mentioned it is not used for a particular process, but refers to a situation in which methods with a focus on users have been used. For example in a study that surveyed people attending CHI2000 (Mao, Vredenburg, Smith & Carey, 2001), several such methods were included: field studies (including contextual inquiry), user requirements analysis, iterative design, usability evaluation, task analysis, focus groups, formal heuristic evaluations, user interviews, prototype without user testing, surveys, informal expert reviews, card sorting, and participatory design.

For almost 40 years, researchers and practitioners of systems development have claimed that user participation is necessary (e.g. ACM SIGCHI; Biggs, Birks & Atkins, 1980; Gildersleeve, 1970; McCracken & Jackson, 1982). Unfortunately several studies and experiences from practitioners construct a situation in which much of this knowledge is not in use. Even though developers do care about usability, they hesitate as to whether something can be done, whether it is worth it and whether it is their responsibility (Lauesen, 1997). Developers often relate usability to the user interface and see it as something that can be added like frosting on a cake (Boivie, 2005). In spite of good intentions, many factors influence whether or not an organization actually will work with usability and user-centred design. Among these factors are potential differences between actors' views of the question (Artman, 2002; Näslund & Löwgren, 1999), politics (Mirel, 2000; Svensson, 2002), and lack of respect and support for usability issues and the professionals working with it (Gulliksen, Boivie, Persson, Hektor & Herulf, 2004). Some compose the problem as a difference in the ways that those in different subject positions construct the problems in systems development (Beath & Orlikowski, 1994; Svensson, 2002) or how the user is constructed (Isomäki, 1999).

Another set of factors revolves around miscommunication. According to Seffah and Metzker (2004) the problem is a gap between the HCI community and the software engineering community: they have different tools, methods, and perspectives and it is difficult for them to communicate. Lauesen (1997) describes how developers tend to misunderstand terminology and methods. They believe that they do UCD but observations of what they actually do show that a usability test is either synonymous with debugging rather than design, or can be a demonstration followed by a simple informal question to the users about what they think. But, those working in HCI argue that users might find a system attractive in a demonstration and then reject it totally when they have to use it to perform tasks. Or, developers may expect users to be able to perform design activities just by giving them a working prototype (Fakun & Greenough, 2004) even though their expertise is with the domain task and not design. Developers also tend to believe that a usability test has to include expensive usability labs when in fact many low-budget methods are both more appropriate and commonly used (Lauesen, 1997). One solution to the problem is integrating UCD in systems development models with an engineering perspective (e.g. Göransson et al., 2003; Lim & Long, 1994; Seffah, Gulliksen & Desmarais, 2005).

Personally, through my work trying to educate computer engineers in HCI, I have found that engineers find it very attractive to frame the issue as a formal, clearly described problem in which people simply need to follow standards or guidelines. But most problems are domain specific and they cannot be covered by this methodology (Lauesen, 1997). Another attractive

solution is to perform heuristic evaluations without users but this approach creates two kinds of problems. The evaluations are poor substitutes for real users as they only uncover parts of the problems users meet; meanwhile, they uncover many problems that users do not perceive as problematic, requiring costly efforts to solve these "false" problems (Lauesen, 1997).

At times, more professional usability tests are performed; Lauesen (1997) describes what happens when developers then try to fix the usability problems. First they might be surprised to find any problems at all, since from their perspective, the system is technically correct. When they do try to fix them, doing so turns out to be much more difficult than anticipated. There might be an obvious solution (common with technical programs, more uncommon with usability problems), a wrong solution (common with usability, uncommon with technical problems), an unknown solution (common with usability, extremely uncommon with technical problems), or an unknown cause (which can be almost eliminated with methods such as think-aloud, but is very demanding with technical problems). So, while developers never would dream of shipping off a program without thorough program testing, it is widely accepted to ship a program with no usability testing.

## User participation

One thing that is rarely touched upon within the literature of HCI or UCD is the actual meaning of participation. It is generally taken for granted, except for simple notes that such participation might have some influence, and that it is a question of gathering information and not just confirming already established ideas (Näslund & Löwgren, 1999). On the other hand, researchers within the IS field have tried to interpret participation more precisely. The main constructs are user participation, user involvement, and user attitude. They have been inspired by theories in psychology, marketing and organizational behaviour. Participation focuses on taking part, and making contributions, and on the actions and activities that users perform in the systems development process. Participation differs from frequency, effort or influence (Barki & Hartwick, 1994). Involvement and attitude are viewed as psychological states. Involvement depends on the importance and personal relevance that the user attaches to either a specific system or IS in general (is it *important*?), and attitude is an affective and evaluative judgment of a system (is it *good*?) (Barki & Hartwick, 1989, 1994; Hartwick & Barki, 1994; Lin & Shao, 2000).

Authors also describe various aspects of participation. It can be direct or indirect (through representation by others), formal or informal, solo or shared, factual or perceived (Barki & Hartwick, 1994). It is often constructed in relation to decision making; as such it can be *consultative* (objectives and form are influenced by the users' needs but design decisions are made by the development team), *representative* (every level and function of the user group is represented in the design team), *democratic* (all participants have equal voice), *responsible* (participants have full authority to make decisions), or operate by *consensus* (all users actively participate in the design process) (Ives & Olson, 1984; Mumford, 1983). Participation can be achieved through an *instrumental voice* in which users can express opinions and the voice is considered in the design, *no-instrumental voice* in which users can express opinions on previously made decisions but the voice is not considered in the design, or *no voice* in which users cannot express opinions at all (Fakun & Greenough, 2004).

Ives and Olson (1984) suggest several levels of user influence. At the level of *nothing*, users are not willing or not invited; at the *symbolic* level, user input is asked for but ignored, and at the *consultative* level, users' advice is gathered through interviews or surveys. In *weak control*, users have 'sign off' responsibilities at every stage of the development process; and at the *active* level, users are equal members of the development team or an official liaison to the development team. Finally, with *strong control*, users either pay for the development or are in charge of the organization's performance, which is dependent on the new system.

Hartwick and Barki (1994) make one more set of distinctions about participation. When users have *overall responsibility* the activities or tasks reflect a general management of or responsibility for the development project, such as being project manager or being accountable for a stage or specific tasks in the development process. Other categories are *user-IS relations*, activities that reflect communication and influence between users and IS-staff, and *hands-on* activities, for example explicit design or implementation activities.

An interesting concept, closely related to "overall responsibility", is *meaningful participation*, which involves personal autonomy, control, important decision making, or performing important tasks (Hartwick & Barki, 1994). This kind of responsibility is typically assigned to one or a small group of users. Another strategy could be to appoint larger groups of users or to identify a large group of activities that could be assigned to different users or user groups, and thus to include more users in the process (Hartwick & Barki, 1994).

Within IS research one area that has been thoroughly investigated is how participation relates to the use of the developed system. In 1984, Ives and Olson were already reporting that based on theories of organizational behaviour, user participation was widely seen as a necessary prerequisite for successful systems development, despite the lack of convincing empirical research. Since then, many researchers have tried to examine correlations empirically (see Figure 3 for an overview of that work). They have argued that many factors influence the use of a new system: system quality (Sabherwal et al., 2006), user involvement (Hartwick & Barki, 1994), user participation (Hwong & Thorn), particularly meaningful participation (Hartwick & Barki, 1994), and the expectations for (Staples et al., 2002), and intentions to use a new system (Hartwick & Barki, 1994). In turn, the intention to use a system is influenced by the users' attitudes towards the new system, and towards IS in general and norms within the organization (Hartwick & Barki, 1994). The perception of the system's quality is influenced by user participation (Hwang & Thorn, 1999; Sabherwal et al., 2006). User involvement is influenced by user participation, especially meaningful participation, and user attitudes (Barki & Hartwick, 1989, 1994; Hartwick & Barki, 1994; Lin & Shao, 2000). Users' attitudes towards a new system are influenced by their involvement and the system's quality, and by user participation, especially meaningful participation (Barki & Hartwick, 1994; Hartwick & Barki, 1994).

I genuinely believe that UCD is not only a good thing but also a necessary methodology for well designed IS. The users make the ultimate decision as to whether and how a system will be used. But just any kind of involvement is not enough; it must be treated seriously, starting with user and usage studies in which the context for the system is analyzed, and continuing with meaningful participation in which the users have an instrumental voice in hands-on activities. But the users should not be positioned as the authority in all areas. The simple fact that they
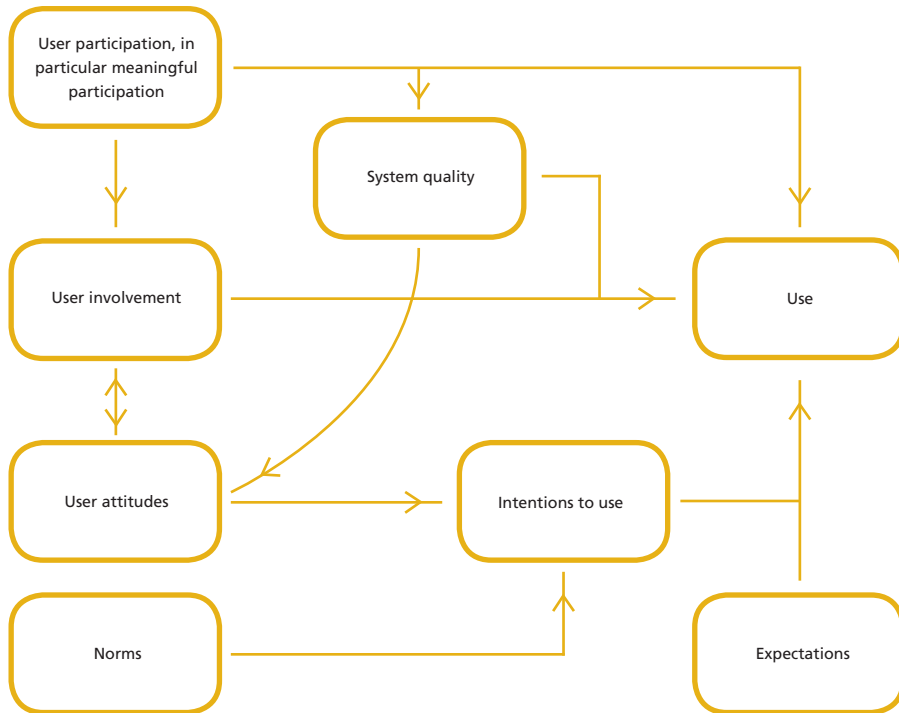
*Figure 3: Correlations between user participation and elements of successful ISD*

have unique insights into the work practice does not make them experts in areas such as design. Design is not only a question of coming up with an appealing IS user interface. Successful IS requires competence in analysis of the work practice within an organizational context and competence in methods that can transform that analysis into an effective interaction between the IS and the users. A collaborative effort is required, one involving a wide range of users, designers, usability experts and developers.

# Procurement

A language barrier creates a problem in the research I have focused on. In Swedish the word "beställare" carries connotations of an active and controlling role, of someone who gives orders. In systems development this is the person who initiates either internal or external projects/products.

To translate this specific role and activity ("beställa") into English is not easy; despite years of wrestling with it, we still have not found a satisfactory solution. At this point in time we are using the term procurement.

I am part of a research team that was established in 2001 and I joined the group in 2003. We position our focus as a new area within HCI; within it,

> […] we wish to critically analyse established relationships between users, developers and procurers. We wish to reassess the role of the procurer for the development of usable systems, by reintroducing the procurer as an active equal to developers and users. (Holmlid, 2004, p. 139)

We argue that traditionally within HCI the focus has been on the developer organization when it comes to both opinions and processes (Artman & Markensten, 2005; Holmlid, 2004; Holmlid & Lantz, 2006). We want to focus on and support the other side—which we call the procurer. We have seen that there is a lot going on at the procurer and in the relationship between procurer and developer that is not covered in traditional UCD; one example is the interaction between them as two different actors with very different agendas (Holmlid & Artman, 2003; Swartling, Artman & Dovhammar, 2007). Some researchers within the HCI community have perceived our focus as marginal and have even questioned whether it is actually HCI research. But this situation is hardly new; over a decade ago Buie and Winkler (1994) raised the problem of these issues not being visible within the HCI community.

| Term | American Heritage Dictionary | Dictionary.com Unabridged |
|---|---|---|
| Procure | To get by special effort; obtain or acquire<br>To bring about; effect | To obtain or get by care, effort, or the use of special means |
| Customer | One that buys goods or services | A person who purchases goods or services from another |
| Client | The party for which professional services are rendered<br><br>One that depends on the protection of another | A person or group that uses the professional advice or services<br><br>Anyone under the patronage of another; a dependent |
| Purchase | To obtain in exchange for money or its equivalent<br><br>To acquire by effort | To acquire by the payment of money or its equivalent 2. To acquire by effort, sacrifice, flattery, etc. |
| Buy | To acquire in exchange for money or its equivalent | To acquire the possession of, or the right to, by paying or promising to pay |
| Acquire | To gain possession of | To come into possession or ownership of; get as one's own |

*Table 3: Possible alternative terms for procure*

To procure means "to get by special effort, obtain or acquire" (American Heritage Dictionary). This particular term has not been used automatically in the area we are trying to establish. In Table 3 I include some of the related terms that could be used. We seek a word that describes a role that is active, forceful and engaged in the process. And even though terms such as customer, client, or purchaser are more common, they describe a more passive role in which one party buys the effort of another party. To acquire could involve effort but it does not have to. Sometimes procurement only refers to contract development, i.e. an organization orders systems development from an external organization. For our purpose, we include all kinds of systems development. We therefore also label the opposite party as the developer before using other words such as contractor, supplier or producer (Holmlid, 2004; Keil & Carmel, 1995).

However, we are coming to see that procure may not have been such a smart word choice. For many English-speaking people two other notions are more commonly connected to it. Though it is quite clear that we do not intend to invoke the notion of prostitution, a more troublesome issue is that many think of procurement as synonymous with either contract development (e.g. Buie, 1994; Buie & Winkler, 1994; Finkelstein & Spanoudakis, 1996; Følstad et al., 2004) or purchasing off-the-shelf products or packages (e.g. Alves & Finkelstein, 2002; Lif, Göransson & Sandbäck, 2005; Ncube & Maiden, 1999; for an exception see Scown, 1998). Since our research has largely focused on in-house development, this causes some confusion and keeps us from making our intentions entirely clear. Furthermore, some researchers within the IS field do examine some of the same questions as we do and they rarely use the word procurement. But they do not specifically investigate usability. So, we could use the word to distinguish our focus, to indicate that we are talking about something specific. (What I have found in relation to procurement questions in other disciplines is discussed either in this entry or under the section Organizational Development with ICT.)

I have chosen to use the word acquisition in the thesis title since I find it to be more appropriate for our work. In the text, however, I use procurer and procurement since that is the terminology we have used during our research—and also since I have not found a new term for the role of the procurer. Acquirer is not used internationally and other terms such as customer or client do not match our definition of "beställare".

One important imperative for us is to shift the attention and power from the developer over to the procurer (Artman & Andersson, 2006; Artman & Markensten, 2005; Holmlid & Artman, 2003). We argue that a successful implementation of IS requires a strong focus on business and use; technology is only the means. We have also seen that users and procurers have much more in common and are closer to the objectives of the business than are users and developers (Artman, 2002; Holmlid & Artman, 2003). Therefore, it should be more commonplace for a procurer to cooperate with users in the construction of goals, requirements and needs.

However systems development is achieved, there are particular moments when the requirements for the upcoming system are announced. Not only do the methods used to express these requirements differ; in fact, a separate area within computer science, called requirements engineering, specifically focuses on this work. It has also been one of the primary targets in analyses of why systems development projects fail. Insufficient requirements, or inadequate gathering of requirements, is often constructed as a major reason why ICT fails (e.g. Cegrell et al., 2002;

Davis et al., 2001; Følstad et al., 2004; Harris & Hendersson, 1999; Taylor, 2000; Turk, 2006). The bulk of the requirements are generally constituted in the first part of the development process, regardless of whether it is achieved in a formal or informal way. Here is where the problem arises. In order for a procurer to pilot the process it is imperative that she/he gets involved in the requirements process—even before an actual systems development project gets underway (Markensten, 2005). Since much of the process of requirements gathering and composition takes place before the project actually exists, the start date might be too late for usability to have a real impact on the resulting ICT system. Within UCD the tradition is to incorporate user-centred activities once there is an actual project (e.g. Seffah et al., 2005). Instead, we argue that ISD should be linked with organizational development (Artman & Zällh, 2005; Markensten & Artman; 2004).

Others have come to the same conclusion (e.g. Davenport, 1994; Näslund & Löwgren, 1999; Peppard & Ward, 1999; Tait & Vessey, 1988). Peppard (2003) describes a perspective close to ours when he divides the value of an ICT system for organizations into utility, or "the benefit a user or community of users attaches to a particular service" (p. 9) within their work context, and organizational benefit, the extent to which the ICT system supports the achievement of organizational objectives. An organization often needs to make compromises between these two different aspects in order to achieve a general value from the ICT system.

It is important that the procurer both takes charge of and understands the concept of usability (Artman & Zällh, 2005; Holmlid & Artman, 2003; Markensten & Artman, 2004; Scown, 1998). This is not merely a question of understanding; the degree of usability in the future system depends crucially on the procurer's ability to see the benefit of usability work early in the process, and to demand it (Artman & Markensten, 2005, Markensten, 2003). Nor should these questions merely be handed over to the developer; the procurer might think that they are self-evident and just assume that the developer will deal with them; meanwhile the latter may assume that only the questions that are specified will be tended to (Markensten, 2003), or the procurer may not explore the developer's competence in these areas (Artman & Zällh, 2005; Buie & Winkler, 1994).

But a question arises here: Why is usability more important than other technical details such as architecture? The answer is that, for the procurer organization, usability is a critical success factor. Others have also seen that it is important with an active procurer (Peppard, 2003; Peppard & Ward, 1999; Schrage, 2004; Taylor, 2000) and that problems can arise when the procurer is active but has little insight into usability issues (Holmlid, 2004; Näslund & Löwgren, 1999; Peppard, 2003; Scown, 1998). For all these reasons, it is time to urge that the procurer take responsibility for usability (Artman & Markensten, 2005; Cooper, 1999; Dovhammar, 2007).

Our research has described how procurers actually perform usability-related work, though they might not call it that (Artman, 2002; Artman & Zällh, 2005; Markensten, 2003). We have seen that procurers are interested in usability and UCD (Holmlid, 2004), and that they have a somewhat complex view of usability but are rather naïve when it comes to UCD. They want to perform usability work but believe that common sense is enough (Artman & Markensten, 2005). Clearly, we lack the techniques and methods that can support procurers with these issues (Markensten, 2003; Markensten & Artman, 2004; also supported by Peppard, 2003). Though

many procurers do perform feasibility studies in order to be independent from developers, they often consult external ICT experts who might exploit the situation; then, in the end only one developer can actually meet the requirements (Artman, 2002).

Our research has resulted in several recommendations. First, it is important that the procurer explicitly defines concepts such as usability and UCD and the roles and responsibilities involved (Artman, 2002; Holmlid & Artman, 2003). Contracts between procurer and developer should be open to revisions and allow an iterative process for requirements definition (Artman, 2002). The requirements specification should focus on the product as well as the process (Artman, 2002). Further, requests for proposals should primarily describe how the technology supports the organizational activity and not just the technology in itself (Artman, 2002; supported by Buie & Winkler, 1994), and the procurer organization should iteratively formulate business goals as well as user goals and visualize all of them in a concrete prototype (Artman & Andersson, 2006; Markensten & Artman, 2004). In addition, prototyping should be performed by professional interaction designers who have the required methodological knowledge (Artman & Markensten, 2005; Markensten, 2003, Markensten & Artman, 2004). It is important that these prototypes be seen not as final and true visions of the future system but as an aid for users, designers, managers and developers to discuss, experience and imagine the meaning of the requirements. When procurers become more active and start doing professional UCD work the relationship between procurer and developer changes. Once the project has started and the developer is involved, it is important that the procurer ensure that the usability work continues (Holmlid & Artman, 2003), but from a higher and more informed position than in traditional systems development methods (Holmlid & Lantz, 2006). It is important that they do not redo what has already been done but continue to improve based on the work that was performed before they got involved. We have also suggested a procurement-focused systems development model (Holmlid & Artman, 2003; Markensten, 2005) and performed studies in which the recommendations are used in practice (Holmlid & Lantz, 2006; Markensten & Artman, 2004).

I have a background in systems development. I started out as a user representative, continued as a project leader, working first as a staff member on the business side, and later transferred to the IT department. In my experience, when we moved to the IT department the procurer became less visible and the loyalty shifted so that the projects got a more technical focus. But with this process came a higher status within the company. When I went back to university I first thought I would be educating myself about what I already was: an ISD project leader—but with more technical competence. I got sidetracked when I came in contact with HCI; one day I realized that all of my previous experience and my position in regard to HCI were assembled within the perspective of procurement.

Many of the areas I have touched upon so far, for example the whole investigation of different terminology or different agendas in HCI research or communities, are part of discursive patterns, which are socially constructed.

# Discourse

The definition of discourse itself differs, but for the perspective within which I position myself, it is more than just a collection of statements. It has to do with certain structured representations of reality, which are created socially. Gergen (1999) defines discourse as a structured (there are recurring and fairly stable structures that we use in social interaction), rhetorical (people use discourse for certain social effects) process (social interaction is a continuous flow). Structure emphasizes stability and determination and how people constitute the background for their construction of meaning. Rhetoric emphasizes how people use, abuse, and transform discourse to attain certain purposes in their everyday life. Process emphasizes the "continuous, unsystematic, hurly-burly of everyday meaning making, the tensions, negotiations, and sudden turns in conversation that constitute the world for what it is" (Gergen, 1999, p. 77).

In Foucauldian analysis, discourse is constructed as a broad, historically developed, linguistic practice on a level above sentences (Foucault, 1969/2002, 1971/1993; Parker, 2002; Potter & Wetherell, 1987). Parker (2002) describes discourse as something that is realized in texts, reflecting a specific way of talking, referring to other discourses, constituting objects, containing subjects, as historically positioned, supporting institutions, and reproducing power relations. Further, discourse is the way meaning is distributed in culture, for example through speech, writing, non-verbal and pictoral communication, artistic and poetic imagery. This construct of discourse not only describes the social world; it also categorizes it and makes certain phenomena visible. It offers a framework for discussing the value of different ways to construct reality.

Giddens (1987) describes discourses as a medium as well as a result of human activities. He asserts that they constrain action but within their boundaries agents can act freely; even though people do everything intentionally and knowledgably, their routinized everyday lives reproduce social institutions of which they have not been a constitutive part. The recursive nature of social life is that actions (re)constitute institutional conditions for others' actions simultaneously as they influence our own. Fairclough (2001), following Foucault, positions discourses in an interdependent network called orders of discourse.

Discursive psychology argues that the definition of discourse that prevails in Foucauldian analyses gives too little agency to people involved in communicative practices (Potter & Wetherell, 1987; Potter, Wetherell, Gill & Edwards, 2002; Wetherell, Taylor & Yates, 2001b). To emphasize that people use discourse in flexible and ways, researchers within this field coined the concept of interpretative repertoires: linguistic resources that a person can use to evaluate acts and events that she/he encounters in everyday life. These are common cultural resources noticeable in spoken interaction and all forms of written text (Gilbert & Mulkay, 1984; Potter & Wetherell, 1987). They are clusters of terms, descriptions, linguistic figures etc. often assembled around metaphors or vivid imagery and often used with distinctive grammatical constructions and styles (Potter & Wetherell, 1987; Potter et al., 2002).

# Discourse Analysis

There is no one clear definition of discourse theory. Since it is fairly new, researchers are still exploring its content. Important influences have been linguistic philosophy and Wittgenstein's language games, along with the speech acts described by Austin and Searl, which give focus to the use of language. Also important are the theories by Bachtin, Garfinkel and Goffman who were interested in the social organization of language, and those on discursive systems or structures, especially in relation to power and ideology by, for example, Althusser, Bourdieu, Derrida and Foucault. Discourse analysis is often related to postmodernism or poststructuralism but this label has been used for such varied perspectives that it is very difficult to figure out what exactly it relates to; that is an entire separate world which I choose not to enter.

Another very close influence has been social constructionism which is usually positioned as relativistic; it rejects an essentialist view of human beings to emphasize a social turn on the self and personality (Billig, 1991); memory, attitudes and emotions become things *done* rather than *had*. Several forms of constructionism have been developed, including constructivism, radical constructivism, social constructivism, sociological constructionism, and social constructionism. The latter emphasize discourse as a vehicle for creating meaning and the function such discourse has in social relationships (Gergen, 1999). Gergen (1999) suggests four assumptions, though it is clear that not all those who position themselves as social constructionists adhere to them:

- *The terms by which we understand our world and our self are neither required nor demanded by 'what there is'* (p. 47). There is nothing that demands that something has to be in a certain way, everything can be described in many different ways; there are in principle (but not in practice) infinitely many versions.

- *Our modes of description, explanation and/or representation are derived from relationship* (p. 48). We construct meaning in social interactions.

- *As we describe, explain or otherwise represent, so do we fashion our future* (p. 48). Our social relationships relate to wider patterns of practice such as rituals and traditions; these are in a continuous process of (re)constitution.

- *Reflection on our forms of understanding is vital to our future well-being* (p. 49). It is essential to question what is perceived as reality, real, true, necessary and obvious: reflexivity.

Discourse analysis has been used as a label for many different approaches, both realist and relativist versions, and they are often used in combination (Neumann, 2003; Potter & Wetherell, 1987; Potter et al., 2002; Wetherell et al., 2001a; Winther, Jørgensen & Phillips, 2000). It is possible to have two books on discourse analysis whose content does not overlap in any way. Some researchers, such as conversation analysts, do very close language analysis, while others, such as Foucauldian analysts, focus on very abstract social analysis, trying to find the discursive transformations

that are necessary and sufficient so that people use certain words, discourses, and reality constructions above others (Foucault, 1980).

As described by a few of its practitioners (Edwards, 1997; Edwards & Potter, 1992; Potter & Wetherell, 1987; Potter et al., 2002), discursive psychology is the discourse-based study of psychological themes which position themselves as a reaction to cognitive psychology and want to offer an alternative to psychological life. The focus is on natural occurrences of talk and text and the primary constructs for analysis are variability, construction and function. Another focus is on subject positions: their use, and functions, what they accomplish for the speaker, and their wider social implications (Potter & Wetherell, 1987). An extension of this is Parker's (2002) notion of Critical Discursive Psychology, which adds more influence from Foucault and Derrida. The analysis focuses not only on function but also on how versions are constituted through discursive patterns and the relation to wider power structures. The interest in psychological themes continues but on a societal level.

One way to categorize the variations in discourse analysis is to start either with humans as active users of discourse or with discourse as generative, enabling and constraining: "discourse analysis studies how people use discourse and how discourse uses people" (Potter et al., 2002, p. 169). Foucauldian analysis typically focuses on the latter. Giddens (1987) argues that doing so leads to a decentring of the subject, which then cannot give a convincing account of human agency (their potential to act in other ways). Most discourse analysts attribute at least some degree of agency to people; even Foucault (1980) asserts that he wants people to use knowledge acquired from his studies tactically. To emphasize the role of agency, discursive psychology even chooses to use the term interpretative repertoires as an alternative to discourse. Even if discourses constitute ideas and meaning, these writers are more interested in what people make of them; they position people as having the capacity for self reflection, a wish for self definition, and an understanding of the social field, and as being both motivated and intentional in their actions.

Whatever their direction, discourse analysts make discourse a topic instead of a resource. Whether by ourselves or with others, we are surrounded by language: in our thoughts, our conversations, in symbolic representations, etc. Language is easily taken for granted since it is so central to social interaction. Discourse analysis operates from the opposite direction, assuming that language performs actions: it is active and not simply a passive transmitter of information (Edwards, 1997; Potter & Wetherell, 1987; Wetherell et al., 2001a). Speech is not just part of actions, events and situations; it is a constitutive part of them. Describing, explaining, theorizing, and telling the truth are in themselves actions that accomplish things in our social life (Gergen, 1999). Thus, language is closely integrated with processes of thought and reasoning (Potter & Wetherell, 1987).

In this context, text is not only written statements. It can also be oral statements or physical representations: everything around us, in our actions and on our bodies. Text is complex cultural and psychological products (Burr, 2003; Foucault, 1966/2005; 1980; Potter & Wetherell, 1987). The whole world can be thought of as a text since it is understood and given meaning through people's interpretations and descriptions (Parker, 2002). Here the concept of discourse is central (see separate section above).

Moreover, the focus is on social interaction and not on trying to figure out what meaning or motivation lies behind a text. Reality is thought of as being a result of social interaction and this influences how we behave (Billig, 1991; Gergen, 1999). This relates to a construction of psychological life as a social accomplishment: "There is a social world and it preexists the psychological" (Gergen, 1999, p. 129). Traditionally, emotions, attitudes, identities etc. are perceived as individual, inner, fairly stable, discrete mental states and processes but discourse analysts assert that this is an illusion (Edwards, 1997; Gergen, 1999; Parker, 2002; Potter & Wetherell, 1987).

When analysing language in everyday interactions many have noticed a large variability in the utterances, both in relation to several people and for one person. Potter and Wetherell (1987) assert that discourse analysis offers the most convincing way to account for this through a focus on the productive language and its relation to function. In such analyses, discourses are not perceived as just appearing by themselves; they are constructed (Abrams & Hogg, 2002), in principle, potentially in infinite ways (Edwards & Potter, 1992; Potter & Wetherell, 1987). Words, sentences, and ideas represent the world in a certain way. Nor are social texts a mirror to what is in the social world; instead, they actively construct one version (Potter & Wetherell, 1987). Furthermore, these different versions carry with them different meanings: a blond and a brunette are perceived as two different concepts; they are not just objective facts. Descriptions or explanations are not neutral. Discourses have a quality of "could-have-been-otherwise" which is important to consider, they are not only dialogic but also rhetorical (Edwards, 1997, p. 8). Different constructions are used for different functions and lead to different consequences, for example to justify or blame (Edwards & Potter, 1992; Potter & Wetherell, 1987).

Discourse is not only constituted, as it evolves through its participants' actions. It is also considered to be constituent; that is, it defines the participants' actions by placing strong limitations on what people can say and do and even what it is possible for them to think (Potter & Wetherell, 1987; Wetherell et al., 2001a; Winther Jørgensen & Phillips, 2000). The concept of construction illuminates that discourses are created from existing linguistic resources, in a process that involves a choice based on interest and focus (Potter et al., 2002). Some discourses are more available than others for reasons of both the individual and communal context; they are part of hegemony (the dominant discourse) in which constructions become facts and are taken to be true or correct descriptions of the world (Wetherell et al., 2001b).

Power is an important concept, especially for those approaches that are interested in wider social analyses. Foucault is a major influence here. He argues that discourse is not neutral; it produces power relations, which are entangled with knowledge and truth régimes. In the discursive context power is not about how A acts to make B do something she/he does not really want to do. The concept is much more complex. It is more about what seems to be "normal" for both parties so that even if B acts in contradiction to her/his interests it is "normal" and unproblematic for both A and B and often neither party is aware of what is going on (Neumann, 2003; Parker, 2002). Power is not positioned in a structure or a privileged group or a person but in relationships: fairly coordinated clusters of hierarchical relations (Foucault, 1980; Gergen, 1999). Power is not something that we have, get, acquire, exchange or discover—it is exercised in a relationship (Foucault, 1980).

*Power is not to be taken to be a phenomenon of one individual's consolidated and homogeneous domination over others, or that of one group or class over others. […] power, if we do not take too distant a view of it, is not that which makes the difference between those who exclusively possess and retain it, and those who do not have it and submit to it. Power must be analyzed as something which circulates, or rather as something which only functions in the form of a chain. It is never localised here or there, never in anybody's hands, never appropriated as a commodity or piece of wealth. Power is employed and exercised through a net-like organisation. And not only do individuals circulate between its threads; they are always in the position of simultaneously undergoing and exercising this power. They are not only its inert or consenting target; they are always the elements of its articulation. In other words, individuals are the vehicles of power, not its points of application. (Foucault, 1980, p. 98)*

In contrast with ordinary conceptions of power, to Foucault it is not evil or mystical, but primarily productive. Power is everywhere: in every social relationship, in our everyday lives and actions as well as our bodies (Foucault, 1975/2003, 1980; Gergen, 1999). It is "a productive network which runs through the whole social body" (Foucault, 1980, p. 119).

Foucault (1980) makes a series of relevant statements about power. First, it is closely related to knowledge; he even writes of "power/knowledge" to make this connection clear. Power constructs and enables new knowledge and knowledge induces power effects: "It is not possible for power to be exercised without knowledge, it is impossible for knowledge not to engender power" (p. 52). He also sees power as closely related to the production of truth: "We are subjected to the production of truth through power and we cannot exercise power except through the production of truth" (p. 93). Even though power is adjusted, enhanced and transformed by global strategies it is also continually accompanied by much inertia, displacement and resistance, on multiple levels. Finally, power represses, but not only through suppression. If the issue was only saying "no," then it probably would not be as widely accepted as it is. What makes people go along with power is that it also entices, provides knowledge and produces objects as well as discourse. Thus an analysis of power requires an investigation into how power sets the stage for the ways meaning is constructed in discourse (Parker, 2002). We must consider how power has been, and continues to be, "invested, colonised, utilised, involuted, transformed, displaced, extended, etc." (Foucault, 1980, p. 99).

Although this position is contested, some discourse analysts argue actively that a primary aim of their work is to facilitate some kind of transformation. Discourse analysis can reframe the object under investigation, to make the familiar seem strange; this can make it possible for those who are part of that social context to gain control over their lives and choose a different tactic (Foucault, 1980; Parker, 2002). (This approach resembles Bertolt Brecht's notion of verfremdung; see chapter *The Scenography*.)

For me, discourse theory provided a major breakthrough: here I found a theoretical perspective that closely matched my epistemological and ontological views. With a focus on HCI and ISD, I have chosen to use theories closely related to discursive psychology in connection with influences from social constructionism, cultural studies, social sciences and in particular the French thinker Foucault. And I spice my work with some meta-reflexivity primarily inspired by Malcolm Ashmore (1989).

While working on this thesis I have reviewed parts of it with my supervisors several times. One recurring topic of discussion has been how difficult it is for them to evaluate my research since I take a relativistic stance and combine it with a meta-reflexive written account. The usual criteria such as validity, reliability or generalization are often not applicable for this kind of research. Therefore I have sought alternatives.

One alternative to the usual discussions of validity could be the question of whether or not the research maintains the power relations in society (Winther Jørgensen & Phillips, 2000). Klein and Myers (1999, p. 72) offer seven principles to use in evaluating qualitative research. In the *Hermeneutic circle*, "all human understanding is achieved by iterating between considering the interdependent meaning of parts and the whole they form". *Contextualization* means a "critical reflection of the social and historical background of the research setting, so that the intended audience can see how the current situation under investigation emerged". *Interaction between researchers and subjects* involves "critical reflection on how the research materials […] were socially constructed". *Abstraction and generalization* concerns "the idiographic details revealed by the data interpretation" in relation to relevant theories. The final three principles emphasize sensitivity to: "possible contradictions between the theoretical preconceptions […] and actual findings" (*dialogical reasoning*), "possible differences in interpretations among the participants as are typically expressed in multiple narratives or stories of the same sequence of events under study" (*multiple interpretations*), and "possible 'biases' and systematic 'distortions' in the narratives collected from the participants" (*suspicion*).

Larsson (1994) seems to work from the same foundation but suggests a different set of concepts: *awareness of perspective* (description of biases and assumptions), *internal logic* (harmony between research question, assumptions of research and the studied phenomenon, empirical methodology and analysis), *ethical value* (a reasonable balance of ethical aspects), *richness in meaning* (thick descriptions), *structure* (good overview of complexity, clear arguments, good rhetoric), *theory contribution* (relevant use of previous theory and contribution of new theoretical knowledge), *discourse criteria* (convincing arguments), *heuristic value* (new aspects of how things are constituted in the world), *empirical anchoring* (credible and convincing interpretations), *consistency* (between the overall interpretation and its parts), and *pragmatic criteria* (contribution to better communication with others outside of the research community).

I find some of these principles very attractive, and they are a good starting point; others, however, signal an underlying assumption that it is possible to actually describe a true reality, an idea with which I do not agree, so I have not included them in my own analysis. Having applied most of these principles on this thesis (see chapter *The Epilogue*) I have found that it is difficult to use them on my own text. It is hard to look at this very personal work and try to see its weaknesses and strengths. But I do believe that many of the principles are very useful while doing qualitative research and they have definitely guided me.

Potter and Wetherell (1987) also offer four principles for good analysis. First, they say, it should be *coherent*: accounts should cover both wide patterns and utterances on the micro level; even obvious exceptions should be included in the analysis. It should have a *participants*

*orientation*: showing that even the participants account for the analytical elements that the researcher offers. It should raise *new problems*: showing how the linguistic resources both solve problems for the participants and create new ones. Finally, it should be *fruitful*: generating new explanations.

I have not found any entirely satisfying suggestions for evaluating meta-reflexive texts but I believe that a reasonable use of the above principles should make it possible to evaluate whether or not I have accomplished something of value.

# Truth

Realism holds that there is an absolute Truth to relate to, but this belief is often considered problematic. One solution is to replace *Truth* with *truth*, thereby "locating truth as a way of talking or writing that achieves its validity within a local form of life" (Gergen, 1999, pp. 37-38). Just as with the question of reality, truth then becomes something that we socially construct as true. Meanwhile, Truth, if it does exist, is bracketed. Within constructionism the question of true or false is simply considered irrelevant. This does not mean that realism is false and relativism is true; instead it means that those labels have no meaning. This opens up the possibility of multiple truths in which people together create meaning and importance in the world (Gergen, 1999).

Foucault (1971/1993, 1980) considers this urge to generate a true/false dichotomy as a system of debarring. He says the dichotomy was historically constituted, and was already in existence in the 6th century. This dichotomy has a tendency to suppress other discourses. It relies on the support of institutions; also, through the use of knowledge, it changes how knowledge is valued, distributed, partitioned and attributed. In his perception, truth is worldly and incites power effects. But it also relates to wider processes:

*Truth is to be understood as a system of ordered procedures for the production, regulation, distribution, circulation and operation of statements. Truth is linked in a circular relation with systems of power which produce and sustain it, and to effects of power which it induces and which extend it. A 'régime' of truth. (Foucault, 1980, p. 133)*

This concept of truth can be disturbing. Gergen (1999) tells of an encounter with two of his concerned students, who raised interesting questions:

*Without any truth, how can we ever make sound decisions? Without a sound sense of personal identity, how are decisions even possible; and without a firm view of moral good, what is worth doing? […] this dark night of doubt is but a transitional phase […] It is not that social constructionist ideas annihilate self, truth, objectivity, science, and morality. Rather, it is the way in which we have understood and practiced them that is thrown into question. In the end, social constructionism allows us to reconstitute the past in far more promising ways. (p. 33)*

This reconstitution, the opportunity to reframe the world, can open up new dimensions and actions. Instead of fearing it, we should be grateful that there is always more to say.

The concept of ideology is closely related to the construction of truth. In everyday life I think many people have a clear definition of what it means and give it negative connotations but the definition has shifted over time. Jorge Larrain (1979) investigates its background and says that phenomena relating to social domination and other sources of mental distortion of knowledge have existed for centuries, often related to religious representations or the church as a political power. Still, ideology as a term was coined only in the 18th century by Desutt de Tracy, who used it with a positive connotation when he wanted to systematize a new science: the science of ideas. According to Larrain, Napoleon was the first to use it with a negative connotation: he positioned certain intellectuals as ideological when he perceived them as impractical theoreticians.

Karl Marx moved the term beyond a critique of religion and established it as having a clearly negative character. He made it a critical force with an historical concretization. It became connected to the power struggle between certain material interests in a class-based society. In Marx's mind, Larrain (1979) believes, ideology became connected to the contradictory character of social reality. Ideology handles these contradictions through a distorted consciousness in which the dominated person takes as true things that are actually false; ideology hides the contradictions, in the interests of the dominant class.

Larrain (1979) traces how the concept continued to develop during the 20th century. One important construction is ideology as a collective representation instead of an innate pre-notion. With this, ideology turns into a sort of superstructure, which covers all social and political thoughts and it loses its negative connotation. It is not constituted in relation to a negative suppression so much as in the general construction of truth. Ideology becomes a set of beliefs, ideas, values, opinions—a way of living, a composite of human relations (Gergen, 1999; Wetherell et al., 2001a). In this form, ideology renders Marxism as an ideology in itself (Fairclough, 2001), and it shifts the evaluation from the relationship to an ultimate truth to one ideology against another. This lies very close to the concept of truth outlined above.

In this process, one important influence was Althusser, who developed Marx's ideas and defined ideology as a system of representations (Grossberg, Wartella & Whitney, 1998). His main contribution was in relation to how ideology works on subjects. Ideology positions individuals through a process of interpellation in which it hails to the person to take on a certain subject position (Althusser, 1971). Whether ideology is a Marxist approach or requires a wider construction, I have observed that most theorists agree on most of the processes by which it works. So this is what I assume in my narrative below, and that the term ideology can be exchanged with the term truth.

Ideology is not neutral; it attempts to get people to see the world according to the codes determined by one or more dominant groups, usually those with power (Fairclough, 2001; Grossberg et al., 1998). It renders those codes as universal (Billig, 1991), and people take it for

granted that everyone should share these interests, otherwise something must be wrong with them (Grossberg et al., 1998). This relates to the concept of hegemony in which one ideology has the capacity to sustain control through institutions (Gergen, 1999). When it has reached this state it is not open to criticism and we lose the ability to evaluate our lives outside of the ideology (Gergen, 1999).

Therefore, ideology is not only about seeing things in a certain way; it also offers elements that people can think about and argue around in their everyday life (Billig, 1991), and they exclude and constrain what people can perceive (Grossberg et al., 1998). Its nature is contradictory and raises dilemmas and can typically be seen in proverbs; one can always find two proverbs that contradict each other. Edwards (1997, p. 254) offers an example: "to look before we leap, although he who hesitates is lost, and we should strike whilst the iron is hot; many hands make light work, although, of course, too many cooks spoil the broth".

We draw upon ideologies without thinking (Fairclough, 2001), and a dominant ideology defines what is considered obvious and reasonable in a society (Grossberg et al., 1998). Naturalization is a process by which ideologies come to be considered obvious and legitimize certain behaviour as the taken-for-granted way, which is the road to common sense (Fairclough, 2001). In turn, common sense permeates ideology (Grossberg et al., 1998), which is reflected in the variability of opinions (Billig, 1991). The efficiency of an ideology can be measured by considering how well it has succeeded in appearing as common sense in a discourse (Fairclough, 2001). Or, as Giddens (1987, p. 65) aptly puts it, "we cannot necessarily understand the term 'common sense' in a common-sense way".

What becomes apparent here is that ideologies do not work in the open; they are not straightforward; for example one can have a racist ideology without ever using the word race (Billig, 1991). Moreover, in a society several ideologies are always present and a person is always involved in a struggle among them, both individually and with other people; even if one ideology is dominant, people will always offer competing narratives of events and reality (Grossberg et al., 1998).

Foucault (1980) was not fond of the concept of ideology, particularly when defined in the Marxist way. He argued that it results in a construction of power as limited to suppression, but in his eyes power also works through desire and knowledge, giving it far more impact. Furthermore, ideology tends to be in opposition to an essential underlying truth; Foucault asserts that it is more relevant to explore the truth effects produced within discourses—which in themselves are neither true nor false. Gergen (1999) also finds the Marxist construction of ideology as false consciousness to be problematic, from the relativistic perspective in which the labels true and false are rendered irrelevant. Making an obvious reference to Foucault's notion of power, he says that the issue is recognizing power in term of relations instead of in individuals. It is a constant and continual process that reshapes and renegotiates. My conclusion is that perhaps, in order to avoid confusion, it is better to talk about truth systems or truth régimes instead of ideology. But the broad perspective on ideology has been relevant in my analysis.

# Reflexivity

*It is in the reflexive moment that we may be able to appreciate the limitations of our commitments, and the potentials inhering in alternatives. In this sense the constructionist invitation is not to "give up and do nothing," but rather, to open oneself to the enormous potentials of human relationship. (Gergen, 1999, p. 235)*

Reflexivity is a disputed concept. Its etymological meaning is "directed back on itself" (American Heritage Dictionary). We are by nature reflexive in our everyday life so there is really nothing peculiar about a researcher being reflexive (Gough, 2003a). But it has been considered a problem for the social sciences, probably influenced by the conventions of realism, which limits the development of reflexive practices (Woolgar & Ashmore, 1989). Today, reflexivity is constructed as a defining character of qualitative research and subjectivity has gone from being a problem to an opportunity (Finlay, 2003a; Giddens, 1987). The researcher is now considered a central figure who actively constructs the collection, choice and interpretation of data; but that research is also co-constituted as a common result from researcher, participants and their relations (Finlay, 2003a). It is no longer a question of *why*, but *how* to do reflexivity (Burr, 2003). Maton (2003) even argues that it has become a sin not to be reflexive; thus it has become a hegemonic value within the social sciences.

Reflexivity is about taking into account, in parallel, an event and the construction of that event; it also requires equal status for the researcher and the participants, and a detailed acknowledgement of how the account is being constructed (Burr, 2003). Researchers with a reflective approach use the same theories on their own research practice as on their research object (Winther Jørgensen & Phillips, 2000). In his very inspiring book *The reflexive thesis: Wrighting sociology of scientific knowledge*, Ashmore (1989) thoroughly explores reflexive research from many angles. Aiming for a reflexive sociology beyond a slogan, a moral stance or a thesis, he coins the word *wrighting*, inspired by Derrida's term *différance*. He strives for something he calls *R-circularity*: a position in which, in order to understand an utterance we need to know what the utterance refers to but in order to know that we must already understand the utterance.

## Reflexive methodology

I see two main ways that reflexivity is relevant to my work: it operates in relation to the scientific text in what I will call reflexive writing, and it flows through the whole research practice in what I will call reflexive methodology. The most common version of the latter is a kind of self-awareness of what has been accomplished, often termed introspection and resulting in confessions (Ashmore, 1989; Finlay, 2003a; Woolgar, 1988a). It involves the researcher in a critical self-reflection about how the research has been affected by her/his background, assumptions or behaviour (Finlay, 2003a).

If this kind of reflexivity mostly takes place at the end of the study, a more active form tries to make the researcher's constitutive role more visible through continuous monitoring and discussion of her/his interpretation of both the process and the phenomenon being studied (Finlay,

2003b; McKay, Ryan & Sumsion, 2003). This relates to all steps in the research process and on all levels, from the selection of what to study to the interaction with participants (Georgaca, 2003). Ballinger (2003) describes how researchers can use personal research diaries to continually write down thoughts and emotions and also to reflect on their positioning in order to avoid reproducing unequal relations towards the participants. Thus reflexivity is about finding a balance between self-awareness and navel gazing (Finlay, 2003b).

A further development is to include the introspection as data in the research, primarily as a basis for interpretation but also to relate knowledge claims with personal experiences and the social context (Finlay, 2003a, 2003b). One can also include an analysis of how the researcher and participants have co-constructed the data (Finlay, 2003a, 2003b; Georgaca, 2003). This can be helpful when a researcher experiences the dilemma of going from descriptions to recommendations about how to act in the future (Harper, 2003).

Another development is to approach inter-personal reflexivity. Barry (2003) explored this in her research group: the researchers first wrote statements in relation to the current project as well as some theoretical concepts, and then the group discussed these statements. In her experience, this process heightened the group's reflexivity, and facilitated better analysis of the data along with team building and conflict management. But participants can also be invited to participate actively in constructing the research itself. This is a question of positioning them as reflexive beings and to allow multiple voices that might be in conflict with each other (Finlay, 2003a).

In another approach, Arvay (2003) describes a method he calls collaborative narrative. The researcher decides what to study and what methodology to use but the participants are much more involved than usual. During interviews they are encouraged to actively think about and discuss paradoxes, silences, and contradictions in their own narratives and those of the interviewer. They carry out a mutual analysis, first by themselves according to a specified method, then in a discussion. Finally they create a summarizing narrative in which the researcher acts as the writer and the participant as the editor with the final word in regard to form and content.

Broady (1990) describes how Bourdieu takes a reflexive approach to the whole scientific field; because any researcher is placed in a social field, his perspective on the object of study depends on his vantage point, his habitus and assets such as cultural and scientific capital. Broady goes on to describe Bourdieu's epistemic reflexivity as part of everyday research practice, which is close to the self-awareness described above. Similarly Maton (2003) constructs this kind of reflexivity as a cornerstone for investigations of the social world with the aim of richer and better research. But he also emphasizes that the individual researcher's self-awareness is not enough. The researcher who intends to transcendend her/his knowledge must include a collective analysis of the whole scientific field to uncover unconscious biases embedded in the scientific practice.

## Reflexive writing

In the traditional realistic genre, the text is constructed as a neutral medium (Woolgar, 1988a), and conceals its construction through rhetorical tricks. Van Maanen (1988) describes how the author takes on an institutional voice and is identified as a scholar—and that legitimates her/his

work; this makes it possible to pass on more-or-less objective data untouched by any kind of bias such as personal or political goals. He also finds that in such a text the researcher is almost anonymous; instead the text focuses on the people studied. A good example of this is the use of passive voice, e.g. "the study was conducted" instead of "I conducted the study". Another example is from my own university, which is part of the social environment for my research. I have heard that reviewers of thesis texts have actually counted the numbers of times "I" is used and too frequent use has been a valid criterion for rejection. But even realist texts are carefully arranged. Van Maanen (1988) shows how quotations are carefully chosen and edited to demonstrate what the researcher specifically wants to emphasize. There is no room for more than one voice or reading and facts are moulded to fit precisely into that reading, as any ambiguity can potentially undermine the writer's authority.

A reflexive text can be used in a realistic setting in which the researcher's confession is used to enhance the authenticity of the analysis, or it can try to go against the narrative coherence and singularity and clearly broadcast the constructive nature of the text. Confessional tales focus on the researcher's field experience and potential biases; they are usually separated from the main text, which might adhere to a traditional realist representation. Van Maanen (1988) finds that the text's inherent character is like a story; it involves many choices by the author such as what to tell and how. This process is influenced by the preferred target reader group and how they are positioned. He emphasizes that these choices do not make the work fiction, just that writing is something writers do and that it is always one step away from the topic being written about; there is never a direct correspondence between the experience and what is reproduced in the text.

Those who are writing ironic or meta-reflexive or unconventional texts want to go one step further and not just *talk* reflexivity but also *do* reflexivity (Woolgar, 1988c). They aim to take a reflexive perspective on both practice and on themselves as reflexive practitioners (MacMillan, 1996, 2003). Authors have made several attempts to experiment with the textual form of research narratives. Wittgenstein, Derrida and Bourdieu have consciously contemplated their narrative style in an attempt to discourage singular readings or descriptions (Broady, 1990; Giddens, 1987). Ironic reflexivity is characterized by the use of fictional forms such as encyclopaedias (e.g. Ashmore, 1989), letters (e.g. Ashmore, 1989), poetry (e.g. MacMillan, 1996), drama (e.g. Mulkay, 1984; Woolgar, 1993), lectures (e.g. Ashmore, 1989; Bonnevier, 2007), and limericks and diaries. They are called *Alternative Literary Forms*.

Still, a few genres are the most common for such texts. Some authors use dialogue to offer separate reflections directly following a chapter (e.g. Parker, 2002; Woolgar, 1988c), or to present different versions of the same phenomenon (e.g. Potter, 1988); they may use one voice in different modes but not in dialogue (e.g. Wynne, 1988), or a second voice (multiple voices in dialogue with each other but not in the form of a play) (e.g. Ashmore, 1989; Giddens, 1987; Pinch & Pinch, 1988; Woolgar & Ashmore, 1988).

These writers aim to make the author's presence visible and remind the reader of the constitutive character of writing; to display the text's own mode of construction (Gergen, 1999; MacMillan, 2003). One premise is that conventional scientific formats prevent the writer from undertaking a serious and sustainable reflexive practice (Ashmore, 1989). They want to advertise

that narratives are not just a collection of facts, or a reproduction of events, but a multifaceted social achievement (Potter & Wetherell, 1987). By interrupting the taken-for-granted, the familiar or conventional—in particular by undermining the established formats for scientific results— they invite the reader to participate in constructing the text (Ashmore, 1989; MacMillan, 2003). Another imperative is to enable multiple voices or alternative descriptions to be heard by challenging the authoritative rhetoric (Finlay, 2003a). In multiple readings of the text we find the potential for the reflexive spiral (MacMillan, 2003); as I described earlier, Ashmore calls this *R-circularity*. They also want to deconstruct the implicit assumption that fact and fiction are different. Ashmore (1989, pp. 197-198) summarizes these ideas:

b. *There are two types of writing: reflexive and nonreflexive.*
c. *The distinction between fiction and nonfiction is illusory.*
d. *All writing is fiction.*
e. *There are therefore two types of writing: reflexive fiction and non-reflexive fiction.*
f. *Other terms for nonreflexive fiction are the realist mode of speech or simply realist writing.*
g. *Realist writing is dishonest about itself; it refuses to recognise its status as writing (fiction). Instead, it claims to be absolutely a slice of life or a report upon the world. It pretends that it is not a product of processes which have a determinate effect on what it claims to be showing.*
h. *Reflexive writing (fiction) is self-revealing: it recognises, and celebrates its status as writing (artifice).*
*[…]*
k. *To develop a reflexive form of nonfiction, one needs to write fiction (writing).*

For me it has been an important premise that I am not seeking the "true" reading of the participants' utterances but that does not mean that what I am writing is fiction. Even Foucault (1980) acknowledged this: "I am well aware that I have never written anything but fictions. I do not mean to say, however, that truth is therefore absent" (p. 193).

The arguments for reflexivity are often put forth by very committed researchers. Finlay (2003a) constructs it as a valuable tool for exploring the researcher's assumptions, perspective, presence, inter-personal dynamics, unconscious motivations and implicit prejudices but she says it can also empower others through a more radical awareness and exploration of the research process with its methods and results. McFadden and McCamley (2003) list many of its possibilities: it can signal responsibility, facilitate the untying of difficult theoretical knots, open a space to explore and discuss the influence of different political positions, offer a platform to explore power relations or a tool to explore identities, and provide a new foundation to develop theoretical parameters and consolidate awareness. Many authors emphasize the potential for multiple voices to come through. Gergen (1999) asserts that self-reflection is possible just because we are polyvocal; that is, we have, and participate in, many different relationships.

Of course some critical or warning voices are raised against reflexivity. Walking in the footsteps of Bourdieu, Maton (2003) asserts that reflexive research typically focuses on the social relations of knowledge instead of the epistemic; that is, the relation between the subject and knowledge (*who* objectifies) is more important than that between the object and knowledge (*what* is objectified and *how*). It also tends to construct reflexivity as an individual achievement. According to Maton this means it tries to maximize the symbolic value at a minimal cost. It

emphasizes the individual's status rather than the social structure or position of the scientific field; as a result the contribution conserves the status quo instead of being the critical approach that it claims to be. Gough (2003a) sees positivistic traces in the notion that it is possible to unveil the researcher's true motivations and biases if she/he simply digs deep enough, especially if we also adhere to the social constructionist argument that the subject is decentred, fragmented, relational, variable and incomplete.

The harshest form of critique is probably towards the meta-reflexive approach. Some find it annoying (Finlay, 2003a; Pinch & Pinch, 1988), or say that it only adds a tone of self admiration (Ashmore, 1989). Some conceive of it as self-centred and narcissistic expressions by frustrated would-be artists or see too much focus on style and not enough on substance (Gough, 2003a), while others say it actually drowns the participants' voices (Finlay, 2003a). Even if a writer opens up the work to multiple voices, the researcher's dominant role is still present as author and analyst, so it is important that the use of alternative literary forms does not hide the reasoning behind the arguments (Gough, 2003a). A non-reflexive use of alternative literary forms has the potential to manipulate the participants' utterances so that they make sense only within a narrow frame of academic discussion (MacMillan, 2003). There is even a risk that if presentations are too "smart", they can alienate the reader or become pretentious and lose all meaning (Finlay, 2003a). Though Pinch (Pinch & Pinch, 1988) uses an alternative literary form, he calls it a waste of time: at best trivial and at worst distracting. Latour (1988) goes even further, calling the use of alternative literary forms suicidal. My own concern is why meta-reflexivity has not really evolved since the 1980s. The dialogue form, especially as a form of confessional tale, has become more common but otherwise it has been difficult to find examples of ironic texts.

I have chosen two forms of reflexivity. First, I use the more common version in which the researcher confesses to the personal context for all parts of the research that has been conducted. Second, I use an alternative literary form, as I have let myself be inspired by theatre as a metaphor and as a format.

For me, reflexivity is closely related to relativity, and I have concluded that I am a relativist. I do acknowledge that the consequence of this is that I must confront some problematic questions in regard to purpose, explanation and moral. In spite of the critique, relativistic research has offered a lot, and its efforts and the consequences of that work should not be undervalued. I became a relativist not so much because I was convinced by any particular argument but because the sum of its principles and arguments applied easily to what I am doing; in the end it just seemed better to me than the sum of different realist perspectives. My motivation is essentially political: I want to make an impact. I believe that the systematic and theoretical perspective of science can make important contributions even though I do not assert that it is necessarily the best. In fact, I believe that many other interpretations can be just as, or even more, valuable. A charming and illustrative example of how things can be described and interpreted in multiple ways comes from Raymond Queneau (1972/2005) who provides 195 different accounts of one and the same event. What I do argue is that those other possible interpretations do not make my analysis, or other scientific analyses, less valuable. I also believe that systematic analysis of texts can reveal relations regardless of whether or not they are really present. People experience them as if they are real, so revealing them offers the potential for change.

# *The Characters*

In a play characters are essential; the actors that take on playing them are one constitutive element of theatre. Playwrights such as Edward Gordon Craig and Samuel Beckett have experimented with other representations of characters besides human actors but in the majority of plays humans are present. Interpreting and presenting a character is what it means to be an actor. The role includes the lines in the script and the actors' embodiment and actions, while the character includes the interpretation the audience makes and therefore is an interaction between the text, the actor and the audience.

For Brecht (1964/2001) it was important that the actor not transform and "become" the character; instead she/he should use his intellect and empathy to demonstrate the character, like someone described in a book. He argued that this form of acting opens up the possibility for alternatives to emerge and that the audience thereby can develop an attitude of observing. This is the effect I aim for in using a theatre metaphor when introducing the participants of my research as characters. The actors are simultaneously absent in the reading and implied in the text; the metaphor acknowledges that the text is a historic representation of a performance that has already taken place. Of course they were genuine in that performance but the re-contextualization of their utterances focuses on the characters created by discourse and the audience (me as an observer as well as the readers of this text). Just as Barthes (1974) says of writerly texts, the goal is to make the reader a producer instead of a consumer of the text.

One interesting aspect of this work is that my characters are the result of "real" people who could be compared to those in a documentary play. So the actor that I am inviting into the play is you, the reader, and I urge you to use the Brechtian analysis. That is, I want you to realize that, even though the quotations are the written form of what the participants really said,

they do not have a direct link to their original speaker and that reflecting on the phenomena constructed in this thesis requires a joint intellectual and emotional exercise.

Just as theatre has constructed the whole world as a stage in which everyone is merely a player, others have investigated how role-playing relates to our everyday interactions. Most notably Goffman (2004) uses dramaturgical concepts to analyze social life as a complement to technical, political, structural and cultural approaches. He describes how, when people are relating to other people, they perform through roles and doing so requires an audience. Such a performance is based on a script that we learn during a process of socialization. Roles are associated with specific characteristics, which the person has to acquire when taking on that role. A performance is shaped and reshaped by these prerequisites as well as by expectations from the context in which it is put forth. Furthermore, Goffman analyzes the difference between actions performed on stage and backstage. Just as the actors will behave differently without an official audience, so do ordinary people, for example those involved in service jobs. He also demonstrates that we show the same kind of artistry in our voices, bodies, and facial expressions as actors do. Just as Goffman emphasizes that his intention is primarily rhetorical, I also want to make it clear that by using the theatre metaphor I do not intend to offer an analytical tool; I am simply using the metaphor as one kind of reflexive approach.

Most of us experience having a distinct self; we attribute various kinds of traits to our personality. Our perception of ourselves as agents who direct our actions is central to who we are (Gergen, 1999). Traditionally within psychology, identity is constructed as a mental state. In particular within social psychology this has been questioned and identity is instead placed in peoples' social interactions; it becomes something "out there" in the exterior world rather than "in here" in an interior consciousness (Gergen, 1999). It has also been constructed as a unitary entity, which it is possible to reveal (Potter & Wetherell, 1987). Indeed, psychological issues are constructed and deployed in discourse itself (Edwards & Potter, 1992; Potter & Wetherell, 1987).

Within discourse theory writers have pursued two themes: that identity takes place within discourse and is closely related to power, and that there is not one self but a multitude of selves (Potter & Wetherell, 1987). Identity is jointly accomplished through social negotiations and part of our construction of ourselves includes constructions of other people's identities, both present and absent (Wetherell et al., 2001a, 2001b). Into each interaction we each carry a personal biography, which relates to previous interactions with those with whom we interact (Giddens, 1987). The thought that the self is not inside of us but constructed socially can be very difficult to fathom. It is fundamental to the way we perceive ourselves: "losing the capacity for conscious thought and choice would be to lose the self, that which makes us distinctive and significant as human beings" (Gergen, 1999, p. 6).

The French thinker Michel Foucault has had a great influence on discourse theory. In *L'archéologie du savoir* (1969/2002) he describes a structural construction of subjects within discourse, which patterns of subjectivity can be noticed in utterances. When analysing patterns he places the subject outside of the individual; when a position is distinguishable an individual can occupy it but the position is not unambiguously defined once and for all. Instead, it varies over time. For him, the focus is not on analyzing the relationship between an utterance and its

originator but on determining the position an individual can occupy in order to be the subject for that utterance.

Within this perspective an individual can be placed in a role over which she/he does not have control, for example the portrayal of Arabs as villains in many contemporary American movies. Discourse produces subjects in two ways: first as the subject, a character who personifies the particular knowledge available; and second as the position, a place in which this knowledge makes sense (Hall, 2001a). These subject positions can be thought of as roles or identities that we use to perceive and describe both others, and ourselves, but they go further than the sociological role concept (Neumann, 2003). When we take on a subject position we act through that perspective; with it comes a specific point of view that influences our actions, thoughts and speech (Burr, 2003; Wetherell, 2001).

Several other authors offer insights into this situation. Fairclough (2001) emphasizes that subject positions are incoherent, and always changing, it can also happen that one individual is in a constant struggle over which position to take. Althusser (1971) argues that the positioning of subjects relates to ideology; in the process he calls interpellation, a particular ideology calls out to an individual to transform them into a particular subject. Foucault (1969/2002) sees a dialectical process in which subject positions are constructed within discourse and simultaneously the subjects constitute discourse.

Many say that Foucault's perspective removes the individual's agency (Burr, 2003; Giddens, 1987; Hall, 2001a), and argue that this fails to appreciate the individual's capacity to resist (Winther Jørgensen & Phillips, 2000). I do not agree with this positioning of Foucault. To attribute agency to individuals means giving them a certain amount of choice, a reflexive potential (Burr, 2003; Giddens, 1987). Within this potential lies the possibility for resistance and change. One of Foucault's interests is why people willingly subordinate themselves to power and one of his objectives in describing power structures and discourses is to have people use their enormous potential for agency and constitute a different order. In *Technologies of the self* (1988) he is occupied with the technologies people use in order to understand and represent themselves, guided by discourses and power structures. These technologies are opportunities for a person to act as an independent agent. In *Power/knowledge: Selected interviews and other writings 1972-1977* Foucault offers several examples of how people have resisted power structures and he emphasizes the importance of this.

Taking a subject position is very similar to the work an actor does with a character. The character is the subject, which is implied in the text as well as in the historical and cultural context of the play and of the actor. Within theatre one important concept is that, in the interpretation, the actor has to take the character's point of view. But actors are also agents in their work as they have many alternative interpretations available to them and can choose what particular subject they emphasize. For a character to come to life a good actor must do a great deal more than simply speak the lines.

The subject positions I describe below are not to be considered as stereotypes. The narratives that they are based on sometimes involve stereotypical descriptions but for the most part they are based on actual people and on the interactions that the participants and I had with these people. My analysis has resulted in representational attributes, some of which are

contradictory. All the subject positions are based on combinations of narratives: from people who currently position themselves within the subject position and from others who are talking about either the same people or others that they place within that subject position. In total I interviewed 53 people; when the number of participants was very small for a certain subject position I explicitly specify this.

# IT Expert

Many have seen that this subject position is given a clear autonomy. Peppard (2003) asserts that IT experts are positioned as a subculture in which the subjects are disciplined, assume all problems have a technical solution, and have low tolerance for emotions or ambiguities. Friedman and Cornford (1989) add that their work is varied and creative and they have responsible autonomy. Li (1997) argues that they construct IS success totally different from users and their managers.

Within research one construct is that the IT manager is pivotal to an organization's ability to utilize ICT strategically (Peppard, 2001; Peppard & Ward, 1999; Scarbrough, 1998). Others, investigating how organizational issues are treated, position the IT experts as accountable for these questions but say that they lack understanding and knowledge about them (Doherty & King, 1998; Earl, 1989; Hornby et al., 1992). Lauesen (1997) investigates the perception of usability-related issues and asserts that IT specialists have trouble dealing with those issues, because they think they are difficult to handle. They also misinterpret the meaning of methods and how to use them. Both Hirschheim et al. (1995) and Friedman and Cornford (1989) find that IT experts are traditionally positioned as mediators between users and computers.

There is a conflict among different constructs that becomes problematic, particularly in the mediating position. Beath and Orlikowski (1994) deconstruct a subject position characterized as professional, neutral, active and with a broad perspective. On the other hand, Eason (1988) positions them as anything but neutral. Beath and Orlikowski (1994) go on to show how this subjectification hides an effort to control the users and the interaction with them; this corresponds with Grudin's (1991) conclusion that they might indeed have trouble feeling empathy with nontechnical users who have other values and styles of work. This point relates to Peppard's (2001) assertion that it might be problematic for them if quality is defined and assessed by the users. Ravichandran and Rai (2000) even argue that they might act protectively toward the users; Isomäki (1999) also holds this view and finds that IT experts prefer to uphold a dichotomy with themselves and the users in which they are superior in both knowledge and skill. But despite everything, the users tend to trust IT experts (Näslund & Löwgren, 1999).

Hirschheim and Klein (1989) choose a somewhat different path, creating four different subjects in relation to different systems development paradigms. The facilitator works as a change agent together with both users and management (*social relativism*); the workforce supporter aims to empower the users (*radical structuralism*); the social therapist gathers all stakeholders

in an open discussion aiming for justice, freedom and material well-being for all (*neo humanism*); and the system expert transforms objective, verifiable, observable and rational system goals into a product (*functionalism*). The latter was also the predominant construction among researchers and practitioners of ISD up to the late 1980s, when the authors published their article. Technology determinism (see the entry on *Information and Communications Technology* in chapter *The Props*) falls within the same paradigm; to Beath and Orlikowski (1994) it includes taking for granted that IT specialists should rule over users as well as how and if they should participate in ISD.

In my studies I found a subject position that shares many of the above characteristics. IT managers are constructed as visionaries who lead the strategic ICT work while other IT experts are less visionary, even if it is their responsibility to know the technical potential and promote new technology. The IT experts' main responsibility is limited to fulfilling the specified requirements, for which they define the representational form. On the one hand they are characterized as ideal: methodical, neutral, eager, competent, innovative, knowledgeable in the business, service-minded, trustworthy, and knowledgeable in usability issues.

On the other hand they are positioned has having an agenda of their own, and being opportunistic, irresponsible, and hard to trust, with poor communication skills, little knowledge about business, and little understanding or interest in the users. Not surprisingly, the positive image is the only one constructed by the IT experts themselves while the other participants actually use both constructs in their positioning in interviews; however, the positive construct is used more often in their actions during meetings and in documents. Another interesting point is that both IT experts and participants outside of the IT department tend to talk about how IT experts *are*, while subjects outside of ICT tend to be described in relation to how they *should be*.

This subject position lies within the realm of the functional paradigm in which the IT expert is given a privileged position. Even if others sometimes construct the subject negatively, they still depend on, prioritize, and let themselves be governed by, this expertise. Fairclough (2001) points out several means through which powerful subject positions are given authority: examples are references to the requirement for several years of education or training; professional knowledge as emblematic of personal performance; and special terminology.

Similarly, on several occasions in my studies I encountered narratives in which users could build a career through the role of user representative or project leader in ISD projects, or through the opportunity for internal training in ISD methodology. (Cajander et al. (2007) report the same phenomenon.) Their position was given higher status than if they had stayed on as users. This can also be related to the concept of ideology. To adopt a dominant discourse, a person must acquire exactly the skills demanded by the institutions working with that discourse (Fairclough, 2001). ICT can be considered an institution (Avgerou, 2000) and this process of career moves positions the user within the dominant ideology of functionalistic ISD.

*In the script, the IT expert represents voices from IT specialists, employed in either an IT department or an external IT company. They have positions such as developer, analyst, designer, methodology expert, manager, strategist, advisor, consultant, or technical project leader. I choose the term "expert" to emphasize the authoritative nature of the position.*

# Project Leader

Project leader is a well-established subject position within many different areas, such as ISD, construction, organizational development, education, and marketing—and any other area in which people pursue projects. Within ISD it is very common to have specific courses in project leadership, and several standards and certificates focus on project leaders (e.g. International Project Management Association (IPMA) and Project Management Institute (PMI)).

In my studies, the project leader is very prominent and everyone constructs specific requirements for the role. It requires a special project leader competence, which includes skills in planning, administration, leadership, communication and coaching, along with driving energy, visionary abilities, and strengths in coordination and control (particularly of money and time). The ideal is for people to educate themselves but very few in their organizations have had the opportunity to do so. They should have knowledge about the relevant domain area and therefore ideally come from the business side of the organization. Many talk about different levels of the project in which the main project leader comes from the business side and they collaborate with a technical project leader from the IT department. Deep ICT competence is not considered important but the most competent project leaders are positioned within the IT department.

The project leader has the greatest overall responsibility for the project, primarily in relation to the process of specifying requirements. This includes decisions about usability issues, which is interesting, since some informants position project leaders from the IT department as ignorant of the users and the overall business.

The demands on the project leader are high. This person should be neutral, flexible, communicative, social, interested, structured, focused, active, cooperative, keen and authoritative. Overall, a good project leader is positioned more in relation to individual traits and talents than education or background. The project leader functions as the foremost protagonist for the truth régime surrounding ISD.

*In the script, the Project Leader represents voices from people who have been appointed to the position by others and by themselves.*

# Usability Practitioner

Since at least the 1980s the HCI community has been actively discussing what kind of expertise is needed in ISD to handle these issues. One important watershed has been where to position the HCI expert: within design and systems development or within human-centred perspectives such as anthropology, psychology and sociology? In Sweden, those in the former position have often been labelled Interaction Designer, and those in the latter Behavioural Scientist. Boivie, Gulliksen and Göransson (2006) call for another role, the Usability Designer (UD) that can incorporate usability concepts and interaction design. The UD should act as an advocate for the

user
who a- ctiv- ely and
conti- nually mai- ntains
a u- ser-centred ap- proach.
Löwgren (1995) sees the need for
an expertise with competence in ISD, organi-
za- tional beh- aviour a- nd ergonom- ics with a spe-
cial ability to handle poorly defi- ned problems.
Markensten (200- 5) wa- nts to posit- ion the usabil-
ity expert outsid- e of the IT department and labels the role
Interaction Archi- tect. This role supports the procu- rer, in order to
shift focus from the ISD project over to the poten- tial ben- efit
such a project can deliver. When i- nvestigating the actual sit- uat-
ion for usability pr- actitioners, res- earchers ha- ve found that Sw- edi-
sh usability practitioners often have a background in computer science or engineering (Gulliksen et al., 2004), and are employed in the IT department or as consultants (Boivie et al., 2006; Holmlid & Lantz, 2006; Lantz, Artman & Ramberg, 2005). They feel lonely and doubt that they have much potential to influence ISD (Boivie, 2005; Buie & Winkler, 1994; Holmlid & Lantz, 2006). They consider themselves a critical factor in IS success (Holmlid & Lantz, 2006; Walldius et al., 2007), but they also position themselves as outsiders who have to spend considerable time explaining and justifying their role in projects (Boivie, 2005), and often cannot do their job well due to other priorities in the ISD project (Markensten & Artman, 2004). At the same time, those who move from an ICT position to a business one construct a positive change in which they are now considered and people listen to what they have to say (Holmlid & Lantz, 2006).

An important part of the subject position is that they are mediators between users and developers; they inform the latter of the users' needs and the former of the technological possibilities. The mediating role can be problematic as they might filter, distort, misinterpret, or add irrelevant aspects, which often does occur with surrogate users such as managers or help desk staff (Grudin, 1996; Keil & Carmel, 1995). This view clearly asserts that common sense is not enough; such employees need thorough expertise in social interaction and human abilities. While Keil and Carmel argue for direct interaction between users and developers without mediators, Grudin seems to include a place for a professional usability expert that ensures a reliable communications channel.

My studies only included four usability practitioners; they all construct a situation similar to the one described above, in which they constantly feel they are opposed and must argue for usability, and educate and inform others about it. The other participants did not talk about this subject at all unless specifically prompted and then most of them concluded that if the users are involved as user representatives or user groups, then there is no need for specific usability expertise. A few participants constructed usability practitioners as conservative, not very innovative, and focusing too much on the users.

Even though researchers have found that usability practitioners are becoming more and more common (Gulliksen et al., 2004) in my studies they were just about invisible. Within ISD, system designers are often given a higher status than programmers, while usability designers seem to have low status. For system designers, design is constructed as analysis, which is logical, rational and precise; for usability designers, design is related to human issues and thus constructed as ambiguous, uncertain, intuitive and transient. The first set of qualities fits well with the functionalistic rationale; the latter set does not. This subject position is not given any authority; this is clear because others see them as either negative or superfluous or accord them no position at all.

*In the script, the Usability Practitioner represents voices from people in the organizations The National Tax Board and FMV, appointed to the role by others and by themselves. In contrast with the IT "expert" I choose not to use the term "expert" here to emphasize the non-authoritative nature of the position.*

# Business Representative

The division between IT and the business side in an organization is not self-evident; in Sweden the functions performed on the business side are commonly bundled under one term, "verksamheten", even if the contents of those bundles are ambiguous. In my studies a reoccurring theme has been to position the business side as everything outside of the IT department. A different version could be to classify parts of the organization into core business and supportive business; IT would join the HR and accounting functions in the latter group. Through the current dichotomy the rest of the organization is positioned in opposition as "the other" and thereby supplements IT, which is constructed as privileged (Gergen, 1999). In order for IT to have meaning it relies on the business side as a complement. The dichotomy masks a relationship in which IT is constructed as superior.

I have not found much research that investigates this relationship. If researchers do touch on it, they most often describe how business management lacks knowledge of ICT (e.g. Scown, 1988), or has unrealistic expectations of ICT and the IT department (e.g. Peppard, 2001). Others say that managers often act as surrogate users (e.g. Grudin, 1991) and are responsible for organizational issues in ISD (e.g. Doherty & King, 1998). Many emphasize the importance of different managers from the business side, for example the CEO, actively supporting ICT initiatives (e.g. Taylor, 2000). Earl (1989) makes this assertion in an interesting context. He first argues at length why the business side should be in charge of IS development but then he frames it within a lack of understanding of the complexity of IS and offers several examples in which this strategy has had catastrophic results for an organization. He leaves us with the conclusion that once again, the IT department must be put in charge of IS development. Within our research group we have intentionally kept the dichotomy in order to emphasize that the developer and the procurer have different agendas in the procurement of ICT systems (Swartling et al., 2007).

In my studies the business side is constructed as a subject who has extensive knowledge, experience and awareness of the organization's business domain but lacks competence—especially the strategic variety—in ICT and ISD. Therefore, the business side needs support from the IT department.

## Procurer

A role often distinguished on the business side is the procurer ("beställare" in Swedish), in particular when investigating procurement and ISD. Our research group defines the tasks in this role as "to distribute and manage resources, create and provide action space, for someone else […] to design, develop, or construct a system (Holmlid, 2004, p. 139). We have made three points about procurers: they are often marginalized as soon as the development project is started; it is important for them to have faith that their business knowledge and competence is the primary basis for evaluating the project's success (in contrast with technical parameters); and they must survey the project's work and progress (Artman & Zällh, 2005; Holmlid & Artman, 2003; Markensten, 2005). We have also asserted that procurers generally have little detailed knowledge of usability design or user-centred design. They do not understand the urgency of discussing these issues (Artman & Zällh, 2005). While they are aware that technical aspects are beyond their competence, when it comes to usability, the assumption is that they do not need help; suddenly all they need is common sense and intuition.

In my studies the procurer is constructed as a person who ensures good prerequisites for the project by taking several steps: making sure that relevant resources such as time, money and people are available; acting as an operative sounding board; prioritizing and defining boundaries; and ensuring that the project goes in the right direction and that the desired effects are realized. This subject has extensive knowledge of the business and organization on a general level. She/he needs to understand ICT and ISD but, in reality, seldom has this competence.

This person should also be a strategist, a visionary, who can focus on the overall picture and not on tiny details; in practice, however, this person often gets trapped in details and loses the overview. The construction portrays an ideal situation in which this person specifies general requirements and thus needs to be exact, to know exactly what is wanted and to specify it in a straightforward, "correct" way. At the same time the participants do not consider the procurer to be very good at this. Interestingly, at one of the organizations several participants said the situation would be improved if the procurers would move closer to ICT and ideally become part of the same unit. However, no one is considering that people from ICT should move out into the business side; it is always just a question of the business side moving into ICT. So once again, it is taken for granted that the IT expert is the norm that everyone should abide by.

This subject position gives the IT expert primacy: ensuring good prerequisites legitimizes her/him; staying out of the details gives her/him authority to act as she/he sees fit; the definition and assessment of the "correct" epistemological level and the "correct" method for requirements specification position her/him as superior.

*In the script, the Business-R represents voices from higher positions on the business side of the three organizations I studied; they are managers, strategists and/or procurers. Many of the*

*participants in the studies talked about the procurer but in principle only one participant was actually positioned as such. I therefore choose to position the procurer voice within a somewhat broader subject position.*

# User

Several subject positions relate to subjects who use ICT: clients, customers, consumers, employees, stakeholders, actors, users, etc. Within HCI and ISD the primary label is user or end user. Sometimes they are positioned in different categories such as novices and experts, or primary and secondary (Eason, 1988; Ives & Olson, 1984). Friedman and Cornford (1989, pp. 184-187) found that many classifications have been used during the history of ISD:

- According to involvement at different phases in the system's life cycle: patron (fosters computerization), client (person for whom the system's output is ultimately designed), design interactors (involved in the ISD process), end users (manipulate the system in operation), maintenance interactors (involved in systems maintenance), and secondary users (affected by the system but in no direct contact with it)

- Level of direct involvement: indirect end users (use system through other people), direct off-line users (specify input), and direct on-line users (operate the system).

- Level of programming involvement: non-programming users (only access information), command-level users (access data on their own terms), end-user programmers (develop their own applications), functional support personnel (computer-sophisticated end users who provide support for end users), end-user computing support personnel (central support for end users), and programmers.

- Attitude: those who regard the system as their master (and use it much like a tool) and those who regard it as their slave.

- Relationship to the organization: top managers, divisional and departmental managers, foremen or supervisors, professional or technical staff, skilled workers, and semi-skilled or unskilled workers.

- Degree of attachment to the organization: system clients, internal users other than clients, external users with long-term or important connections to the organization, and external users with irregular or insignificant connections to the organization.

Researchers have found that even though users know little about analysis and design methods, and usability issues (Eason, 1988; Hornby et al., 1992), they are important during requirements specifications and evaluations (Følstad et al., 2004), and accountable for human and certain organizational issues (Doherty & King, 1998; Hornby et al., 1992).

Many researchers have found that users are positioned negatively: it is difficult to get them to focus on larger issues instead of their immediate needs (Doherty & King, 1998); they are

passive, dangerous, inferior, stereotypical, and egocentric (Beath & Orlikowski, 1994); they have unrealistic expectations of ICT and the IT department (Peppard, 2001); and they are conservative and not innovative (Boivie, 2005; Friedman & Cornford, 1989; Stougaard Thomsen, 1993). Still others have found that users are positioned to be error sources who should be designed out of the interaction (Hornby et al., 1992; Salzman, 1992), or at least they need to be controlled (Beath & Orlikowski, 1994).

Some researchers prioritize the user in their perspective. The users are domain experts (Brown & Dubui, 1992; Eason, 1988), who are innovative and knowledgeable (Adler & Winograd, 1992; Brown & Duguid, 1992; Earl, 1989; Orlikowski, 2000), and skilled (Boivie, 2005; Ehn, 1988). Liam Bannon (1991) wanted to change the label "user" to "actor" to emphasize that "people may not know the technology but they are not 'naïve' as to their work"; instead, he says, "it is the system designers that are 'work naïve'!" He also sees "a danger in thinking of people as nothing but 'users'" (p. 3).

Beath and Orlikowski (1994) see a dichotomy within ISD between the users and the developers. The users are experts but can only perform routine work; they might be dangerous in the ISD process or in interactions with ICT, and they quarrel among themselves. These narratives take for granted the professionalism of the developers and do not even touch upon the users' possible professionalism. The developers' personalities are never discussed; those of the users are scrutinized. Isomäki (1999) finds the same dichotomy in her study: the users are positioned as ignorant and scared, and the developers as having superior knowledge and skills. This rationality is closely related to the way Adam Smith, in the 17th century, constructed workers as simple machines:

*The man whose whole life is spent in performing a few simple operations, of which the effects are perhaps always the same, or very nearly the same, has no occasion to exert his understanding or to exercise his invention in finding out expedients for removing difficulties which never occur. He naturally loses, therefore, the habit of such exertion, and generally becomes as stupid and ignorant as it is possible for a human creature to become. (Smith, 1776/2001, p. 1040)*

In my studies, the only user participants were one user representative and one union representative, but the other participants often talked about the users. In the narratives I also find the dichotomy described above. On the one hand, the users are critical in order to get a good system, and they can choose not to use the system. They have many positive attributes: they are competent, experienced, active, innovative, flexible, and interested. They are domain experts and idea generators, who know the "real" needs, and are knowledgeable about existing IS. They take personal responsibility for operations, and ensure usability.

On the other hand, they also have many negative attributes: they are heterogeneous, do not know what they want or need, make strange or irrelevant requests, focus on personal needs instead of what the work demands, and quickly form overly high expectations. They are undisciplined, uninitiated, unwilling, lazy, grumpy, conservative, and confused. They never finish their work, are not innovative, and must be controlled or guided. They are also positioned as overrated, usually only having opinions on small issues. They do not have time to participate in ISD projects, and do not understand the abstract models used in ISD or what the procurer or

user representative do or decide. They make many demands, contribute mostly with opinions instead of qualitative input, cost money, are exploited by external ICT suppliers, and can overturn a project, or lose contact with the business and shift their loyalties to the developers instead. When it comes to ICT they have extensive experience with computers in their homes and with other computerized technology apart from PCs; at the same time they know little about ICT and are immature in those areas.

I think this list of attributes positions them as "the Other", which is a subject position often used by dominant discourses to lay claim to the privileged pole (Gergen, 1999). Positioning groups who do not comply, as the Other actually constitutes the norm. Analysis of this phenomenon has typically been used to investigate the positioning of women, people of colour, and people from non-Western cultures. The environment for ISD is constructed as an isolated social world ruled by the knowledge system of the IT experts and it is largely self-referential. The users become the Other and must subject themselves to the normative knowledge of the IT experts. People who differ from the dominant group are frequently exposed to a binary form of representation in which they are required to show opposite traits simultaneously e.g. good/bad, civilized/primate (Hall, 2001b). The users are at the same time pivotal and overrated, knowledgeable and ignorant, competent and stupid etc. and this construction of them as different from the norm functions to exclude them from ISD.

In the end, the issue is simple: is ICT or the human positioned as the most versatile and adaptive resource? ICT can either enhance human skills or reduce humans' capacity to use and develop their abilities. The former path is more typically chosen within HCI discourse while the latter relates to the functionalistic rationale guided by technology determinism which positions the user in relation to the system and not in relation to the work or the organization (Boivie, 2005); therefore, this subject position effectively excludes users from making major contributions to the ISD process.

*In the script, the User-R represents two people who have been positioned, by themselves and by others, as user representatives either in ISD or in the union. Since my studies did not include any end users apart from these, this is the closest I have come to the user but the subject position is prevalent in many of the narratives of other characters.*

# PhD Student

Over the course of eight years, Lindén (1998) collected narratives from 444 supervisors of PhD students that describe encounters between them. The subject position of the PhD student is not a very positive one. The student has overly high self-esteem, is unsuitable, dependent, suspicious, afraid, disengaged, uninterested, and too practical or too theoretical. She/he also lacks initiative, and will not listen to advice, move quickly enough, or do things she/he is supposed to do. The supervisors tend to construct the students' behaviour, personality or character as a problem.

On the Internet several websites and blogs describe the life of the PhD student. Here the subject position is more that of a victim (e.g. Figure 4): students are lonely, poor and misunderstood, with supervisors who only want to see them suffer as much as they once did. They have no support from friends, family, supervisors or fellow PhD students. They do not understand what they are supposed to do, and they work around the clock, always with too little time and too much to do. They are taken advantage of by supervisors, students, the institution etc. And they always blame themselves—it is their own fault that they cannot handle the situation.
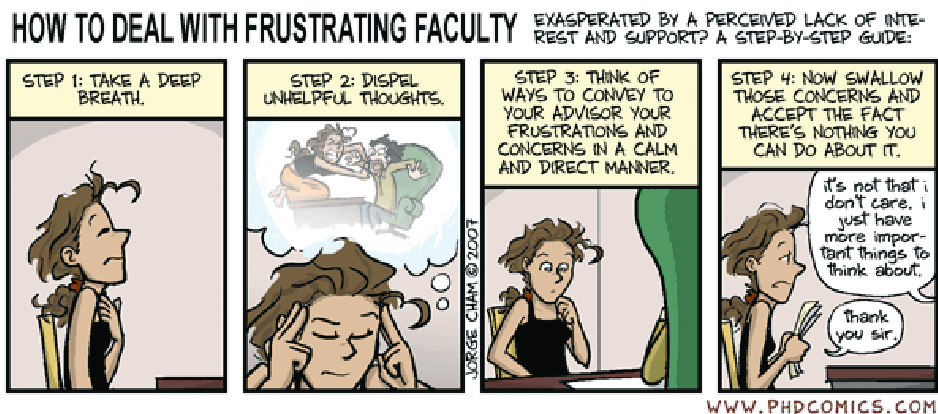


*Figure 4: The Life of a PhD student*

During my time as a PhD student I slowly chiselled out my position as a researcher. During my undergraduate studies I had already reflected on the observational role of fieldwork and the epistemological status of the data gathered. For me, it has always been obvious that we cannot attain complete objectivity when studying social phenomena, and I have always been very present in my research. Even if I have tried not to influence what I have studied, I have certainly done that at times. During my interview studies I came into being as a subject as I selected a subject area and participants, and as I interacted in interviews, and then transcribed my data and finally conducted my analysis. In the field study, I was even more present as a subject. During the meetings I first introduced myself to the participants, and then sat in a corner listening, observing and taking notes. In my interviews with the project members I asked whether or not they had taken notice of me and everyone said that after the first introduction they basically forgot about me. I became part of the furniture. But in reading my notes, I noticed that on several occasions participants said things that were implicitly addressed to me, and the microphone was often casually covered by papers or a fruit basket. I do not think that they did this consciously but I do interpret them as signs of awareness that I was observing them. The most explicit sign

came from a project leader who said she felt uncomfortable and under surveillance. So it simply was not possible to be a fly on the wall.

About two thirds of the way into the field study it was decided that I would give some feedback to the project based on my observations. Now it became clear that I had a legible subject position. I was an authority, particularly associated with the academic institution; I was positioned as independent and they feared I would be critical just as I feared being perceived as critical. We also positioned me as involved, curious, reflective, and interested in people. This subject position became a threat to an external IT expert involved in the project and he forcefully rejected my suggestions for user-centred design. A clear power struggle became evident but I returned almost immediately to a more passive role, which allowed him to maintain his privileged role as an IT expert. I also noticed that the interview situation was a bit different during this study as I came to know the people much more than I had done during the other two studies. I felt I was in a better position to read the interview situation, to understand nuances and to ask better follow-up questions.

I was also present during the analysis: I chose the research questions, the theories, and the data to be analyzed; I transformed the data into transcriptions, and then chose what to emphasize in the analysis and the representational form for my result. Just as Giddens (1987, p. 107) says, every analyst approaches data with a "horizon of expectations"; otherwise it would not be intelligible.

*In the script I position the PhD student as a reflective, passive but committed authority who strives to take on the subject position of Researcher but not necessarily the conventional one.*

# Researcher

The conventional subject position of a researcher it that of a specialized, focused authority. Van Maanen (1988) describes the critical observer positioned outside of the object of study: a scholarly authority, professional, precise, objective, and neutral, without personal opinions, political objectives, or moral judgements, with no hesitation or self-reflection. This is a busy but invisible little character. The researcher has facts and produces real-world effects; he (it is most often a man) is a truth teller who becomes a kind of high priest who is difficult to question unless we are as competent as he is (Gergen, 1999). He is simply responding generically to the realities (Gilbert & Mulkay, 1984).

Since the 1980s a more subjective subject position has appeared on the scene; this researcher is more active and acts and make judgments based on personal inclinations (Gilbert & Mulkay, 1984). He is acknowledged as a central figure in the construction of the research (Finlay & Gough, 2003; Georgaca, 2003; MacMillan, 2003). Van Maanen (1988) describes this researcher as active, impatient, sly, a fixer who understands how things work and does not always act with

high morals. But this is still a "good guy" or "just like anyone else" who dissolves into the environment. From a social construction perspective, the position of the researcher is sometimes like a marionette in the hands of social forces but another version is someone extremely skilled in the social network of relations (Gergen, 1999). Nicolson (2003) finds that when the objectivity is removed a caring researcher appears, someone who feels responsible for the participants. Latour (1983) argues that researchers used to be positioned as very special people with special methods, special minds and a special culture but now sociologists construct them as being in a less specialized position where they mostly just repeat what has already been done.

Through analysis of their own part in the research some researchers have found certain characters with which they have positioned themselves. Gough (2003b) positions herself in five different identities: *The pundit* gets involved but keeps her authoritative voice as she articulates "typical" opinions. *The comic* tries to maintain the illusion of having a normal conversation and reducing power differences through comical utterances, and *the critic* provokes and confronts issues that she finds problematic. *The professional* is focused on the end result while *the participant* is focused on the moment that might lead to problematic situations in which the researcher feels vulnerable. I recognize all these roles in my empirical data, and experiences with the latter can still haunt me. For example, during one interview I was strongly convinced that the participant came from one part of the organization and then he corrected me when I asked irrelevant questions. Rowe (2003) describes the researcher as a storyteller: she/he tells her/his own stories, tells the stories told by the participants, and tells the stories that occur in the interaction between researcher and participants. Rowe also positions the researcher as an actor. The actor must be aware of more than the words in order to make an interpretation and cannot control what meaning others will construct from her/his work.

Lantz, Räsänen and Forstorp (2005) explored the positioning of HCI researchers within co-operative design projects. In the 1980s these people were positioned as having political aspirations for a democratized workplace; in the 1990s they transformed themselves from politicians into designers and the effort was now for good relations between employers and employees. The current subject position is of an active learner on an equal level with the users and acting as a resource for them. Their objective is to come up with new knowledge but the users position them as designers. Since they feel obligated to the users for letting them be there they do not want to be difficult; therefore they end up as a mix between researcher, colleague, designer and technician.

In my study I find that the participants positioned me not as a PhD student but as a researcher. They constructed me as an objective, neutral, invisible, congenial authority. At one point when I went from being the outside observer to an active HCI expert who critiqued and informed the project on relevant issues, my authoritative position was very apparent, to the extent that one IT expert felt threatened and questioned by me.

This thesis (Swartling, 2008) is the empirical data that signals my shift from the PhD Student to the researcher.

*In the script I position the researcher as the conventional objective truth teller.*

# The Script

The stage is a large triangular room with black walls and floor. In one corner is a meeting place: a typical conference room with a light brown oval wooden table and eight chairs, an overhead projector, a large notepad, computer projector, screen, and whiteboard. On the floor is a large green plant in a self-watering pot. In the next corner is a coffee area with two small round, light coloured, wooden tables; three light-coloured, bar-stool style wooden chairs with short backs; a small side board with a coffee machine and stacks of blue ceramic coffee cups; and a large green plant in a self-watering pot. In the third corner is an office work space with a light coloured wooden desk, an office chair on wheels, a computer, papers scattered around on the desk, a trash can, a photograph of two children somewhere between four and eight years of age, and a flowerpot with a small plant that is far from flourishing.

In the middle of the room is a rotating area with a large red velvet sofa on which the PhD Student and the Researcher sit during the entire play. During the play, a large fly, a meter long, moves around slowly, high up on the walls. It makes no sound but moves around and watches the action. In the open spaces between the red sofa and the corners are many office chairs on wheels used by the audience. The audience can either sit on these chairs or stand up. They are free to move around on the stage as they please. The red sofa is lit up by a strong spotlight during the whole play. The rest of the stage is lit, when used, by a warm general stage light. The fly is lit up by a soft blue spot that makes it barely visible. Close to the ceiling is a large digital sign, a meter high, that displays text during the play.

# SCENE 1: A WONDERFUL BEGINNING

*From above appears a small platform, with a picture of clouds on the front so that it looks like a cartoon version of a carriage made out of clouds. In it stand the PhD student and the Researcher. The carriage lands and they go over to the big red sofa and sit down. The carriage rises and disappears. There is a white large spot on the sofa all through the play. The three characters speak directly to the audience.*

| | |
|---|---|
| PhD Student | I speak for the author of this thesis in a direct voice. Most of the time I reflect on the social patterns; sometimes I make my conclusions from field notes when representational quotes by the participants aren't available. |
| Researcher | I speak for the researchers whose publications the author has found to be relevant for her analysis. My voice merges quotes distinguished in the endnotes. |

*It is important to emphasize that the author's analysis is constructed on many levels. A more traditional formal voice is constructed through these stage directions, which are complemented with references to previous research through the Researcher. Even though these references are made through quotations, to enhance the voice of the initial researcher, these quotes are carefully chosen for certain arguments and relate to both the stage directions and the participants' quotes.*

*The characters talk with each other.*

| | |
|---|---|
| PhD Student | ICT certainly has great potential and in many ways it has transformed our society. |
| Researcher | The importance of the information revolution is not in dispute. The question is not whether information technology will have a significant impact on a company's competitive position; rather the question is when and how this impact will strike. Companies that anticipate the power of information technology will be in control of events. Companies that do not respond will be forced to accept changes that others initiate and will find themselves at a competitive disadvantage.[1] |
| PhD Student | Many have also emphasized the importance of humans in this process. |

| | |
|---|---|
| Researcher | We must abandon the idea that technology in and of itself can solve a company's information problems. No matter how sophisticated an IT system, information is inherently hard to control. It's only when executives stop being 'technologically correct'—when they start viewing information as ever expanding and unpredictable—that they realize how little the latest computer application has to do with effective information use.[2] In and of themselves, ITs have not produced sustained performance advantages [...] IT creates advantages by leveraging or exploiting preexisting, complementary human and business resources.[3] While the IT organization can deliver the technology, the benefits and value from this technology must be unlocked. Only business management can do this.[4] |

*The light comes up on the conference room. The characters speak directly to the audience.*

| | |
|---|---|
| Business-R | I speak for the field study participants who were positioned on the business side of the organizations. |
| PhD Student | So you have first been decontextualized from the original context and now you are recontexualized and juxtaposed by me? |
| Business-R | Yes, our voices come from all three studies and not in the sequence they appear here. For all of us some words are left out or added in order to make the line more intelligible but without changing the meaning or references. My voice, and those of the other characters, blend quotes that are distinguished in the endnotes. As Business representatives, we are primarily positioned as strategists and managers. |
| PhD Student | The context for your quotes was included during the analysis even if my presentation of them is decontextualized. Your voices are carefully brought together to visualize the social patterns that I identified during the analysis. What these social patterns are and how they function is jointly described by me, The Researcher, the titles/signs and the stage directions—which of course also are part of my voice. |
| IT expert | I speak for the field study participants who were positioned in different IT positions, either internally or externally to the organizations. |
| Project leader | I speak for the field study participants who were positioned as project leaders. |
| User-R | I speak for the field study participants who were positioned as user representatives or people who in other ways represent the user, such as a union representative. |

Usability practitioner     I speak for the field study participants who were positioned as ex-
                           perts within the field of usability.

*The Usability practitioner exits. The User-R is standing far away from the others, barely within
the set lighting, not communicating with the rest of the group. The remaining characters talk
with each other.*

IT expert                  I also believe that we have to invest time into moving our own orga-
                           nization, our own way of work and sort of help the users to take this
                           step so we really benefit from a new way of working and its effects. I
                           also think it is really important that we take one part of the project,
                           related to deployment, to really focus on lifting the organization.
                           With the new ways of working, which we will see by then—so that
                           we don't just see it as an IT technical project.[5]

Business-R                 There are no IT projects, not really. They are business projects.[6]

IT expert                  It is part of our basic philosophy, which is not that strange in itself,
                           that the purpose of a system is to serve the business and a business
                           process and then the business side has to be the ones who run the
                           change process and the development process forward. Then some-
                           how the system meets a business demand and that demand in the
                           end makes us more efficient or a better partner, i.e. stronger compet-
                           itors, and then it is all about saving costs or increasing income and
                           that is the business side's responsibility and then they also have to
                           take responsibility for what kind of IT support is needed to be able
                           to accomplish this.[7] [If they don't do that], then we are back to the
                           mistakes made in the 80s and 90s when you never got the anchor-
                           ing and the real responsibility taken by the business side. Instead,
                           they said that now the IT department will present a new system;
                           but it [the system] won't work since I don't work like it is designed
                           in this dialogue or I don't do it like this when I deliver service to my
                           customers. So, IT systems are supposed to support a business based
                           on the business side's demands and the business side therefore must
                           own the procurement role and thereby also own the system itself,
                           however it is designed to fit the best.[8]

Project leader             That is […] one way to view who governs IT over time, that is a
                           larger issue, it is not IT that rules the business—it is the business
                           that rules IT.[9]

| | |
|---|---|
| Business-R | What is ruling? IT development or business development? Of course, the only answer to that must be that it must be the demands from the business.[10] |
| Project leader | We really have to get down and dig into different kinds of roles, of co-worker groups, and how we can serve them best.[11] […] user adapted and so on, as simple as possible based on how the largest user groups perceive it.[12] |
| IT expert | It is really important, this has to breathe a clear benefit for the individual co-worker; he has to be able to identify with it.[13] |
| Business-R | It is sort of the key, that the co-worker must feel satisfied with the work they do. Otherwise, it will not be good in the end no matter how you try.[14] |
| Project leader | It is extremely important that we capture the users' thoughts on how it should be.[15] […] I believe that the project benefits from working with people from the business side all the way […] and if we include them from the start then I believe that it is so much easier to focus on opinions on the right stuff rather than having people come in at the last minute when we are almost finished and have opinions about the design or a square being ugly or that the system isn't good looking etc.[16] There is also a risk that we won't succeed in involving the business side and the users enough for usability but also the benefit to be defined clear enough. And if we don't succeed with that, then that is a risk for the project.[17] |

*The User-R speaks directly to the audience.*

| | |
|---|---|
| User-R | From the beginning, we had a very technical approach in these work groups and maybe it was afterwards that they involved someone like me, a user, because they realized the balance was off. They tried to create technical solutions to things that could be solved much better by using changes in methods […] they saw that it was too much technology reasoning overall […] that they tried to solve things technically and it became costly while changing a method can accomplish the same thing really easily.[18] |
| IT expert | It's about how their […] work situation is, how do they work efficiently during a week, for example, or what is a work week like for |

| | them and how do we want it to be so that it is efficient from their perspective but they also start to use these functions or these tools.[19] |
|---|---|
| Business-R | I want to place usability in a larger perspective than just related to health or wear or non-wear. I want to see it within a value-creating context.[20] |
| IT expert | It's important to remember that I think that it is not only this interface, that is only the tip of the iceberg.[21] |

*There are several tendencies to actually involve users in a meaningful way and an intellectual positioning against technological determinism. They emphasize that ICT should not be technology-driven and that the business should be in charge. The users are positioned as key participants in the development process, and usability is constructed as something more than just a graphical computer interface. Much of this is in line with research perspectives that focus on human and organizational issues. But is this the whole story? Are there contradictory elements in the discourses? There is a continuous struggle between different discourses and it is important to analyze the variations in order to arrive at potential functions that certain constructions might have. The following scenes will illuminate these points.*

## SCENE 2: THE POWER OF COMMON SENSE

*The light comes up on the coffee area and the characters move to that space while the light goes down on the conference room.*

## IT'S COMMON SENSE

| Business-R | You take for granted that what is procured is user-friendly and functional and every other good thing. That is taken for granted.[22] |
|---|---|
| Project leader | I think that there has probably been more user participation but that was before I got into this.[23] |
| PhD Student | I experienced a situation in which many people describe that even if they don't know how it works, they are convinced, and assume, that |

users are involved and that usability is a matter of course in a systems development project.

*An important element of a naturalization process is what becomes part of common sense, as it lies at the centre of what is considered true. So these utterances could be a sign of usability and user participation being given privilege in the truth régime; this would also be in line with the statements in Scene 1. On the other hand, it might also be a way to legitimize or rationalize why it is excluded: it is always someone else who makes sure that it is included—but that someone is never specified.*

*Unfortunately, the latter seems to be the case and this will become clearer as we move on. It is not enough to have an intention; it must be transformed into action and even if they say that users and usability are vital they do not act accordingly. So what is said to be common sense is not what is used as common sense in the ISD discourse. This also relates to research that has shown that procurers tend to construct usability as intuitive; this construction functions to marginalize the issue and not pay it serious attention.*

| PhD Student | The way that observational methods are utilized is more informal and intuitive than formalized and focused; the information gathered is not systematic. The method used most often is simply to talk to the users. It's constructed as sufficient to gather the users in a conference room and just ask for their opinions. |
| --- | --- |
| IT expert | We are talking to users even when we are visiting the business. Or if there have been problems, then we talk to them directly.[24] |
| Business-R | I meet people when I am out in the organization, which is not that often but it happens.[25] It is more a matter of keeping an ear to the ground so I know what is going on.[26] |
| Project leader | Often, it comes from a [user] out there somewhere who has called in and said: Damn, couldn't we change this or do something like this instead?[27] |
| Business-R | I'm out in the organization a lot, I've always been. Not during the last six months maybe, but otherwise I am out there a lot. Visiting, out in the organization, getting around the different units, meeting management groups, meeting managers, meeting co-workers, [customers]. During certain periods I have been out travelling |

|  |  |
|---|---|
|  | maybe three to four days a week, and then you see this, you get a picture of it.[28] |
| IT expert | About a year ago we started with yearly courses for all users […] That is a very good forum for getting the thinking going when you see how they work. Because we can sneak around and watch and understand what their world looks like.[29] |
| PhD Student | But this is just a training session? The users are far from their everyday use context and it is not even a proper usage test. |
| Project leader | When other companies […] include their co-workers so that they can say, like they did at [Authority X], sort of how they want the structure […] then everybody gets to say: This is how I would like everything sorted, and then they get together with all the co-workers and realize: Oh no, you don't want this like I do, I want it like this, hmm. How do we find the least common denominator? So, did that turn out all right? No.[30] |
| PhD Student | Other companies have said that they do not find it very fruitful to just gather the users and ask them what they think, but no one is reflecting on whether or not they are using the right method. |
| IT expert | If we finish something […] then we bring it with us and demonstrate it at the project meeting.[31] Then you get feedback […] where you really get an even better picture because there you have everybody, the experts in all areas.[32] |
| Business-R | What we have had, really, is a presentation of a solution and then the question: Does this fit? And then the [IT developer] has constructed something from that.[33] |
| Researcher | Talking with developers, I often hear them say that they made a usability test of their latest product. Great, I say, how many problems did you find? None, they say, the users were very happy with the system. That surprises me a bit, since we usually find 20 to 30 problems during a one-hour usability test. A closer discussion reveals that what the developers did was a demo of the system. They showed the system to the users, walking through typical cases. The users were invited to comment on the system, but did not notice any problems. In my experience, users can find a system very attractive when they see a demo of it, but be completely unable to perform anything with it on their own. So the system is not easy to learn.[34] |

| PhD Student | Yes, it is clear that demos are insufficient. This is well known within the HCI community but they still seem to be widely used by others in the systems development process. |
|---|---|
| Researcher | For the fulfillment of the instrumental needs the IS designers just have to collaborate and listen the users [sic]. Meeting the inherent needs of a human being preconceives additional procedures for analysing the user requirements. These procedures should employ methods for defining the aesthetic, socio-emotional as well as cognitive fit between the user and the properties of the application.[35] |
| PhD Student | How is this influenced by a constructionist perspective in which reality is created in social interaction? I consider it to be very relevant. In order to support use we have to come close to the relevant social context within which the use is constructed. It is there that the effects of the meaning construction are visible. |

*The use of informal methods is part of the construction of usability as common sense and intuitive. This could be one reason why developers tend to misunderstand terminology and methods and believe that they are doing a usage test when in fact they are doing a demonstration.*

*The users are positioned as creative and innovative as this is what is expected from their involvement: just getting their opinions or listening to them talk will reveal amazing ideas. They are constructed not only as domain experts but also as design experts. Design is not just a question of opinions; it is a practice by itself. Within ISD, for design activities not related to usability, common sense says to use professional expertise and professional methodology, but for design activities related to the users the same need is not constructed as common sense. A belief is also constructed in which usability just comes naturally if we let users participate; then informal methods suddenly turn users into great designers. On the surface they seem to be considered very important, but in reality the subject position of the user as a kind of superman functions to exclude them and to marginalize their opinions, since it is virtually impossible for them to live up to such expectations.*

*When the user is positioned as an information resource or an opinion machine then they are positioned within the realm of humans as information processors. Everything the users know is stored within them and it is possible to retrieve that knowledge from their inner database and it can be reproduced concisely and completely. It is also assumed that the listener can take in the information without prejudice or bias and that they can in turn reproduce the same knowledge exactly as it is stored within the user. This is part of the hegemony in our society that positions the human as rational and essential. Everything is solved as long as the users just share their inner mental resources. This does not acknowledge human complexity: the ways that social interaction influences work and the meaning of work, or the social interaction that*

*appears between the user and the IT expert in which they co-create a social construction of work—a world view.*

*A different approach would be to use methods that can enable the users to participate on their own premises, which acknowledge their strengths as well as their weaknesses and may actually enable meaningful contributions to the development process rather than just giving the developers a superficial argument that the users have been involved. This leads to the contradictory situation in which user involvement is common sense even though it does not result in meaningful contributions.*

## QUANTITATIVE AND OBJECTIVE IS THE WAY TO GO!

IT expert

Then there are subjective and objective assessments and IT systems raise emotions. Today, and of course I can give an example, we have a system which many, maybe not many but a number of users out in the organization say that it is not a good system. Then I ask what it is that is not good and then they can't really say; only that it isn't good. I've heard this, others have said this and so on. So, just because a user says that something isn't good it doesn't have to mean that it is so. Because IT systems also tend to be evaluated very subjectively and that has to be removed or turned into concrete objective evaluations. So I say: OK, what is it that isn't good? You can't just have an opinion about the colour or something, you have to say what it is that isn't good and as long as you can't do that we have to view the system as good. It's just like, if you have a demand on the system that doesn't work or is perceived as good then you can demand from those people that they be clear about what it is that isn't good.[36]

Researcher

The confusing way that the IS designers understand a human being in the context of ISD: in terms of a formal set of procedures. The boundary between a human being and an information system is blurred and a human being is ignored […] In this kind of design the IS designers only take into account things which can be defined as data. As a rule this [sic] kind of things concern the information that the users need in the system, whereas the human factors in the system, e.g. the aesthetic, social as well as cognitive fit between the user and the properties of the application, are omitted. [---] It is also assumed that the only need that human beings have in their work is the need for information, or that the needs of the user are similar to those experienced by the builder of the system.[37]

| | |
|---|---|
| PhD Student | I observed how the feasibility project summarized its workshop activities based on two things: 1) quantitative measures insofar as an opinion was included if it appeared more than once, and 2) the IT expert's opinions of what should be included. The quantitative data might have reflected users' general opinions but they did not shed much light on what was actually going on while the work was executed. The narratives told by the users were diluted and only small parts of them were considered important. The end result was a perception of work that was either general or conceptualized within a different truth régime than the users'. |
| Researcher | [It is believed that] if accounts of the world can be converted to a system of numbers, high precision can be achieved. [...] Numbers also represent the most neutral language of description. [...] they do not carry subtle connotations of good and bad. [But] when our language of description is converted to numbers, we do not thereby become more precise. Numbers are no more adequate "pictures of the world" than words, music or painting. They are simply a different translation device. This translation device also throws out most of what we hold to be valuable or significant about persons.[38] |
| PhD Student | What is done with the information that is acquired from the users? They have no methods for analysis. The result is wish lists. |
| Project leader | You really want to just compile this into a form of the most common comments on [system X] which becomes some kind of general wish list.[39] |
| User-R | It became apparent, after we had been doing this for a while, that it turned into a wish list and was handled incorrectly; it went in as orders but they were just wishes.[40] |
| Business-R | You have to distinguish between need and wish. Because many things would be great to have.[41] |
| PhD Student | After performing user studies the project team in the third study said that the users were not representative of the whole business and that the primary purpose had been to anchor the goals for the project and not to gather information about the need. |
| IT expert | In many […] projects [...] you really get these disruptions in the later stages of the development. When there are a lot of discussions around usability or things like that, which is really a sign of something else—that you haven't anchored.[42] |

| PhD Student | In the end, the resulting report included very little information from the user studies unless it supported the project's initial hypothesis. |
| --- | --- |
| IT expert | We feel that we really have the freedom […] if we want to tone down some of the input from the workshops [with the users] and emphasize others, [from the workshop or not], and then we must have this [freedom] and not feel a need to relate to what has been said in the workshop.[43] Because there is nothing that says that the [interface] should be defined from, one, what has come up in the workshops, and two, what the users want. The purpose is to create the best possible conditions for your business.[44] |
| Project leader | I mean, we sit in this group and maybe I have an opinion about what kind of recommendation we want to give. Maybe everyone within the company doesn't think the same way and then it is up to us, as we as a group have an opinion, because it is still we who have the mission. We have checked out our opinion with a number of people who also think like us and some who don't agree with us. Then we'll see how to show that too and maybe in a clearer way that there are many different opinions but that our recommendation still is that, if we agree on it.[45] |

*Once again methodology issues function to exclude the users. This time it is closely related to another truth régime in which objective quantitative data is given privilege and considered a more truthful representation of reality than subjective qualitative data. The latter is constructed as individual opinions that have little worth for the development process and therefore are marginalized to wish lists which are given little priority. Even opinions of members in the project group are given higher priority. Methods are not neutral: they affect how we perceive the world. Even a controlled experiment does not have to be a method for revealing human behaviour; instead it might unintentionally construct human behaviour so that it fits with what is sought. Empirical and quantitative data can be effective but they are not the truth. (Recognizing that they are not "The truth" does not mean they cannot be useful.)*

BUTTONOLOGY

| PhD Student | In my studies people repeatedly constructed usability in general as central and something that involves the whole interactive context and not just the user interface, but in concrete situations something happened and suddenly it was reduced to "buttonology". |
| --- | --- |
| Project leader | User-friendly somehow.[46] For example, to reach all the buttons.[47] |

| | |
|---|---|
| IT expert | Easy to use the system […] that you don't get injuries […] that it is easy to use and somewhat self explanatory.[48] Users seldom bring up major system demands […] it is mostly, a lot of cosmetic […] many small things.[49] |
| Business-R | User-friendly,[50] for example that menus are reasonable, that it is a user-friendly system,[51] a graspable user friendliness with logical straight lines so you can get a hold of what you want […] not too many button presses,[52] that you don't need to press too many buttons,[53] that it is logically arranged so that it isn't the computer that controls me but I who control the computer,[54] legibility, simplicity.[55] |
| IT expert | And then other parties have other demands such as whether to have red or green buttons, and whether we talk about the HCI issues. […] It is on these levels that you find the major HCI issues with buttonology and design and individual movement schemata. That which is traditionally considered HCI issues.[56] |
| PhD Student | Even though I arranged for an HCI expert to inform the feasibility project group on usability and UCD, at the end of the project, one and only one person saw usability as something more than just the interface or the work task. |
| IT expert | Now I am thinking more like a long line, to better understand the whole business, not just the individual users and not just the company's general goal and approach. To transform that into maybe an IT that actually works in practice. I think that the whole process, so to speak, has my view, that it is sort of, more of a number of different parts that connect. I have previously put maybe too much emphasis on the actual meeting with, that is human-computer, the interface solves my tasks or supports me.[57] |

*This illuminates how the term user-friendly marginalizes usability issues: it is constructed as the frosting on the cake instead of the raw material. Some did expand it to notions of tools, but it was still very much in relation to the interface. For example, organizational issues were never touched upon in relation to usability. This leads to a situation in which the problem domain is constructed as simple; in turn this leads to a developer being nonchalant or surprised when she/he realizes that it is much more complex than and different from other more technical problems.*

*Buttonology is concrete and easy to understand, which is why it fits well with the functional paradigm as it removes many of the subjective parameters involved in interaction, social as well as that between humans and systems. A common, and very successful, practice for hegemonic discourses is to devour and reconstitute elements from resistive or contradictive*

*discourses. Buttonology is a good example of this. The complex construction of usability does not fit with the underlying norms of functionalism. It is therefore reduced to something simple and concrete. When that happens, the discourse seems to acknowledge a more subjective perspective but in reality it is enforcing the hegemonic norms.*

## NO ONE'S COMPLAINING

| | |
|---|---|
| PhD Student | Anyway, all this makes no difference since the users are satisfied and the systems work satisfactorily—because no one is complaining! |
| Project leader | Yes, [the users' needs are satisfied], that I must say. Otherwise we would have heard about it.[58] |
| IT expert | We get fewer and fewer user opinions […] so I think they are fairly satisfied.[59] |
| Business-R | When I am out on my visits I often ask how they experience their concrete situation. No, they say, the systems are good. […] The general impression is that they are very satisfied with our systems, even though we don't think they are very good. But they are more satisfied than we are […] there are stress statistics, they are considered to be high […] but the funny thing is […] no one points to the IT systems.[60] |

*User-R interrupts and offers quite a different account of the situation while she pours a cup of coffee.*

| | |
|---|---|
| User-R | Many people are very tired, and all these new computer systems that arrive now and then […] it is a lot of changes, it is a lot of information […] most people are already sort of overloaded and then it becomes sort of another stress element […] then I think you get used to it […] even if, if it isn't entirely good you have learned the new things and all the different elements which we may think are stupid anyway.[61] |
| PhD Student | Yes, there is a definite gap between higher management and the users. |
| Business-R | The systems that I perceive that we have constructed, they have, as far as I know, in reality made it easier and improved […] Take this |

[system B], it has of course considerably facilitated and made it eas-ier for our co-workers.[62]

User-R                          Because [system B], when it arrived [was bad], and I believe it is still very bad.[63]

*The PhD student turns to the Researcher.*

PhD Student                     You also encountered a narrative in this organization that construct-ed a negative situation for the users, didn't you?

Researcher                      [Yes,] users do not see that their expectations are fulfilled, or even promises are broken, and as a consequence they think "it was better before" […] the users think their work has become more stressful and problematic.[64]

*The Researcher turns to the audience.*

Researcher                      Users often express satisfaction with their system in spite of evidence that the system is inconvenient and wastes a lot of user time.[65] Across industries, fewer than one customer in 20 will complain to se-nior management about a major problem in the quality of a product, and fewer than one in 50 will complain about smaller problems. […] Therefore most managers are unaware of the extent of the dissatis-faction with their products.[66]

PhD Student                     Maybe people attribute some autonomy to machines? This might help explain why they don't complain. They perceive the computer as a separate actor and not as another person's responsibility—it is the fault of the computer, not of another human being. A similar narra-tive could be that instead of making the computer responsible, it is I as a user and a human being; the computer is just a machine. And once again, the person constructing the computer is not involved.

***Why people do not seem to complain or why their complaints do not reach management is an interesting aspect by itself but in this context it is more relevant to investigate how it is constructed in relation to IS. Instead of being constructed as problematic it is positioned as evidence that the IS is working satisfactorily. The users are once again positioned as important sources of information. That is, if they complain something might be wrong but if they do not complain everything is fine. But this construction of meaning functions to rationalize a passive action. Instead of seriously evaluating the IS, they use the users' passivity as an argument to do nothing.***

*An underlying determinism is also involved in the notion that IS does not have to be evaluated continuously, if at all. If IS is constructed as something that comes into being within a human and organizational context then it is vital to evaluate it in relation to that context as there is no IS without it. Here, the default is that the IS works fine. It could be claimed that listening for complaints is a kind of budget organizational assessment but I assert that in this context it once again functions to marginalize non-technical issues.*

## THE IDEALIZED USER

| | |
|---|---|
| PhD Student | They have a clear image of who the user is—but it is not based on the "real" users or their "real" situation. |
| Researcher | The procurers […] were not trained in either requirements engineering or user-centered design. Lacking tools and experiences of working with usability, the procurers had difficulties accessing actual user needs. Moreover, the tools that were used often mediated an idealized view of usage.[67] |
| IT expert | Our image of how a user works […] we have built it from experiences we've had with user representatives in projects and from training sessions and from being out in the workplace observing how they work and talking to them.[68] |
| PhD Student | In the introduction to the workshops that were carried out within the feasibility study the IT expert showed a screen print from the computer of a 14-year-old girl with a lot of windows and chats going on. She/he positioned the girl as a representative of the company's future employees, thus someone representing future expectations and needs. She/he argued that the participants' superficial view of this young girl should be included when analyzing the user needs for the new system. |
| Researcher | The starting point to design systems is that the designer is trying to conceptualize the user's behavior in relation to the system by assuming him- or herself as taking an active part in the task in question […] designers also try to understand the user's behavior through their own behavior.[69] |
| IT expert | Then you might think, because I think like this, OK what would I like to see? […] Then I would like fast links […] because I get angry every |

time I jump around.[70] [...] We are going to include that, as a concrete example, because it is so goddamn desirable to be able to see how you are doing, what are the latest status numbers, really good.[71]

PhD Student    In my first study, several participants talked about the need to develop systems for "new" users, the ones not yet employed, who were to replace the present conservative unknowledgeable users. It was perceived as common sense to base the system's design on their own construction of these "new" users rather than involve the present users who would only preserve old-fashioned work practices.

IT expert    Those who work with usability, they sort of start with the end users, who will actually be removed according to plans for the future […] the end users who are out there today, they are either removed or are to work in an entirely different way. And they have no idea about how it should be […] you cannot start with what they are doing and model with the people that we have out there today.[72] We have to remember that what we launch today are not systems for the handling officers that are out there today.[73] Those work tasks disappear, which means that those people also will disappear […], you employ people who fit with the kind of work task you have.[74]

PhD Student    They are developing for "other"/"new" users even though the present users will be working with the new systems for up to five more years. Instead of investigating the competence that is present in the organization and the needs of current employees, they go out and recruit "new" users.

Business-R    In the future, according to the image of the goal, there will be a demand for more competent staff than we have today, so we should actually have to replace part of our staff with more academics […]. [At the same time], if the labour market change then it is probably academics that we won't be able to keep.[75]

User-R    The [company] has been really good when it comes to recruiting academics, who are the ones who stay for a couple of years and then move on. Instead of recruiting on the right level and letting them evolve here and think that it is all right.[76]

Business-R    So, there is a mistake in the thought process somewhere.[77] We receive information the way we do, we use scanning and stuff like that, that leads to a need for more qualified staff, we need less of

the ones who used to do sorting and such things. We've said this for ten years now, but we don't seem to get there, because, there is still so much left.[78]

Researcher           Many procurer organizations start with an idea that everyone will use the system—which is […] false […] The consequence is that you design for no one.[79] What is perhaps clearer is that "idealised versions" of work activities […] tend to neglect the "real world" conditions under which work is done. Such factors can have a considerable impact on the effectiveness of a system. […] Understanding the subtleties of the relationship between "real world" work and plans and procedures is an important part of understanding the sociality of work. That is, although it is more than possible to describe an idealized version of the flow of work, the order and speed with which paperwork is generated and dispatched in this idealized version is rarely realized in practice but is stretched and accommodated as workers go about their jobs—and it is largely this process of adaptation and accommodation that enables the work to get done. Consequently, the efficient implementation of technology to support the work process—that is, technology that is designed to improve or enhance rather than merely monitor work—whilst encapsulating this idealized work process, may also need to allow for the variegated ways in which people, quite successfully, accomplish their tasks.[80]

*The idealized user construction functions on many levels. This is a result of using informal methods and is also a prerequisite for using informal methods. The users and their context are trivial and non-complex, and therefore do not need much serious attention. Because the project does not pay them serious attention they end up with a trivial and non-complex description of the users and their context. This user construction can also be related to functionalism. When the users do not fit within the functional paradigm, new user subjects are constructed to fit within that reality construction. Ideal users are easy to handle and they always seem to fit perfectly within the developers' frame of reference; they are not messy or irrational like "real" users. The IT experts and managers are involved in power structures that function not only to exclude users but also to legitimize the IT experts' authority to simultaneously construct the system and the ideal users for that system so that they fit with their system design.*

*The informal methods, in combination with the focus on quantitative objective data, buttonology and idealized users, paint a picture of ISD common sense which is in stark contrast to taking usability seriously. At the centre of the truth régime is the construction of both users and usability as something trivial that can be added on if needed.*

# SCENE 3: THE POWER OF THE FAMILIAR RATIONALITY

*The light comes up on the office area and the characters move to that space while the light goes down on the coffee area.*

## THE RATIONAL BUSINESS

| | |
|---|---|
| IT expert | There have always been processes. Before this, every department had them [...]. There has probably always existed a quality process or processes that describe how we work so that the manager can feel secure while making decisions.[81] |
| Business-R | We have more than 100 processes and 968 sub-processes.[82] |
| IT expert | We've said to ourselves that we should move towards internationally acknowledged standards or de facto standards, which we don't come up with ourselves. Nothing should be of our own making except in the details. [83] |
| Researcher | We ought to see standardization as a part of a much wider process of economic, political and cultural unification.[84] |
| Business-R | We strive for processes that are appropriate and then there is an efficiency, productivity factor in it as well. They should, if you use them then we should work rationally and efficiently and make sure to fix it approximately and they should be documented according to ISO9000 and 15288 systems engineering or something similar.[85] |
| IT expert | The HCI ends up in [...] the group of processes which we call technology processes and they follow a technical structure that lies within the framework of an international standard [...] OK, if we have specific HCI demands, what kind of HCI documents need to be produced? [...] so that we can get them into the process descriptions [...] then they come into the process in a correct way [...]. If [the HCI function] is integrated into all these processes in a natural way then they will be taken care of all the way because there is a structure.[86] The major thing is to change the business processes. It's a little bit like seeing a whole business process from start to finish.[87] It's a matter of getting a process owner who makes it efficient and when we |

have such a process then it is a matter of saying: Can we make this process as user-friendly as possible? And then we must have management, and then we must have a process owner and usability analysts working together, not usability analysts and end users.[88]

PhD Student          This singular focus on processes, does it work?

IT expert            You know, it's a utopian dream to believe that [the processes] are followed, because every project leader wants to come up with things himself, and he's going to take short cuts, he's not going to give a damn about things he doesn't feel he has to, he's going to skip everything he doesn't understand.[89]

Researcher           [There are] consultant estimates that around 70% of BPR interventions do not meet expectations.[90] A socio-technical perspective is the most suitable approach to derive a successful BPR. It also shows that taking a technical perspective to BPR implementation is highly associated with failure.[91]

*A focus on processes constructs the organization as a machine in which it is possible to manipulate the behaviour of the organization and its employees in a rational and controlled way. It does not acknowledge agency and it excludes social aspects such as norms and politics. It is based on the bureaucratic rationality in which everyone acts according to explicit rules and it is possible to identify every need in advance. One reason why public authorities in Sweden are usually positioned within this rationality is to uphold the principle of free access to public records. But the principle in itself does not constitute how it is practiced. It could be realized in other ways. It is the bureaucratic rationality that constructs the possibility of complete and consistent behaviour and identification. Truth régimes legitimate certain behaviour and they do so in relation to ISD as well as the principle of free access.*

PhD Student          The foundation for standard systems is for the organization to adapt to the system. The purpose is to implement a change through the system; otherwise the organization will not gain benefits from it. Therefore, standard systems are often used with BPR initiatives. One of the largest standard systems that followed in the aftermath of BPR is ERP. What standard the system is based on is often rather obscure; it's generally asserted that they are based on best practice— but no one states how and who has decided what counts as best practice. Standardization is constructed as something positive in itself and the foundation is not questioned.

IT expert            I'm sorry to say, both business and IT have to get as far as they've gotten in other industries, in which you actually are rather regulated

from the very beginning. There is no space for starting out naked […] then it is predetermined, even the user interface and other things, and how you should work in the process […]. Unfortunately we have to impair the work environment slightly if we are to make this money.[92]

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| Project leader | [We] become part of a context [when we buy a standard tool] in that functions are developed all the time, which we can benefit from. We sort of enter into a new world.[93] |
| IT expert | It's got to have a value. For example, there might be a local application […] and there are X-, Y-, Z-modules that will be integrated and deployed for a small cost, compared to constructing it yourself. A thousand companies are sitting and thinking about small applications all the time.[94] |
| PhD Student | So, it is a good thing to get a lot of functions, regardless of whether other companies want the same thing or have the same goals or needs. The result is privilege to function before need—functions are positioned as good by themselves, irrespective of the need for them. |
| Project leader | This standard tool gives us access to an entirely different world of possibilities and systems compared with today and it is also an important point to get to. We really don't see that we adapt ourselves to death; the important thing is for us to stick with standards in order to get highest possible benefit […] What else is […] today [the point] is to choose a standard system as much as possible and not require adaptation of the tool, but to start with what is there.[95] |
| IT expert | It's important, what we have learned from the process of moving between different tools, which we have done several times, is to adapt the organization to the tool and not try to do the opposite. Because then you sit there, as I've heard so many times, with a really expensive tool and we have people working exactly the same way and that, you don't want.[96] |
| PhD Student | Managers and project members construct people and the organization as rational and capable of being regulated. They believe that if everyone in the organization is forced to look at certain information on their computers then everyone will read it and act accordingly. |
| Researcher | If we analyze the underlying philosophy of BPR, we can see immediately that it fits most closely with the classical school. Profit maximization is the key; little thought is given to more pluralistic outcomes; |

there is little concern for cultural or contextual issues other than to deal with them as obstacles to change; the process is a deliberate one—a rational analysis.[97]

*This clearly shows how organizational issues are marginalized. The assumption is that an IS based on a bureaucratic construct of the organization will initiate an organizational change by itself and that it will automatically lead to improvements. Researchers who focus on organizational issues have found several weaknesses in this approach. The concept of technologies-in-practice points to the interaction between organizational norms and rules, the users and the IS. They are all part of a structuralization process in which their behaviours influence each other. The IS and the norms/rules predefine a set of both possibilities and constraints on each other and the user; the users' usage (re)constitutes the IS and the norms/rules. Even with strongly constrained systems like ERP it has been shown that users utilize agency and come up with new ways to use the system or develop innovative workarounds. In this study, some participants did acknowledge that the processes and standards were not followed but it was not constructed as a flaw in the approach.*

*The participants construct a reality in which it is possible to standardize everything and treat it in a rational way. If a template is available it is assumed that people will act according to it. In line with this, there is little attention to cultural or human issues. This truth régime is clearly in the centre of a hegemonic modernity in which rationality is idealized. Part of this is the classical engineering perspective but there are many differences between a business project and an engineering project, as can be seen in Table 2 in The Props. Organizational change and ISD are two separate processes; therefore they must both be taken seriously and any integration of them must acknowledge this difference. An ICT deterministic approach tries to make the organizational process invisible, but other approaches challenge this, for example the procurement approach to HCI.*

# THE RATIONAL ISD PROCESS

Researcher | Rumors of the demise of the Waterfall Life-cycle Model are greatly exaggerated. We discovered this and other disappointing indicators about current software engineering practices in a recent survey [---] of almost 200 practitioners, accounting for several thousands of projects over the past five years, the dominant process model reported was the Waterfall, with more than a third claiming its use.[98]

Business-R | The tenders from the developers are based on the requirement specifications and that is what they should meet.[99]

| | |
|---|---|
| Researcher | Rather than being the logically coherent, philosophically consistent, and cost-efficient patterns of action that the pioneers of methodological movement envisaged, the methodologies that became common practice with time provide, at best, systematic compromises of the conflicting aspects of the systems development process, and often misleading reassurance of doing so.[100] |
| PhD Student | In the second study the participants constructed a situation in which systems development is not the problem; it is the deployment related to the business side of the organization that hasn't adapted to the situation. |
| IT expert | It's been a tendency now that we in the IT department have reached the goal before the business side. We have delivered a technological solution for which there is no good reception, as they haven't matured, they haven't oriented to processes, they haven't justified and explained why this is needed and they haven't developed the business in the same direction as we have, and we are already there, technology-wise.[101] |

*The functionalistic approach to systems development positions it as a process of problem solving. This rationalistic approach was formulated in the 1960s and this study shows how it still dominates ISD discourse. The foundation is that there is a reality made up of people and the organization that is possible to define in a clear and unambiguous way—it is just waiting to be unveiled. Then it is just a matter of matching the right solution to this reality. The Waterfall model and an early focus on "frozen" requirements are at the centre of this discourse and it is therefore clear that the functional paradigm in many ways reins in the ISD discourse. This is also closely related to technological determinism. Once the best solution has been chosen by the IT experts then both the organization and the people in it are expected to adapt to that solution since that is considered optimal.*

*At the centre of the repertoire lie widespread methodologies that construct reality with boxes and arrows such as UML. This form of representation has a primarily technical foundation and is difficult for others to comprehend.*

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| Researcher | The boxology approach requires that usability and the users' work practices are described as pre-defined operations and steps [...] whereas the fluid nature of the users' work practices defies and eludes such a description.[102] In the application systems development process, workers are asked to evaluate the descriptions made of their work processes by analysts and designers, yet this is often unproductive, as the representational formalisms adopted are often obscure |

to the workers. We can question many aspects of this process of representing work. Who makes the representation, who has access to it, what purpose does it have? In many cases, rather than clarifying things, the representations used simply obscure actual work processes in a cloud of abstractions that make little sense to the people whose work is supposedly being modelled. Worse, these abstractions are then utilized as the basis for building the new information system, with the result that the inadequacy of these descriptions becomes clear to all in the failure of the resulting system. So, rather than being able to augment work practices with technology, in these situations the technology actually "gets in the way" of doing the work.[103] Just because users may know how to do their work, it does not follow that it is possible to capture their knowledge in explicit rules and descriptions.[104] If one looks at the textbooks on […] IS development which form the basis of university teaching, they are virtually entirely functionalist in orientation.[105]

| | |
|---|---|
| PhD Student | If you look at the typical software engineering literature of today the same narrative is dominant. One of the most commonly used textbooks in academia is Sommerville's *Software Engineering* and it is still very functionally oriented. It contains sections on user-centred design but it is contextualized so that the end result is still that it is a marginal area and not something that is of high priority. |
| Researcher | Current thinking about computers and their impact on society has been shaped by a rationalistic tradition [… which] has been the mainspring of Western science and technology.[106] In designing new artifacts, tools, organizational structures, managerial practices, and so forth, a standard approach is to talk about 'problems' and 'problem solving'. […] The difficulty with [this] approach, which has been deeply influenced by the rationalistic tradition, is that it tends to grant problems some kind of objective existence, failing to take account of the blindness inherent in the way problems are formulated. […] Different interpreters will see and talk about different problems requiring different tools, potential actions, and design solutions.[107] |
| PhD Student | At first the users were very important but what happens in the explicit project? |
| IT expert | No [the business side should not participate], there is no need for that.[108] |

*A few moments later.*

| | |
|---|---|
| PhD Student | So, do you think any users should be involved in a systems development project? |
| IT expert | Yes, there might be, that is, some kind of user group or reference group in order to verify that what we have described in the use cases really supports the logic or sort of that we have the right colours.[109] |
| PhD Student | So now you've changed your mind? Or, is this variation a sign of the hostage situation in which the users are participating but they are not really given a chance to influence things? When users are involved it is most often through user representatives. |
| IT expert | When we work with IT we use people from the business side […] but it is still we who are in charge; we decide which requirements should be used, eventually.[110] |
| Business-R | It's not that uncommon to have a condition in the contract [about] access to a user group.[111] |
| IT expert | In the IT project you have participants from the business side, obviously.[112] There are a lot, or at least some, that are channelled through the [user representative], actually, most do.[113] |
| Researcher | User involvement does not in itself guarantee usability. […] Effective user involvement requires that the project uses design representations (e.g. prototypes) that are based primarily on the social language and practical knowledge of the users, which in turn facilitates an understanding (common ground) of the future work situation.[114] |
| PhD Student | What does the user representative do? Sometimes she/he gets to participate on an equal basis and all through the process, but mostly she/he is used for testing. |
| IT expert | The [user representative] verifies and tests the system […] and then [she/he] functions as a sounding board if there are things we wonder about, in regard to specific functions and what it looks like out there.[115] |
| Business-R | [The users] have been involved […], the most important thing has probably been that they are the ones who perform the practical trials where we assess the equipment.[116] |

| Researcher | The user participants […] [have] become IT workers. Managers describe how users talk in terms of development terminology, for example use cases, and IT language has become common ground.[117] [The user representatives] are often faced with two options. Either they ask few questions to avoid appearing stupid, thereby becoming hostage to the technological dominance of the technologists so rendering them ineffectual; or they attempt to 'join' the technologists and hence become indoctrinated, speaking the jargon and appearing as honorary technologists. Taking this option inevitably estranges them from the users they are meant to represent.[118] They may become excellent system designers but be very poor user representatives. […] When a user joins a design team composed of technical specialists to work full time it is usually not very long before that person has acquired not only the skills but the ambitions, values and attributes of the team. […] It appears that to remain a good user representative, a person needs to maintain a stance independent of the technical specialists and in keeping with the needs and views of the people being represented.[119] |

*A user representative is a direct form of participation and on the surface it might seem as though they have a voice equal to those of the others on the project team, but in specific situations it seldom results in meaningful participation. Previous research has shown that it is important that users feel involved and can make important contributions. This study confirms a situation in which a major function of the user representative is to allow the organization to claim that it has involved users. As the narrative already pointed out in Scene 2, even though they are participating their contribution is not used, or else it is marginalized.*

| PhD Student | This is most clear when the user representative has to choose which side to be loyal to and ends up having to make morally dubious choices. |
| Business-R | I also know that it [the new system] will be worse than today's system […] but I have heard this because I have [Person X] in the [project] and she says, I don't think I can say this officially […], because she has been gagged, so to speak.[120] |

*This is another example of how the hegemonic discourse incorporates potentially resistant elements by giving the appearance of adaptation. One way that the functional paradigm does this is to include people who might resist its reality construction. By giving the users some responsibility and some say in the matter the dominant discourse manages to position them so that the project has higher priority than their regular work group.*

# SCENE 4: THE TRUTH CONQUERS

*Conference room.*

| | |
|---|---|
| Researcher | [Ideology] takes an aspect of reality, the appearances, and gives them an autonomy and independence which they do not actually have.[121] |

| | |
|---|---|
| Usability practitioner | Today, everything is IT projects.[122] |
| Business-R | The amount of money that will be invested in technology will increase.[123] |
| IT expert | In 99 out of 100 cases, a demand will always result in a wish to analyze or change their IT support […] so we are often a very […] large part.[124] |
| PhD Student | Hey! Just a few moments later you say |
| IT expert | [It's] important to get away from the perspective that a business development is to build a new IT system. Because that is almost the absolutely smallest component. What's important is to see how the organization wants to work.[125] |
| Business-R | I also somehow have the belief that you can fix just about anything with IT, it's just a question of resources […] What I want, I can get, if I'm prepared to pay for it. Because computers can basically do anything.[126] |
| IT expert | It's hazardous for us on the IT side to say that it isn't technology that is the problem, but, yeah, when you get to the bottom of it, it is seldom technology that is the problem.[127] They've said that we should move towards a common way of working, more electronic handling, process management etc. But when they encounter problems with this in the business development they hesitate a little. They deviate and so on, which we haven't done when we produced the IT solution for it.[128] What we want to attain […] [is] automated mass handling and so on and there's nothing strange about that.[129] |

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| Business-R | We're moving towards automated flows, 80% out of everything, all forms of information should move automatically through our systems [...] a self-service system, in principle.[130] |
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| Researcher | The idea of automation has been around for a long time; Marx's comments on it in the *Grudnrisse* are fairly typical of nineteenth-century thinking on the subject. Moreover in the 1950s there were many works written predicting a widespread trend towards the electronic office and the automatic factory [...] Yet the extent of automation during this period was not large.[131] |
| PhD Student | Once again, the users' representative offers a totally different view of the world. |
| User-R | It's not possible to [automate 80% of the cases] [...] there's no change at all [...] because people will call anyway [...] people love to talk on the phone.[132] |
| Researcher | There are a great many [organizations] where the subject [of ICT] is left to the technical specialists on the principle that it is a technical matter of no concern to general management.[133] |

*Yet another incorporation in the truth régime is the claim that ICT should always be related to and driven by business objectives. In the explicit ICT project this is reconstructed so that ICT innovation (which in this context basically means any ICT development) always meets business objectives since it is assumed that they always result in more efficient and effective work processes.*

*Instead of positioning the users as knowledgeable professionals who know better than anyone else what it takes to accomplish the work efficiently, they assume that new technology in itself will make the job more efficient, regardless of whether or not it considers the users' needs or the use situation. The subject position of the user is also crucial as they are expendable when ICT is deployed.*

| Business-R | If today you were to dust off the regulations and look into how many hours much of our staff spend in front of the computer, then I think we would be breaking the work environment law [...] it has just become such a natural part of the day that you don't think about it any longer. There's nothing I can do about it [...] we don't consciously break the law.[134] |
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*The discourse of ICT gives it an autonomy that results in technological determinism. It is not only constructed as necessary; it is also common sense to use ICT as a solution to most problems—even if that means that people are hurt by it. When that happens it is not the system that is the problem, it is the regulations or the people working with the system.*

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| PhD Student | It comes to light that they are aware of the influence technical choices have on the potential for a certain design. But they still do not consider it. |
| IT expert | If you have the right competence, then the tools actually work.[135] Another experience we have is that what we don't [know]—like we don't know what system we will end up with until maybe during the fall—then it is also a fact that the assessment of what should be included […] is very much related to which road you choose. Some parts might in some ways be much easier because you chose [system X, Y or Z] so that even if we have tried to sort of think that we really get this […] visionary [system], we will not be able to know until we really see whether or not it is [system X].[136] The fact is that this is very much related […], that is, what are your needs, then we have the tools, and there is such a lack of standards right now so you can't take [system X] and then buy [module Q] from someone else. In some ways, if you enter this world, you're stuck there for a very long time.[137] It is very clear that the product influences the requirements specification. The requirements specification for the final design of our system […] will probably not be set until we have the tool, it is probably based on what tool we end up with.[138] |

*Just as with any discourse, when ISD is constructed in terms of technological determinism it will constrain what people can perceive and think; this is one reason why people in this discourse emphasize technology over use. It is also related to positioning users as not having agency. Researchers have seen a discursive change in organizations in the way they construct ICT; for example, see Table 1 in The Props. That change moves away from determinism but this is not confirmed in the present studies. On the contrary, over and over again, signs of technological determinism are constructed.*

## SHOW ME THE MONEY!

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| Business-R | It's our tax money that we are handling, it's the state's finances that we are handling […] that's a lot of money […] you have a sort of moral responsibility for, towards ourselves and the taxpayers.[139] |
| IT expert | [My responsibility as a developer] is to deliver according to the specification, at the specified time, within the specified frame of cost.[140] [To get a project together means] to deliver the right equipment for the right price at the right time.[141] The procurers have their demands: we have to meet the deadlines and not cost too much.[142] |

| Business-R | [The project leader] should have great control over the economics.[143] |
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| User-R | A [great] project leader […] has great control over the status, the resources, the means, and the time.[144] |
| Project leader | I think that [in our organization] there is too much focus on the missions in relation to time and money, and too little focus on what we perform in the form of benefits.[145] |
| Business-R | The management […] was prepared to count the rationalization profits from [system X] even before the system actually was in existence.[146] As usual, the demands in the timetable were unfavourable for us.[147] [It's important] to try to meet the timetable but we've failed several times.[148] |
| Researcher | In the end, time and money control the process, and all the magnificent ideas of a system built for a better work environment have faded away.[149] |
| PhD Student | Interestingly enough, this only applies to the cost side. The benefits, on the other hand, are assumed and rarely discussed in monetary terms. It is taken for granted that new technology will lead to some kind of financial success. They do perform calculations such as cost/benefit analyzes, but they are performed in such a superficial way that no one has much confidence in their reliability. |

*The discourse of ISD includes this focus on time and money, which confirms what other researchers have seen. For example when reward and control systems focus on delivering technically valid systems on time and on budget, the key issue becomes money, since time is often reduced to money when it relates to the cost of resources. Timetables and budgets are constructed as models for rational handling of money. If they are met, money is handled with care, which is part of the common sense.*

*A different narrative could construct money in relation to ICT differently and focus on the effect of humans and the organization interacting with ICT. Long-term costs could include stress factors; instead of project costs, reward systems and project assessments could be related to the estimated and the resulting effect of the ICT deployment on business-related costs and efficiency. But the latter discourse does not fit with the functional paradigm in which humans and organizations are subordinated.*

| Business-R | Then of course there is talk about it being user-friendly, but also that it should be cost-efficient. Somehow you have to balance this when you make decisions in the project […] You could wish for a lot in terms of user friendliness. The question is just, when it comes to |

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|  | prioritizing, if it jeopardizes the time plan or the budget. Well, what do you do then?[150] |
| IT expert | Somehow, you have to introduce into these discussions some kind of cost/benefit reasoning. Work environment, OK, you can have really high ambitions but it has to, you also have to find some way to evaluate what is good enough?[151] |
| Business-R | It's a matter of cost sometimes as well, because in order to get it user-friendly enough it might cost [….]. Then it goes up to the management group and they say: Yes, of course, it has to be like this in order to be user-friendly but we will only be able to do this much. And then it is a question of how much money you have for this.[152] |
| IT expert | At the same time, you add this and usability and then you have to make money from it and then you add that we have to have great usability and it turns into a monster project.[153] |
| Project leader | It also costs money to include the user […]. It's more a question of costs plus that you can't be too many people. It's easy to get carried away when you add more and more people all the time. Eventually it grows, and then you are, it happens, the mass cannot be too great because then you might not be efficient, especially when you discuss concrete problems with twenty people at a time.[154] |
| Researcher | There is an important intersection here between time and industrialism on the one hand, and time and capitalism on the other. Control of time is the essence of industrial production, something which explains the close affiliation between industrialism and modern organizational forms […] The machine is at the core of industrialism. […] The ideas that time is money, and that capitalism involved an 'economy of time', are more subtle and interesting than they first appear. Units of time become what labour is in respect of the contract which employer and worker enter into with one another. There is a direct tie between the formation of abstract labour-power, thus defined, and the character of money itself. […] These phenomena belong to more general parameters of modernity. For a world which is co-ordinated in terms of time-space organization globally, as the modern world is, demands the penetration of abstract time-reckoning into virtually all spheres of life. The clock is not […] simply the epitome of capitalism. […] Clock time is quantified time, separated from and set against the phenomenal experience of individuals.[155] |

*The truth régime relates to the time and money function to exclude human issues from the systems development process. The focus on timetables and budgets places a priority on technical issues; meanwhile user involvement or usability work is costly, within the project frame of reference. Parameters that are more relevant for human issues, such as long-term costs or effects on the business or work processes, are excluded or only superficially included. The project focus constructs user-centred design primarily as a cost and as something that is expendable.*

## WHO'S GOT THE POWER?

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| PhD Student | So what happened to the concept of ICT being ruled by the business side? |
| Usability practitioner | [Two sections in the IT department], they think it is really difficult when the business side makes demands. They say that one problem in our organization […] is that the procurer makes demands. There are reports that just about say that […] we would be much better off if we didn't have [the business side].[156] |
| IT expert | Today, the case is that we, we practically write the requirements […] it is like that right now because we have a lot of business knowledge over here in the IT department, it's just gotten so easy. And we have, we have sort of pushed out the business side, they are almost not let in […]. You can have it like this, it's just, the stupid thing with this is that we talk about it as them being procurers, which they are on paper, but not in practice, or that they are requirers, so to speak, but they aren't in reality, they are barely procurers; they write three, four lines and then they leave it to us to do the rest, in principle […]. It might be just as well to let it be like this and just decide that is how it should be, that's another possibility.[157] [The procurer organization] is convinced that we do a good job, which we do, so then they trust that we do that […] The procurer organization has considerable trust that we will be able to deliver within the cost frame specified and so far, we've succeeded rather well. So, until something serious happens, I believe that they are pretty happy to transfer fairly big parts of that responsibility over to us, so to speak. It doesn't cost them anything if they get a perfect product from us, so to speak.[158] |
| Project leader | It feels like this is how it works today, that the [developer] gets ideas and then presents them to us.[159] |

*Power is productive and in this context the issue is not about one party exercising control over another party's wishes. Here, it is about how both the dominant and the subordinate parties cooperatively establish a situation in which one dominates the other but in a way that is perceived as "normal" for the subordinate. In the present study many parties believe that it is common sense that in the end ISD is driven by IT experts. The dichotomy between the procurer organization and the IT department constructs the latter as superior.*

*Ideologies are not neutral; they construct a certain view of the world and that view is determined by dominant subjects. Here the IT expert is established as the norm through several discursive legitimisations. She/he is positioned as neutral, which is an element of the functional paradigm.*

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| Business-R | Maybe the IT department is more neutral.[160] |
| IT expert | There is really no self-value from our side to move towards a certain technology.[161] |

*Their competence is constructed as the norm.*

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| IT expert | The current mantra about all development starting from the business, it is alright, I agree with it, but I also believe maybe the business side has to understand a little bit more about building systems and the dependence on legacy and history, you have to include that as well as a parameter when you decide what you want to do with the business.[162] |
| Business-R | We don't have enough procurement competence and it will take some time to build, and a lot of that competence which the procurers need is available on the other side of the street […] You need to increase the procurers' competence on the business side but probably also add resources from the IT department.[163] There is very little discussion […] between the business side and the IT department […] there is too much emphasis in the organization on the IT department and too little on the business side. You ought to transfer much of the competence in the IT department over to the business side, so you can start with the analysis over there.[164] |

*They are positioned as an authority.*

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| Business-R | They are very knowledgeable in the IT department when it comes to methodology, so they could help with getting a project started, how to carry out a project, but, I mean, the responsibility and initia- |

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| | tive should be on the business side […] the IT department has more resources […] they are a bit more methodical, that is, they have a different kind of knowledge […]. Our business side […] has been good when it comes to the business but they are not that driven, so to speak, as project leaders or investigators.[165] One example of the different cultures, so to speak, is that the IT department is much, much more methodical, has much more, shall we say, thoroughly planned activity, every hour is planned […] we […] try to get the other departments to plan with just as much detail.[166] |
| PhD Student | The legitimization of the IT expert is grounded in schools. When it comes to ISD, the textbooks clearly give them the authority to perform for, and decide in the place of, the users. |
| Researcher | [In a classic textbook in ISD:] Users are portrayed as naive, technically unsophisticated, and parochial, while the IS analysts are presented as more knowledgeable, more professional, and more corporate-minded. Despite the rhetoric of user involvement, the text has analysts exercising nearly complete control over the development process and users playing a passive role.[167] |
| PhD Student | Yes, the IT experts sets the agenda for the "correct" way to demand things, what models and what terms should be used as well as what knowledge counts as "right/necessary/relevant". |
| Researcher | Having the power to determine things like which word meanings or which linguistic and communicative norms are legitimate or 'correct' or 'appropriate' is an important aspect of social and ideological power.[168] |

*Legitimizing the IT expert is a collaborative effort by many different parties: not only the IT expert her/himself but also others involved in ISD such as the project members and the steering group members.*

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| Business-R | One thing that I find extremely valuable, and which we [in our organization] maybe don't use often enough, is the external contribution in the form of a supporting consultant. It can actually contribute with experiences that are a bit more general rather than specific [to our organization]. It's been valuable, and it also makes it easier for us to focus on the issues.[169] Maybe the [IT expert] actually has been the largest contributor to the workshops.[170] |

| IT expert | My experience is that we could redo this exercise and we would get approximately the same answer.[171] My experience from other projects is that you create a thing from it and it doesn't have to be anything negative.[172] What I have done based on my experiences is to balance it all.[173] I have sorted the activity suggestions in a rather standard way, based on both experiences from other projects and from one of the workshops.[174] |
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| Business-R | I mean, we don't have to go out and get more competence like the [IT expert] from another party. It would be rather stupid, purely practically, not to continue with him as much as possible. Yeah, yeah, that's just a clarification, so that we don't get too long of a start-up again, because he's into our thinking and knows a little bit about our goals with this project.[175] |
| PhD Student | Even though the IT expert has no competence at all in usability work, he is positioned as knowledgeable even in that area. |
| Business-R | I think that the IT expert is a key player for giving advice [on usability competence], considering [her/his] involvement in a number of other companies' [IT projects] and I'm sure he can guide us to other really good people that can help us with the usability experience.[176] |
| Project leader | That's exactly what I think as well and that is why, but I mean, I think that sometimes it's a challenge to find the right people and the right consultants but in this case, I think we have a really good network both internally but also with a person like the [IT expert].[177] |
| PhD Student | The IT department is of course privileged when it comes to resources. |
| Business-R | It's a matter of resources. You just have to check how many consultants there are in the IT department compared to how many we can afford here on the business side. How much staff we have compared to them, for example.[178] It is ultimately a question of how we budget, finance. We've created a system in which the IT department is sort of self-sufficient. [...] We arrive at an amount, this is so to speak what the IT department needs and then they order according to that along the way [...]. [But] the way the business side is run is sort of old-fashioned. They get a sort of a subsidy [...] you get money for the 200 people you have and that's it. So the IT department has much better prerequisites to act much more flexibly.[179] The IT department is unusually large. [...] It's a huge unit [...] and it's possible that this colours the issue and has an impact here.[180] |

| Researcher | [Naturalized discourses] appear to lose their ideological character. […] and tends to be perceived not as that of a particular grouping within the institution, but as simply that of the institution itself. So it appears to be neutral in struggles for power.[181] |
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*ICT is an institution and the IT expert is at the centre of this institution. She/he is therefore naturally given priority and privilege. The legitimization, the norm and authority appointment, and the neutrality positioning are part of the naturalization process that works to position them as part of the dominant discourse.*

| PhD Student | But there seems to be some resistance to this naturalization process. |
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| Usability practitioner | It's scary sometimes, in the IT department, how far away they are from the person who is going to use or benefit from the system. They don't reflect on them at all. The IT department has its own objectives and strategies.[182] And they also sit on two chairs; there are a lot of IT people in the steering group and that results in decisions that relate more to what is best for the IT department, rather than what is best for the business.[183] |
| Business-R | Unfortunately, those visions that the IT people have, they pervade management.[184] IT has for a long time been something by itself. And I don't know how the hell IT is governed.[185] |
| User-R | We [the business side and the IT department] live in separate worlds […] we don't speak the same language.[186] |
| IT expert | There is an imbalance today between the IT department and the business, that is the procurer, and we talk about this openly and also reason about how we can strengthen the procurer with competence on the way IT systems are constructed.[187] |

*The resistance is not that strong and even apparently negative actions can be constructed so that the IT department is not to be blamed. Instead the blame is shifted back to the marginalized business side. They are at fault as they are too weak and that forces the IT department to act the way it does.*

| Business-R | A weakness today […] is that the business side is too weak. They get jammed, so to speak, it's not an evil force, but they get very dependent on the kind of knowledge that you find in the IT department. This means, it is not good, that in one way or another, there is an imbalance here.[188] When you start a project, it is often the case that the procurer just says something general like: we want something. |
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And then the discussion starts and then in a way the IT department takes over, not because they want to, so to speak, but because they have to […] it should be the other way around, that the procurer is much clearer already from the start. So that there would be a more equal, I perceive it as some kind of inequality here which makes the IT department, and since they are concentrated on technology then you get a bit too much technology focus. At least, that's what they say around here. And I think it's true. I don't think it's something unique just for us.[189]

*The power structures described in this section are one reason why the procurement perspective argues for a shift in HCI from the development project and the developers over to the procurement side. The procurers must be supported to a greater extent. They need to become aware that their actions constitute the current situation. For a change to occur, the procurer must take active responsibility for the users and usability.*

## THE OTHERS

*While the IT expert is positioned at the centre of the hegemonic discourse as the holder of common sense and truth, the users are positioned as the Other. Here the truth régime works to rationally exclude them from ISD.*

PhD Student      Previously, the users were legitimized but now they are positioned as less important and less knowledgeable.

IT expert      Shouldn't we use them more for verification? That is, we write a proposal for about 80% of the content, with a finished structure, roughly with these requirements, and then we verify with them?[190]

Project leader      That's good.[191]

IT expert      Yeah, because if we start totally open and are to construct it together with them, then a whole lot of time will pass and they don't have competence in […] this.[192]

PhD Student      But they are competent in the work that the system is supposed to support.

*The marginalization of their competence is extended when they are positioned as having no agency, as it is argued that the project team is authorized to determine the users' work*

*practise. They are positioned primarily to confirm and not to contribute. This applies not only to ISD but also to how the users should function within the organization. In relation to the bureaucratic rationality the ideal employees share characteristics with machines. When they do not act accordingly, their resistance is marginalized by positioning them outside of the norm, which also legitimizes the need to control or to exclude them.*

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| IT expert | Like these project leaders within [Division X] who don't find anything that excites them. No, well, perhaps you shouldn't find more than half of it exciting because the other half you should read regardless of whether or not you find it exciting.[193] |
| PhD Student | Instead of starting with the user and the users' needs to do a good job within the frame of the business, the project group in the third study defined the rules. They believe that if employees don't use the tools the way the project members think is important then the employees are mismanaging their work. Of course, the employees need certain information. But instead of thinking about how that can be accomplished based on the users' needs, the project team designs the technical solution so that the user is forced to do certain things which might be problematic for the user as she/he tries to do her/his work. The user supports the expert system, rather than the system supporting the expert user. |
| Researcher | [This] reveals the assumptions embedded in the traditional design approach's concerning the nature and limitations of worker abilities and workers' contributions to production performance. The goal of traditional design is to create a system in which workers perform prescribed instructions rather than taking independent action or analysis. No consideration is given to the idea that reducing the complexity of some tasks might allow the operator to engage in other activities that could enhance system performance. On the contrary, the less complex the task, the greater is assumed to be the need for supervision, either because the job would be staffed by someone less skilled and therefore less capable of reliably performing their tasks or because management doubts workers' willingness to perform these tasks. The "scientifically trained engineer" is—and the worker is not—trained and willing to identify improvements for work efficiency.[194] |
| PhD Student | In general, when the project members analyze new technology they tend to position the users as the problem—not the technology or the |

methodology. If anything goes wrong during deployment then it is related to the users—not the system.

Researcher      It is interesting that management had heard about these problems [important usability problems identified by the researchers], but did not consider them system problems. Management believed that the problems were due to user resistance against ICT in general, and they were surprised when we pointed out that the cause actually was system deficiencies.[195]

Business-R      [The reason they didn't use the system] was a bit of unwillingness; they said that you can't do it like this.[196] There are [certain things in the system] that the staff really dislike. They don't want to be steered like that. They long for prehistoric times. […] If you think that it was better the way it used to be because you used to work differently and you use this to criticize the computer system then it is wrong because it is not the computer system that is at fault.[197]

PhD Student      Already during the 1960s and 1970s users were not considered seriously but were constructed as antagonists.

Researcher      Resistance was commonly attributed to user pathology, to users' pathological fear of change and especially of new technology. [---] The first [attitude] was to try to cure this pathology by salesmanship. Users had to be taught what was good for them. They had to be convinced to do things in a new way. […] The second attitude to user pathology was to ignore it. Users were viewed as 'troublesome petitioners somewhere at the end of the line who had to be satisfied with what they got' [---] The problem is basically the 'fault' of the users. It is due to their fear and their resistance. The practice of systems development, the attitudes and education of systems developers, the very system itself, are not the problems and are not the reasons for resistance. [---] With the problem so defined there is little incentive for systems developers to put forward much effort into the solution.[198]

PhD Student      In my study, the users are divided into two categories: those who do things the right way are positioned as important; those who do things the wrong way are positioned as problematic and requiring to be controlled. A similar dichotomy is constructed of the users as being either directed by personal motives and wishes or as vital to the process with vital knowledge about the domain. Over the course of

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| | the project, the latter subject position of the user is made responsible for the whole business perspective. |
| Researcher | [A classic textbook on ISD positions] analysts [as] exercising nearly complete control over the development process and users playing a passive role. [… But,] the users, in the end, are expected to be responsible for the outcomes of the development process. […] The contradiction leaves both users and analysts in an untenable position: users submissive during the development process are expected to take charge at the end, while analysts in charge throughout the process are expected to yield to the users at implementation.[199] |

*These dichotomous constructs confirm previous research that asserts that they function to give privilege to developers. On the one hand users are positioned as having no agency; they simply adapt to the new ICT system and the work practice rules determined by the project and therefore are positioned as superfluous in the ISD. It is only a question of informing them or teaching them the right things. On the other hand the users are positioned as having lots of agency and being able to act just as they wish. This agency, though, is constructed in negative terms: the users are resistant, conservative, and antagonistic.*

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| PhD Student | When the users are given an opportunity to participate, then they act incorrectly. |
| IT expert | Could anyone point to or mention something that works well? It is very, very much about having opinions on changes but can anyone provide a reference or a good example of this or that, based on a business perspective, you know?[200] |
| Project leader | There have not been very many external examples, no.[201] |
| IT expert | Because it is real easy to have opinions about this kind of system but I think it is really important that they describe these standpoints based on a reference to something where it has been solved or it works the way they mean it to.[202] |
| PhD Student | So it is the user that doesn't know enough. But more than that, the user is even positioned as dangerous. |
| Business-R | The major problem that usually appears is that the developer figures out how to get in contact with the user and before there's even a contract they contact the user and the user just talks and talks and doesn't know about this, doesn't think about the commercial confidentiality and stuff like that.[203] |

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| Project leader | It has to be quantified how much participation the developer can demand from the user group. Otherwise it can drift; a user group can keep on going forever.[204] |
| Business-R | The negative side could be if they are influencing it so that there are more orders which will increase the cost, that is, that there is no one to control [them].[205] They are part of the project and they sit with the developer and then the user says: No, this button, move it to the right instead because that's much better […]. The developer replies real fast: Sure thing, we'll do that. And then an invoice arrives from the developer for one million [kronor].[206] |
| Project leader | We have to start with the rules and how we can make changes without turning everything upside down, so that we don't get carried away and change colours and everything just because we, well, there's a user group and then one individual is very dominant and says that it should be red instead of black.[207] |
| Business-R | We did a modification […] in which we put in these […] colour displays and the [user representatives] argued about them for a year and a half about what colour the symbols should have, how they should be designed etc. […]. I mean, five [users] had five different opinions, I was told. I wasn't there myself.[208] |
| Project leader | Demanding, demanding, demanding, it can be very demanding to have a user group.[209] Because if it [the user group] becomes powerful […] then it can really overturn an entire project.[210] |

*Many other researchers have noticed such negative positioning of the users. The result of this, as well as of dichotomous constructs, is that the users are positioned as the Others. The strong negative positioning clearly places them outside of the norm and thereby constitutes what kind of actions that are accepted within hegemony. Identity construction is closely related to power and dominant discourses use it to enforce what is considered true. This particular subject positioning of the users makes it common sense to exclude them from ISD as this identity construction makes them counterproductive to successful ISD.*

THE MARGINAL REVOLUTIONARY

*Usability experts and their practice are marginalized through silence; they are rarely considered. When they are mentioned, they are positioned on the outskirts of ISD. The usability expert is positioned as a negative force, as conservative and lacking vision.*

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| IT expert | Undeniably, I think that the way we work right now, it's not really good. Because right now I think there is too much belief in usability in the early parts of the process; efficiency in the system gets too little priority.[211] Process owners and usability analysts must work together instead of usability analysts and end users, the way they do today. That, that is where we have the problem. And as a usability analyst you have to be more visionary, not sort of start with the people who do the work, and model with the people out there today.[212] |
| IT expert | I haven't seen that many […] those parts of usability that have passed through the project, that has been part of, it has sort of not amounted to that much benefit […] it is rarely useful input, strangely enough, since I think it ought to be doing great things all over the place.[213] I think that when we have, or really where consultants have done usability tests on sketches or prototypes, I've been a little bit disappointed with the result, well, for different reasons: it has only sort of moved around within the borders or there haven't really been any exciting comments, or they weren't as valuable as you might hope for.[214] And I think sometimes that's a tricky balance, and you shouldn't overrate the users and believe that they have all these ideas.[215] When you do a feasibility study in a company you can really imagine two different approaches. […] You can try to stay as neutral as possible, to get basic data for decision making and try it out without having any idea about what you want. I think an even more exiting [approach] is to try your own thoughts based on a very clear vision of what you want to achieve. And then somewhere along the way, if the argument holds, so then even if you had done a user survey and had no support [in that] and even if you had done ten workshops and not found any support there either and barely found support in the project group, it can still be such an innovative, radical, value-creating decision that you can perhaps only find it in a few people. There are many examples with everything from the video machine/recorder to the ATM to the mobile phone where there was no support. No feasibility study in the world would have shown that this was a great idea. Don't forget about that.[216] |
| PhD Student | When they do consider using more professional methodology they bring up arguments against that as well. |

| Project leader | It is difficult, it is actually really difficult to motivate sort of different types of investments. […] To do this entire job is also considered sort of extremely time demanding.[217] And a process like for example what [the visiting usability practitioner] describes can be perceived as rather lengthy.[218] |
| --- | --- |
| Usability practitioner | I think there is a strange view on usability in this organization. They think that it is something that takes more time, costs extra money, is difficult and is simply a problem for the projects.[219] |
| Business-R | When someone says: We absolutely want this thing but we can't really afford it, and then they say: Well, wringing their hands, well, we really want this. If we remove things like usability and then we pretend that it doesn't cost any more than what it costs and then we buy the thing anyway […] and then afterwards we say: Ok, we've bought it but we have to do quite a lot of work in order to to fix the usability.[220] |
| Usability practitioner | We think that it is pretty important that [usability] isn't something that is sort of extra which might bother people too much because it has become so touchy.[221] I think it's quite all right to go to work as long as I don't have to justify my role and my work, which [is something] I find really, really tough. And always being met by misunderstandings and assumptions about what we do that really do not match with what we actually do. So if we could get more people to understand what usability really is, and not just have their own interpretation.[222] |
| PhD Student | But your manager constructs quite a different picture. |
| IT expert | The usability work is going really well […] so I don't really see that big of a problem really.[223] |

*The usability practitioner is positioned as someone who opposes progress and this position is accepted when the usability practitioner tones down usability or conforms to the functionalistic discourse. But these people also position themselves in a resistive discourse, which requires a lot of energy and commitment.*

| PhD Student | In the third study, even though I had assured that the project was informed about usability and usability-related work and I was available as a resource, no one asked me for information about what it would take or how much time it would require. At one point, the project leader said that they had asked someone how many hours it would require but it was not clear where they got this estimate and to my |
| --- | --- |

knowledge they did not have any relationship to other people or organizations that were knowledgeable about usability. One possibility is that the external IT expert was the one who was asked; it also became obvious that when the continuation of the project was planned the IT expert was taken for granted while usability specialists were not. Most of the discussion concentrated on activities that began late in the ISD process. Even though they did sometimes talk about early involvement, this was not realized, either in written statements or in the actual project that followed. In the report that ended the feasibility study, usability work was never specified concretely.

| | |
|---|---|
| Project leader | Then we should bring in other competences in the form of someone being really good at doing design or interfaces or […] usability issues.[224] |
| IT expert | A usability consultant should already be involved in the requirements specifications stage, perhaps someone who can offer opinions.[225] |
| Project leader | Exactly, but is it, if I write external consultant, then what?[226] |
| IT expert | Yeah, it can be undefined.[227] |
| Project leader | Ok, it can be undefined. […] It is primarily about watching us working with the requirements specification, it is about having a sort of dialogue with users and trying to find the clear demands and needs, and formulate them in a clear requirements specification based on a number of aspects, not only technology aspects. We will have great help from the kind of competence, which might be represented by interface issues, usability issues and such. So it is primarily there that we think we need it.[228] |
| Researcher | One central problem that HCI practitioners face is that they are seldom allowed to do their job properly. Late involvement and lack of influence on the requirements specifications are more rule than exception.[229] It seems that there is no longer a lack of HCI knowledge within the industry. The main problems and obstacles seem to be a lack of respect and support for usability issues and the professionals working with it.[230] |

*HCI is constructed as something that is added on when everything else is finished and then only if there is time and money left. The HCI experts, just like the users, are positioned as the Other. They all exist on the perimeter and therefore it is reasonable to exclude them from ISD. This confirms what many other researchers have seen. The usability practitioner is lonely and*

*lacks self-confidence and gets no respect from the organization. Here, this was drawn out to an extreme in that no one even talked about the usability practitioner—they were a non-topic, of no interest.*

# SCENE 5: THE END

*Two rooms at the same time: the user's workstation and the conference room.*

| | |
|---|---|
| Business-R | There have been times when [employees] have sat in their offices crying due to absolutely awful ordeals. They've found a sequence in a procurement, in which you add some information and then save, but instead of this taking five seconds, as it used to, it might take 45 minutes, it [the computer] just locks down. And then they know that they have this much work to do that has to go through the same process […] That can drive you crazy.[231] |
| Business-R | It seemed as though they tried to involve the users in a very ambitious way […] it seemed really good. And all the staff was in and got the opportunity to have opinions […] So it felt like it was something different […] I can't really say that I have experienced anything like this before with other systems. It has more been wrapped up and done, even if we have had someone involved somehow.[232] |
| Business-R | We were steered by IT as we had a new general system for managing cases that we assumed we would use.[233] They convinced me that it was very important to get this common system, it was supposed to be extremely profitable in the long run; you could reuse components. But I really regret that I went along with it at all.[234] |
| PhD Student | During the year after my study of the feasibility study I learned that even though they did not include usability work until late in the development project they did eventually conclude that the help of a usability professional who knows how to involve users in a meaningful and efficient way is imperative for a successful ICT system. This has resulted in a much more user-centred approach in their current ISD practice. |
| IT expert | We have a tendency to jump really fast when it comes to things like this […][235] |

Business-R                It's almost always positive to include the users […][236]

*In our society, there is a continuous struggle between competing discourses. Hegemonic truths are strengthened but also challenged. This is also the case in ISD. Opposing narratives co-exist in regard to how human issues are treated in the systems development process; some tell horrifying stories about the impact of poor ICT systems, others describe serious attempts to involve users. Researchers have told of several different reasons for excluding usability work in ISD, such as politics, values, lack of respect, and the gap between ISD and HCI. The current narrative argues that human issues are marginalized in ISD due to truth régimes that position IT experts and functionalism as the norm while users, usability and organizational issues are positioned as trivial, irrelevant or threatening. There are no simple answers; there is no "good" person.*

PhD Student              Ladies and gentlemen, don't feel let down:
                         We know this ending makes some people frown.
                         We had in mind a sort of golden myth
                         Then found the finish had been tampered with.
                         Indeed it is a curious way of coping:
                         To close the play, leaving the issue open.
                         Especially since we live by your enjoyment.
                         Frustrated audiences mean unemployment.
                         Whatever optimists may have pretended
                         Our play will fail if you can't recommend it.
                         Was it stage fright made us forget the rest?
                         Such things occur. But what would you suggest?
                         What is your answer? Nothing's been arranged.
                         Should men be better? Should the world be changed?
                         Or just the gods? Or ought there to be none?
                         We for our part feel well and truly done.
                         There's only one solution that we know:
                         That you should now consider as you go
                         What sort of measures you would recommend
                         To help good people to a happy end.
                         Ladies and gentlemen, in you we trust:
                         There must be happy endings, must, must, must![237]

# The Epilogue

*The spotlight comes up on the sofa—it is empty. The PhD student is leaning against one wall. The rest of the stage is empty. She moves over to the sofa and sits down. She stays there for the rest of the monologue. She starts talking in a low voice.*

I have explored how the development of ICT systems excludes humanistic issues and gives precedence to the logical and rational. My analysis concludes that this is why we find ourselves in a situation where we are forced to deal with poorly-designed systems that cause major frustration.

My account may appear somewhat contradictory: on the one hand I argue forcefully that there is no answer and on the other hand I offer one. This relates to my approach, which combines reflexivity with social constructionism, and has resulted in a narrative filled with contradictions and questions instead of the conventional scientific account that aims for a thoroughly focused accomplishment that only offers one ultimate answer.

In this thesis, I have described in detail the discourses that have influenced me both in my PhD studies and in my analysis of the research material. The analytical process of the discourses has operated in two parallel directions. While doing my research I have been influenced by these discourses; meanwhile, when analysing that research, I have identified them. The discourses relate both to information systems development (ISD) and to science. The discourses surrounding ISD show signs of a shift towards a more organizational and humanistic focus. My analysis also distinguished several significant subjects within the discourses of ISD. I argue that the ways they are construed and positioned relate to certain functions. The procurer and the project leader are the two main enforcers of an ISD truth régime that relates to a functional

paradigm. Both the users and the usability practitioner are positioned outside of hegemony. The positioning of the IT expert as authority and the user as trouble maker both function to exclude users from ISD. I finished the thesis with an illustration of the ISD-related discourses and the positioning of subjects contextualized as a drama, which has its source of inspiration in the theatre of Bertolt Brecht, in particular the play *The Good Person of Szechwuan* (1987). *The Script* portrays a discursive process for the truth régimes of ISD. The variations in what is constructed as common sense function to legitimize a rationality that gives privilege to quantitative measurements, logic, rational and controlled behaviour, and engineering methodology. ICT and IT experts are constructed as having authority and are positioned as the norm while users and usability practitioners are excluded from ISD.

## The sign reads: A LACK OF PROGRESS

In 1989, Friedman and Cornford argued that ISD had entered a new phase that emphasised a strong humanistic focus and usability as well as a user focus (see *The Plot*). What has happened since then? My studies showed that unfortunately what they hoped would be the beginning of a new paradigm has not been realized. They saw signs of these new discourses that they categorized as indicating phase three, but they were never solidly established. Instead, I found, the current situation is characterized on the surface by phenomena similar to those in phase three but guided by phenomena similar to those in phase two. This is illustrated by the relationship between the first scene and all of the other scenes in *The Script*. In the scene *A wonderful beginning* we see several signs of phase three but they are only superficial. Once I penetrated the discourses more deeply it became clear that phase two still reigns. Several researchers (e.g. Ehn & Löwgren, 1997; Neill & Laplante, 2003) have found that typical phase two phenomena are still dominant, including linear systems development processes and other rationalistic approaches. This functional paradigm is also visible in my analysis.

Scene two, *The power of common sense*, aims to illustrate how the normalization process works to establish functionalism. Common sense lies at the centre of truth constructs. In my studies the participants tend to privilege engineering methodologies and when it is not possible to position the users within that rationality, they exclude them. Scene three, *The power of the familiar rationality*, describes a bureaucratic narrative in which it is possible to standardize everything and treat it rationally; boxology is an example of such a narrative. This discourse is prominent in both organizational development and ISD. The engineering approach is primary; logic and reasoning are still regarded as the most important qualities that ISD members need. Even though they are rhetorically banned, sequential process models with early requirements specifications are still the general ISD practice. Human factors have been marginalized and ICT determinism can be found everywhere. The two best examples of this are the focus on off-the-shelf products and ERP systems. The last scene, *The truth conquers*, illustrates the structures that constitute the truth of hegemony. Many of the participants in my studies described both minor and major ICT failures, yet their ICT departments have continued to grow and the status of IT experts remains strong. The reason for this is not constructed as a need because of poor-quality

ICT but as a taken-for-granted need for new ICT, which is founded in technological determinism. The success of ISD is measured in terms of prompt delivery and ability to meet budgets and not in relation to the organizational and human context for its deployment. Human and organizational issues are constructed as important in general, but on a more detailed and specified level, elements typical of phase two shine through. ISD only considers ideal users. When the users embrace the rational and bureaucratically influenced subject position they are accepted; otherwise they are still accused of user resistance or the problems are associated with user pathology. Users are involved—but not in a meaningful way.

Today, many researchers emphasize that it is the *use* of a new ICT system that realizes potential benefits. But in my studies, again and again, the participants in actual ISD projects constructed ICT as a solution in itself and there was an underlying narrative that progress must involve both the users and the organization adjusting to new innovative IS.

## The sign reads: TRUTH RÉGIMES AT THE CENTRE

In my studies it is clear that ICT is taken for granted and has a self-sustaining character that has a great impact on how organizations and people construct reality. It has become an institution and it acts within certain truth régimes. According to Foucault (1980) five elements characterize our societies' truth régimes:

- They centre on truth-producing scientific discourses and institutions.
- They are constantly exposed by economic and political provocation.
- They are subject to great diffusion and consumption.
- They are produced and transmitted by a few dominant political and economic apparatuses.
- They are the subject of political debate and social confrontation.

The truth régime surrounding ICT can be recognized in all these areas. The profound spread of ICT in our everyday life and in work places is something that no one would disagree with—indeed, it is now taken for granted in most parts of the western world. In my studies there is a distinct technological determinism that shows how ICT has become part of common sense (e.g. the sub-scene *IT! Amen* in *The Script*). In our society many different debates surround the issue of ICT: how it should be treated, how it should be developed, what should be developed, the pros and cons etc. In contrast to the positive image of ICT, the media constantly report on the failures of ICT and the participants in my studies gave similar accounts.

Governments are highly involved and steer the decisions as to what kinds of research and industry are given priority. The truth constructs surrounding ICT are largely produced by the media, along with academic and political initiatives. One political instrument is a country's defence system. The defence industry and authority have long been major players in ISD. My analysis includes two public authorities: the Swedish defence and the National Tax Board. I have analyzed the techniques used within these government apparatuses. The principle of free access

to public records is highly normative in Sweden and all public authorities function within that context. The bureaucratic rationality, which is prerequisite for this principle, also lies behind the construction of the organization and the ISD process as rational, complete, and systematic (e.g. the sub-scene *The rational business*). This rationality positions the users as not having agency and it emphasizes a need to control their behaviour through rules and regulations.

Moreover, a reoccurring economic rationale is involved in ISD, as illustrated in the sub-scene *Show me the money!* First of all, money is given the highest priority. Second, the financial parameters are primarily related to the project and not to long-term costs and benefits. Finally, the scientific discourse of functionalism lies at the centre of ISD; it follows the Western engineering tradition. Even though much IS research has shown how inappropriate this is, my studies points to a situation in which little of this research has become incorporated into the norms of ISD practice.

The discourses surrounding ISD are enmeshed with a cultural modernism, which many researchers have identified in contemporary Western societies. According to Gergen (1999), the assumption of the individual mind, rationality, objectivity and truth goes to the core of cultural modernism. He also asserts that Western cultures tend to place a priority on the rational over the emotional, the mind over the body, order over disorder, and the leader over the follower. This fits well with what I have seen in my studies, for example the authority that accompanies the subject position of IT expert. The IT expert is characterized as having the first traits in the list above (rational, mind, order, leader) while the user is related to the second traits (emotional, body, disorder, follower). Some resistive discourses do challenge these extremes but my analysis shows that they get little attention in actual ISD projects. Instead business representatives, including procurers, as well as project leaders and users, position the IT expert within the norm; at the same time they position the users and the usability practitioner as the Other, as I show in the sub-scene *The others*.

Truth régimes have a great deal of influence on what we perceive as possible and true. When dealing with truth construction, then, the ways that concepts such as users and usability are constructed, both in documents and in everyday conversion, is of utmost importance. The ways that we describe, explain, and theorize ICT and ISD accomplish certain things. When we are guided by technological determinism we focus our energy on the technology itself instead of what it can do for us. Functionalism and the engineering rationality of ISD focus on rules and pre-defined regularities instead of the flexibility and openness that is needed to develop today's highly interactive IS in quickly changing organizations.

The hegemonic construction of ICT and ISD disciplines the user. The machine metaphor and the bureaucratic rationality construct the human so it conforms to the way the technology works; technological determinism, and some of the subject positions for the user (i.e. the ideal superman user or the information resource with no agency) function to position humans as supplements to the system and not the other way around. In *The Script* this is illustrated when the existing users are not included; instead ideal users are constructed that fit the norm, i.e. in the sub-scene *The idealized user*. The norm here is the way users should function within the organizational context but also in relation to the IS. Another example arises when the project

constructs the users' silence as confirmation of a well-functioning system, i.e. in the sub-scene *No one's complaining!* The latter phenomenon, and rational human behaviour, are default states within hegemony. According to the norm, a rational human will complain if the system is not working. This also comes through with the use of informal methods to respond to human issues, e.g. in the sub-scene *It's common sense!* It is taken for granted that users will naturally be able and willing to describe their actions and motivations completely and consistently. When this is not achieved the users and their contributions are disregarded, as they have not fulfilled the norm. Since truth régimes are closely connected to what we perceive as common sense it is difficult to evaluate things outside of them; they make certain behaviours legitimate and others not.

The dominant discourse works on many levels to absorb and diminish constructs that could question this truth régime. My analysis points to usability being reduced to buttonology, guidelines, or user friendliness, and there is a focus on its fuzziness, e.g. in the sub-scene *Buttonology*. User participation is realized through inefficient methodology such as user representatives or informal ad hoc "common sense" methods (such as demonstrations or informal discussions with the users in conference rooms); all this is in stark contrast to the otherwise taken-for-granted use of professional competence for other ISD activities.

During the process of naturalization meaning becomes fixated so that people perceive it as self-evident or as fact; the arbitrariness is hidden (Fairclough, 2001). The term user friendliness, which was widely used by the participants in my studies, is one sign of this process. There is an ideological struggle going on in which HCI experts argue that this term minimalizes the concept of usability, reducing it to the user interface and "buttonology". But user friendliness is the term the media and the general public have adopted and it is commonly assessed, for example in reviews of specific software; for them the term has been naturalized while HCI experts oppose it. This is the way a dominant discourse swallows, reconstitutes, and privileges constructions that do not challenge its truth régimes. Another example is the way the ISD community has taken up phenomena such as standards, guidelines, the focus on user interfaces, usage testing with experimental approaches, heuristic evaluations, and usability engineering, and many of them are exemplified in *The Script*. These elements do not really change the underlying truth concepts but instead support them as they are, especially since they can be used to a small extent. The influence on hegemony is minimal and HCI is taken care of so that it won't disturb the order.

Power is closely related to truth structures. This is visible in the identity construction that takes place within ISD, for example in the dichotomies between the IT expert and the user on one hand, and the IT expert and the procurer on the other. In both cases, the IT expert is constructed as the superior one who controls ICT, the users and the interaction between them. This is accomplished by everyone involved in the ISD process and not only by the subjects exercising control, e.g. in the sub-scene *Who's got the power?* In my studies a resistive discourse included a more negative subject position for the IT expert but it was marginal and not given much priority. The subject positions given to usability practitioners and users include attributes (such as conservative, resistive, ambiguous, and opinionated) that are given low priority within the truth régimes of functionalism. Neither they themselves nor the dominant subjects give them

authority and they are positioned as *the Other*. This subject position effectively functions to place them outside of hegemony and to legitimize the IT expert.

If we want this situation to change, it will take more than simply using the words or saying that issues such as usability are "of course" important; it is equally important to construct and assert new truths. It is not a question of hostility towards technology or a belief that IT experts maliciously want to hinder users or businesses. The central issue is the potential for, and the obstacles to, constructing an alternative truth régime—not The Truth, but an alternative truth, which I am convinced, is better than what we have today.

Even if hegemony and the truth régime surrounding it are putting strong pressure on us we can still resist it. If we choose to focus on human agency I am convinced that it is possible to start a change process. If we start to act and talk differently and stick to that new way, instead of trying to conform to hegemony, then we can stop reconstituting the institutional structures and start producing new truths. These truths are far from new; they exist in competing discourses. But we must focus on them and utilize them.

## The sign reads: ON THE ROAD TO NEW TRUTHS

My analysis points to a situation in which business representatives, including procurers and users, willingly subordinate themselves to IT experts; it is constructed as common sense that IT experts know best and that they are the norm within ISD. There are signs of a resistive discourse that questions the developers and describes negative experiences with them as well as constructing user involvement as common sense. This is a potential for HCI practitioners not only to question hegemony but also to construct new truths.

Gergen's (1999) narrative of constructionism is an invitation to change the social life and to build a new future by creating new language forms: new representations and interpretations of the world. Generative discourses challenge existing models for understanding and offer new constructions for action. This is the kind of discourse I call for, one that places humans at the centre—rather than technology or financial parameters.

In my analysis a narrative comes through of HCI as marginalized, quiet and submissive. If it is to become a generative resistive discourse to hegemony, the HCI community must adopt new strategies. When our community seeks to assimilate its perspective within the functional paradigm, what happens is not a change in the truth construction of the conventional ISD practice; instead the dominant discourse assimilates some aspects of HCI, just enough to give the appearance of a change. When usability and UCD are constructed to fit with the dominant truth régime, they are in fact supporting hegemony instead of reconstructing it. When usability is perceived to be fuzzy, the strategy to make it less fuzzy will never work since people positioned within this truth régime will never be satisfied. What will work instead is to get the fuzzy concepts accepted, as part of what is considered trustworthy and valid. Then the world can be seen in a different way in which this truth is naturalized so that usability as a complex concept is common sense instead of the rational, logical definition.

When people in the HCI community focus primarily on the user interface and experimental approaches they position themselves within the frame of functionalism. I do not argue that

these kinds of methods cannot be useful, but when the main focus lies here it functions to legitimize, to give an appearance of a humanistic focus in spite of being only a minor use, and the objective is hardly constructed to give privilege to humans over technology. As I have seen in my studies, the focus is on a minimalized definition of usability and ISD is constructed within the realm of a rationality, which gives privilege to quantitative measurements and objectivity. When the HCI community positions itself within that norm we allow ourselves to be integrated within the same truth régime. Many accept this and think that it is better to take a little step than no step at all. This is a classical power situation in which one party willingly subordinates itself to a stronger party even though we do not gain from it. Instead the power structures reconstitute hegemony. This also makes us collaborators in a process that actually leads to less user participation.

Foucault (1980) argued that there are many different kinds of revolutions, and a revolution can very well leave untouched the power relations that the government upholds. This is the kind of revolution that I call for: to change not the entire society but the way that people interact within the ISD context. The HCI community must adopt a more commanding posture within the discourse of ISD and form alliances that are more effective than the current one which leads to it being devoured by the dominant discourse. One strategy is to approach parties that might have more to gain from an alliance than the IT expert. This is what the procurement perspective has experienced in talking to procurers instead of developers. This is also a way to start constructing new subject positions that give more authority and legitimacy to the procurer. Hopefully, these new subject positions will open up to changes in the ways they think, talk and act. The discourses of organizational development with ICT and HCI have much in common and it could be fruitful to form an alliance with them instead of with the engineering perspective.

Billig (1991) describes a potent phenomenon called "taking the side of the other". Instead of just one individual changing her or his opinion, taking the side of the other means making a change in the social context of what is considered controversial in general. There are always implicit and explicit sides to an argument and they are often in total opposition to each other; even common sense includes contradictory themes. Along with the constant tension among hegemony and different resistive discourses, this creates the potential for a radical change. So in order for HCI to succeed as a resistive discourse it is not enough just for a group of people to change their opinions; the social context must also change. The point is not only to be convincing, but also to strive for a change in the society over what is considered common sense when it comes to ICT and ISD. This is why I am convinced that the split focus and lack of vision in HCI groups is problematic. What is needed is not assimilation but debate and appearances on a broad front within the important apparatuses of academia and media. We must also practice what we preach; that is, when we develop IS for our own companies or departments, we should use our own approaches and methods and involve users in a meaningful way. HCI researchers in Sweden tend to focus most on technical design aspects such as new interaction methods or techniques, or aspects of interaction such as feeling, awareness or immersion. The few who do approach ISD concentrate on integrating HCI within established ISD norms and methods. This is yet another way to subordinate to hegemony; in part this is a way that HCI "takes the side of

the other" by accepting the foundation. I advocate for more research within HCI on ISD with an independent and humanistic perspective.

Certain methods within the participatory design approach position the user not only as a domain expert but also as a design expert as they place the main responsibility on the user. Functionalism does this too. Other methods focus on constructing a collaborative situation in which designers and HCI experts use methods that support the users so that their potential can flourish. Design is not one simple activity, but a complex process, both during ISD and after deployment. Users will redesign the interaction when they start using the system. But this kind of natural design process should not be mistaken for the kind of professional design process that is needed within ISD. In my studies ISD within functionalism often limits design activities for usability to the physical user interface. It is constructed as a minor activity and the main responsibility is given to the users. When HCI places the main responsibility for design on the users we give hegemony an advantage—which of course is not the intention. These kinds of constructions position HCI within hegemony and by doing so we accept a marginal role within ISD.

Another issue is that they sometimes construct a neutral social situation and disregard any differences that different parties involved in ISD might have and position the user as a truth teller beyond questioning. A more successful approach would be to find a balance in which the user is constructed in a more complex role that acknowledges them as knowledgeable but within their expertise—which does not usually include design competence or wide knowledge of the organization's objectives. Furthermore, it is important to find a balance of power between users and experts. Putting users on a pedestal might give them too much power while expert-based methods might position them as resources and give the HCI specialist too much power.

There may appear to be a contradiction in my argument in favour of both scientific relativism and realism in HCI methods where there seems to be a reality the usability practitioner can capture. But this is not about describing "the true" reality of the users; it is about capturing their construction of their reality, what is constructed as true and meaningful in their practice. And doing so improves the prerequisites for the system that is intended for them to use.

The informal methods used within ISD hide the power structures in which users legitimize the privileged voice of IT experts. But HCI methodology also seems to lack reflexivity so that it is unclear what voices and power structures are involved. The motive for the intuitive methods I describe in *The Script* is for the users to have opinions, and the motive for the HCI methods I describe in *The Props* is to understand the users. But isn't this a way to position the HCI experts as more knowledgeable than the users? Who is really showing the most respect? Those who take what the users say at face value—that is, listen explicitly to what they say? Or those who only listen to what the users say implicitly? The latter acknowledges that users' practice is historical (influenced by what has happened before), situated (appears in use), subjective (affected by the users' subject positions), and contingent (the context changes continually and is influenced by expectations of what is to come). The informal methods position the users as rational, stable, decontextualized, and ahistorical. When the users do not take this subject position they are disregarded. The function of this subject position is to exclude the human perspective from ISD. My main argument is that HCI methods focus on collaborative creation while functionalism lets

the users and the business partake, but it is technology that creates. The strong focus on user representation that I see in my studies is a brilliant strategy for winning people over to one's point of view (Grossberg et al., 1998). Of course, the HCI practitioner is positioned within their own truth régime but methods within HCI that move out into the users' context give precedence to the users' truth before their own. At the same time it is important to realize that the users also position themselves within a certain discourse. This is why HCI methods must include the organizational context in the analysis and not focus only on the user.

## The sign reads: VISIONS OF THE FUTURE

But what is the procurement perspective in all this? Do we give precedence to the organizational and business perspective before the users? If so, is not that also giving privilege to something other than humans? No, this discourse aims to offer an alternative truth régime within HCI. The approach constructs the organization with a focus on the humans within it, in particular the users. It acknowledges the users' agency and the fact that usability emerges in use, but also that other humans are involved in the process, such as the procurers, who might have perspectives on the organization's general objectives that are different from the users'. The main problem that we encounter in our efforts to realize this perspective is the lack of methods that procurers can use to involve users in the beginning of the process. Markensten (2005) made one attempt to describe such a method. At the moment, methods are borrowed from established HCI methodology and adapted for the procurement context. But it is unclear how this affects discourses and subject positioning.

This thesis includes descriptions of several approaches within the field of IS that might be worth combining with HCI methodology. The structural perspective of Orlikowski (1992, 2000) offers a way to construct meaning within an organizational context but still with a humanistic focus. It offers a methodology to analyze and describe the users' context within the rules and resources of the organization and it specifically shifts the main focus from the technology to the use of that technology. Most importantly, agency is foundational in this theory. In particular it brings to light the user's agency but also with other people involved in the ISD process. Technology comes into being through peoples' actions and it has no meaning by itself. This approach is vital for a new truth régime.

Socio-technical theorists such as Clegg et al. (1996) offer clearly defined methods for the humanistic and organizational perspective on ISD. It is important in a change process that the employees feel that they are involved and that their contribution is important. Not only do the Clegg team's tools involve employees; they are intended to be owned by them, which means a major shift in power. Another important factor is that the employees do not use the tools by themselves; they can focus on their domain expertise while being aided by HCI and ICT experts.

With regard to power aspects these different perspectives might complement each other, as some of them tend to assume harmony instead of struggle. When the process begins with the very nature of the business, the methodology is based on the strengths of the business

representatives and the users; this offers an opportunity for them to develop self confidence in regard to requirements specification, as they often know what they want but not how to solve it (Eason, 1988).

So what is my suggestion for how the procurement perspective should advance? The narrative I advocate lies close to the social relativistic paradigm described by Hirschheim et al. (1989, 1995). First of all, to influence the current power structures, the HCI community should focus more on the procurer, to offer them support and enable them to take active responsibility for usability. The reflective approach offered by Schön (1995) describes how a more active procurer could change the power structures that legitimize the IT expert as the authority. He constructs a different subject position in which the developer shifts focus from claiming knowledge to acknowledging that others also have relevant and important knowledge and that uncertainty can be an asset in the process. Instead of keeping some distance to uphold her or his expertise the developer tries to connect with the procurer's thoughts and feelings. This opens up an opportunity for an active procurer. The current relationship (which Schön calls the traditional contract) involves a false sense of security because it puts her/him in the hands of the expert; it also provides a sense of service and comfort. In the reflective contract, the procurer gets involved in the sense making and does not depend entirely on the developer. This also involves an exploration and discovery of the developer's competence, instead of blind trust in it.

Additionally, usability must be explicitly defined and put on the agenda. It is important to make it central in the discourse of acquiring IS or ISD. I also believe it is not only procurers who must become more explicit when they talk about usability and such; HCI practitioners and researchers should also put more effort into saying what they actually mean. The investigations into user participation made within the IS field (i.e. Barki & Hartwick, 1989, 1994; Hartwick & Barki, 1994; Ives & Olson, 1984) could be an inspiration for such work. By taking our most important concepts for granted, we in the HCI community are letting hegemony define us—and not according to our interpretations. In order to influence new truth constructs we have to become more precise.

Furthermore, I argue that both experts and users are needed to handle humanistic issues in ISD; users should participate on their own terms. When users are placed in subject positions that include competences they don't have, such as design or usability, they are involved in power structures that function to exclude them since they can seldom achieve what is expected of them. Meaningful user involvement requires a complex construction of involvement and participation and as such, user representation is never enough.

Moreover, I advocate a flexible process of requirement definition with a broad and iterative use of prototypes and other design visualizations. Since the end of the 1970s, analysis and design problems, closely related to the process of soliciting and defining requirements, have been constructed as the main problems in ISD. If projects are initiated with a mutual decision by procurers and developers to be flexible, then it becomes easier to handle any changes without any party being punished (Taylor, 2000).

Finally, I hope that this reflexive enterprise can be an inspiration for more reflexivity in HCI research, to invite in more voices both during the research and in the presentation of that

research. Perhaps it could also be an approach within the HCI practice. Instead of just focusing on describing the users and their context, a reflective approach can help the users to surface and criticize their tacit understanding, which can help them understand their experiences and prepare for new uncertain situations (Schön, 1995).

A new truth régime would position those people who have intimate knowledge of the organizational processes (such as users and procurers) to have authority in the ISD process. It would be common sense that organizational and human issues are just as important, and sometimes more so, than technical issues when developing new ICT. It would be taken for granted that humans determine technology and not the other way around.

## The sign reads: QUALITATIVE ANALYSIS OF THE THESIS

I will end this thesis with an attempt to apply some of the alternative principles for evaluating qualitative research that I described in *The Props*.

In the analysis I have applied the hermeneutic circle in which I have moved back and forth between parts and the whole. For example, the parts can be found in the individual fragments in *The Script*, which are related to a global context both in the stage directions and in *The Characters* where I analyzed the fragments in relation to subject positions. One possible weakness is that my understanding of the primary theories that I have used has deepened with time. A change in theoretical understanding is part of the hermeneutical circle but here I am talking about knowledge and understanding on a conceptual level that includes theoretical concepts such as discourse, ideology, reflexivity, and subject position. This understanding has progressed along with my analysis of the research data. Thus the hermeneutic circle might have led to invalid conclusions, if my early and weak theoretical insights were reproduced throughout the process.

A major thrust of *The Props* is to set the subject matter in a social and historical context. It has been important to show how certain discourses are structured and how they vary over time and over contexts. At the same time one of my ambitions with *The Script* was to place the focus on people as producers and not just products of history. A weakness is that the analysis does not include a historical context for the three studies I performed. I treated them as if they do not have a past that has brought them up to this point apart from the major discourses that I described in *The Props*. But of course, the people in each organization have experienced many other things that have influenced them. This also relates to the dialogicality of speech: that is, how the present and historical context influences what and how things are said. This is one reason why discursive psychology normally does not use interviews. I have included this multivocal character when analysing the data but did not make it available in this thesis, as I did not for the most part present the quotations in their original interaction sequence. So even though I argue that readers should make their own analysis of my material, it is only possible to do that on a meta level. Of course, this is always the case, as any scientific report is thoroughly constructed to support a certain argument. One reason for using the reflexive writing is to make this more visible.

In itself, the reflexive approach includes an intention to thoroughly account for biases and assumptions. I described my theoretical foundation, and method, in detail in *The Scenography*. In many parts of the thesis I have described how my preconceptions have evolved; I have done so both in relation to the theories I have applied and in relation to relevant social contexts. A reoccurring theme in reviews of my thesis text has been the balance in describing how my subjective journey has influenced the work; that is, I aimed to find the personal and remove the private. This is not an ambition to remove the subject but rather to construct an account that clarifies the basis for both my analysis and my narrative.

Even if I do state that I see the participants as interpreters and analysts just as much as I am, I did not really discuss or use this phenomenon in the thesis. Elements of it appear, in particular, in the last study; but I could have brought it into the analysis and the text to a greater extent.

The research I have performed is theoretical, both because the analysis has to a great extent started with theoretical concepts, and because the conclusions are theoretical in their nature. This makes it more than just anecdotes. The recontextualization that I performed in *The Script* is theoretical; it is supposed to illustrate the theories I claim. In the hermeneutic circle I started with theories and used them on the empirical data. During that work I performed generative work that resulted in new theories. I then returned to the research literature to see if I could find theories that fit with what I found in the data; sometimes I found such literature, sometimes not. After that I returned to the data again, and so forth. For example, I started out with theoretical texts on subject positions. Based on this I analyzed my data, searching for subject positions. When I found traces of those I went back to see if others had written about similar subject positions. Armed with this knowledge, I then went back into the empirical material again. And so forth. So, I have read other researchers' theories with a perspective based in my data and I have used their theories on my data. In this process I have formed new theories based on the intersections between other researchers' theories and my empirical data.

Multiple interpretations are a recurring theme in this thesis. The discursive approach by itself includes a focus on variation. It has been an important part of the analysis to focus on variations and the function they might have. I also describe several instances of such variation throughout the thesis.

I claim that my descriptions are thick; the problem might be that at times they are so thick that it is difficult to see the main argument. In part this relates to the reflexive approach in which the researcher explicitly aims to include multiple voices and interpretations—and the main arguments become less visible.

In qualitative analysis it is important to go beyond the "meaning" of the data. This is exactly the aim of the kind of analysis I have performed. I have not treated what people have said at face value; I have investigated their social world in relation to their actions. I have not focused on speech as facts but as a resource for structures of power and truth.

The traditional scientific rhetoric strives to reduce complexity, by pointing clearly to the main arguments and conclusions. In many ways, the reflexive rhetoric strives to do the opposite, especially when using alternative literary forms. This kind of text probably places more demands on the reader. It is like offering a cluster of possible roads into the material and the reader must choose which one to go down or even to construct new ones. In the thesis I have emphasized

the importance of multiple interpretations, multiple voices, and human agency. The structure of the thesis closely follows theories connected to those concepts.

The choice to not offer one singular structure and interpretation is typically a relativistic approach. One common critique that relativists face is that if all accounts of the world are equally valid then it is not possible to argue that one particular interpretation is worth more than others. Billig (1991) argues that when studying language as an active force, rhetoric is at the heart of the analysis, not only as an object but also as a means for the analysis, which enables the possibility of critique and opinions. When several versions are acknowledged, such research can be used as an argument for both "good" and "bad". But in contrast to realism, a relativist is honest and up front with the interpretation and foundation. This means that the moral stand is clear; it is the opposite of the "anything goes" approach. A realist account hides its intentions and interpretation and makes its standpoint invisible.

Structure is closely related to the internal logic. There is no complete internal logic to this thesis. The reflexive writing that I have used has resulted in a different kind of logic than what is traditionally found in scientific writing. Theories are primarily described in *The Props* but they can also be found in all the other chapters, apart from *The Plot*. There are theories that I do not use even though I have described them. *The Props,* for example, is both a theoretical and an analytical chapter; the description covers both theories relevant to my research and descriptions of the discourses that I have found in my research. Even though this final chapter in many ways resembles a traditional conclusions chapter I use theoretical concepts here that I have not described in other places. The question is whether or not this weakens my account. The change of logic is one of the major reasons why it might be difficult for researchers to assess my work; it makes it difficult to find familiar assessment elements. What I offer instead is a logic that is consistent with the reflexive metaphor of theatre. It has been a struggle to find a good balance for the metaphor so that it is still possible for a reader, used to traditional scientific text, to take the text to heart. Some will find it strange or difficult, but I hope others will be inspired and invigorated by it.

All the participants were granted anonymity and I have removed any information that might have made it possible to identify one of them. I conducted each study in a large organization; together with the format of *The Script*, that fact has made it more difficult to identify individuals. Translating all the quotations into English also made anonymity easier as some of the participants used specific language, which their colleagues could have recognized.

The most difficult ethical question has to do with recontextualizing the quotations from participants. How far does my privilege extend when it comes to treating what they have said? Once again it is important to emphasize that I included the context of the interaction during most of my analytical iterations. I intend the recontextualization to illustrate "typical" or representative situations that the participants could recognize; I do not intend for it to distort any actions. The analysis is firmly based on all the empirical data and the recontextualization is firmly based on that analysis. Any textual representation of action (including the speech) is a recontextualization; I simply have not done my recontextualizations in the traditional way. This act in itself has probably resulted in more ethical considerations than usual, as it has forced me to discuss and contemplate this issue.

How does my argument stand in relation to alternative claims and arguments? Other interpretations and conclusions are possible based on both my material and my analysis. This is an imperative with a reflexive approach; what matters is whether or not my argumentation is relevant and convincing regardless of all the other possibilities. I argue that the main points I do put forth are coherent, credible, and relevant to the research questions and the empirical data. And therefore this account is strong in itself. In addition, the drama form strives to illustrate a construction of reality within the context of ISD that has not been done before. The mechanisms are not new in themselves but I claim that the form brings them out more clearly.

My ambition in using this form is not only to contribute to the research community and illustrate how reflexive research can be accomplished; I also aim to reach out to practitioners with the hope that for them the text might be a bit more accessible. The risk is that both groups might find it difficult and therefore that I would fail in both directions; I hope that will not happen.

## The sign reads: CURTAIN CALL

In this thesis I have illustrated how the discursive process of ISD reconstitutes a rationality that many researchers claim expired in the 1980s. This truth régime is related to functionalism and gives privilege to problem solving, objectivity, quantitative measurements, rational human behaviour, complete and consistent descriptions, standardizations, and of course technology in itself. I have aimed in this thesis to show the need for a resistive discourse. I have pointed to several instances within HCI practice and methodology that position HCI within the hegemonic realm. By doing this the HCI community becomes part of a power structure that functions to marginalize human issues within ISD. There are signs of resistive elements both in my studies and in HCI discourse. Here lies the potential for constructing a new truth régime that gives privilege to the subjective, historical, contextual and contingent character of IS interaction and development.

I have constructed this illustration through reflexive writing. My aim has been to acknowledge the constructive nature of ISD as well as research, the multiple voices involved in this construction, and the interpretation in which the reader must also become actively involved to make this performance complete.

The primary question for a thesis is whether or not the research questions have been answered. So, how have I succeeded in this pursuit? Based on my three studies, I think I do give a credible narrative of the construction of HCI concepts and the function they have as well as the truth régimes that are involved. But are we any closer to understanding why we still have to deal with lousy IS? Maybe—and maybe not. My proposal for a new truth construction is far from easy, and probably more idealistic than realistic. And the reflexive approach to my research—It has been different and maybe entertaining but is it better research? I don't really know, but I hope I have convinced at least a few readers that multiple perspectives can provide a serious alternative to the monopoly claimed by realist non-reflexive scientific approaches.

*Ladies and Gentlemen: I have enjoyed this evening immensely. The actors have given us a charming rendering of a delightful play, and your appreciation has been most intelligent. I congratulate you on the great success of your performance, which persuades me that you think almost as highly of the play as I do myself. (Pearson, 1946, p. 224)*

# Notes to the Script

1  Porter & Millar, 1985, p. 160.
2  Davenport, 1994, p. 131.
3  Powell & Dent-Micallef, 1997, p. 375.
4  Peppard & Ward, 1999, p. 32.
5  IT manager, 21/6, meeting
6  Business strategist, 24/11_2, interview
7  IT manager, 31/3_1, interview
8  IT manager, 31/3_1, interview
9  Project leader, 2/6, meeting
10 Business manager, 4/1_1, interview
11 Project leader, 21/6, meeting
12 Project leader, 21/6, meeting
13 IT expert, 21/3, meeting
14 Business strategist, 5/12_1, interview
15 Project leader, 11/5, meeting
16 Project leader, 4/7, meeting
17 Project leader, 21/6, meeting
18 User representative, 10/12_1, interview
19 IT manager, 31/3_1, interview
20 Business representative, 13/11_2, interview
21 IT manager, 27/11_3, interview
22 Business representative, 7/12_2, interview
23 Project leader, 20/12_2, interview
24 IT expert, 22/12_2, interview
25 Business representative, 14/12_2, interview
26 Business manager, 14/1_1, interview
27 Project leader, 14/12_1, interview
28 Business manager, 14/4_1, interview
29 IT expert, 22/12_1, interview
30 Project leader, 2/6, meeting
31 IT expert, 22/12_1, interview
32 IT expert, 22/12_1, interview
33 Business representative, 29/11_1, interview
34 Lauesen, 1997, p. 18.
35 Isomäki, 1999, p. 107
36 IT manager, 31/3_1, interview
37 Isomäki, 1999, pp. 106-107
38 Gergen, 1999, p. 92

39  Project leader, 4/5, meeting
40  User representative, 10/12_1, interview
41  Business representative, 14/12_2, interview
42  IT manager, 27/11_3, interview
43  IT expert, 8/4, meeting
44  IT expert, 25/5, meeting
45  Project leader, 2/6, meeting
46  Project leader, 21/3, meeting
47  Project leader, 9/12_1, interview
48  IT manager, 26/11_1, interview
49  IT expert, 22/12_1, interview
50  Business representative, 1/12_1, interview; business manager, 9/1_1, interview
51  Business manager, 9/1_1, interview
52  Business representativ, 6/12_1, interview
53  Business representative, 7/12_2, interview
54  Business representative, 29/11_1, interview
55  Business representative, 8/12_1, interview
56  IT manager, 11/1_2, interview
57  IT expert, 24/8_1, interview
58  Project leader, 20/12_2, interview
59  IT expert, 22/12_1, interview
60  Business manager, 4/1_1, interview
61  Union representative, 12/12_1, interview
62  Business manager, 4/1_1, interview
63  Union representative, 12/12_1, interview
64  Artman & Andersson, 2006, p. 24
65  Lauesen, 1998, p. 117
66  Kaner & Pels, 1997, p. 5
67  Markensten, 2005, p. 93
68  IT expert, 22/12_2, interview
69  Isomäki, 1999, p. 105
70  IT expert, 4/5, meeting
71  IT expert, 4/5, meeting

72  IT manager, 27/11_2, interview
73  IT manager, 27/11_1, interview
74  IT manager, 26/11_1, interview
75  Business manager, 9/1_1, interview
76  Union representative, 12/12_1, interview
77  Business manager, 9/1_1, interview
78  Business manager, 9/1_1, interview
79  Artman & Markensten, 2005, p. 59
80  Rouncefield, Hughes, Rodden & Viller, 1994, p. 283
81  IT manager, 11/1_2, interview
82  Business representative, 7/12_2, interview
83  IT manager, 11/1_2, interview
84  Fairclough, 2001, p. 47
85  Business manager, 14/1_1, interview
86  IT manager, 11/1_2, interview
87  IT manager, 27/11_1, interview
88  IT manager, 27/11_2, interview
89  IT manager, 11/1_2, interview
90  Pettigrew, 1998, p. 284.
91  Al-Mashari, Irani & Zairi, 2001, p. 451
92  IT manager, 27/11_2, interview
93  Project leader, 11/5, meeting
94  IT expert, 10/5, meeting
95  Project leader, 21/6, meeting
96  IT representative, 19/5, meeting
97  Galliers, 1998, p. 230
98  Laplante & Neill, 2004, p. 10, 12
99  Business representative, 13/12_1, interview
100 Avgerou, 2000, p. 239
101 IT manager, 21/11_2, interview
102 Boivie,2005, p. 65
103 Bannon, 1998, p. 53
104 Hirschheim et al., 1995, p. 155
105 Hirschheim et al., 1995, p. 237
106 Winograd & Flores, 1986, p. 14

107   Winograd & Flores, 1986, p. 77

108   IT manager, 27/11_1, interview

109   IT manager, 27/11_1, interview

110   IT representative, 21/11_3, interview

111   Business representative, 16/12_1, interview

112   IT manager, 26/11_1, interview

113   IT expert, 22/12_2, interview

114   Boivie, 2005, p. 45

115   IT expert, 22/12_2, interview

116   Business representative, 13/12_1, interview

117   Cajander, Gulliksen & Boivie, 2006, p. 8

118   Hornby et al., 1992, p. 166

119   Eason, 1988, p. 67

120   Procurement officer, 17/12_1, interview

121   Larrain, 1979, p. 58

122   Usability practitioner, 24/11_1, interview

123   Business manager, 4/1_1, interview

124   IT manager, 27/11_1, interview

125   IT manager, 27/11_1, interview

126   Business manager, 9/1_1, interview

127   IT manager, 21/11_2, interview

128   IT manager, 21/11_2, interview

129   IT manager, 27/11_1, interview

130   Business manager, 4/1_1, interview

131   Giddens, 1987, p. 290

132   Union representative, 12/12_1, interview

133   Eason, 1988, p. 204

134   Business manager, 9/1_1, interview

135   IT representative, 11/5_1

136   IT expert, 4/5, meeting

137   IT representative, 19/5, meeting

138   IT representative, 2/6, meeting

139   Business representative, 1/12_1, interview

140   IT expert, 22/12_2, interview

141   IT expert, 22/12_1, interview

142   IT manager, 11/1_2, interview

143   Procurement officer, 17/12_1, interview

144   User representative, 10/12_1, interview

145   Project leader, 20/12_2, interview

146   Business manager, 9/1_1, interview

147   Business representative, 16/12_1, interview

148   Business representative, 13/12_1, interview

149   Öhman Persson, 2004, p. 183

150   Business manager, 4/1_1, interview

151   IT manager, 27/11_3, interview

152   Business representative, 7/12_2, interview

153   IT manager, 27/11_2, interview

154   Project leader, 9/12_1, interview

155   Giddens, 1987, pp. 149-150

156   Usability practitioner, 13/11_1, interview

157   IT representative, 26/11_2, interview

158   IT expert, 22/12_1, interview

159   Project leader, 14/12_1, interview

160   Business representative, 24/11_2, interview

161   IT manager, 21/11_2, interview

162   IT manager, 27/11_3, interview

163   Business strategist, 5/12_1, interview

164   Business strategist, 5/12_1, interview

165   Business manager, 4/1_1, interview

166   Business manager, 4/1_1, interview

167   Beath & Orlikowski, 1994, s. 372

168   Fairclough, 2001, p. 73

169   Project leader, 19/5, interview

170   IT representative, 2/5_1, interview. This quotation is positioned as coming from the business representative even though the informant works in an IT department. I have done this to emphasize how an external IT consultant is

positioned in the centre of the norm of the IT expert. In these interactions the internal IT experts act on behalf of the company as a kind of business representative.

171  IT expert, 4/5, meeting

172  IT expert, 11/5, meeting

173  IT expert, 19/5, meeting

174  IT expert, 25/5, meeting

175  IT manager, 4/7, meeting. This quotation is positioned as coming from the business representative even though the informant works in an IT department. I have done this to emphasize how an external IT consultant is positioned in the centre of the norm of the IT expert. In these interactions the internal IT experts act on behalf of the company as a kind of business representative.

176  IT manager, 4/7, meeting. This quotation is positioned as coming from the business representative even though the informant works in an IT department. I have done this to emphasize how an external IT consultant is positioned in the centre of the norm of the IT expert. In these interactions the internal IT experts act on behalf of the company as a kind of business representative.

177  Project leader, 4/7, meeting

178  Business strategist, 24/11_3, interview

179  Business manager, 4/1_1, interview

180  Business manager, 4/1_1, interview

181  Fairclough, 2001, p. 76

182  Usability practitioner, 24/11_1, interview

183  Usability practitioner, 24/11_1, interview

184  Business manager, 9/1_1, interview

185  Business manager, 9/1_1, interview

186  Union representative, 12/12_1, interview

187  IT manager, 27/11_1, interview

188  Business manager, 4/1_1, interview

189  Business manager, 4/1_1, interview

190  IT expert, 9/6, meeting

191  Project leader, 9/6, meeting

192  IT expert, 9/6, meeting

193  IT expert, 11/5, meeting

194  Salzman, 1992, p. 71

195  Lausen, 1998, p. 115

196  Business representative, 6/12_1, interview

197  Business manager, 9/1_1, interview

198  Friedman & Cornford, 1989, pp. 208-209

199  Beath & Orlikowski, 1994, p. 372

200  IT manager, 11/4, meeting

201  Project leader, 11/4, meeting

202  IT manager, 11/4, meeting

203  Procurement officer, 17/12_1, interview

204  Project leader, 20/12_2, interview

205  Business manager, 13/1_1, interview

206  Procurement officer, 17/12_1, interview

207  Project leader, 20/12_2, interview

208  Business representative, 8/12_1, interview

209  Project leader, 20/12_2, interview

210  Project leader, 20/12_2, interview

211  IT manager, 27/11_2, interview

212  IT manager, 27/11_2, interview

213  IT expert, 24/8_1, interview

214  IT expert, 14/3_1, interview

215  IT expert, 14/3_1, interview

216  IT expert, 2/6, meeting

217  Project leader, 20/4_1, interview

218  Project leader, 12/8_1, interview

219  Usability practitioner, 24/11_1, interview

220  Business manager, 13/1_1, interview

221  Usability practitioner, 24/11_1, interview

222  Usability practitioner, 24/11_1, interview

223  IT manager, 26/11_1, interview

224  Project leader, 27/6, meeting

225  IT representative, 9/6, meeting

226  Project leader, 9/6, meeting

227  IT representative, 9/6, meeting

228  Project leader, 4/7, meeting

229  Markensten & Artman, 2004, p. 13

230  Gulliksen et al., 2004, p. 215

231  Procurement officer, 17/12_1, interview

232  Business manager, 9/1_1, interview

233  Business representative, 24/11_3, interview

234  Business manager, 4/1_1, interview

235  IT representative, 26/11_2

236  Business manager, 13/1_1

237  Brecht, 1987, p. 291

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